HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
## AIR QUALITY

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Adams County</th>
<th>Wisconsin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozone</td>
<td>0.0</td>
<td>0.7</td>
</tr>
<tr>
<td>Particulate Matter 2.5</td>
<td>0.0</td>
<td>0.1</td>
</tr>
</tbody>
</table>

## WATER QUALITY

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Adams County</th>
<th>Wisconsin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic</td>
<td>0.4</td>
<td>1.3</td>
</tr>
<tr>
<td>Nitrate</td>
<td>1.8</td>
<td>1.5</td>
</tr>
</tbody>
</table>

## HOME HAZARDS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Adams County</th>
<th>Wisconsin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon Monoxide (CO)</td>
<td>8.8</td>
<td>8.2</td>
</tr>
<tr>
<td>Childhood Lead Poisoning</td>
<td>6.7%</td>
<td>6.3%</td>
</tr>
</tbody>
</table>

## BIRTH OUTCOMES

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Adams County</th>
<th>Wisconsin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Birth Weight</td>
<td>6.2%</td>
<td>7.3%</td>
</tr>
<tr>
<td>Preterm Birth</td>
<td>9.3%</td>
<td>10.3%</td>
</tr>
</tbody>
</table>

## HEALTH INDICATORS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Adams County</th>
<th>Wisconsin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat Stress</td>
<td>46.8</td>
<td>16.5</td>
</tr>
<tr>
<td>Melanoma</td>
<td>17.1</td>
<td>18.4</td>
</tr>
<tr>
<td>Lung Cancer</td>
<td>89.7</td>
<td>62.0</td>
</tr>
<tr>
<td>Asthma</td>
<td>431.0</td>
<td>376.0</td>
</tr>
</tbody>
</table>

*This indicator is represented per 10,000 people on the data portal.*
DASHBOARD DATA DETAILS

Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.

**AIR QUALITY**

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2011

**WATER QUALITY**

Arsenic and Nitrate: Measured concentrations from public water systems  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Years displayed: Averaged data from 2011-2013

**HOME HAZARDS**

Childhood Lead Poisoning: Reported blood lead test results  
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.  
Year displayed: 2014  
Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013

**BIRTH OUTCOMES**

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2011-2013

**HEALTH INDICATORS**

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013  
Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers  
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2006-2010  
Asthma: Age-adjusted rate of emergency room visits related to asthma  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

OZONE
ANNUAL DAYS ABOVE STANDARD
STATEWIDE: 0.7

0.0

PARTICULATE MATTER 2.5
ANNUAL DAYS ABOVE STANDARD
STATEWIDE: 0.1

0.0

PARTICULATE MATTER 2.5
ANNUAL AVERAGE (µg/m³)
STATEWIDE: 9.4

9.6

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.

TAKE A CLOSER LOOK AT THE DATA:
dhs.wi.gov/epht
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person's lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit [dhs.wisconsin.gov/epht/criteriapollutants.htm](http://dhs.wisconsin.gov/epht/criteriapollutants.htm).
Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

**PUBLIC DRINKING WATER**

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.

**ARSENIC AND NITRATE**

**MEAN CONCENTRATION LEVELS IN PUBLIC WATER (2011-2013)**

- **Arsenic**
  - Average concentration in public water (µg/L): 0.4
  - Statewide: 1.3
  - Above state value

- **Nitrate**
  - Average concentration in public water (mg/L): 1.8
  - Statewide: 1.5
  - Above state value

**Maximum contaminant level**

- Arsenic level: 10 µg/L
- Nitrate level: 10 mg/L
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

### CARBON MONOXIDE POISONING

**Rate of ER Visits related to CO per 100,000 people**

- **Statewide**: 8.2
- **Adams County**: 8.8

### CHILDHOOD LEAD POISONING

**Percent of tested children with blood lead ≥5 µg/dL**

- **Statewide**: 6.3%
- **Adams County**: 6.7%

**Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.**

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit [dhs.wisconsin.gov/air/co.htm](http://dhs.wisconsin.gov/air/co.htm).
**CHILDHOOD LEAD POISONING**

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

**CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)**
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

### BIRTH OUTCOMES

#### Adams County

<table>
<thead>
<tr>
<th>Year</th>
<th>Adams County</th>
<th>Wisconsin Average</th>
<th>Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002-2004</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005-2007</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008-2010</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011-2013</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

**LOW BIRTH WEIGHT**

- **6.2%**
  - LOW BIRTH WEIGHT
  - PERCENT BIRTHS
  - <2,500 GRAMS
  - STATEWIDE: 7.3%

- **9.3%**
  - PRETERM BIRTH
  - PERCENT BIRTHS
  - <37 WEEKS GESTATION
  - STATEWIDE: 10.3%
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**HEAT STRESS**
RATE OF ER VISITS PER 100,000 PEOPLE
STATEWIDE: 16.5

**MELANOMA**
RATE OF CASES PER 100,000 PEOPLE
STATEWIDE: 18.4

**LUNG CANCER**
RATE OF CASES PER 100,000 PEOPLE
STATEWIDE: 62

**ASTHMA**
RATE OF ER VISITS PER 100,000 PEOPLE
STATEWIDE: 376

**HEAT STRESS**
Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.

ASTHMA
RATE OF ER VISITS PER 100,000 PEOPLE
DATA DETAILS

**AIR QUALITY**

**Particulate Matter 2.5 (PM\text{2.5})**
- **Measures:** Annual Average PM\text{2.5} (µg/m\textsuperscript{3}), Percent of days above standard set by the US Environmental Protection Agency
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard
- **Data details:** These measures include monitored and modeled estimates of PM\text{2.5} levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM\text{2.5} concentration is 35 µg/m\textsuperscript{3}.

**Ozone**
- **Measure:** Number of days above standard set by the US Environmental Protection Agency
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** 2001-2011, data from 2011 are displayed on the dashboard
- **Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

**Heart Attack**
- **Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** 2002-2011
- **Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**HEALTH INDICATORS**

**Asthma**
- **Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard
- **Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

**Lung Cancer and Melanoma**
- **Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people
- **Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard
- **Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**Heat Stress**
- **Measure:** Age-adjusted rate of emergency department visits per 100,000 people
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard
- **Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
WATER QUALITY

Arsenic

**Measures:** Mean concentration of arsenic (µg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

Nitrate

**Measure:** Mean concentration of nitrate (mg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, some years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

HOME HAZARDS

Lead Poisoning

**Measure:** Percent of children tested who had a blood lead level ≥ 5 µg/dL  
**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2001-2014, data from 2014 displayed on dashboard  
**Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

Carbon Monoxide Poisoning

**Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard  
**Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

BIRTH OUTCOMES

Low Birth Weight

**Measures:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

Preterm Birth

**Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD
Principal Investigator, Chief Medical Officer
608-266-1253
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD
Senior Epidemiologist
608-267-9752
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA
Evaluator
608-267-3830
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON
IS Systems Development Services Professional
608-266-6696
josepha.olson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS
Program Manager
608-267-3811
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES
Communications and Education Coordinator
608-267-2488
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH
Epidemiologist
608-266-7897
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PHD
Chief, Health Hazard Evaluation Section
608-266-7480
mark.werner@dhs.wisconsin.gov

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Wisconsin Environmental Public Health Tracking Program’s Technical Advisory Group
Jeff Phillips, Bureau of Environmental and Occupational Health, Wisconsin Department of Health Services
Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services
Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov 608-267-2488
ASHLAND COUNTY
DASHBOARD | 2015 ENVIRONMENTAL HEALTH PROFILE

### AIR QUALITY

**Ozone**
- 0.0 Annual days above standard
- Wisconsin: 0.7

**Particulate Matter 2.5**
- 0.0 Annual days above standard
- Wisconsin: 0.1

### WATER QUALITY

**Arsenic**
- 0.6 Average concentration in µg/L
- Wisconsin: 1.3

**Nitrate**
- 0.4 Average concentration in mg/L
- Wisconsin: 1.5

### HOME HAZARDS

**Carbon Monoxide (CO)**
- 14.5 Rate of ER visits per 100,000 people
- Wisconsin: 8.2

**Childhood Lead Poisoning**
- 5.2% Percent with blood lead ≥5 µg/L
- Wisconsin: 6.3%

### BIRTH OUTCOMES

**Low Birth Weight**
- 4.4% Percent of births <2500 grams
- Wisconsin: 7.3%

**Preterm Birth**
- 8.1% Percent of births <37 weeks gestation
- Wisconsin: 10.3%

### HEALTH INDICATORS

**Heat Stress**
- 30.8 Rate of ER visits per 100,000 people
- Wisconsin: 16.5

**Melanoma**
- 10.5 Rate of cases per 100,000 people
- Wisconsin: 18.4

**Lung Cancer**
- 66.8 Rate of cases per 100,000 people
- Wisconsin: 62.0

**Asthma**
- 298.0 Rate of ER visits per 100,000 people
- Wisconsin: 376.0

*This indicator is represented per 10,000 people on the data portal. 🟥 Above state value 🟢 At or below state value ⚪ Data are suppressed | References on next page

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Wisconsin Environmental Public Health Tracking Program
dhs.wi.gov/epht | dhstracking@wi.gov | 608-267-2488
Wisconsin Department of Health Services | Division of Public Health | Bureau of Environmental and Occupational Health
Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.

### AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Year displayed:** 2011

### WATER QUALITY

Arsenic and Nitrate: Measured concentrations from public water systems  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013

### HOME HAZARDS

Childhood Lead Poisoning: Reported blood lead test results  
**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
**Note:** The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.  
**Year displayed:** 2014  
Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** Averaged data from 2009-2013

### BIRTH OUTCOMES

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** Averaged data from 2011-2013

### HEALTH INDICATORS

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** Averaged data from 2009-2013  
Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers  
**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** Averaged data from 2006-2010  
Asthma: Age-adjusted rate of emergency room visits related to asthma  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Year displayed:** 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

**OZONE**

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<tbody>
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<td>2001</td>
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<td>2011</td>
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</table>

**PARTICULATE MATTER 2.5**

<table>
<thead>
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</thead>
<tbody>
<tr>
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<td>2011</td>
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</tr>
</tbody>
</table>

**STATEWIDE**

- **OZONE**
  - 2001: 0.7
  - 2002: 0.7
  - 2003: 0.7
  - 2004: 0.7
  - 2005: 0.7
  - 2006: 0.7
  - 2007: 0.7
  - 2008: 0.7
  - 2009: 0.7
  - 2010: 0.7
  - 2011: 0.7

- **PARTICULATE MATTER 2.5**
  - 2001: 0.1
  - 2002: 0.1
  - 2003: 0.1
  - 2004: 0.1
  - 2005: 0.1
  - 2006: 0.1
  - 2007: 0.1
  - 2008: 0.1
  - 2009: 0.1
  - 2010: 0.1
  - 2011: 0.1

**STATEWIDE**

- **OZONE**
  - 2001: 9.4
  - 2002: 9.4
  - 2003: 9.4
  - 2004: 9.4
  - 2005: 9.4
  - 2006: 9.4
  - 2007: 9.4
  - 2008: 9.4
  - 2009: 9.4
  - 2010: 9.4
  - 2011: 9.4

- **PARTICULATE MATTER 2.5**
  - 2001: 7.1
  - 2002: 7.1
  - 2003: 7.1
  - 2004: 7.1
  - 2005: 7.1
  - 2006: 7.1
  - 2007: 7.1
  - 2008: 7.1
  - 2009: 7.1
  - 2010: 7.1
  - 2011: 7.1

**TAKE A CLOSER LOOK AT THE DATA:**

dhs.wi.gov/epht
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit dhs.wisconsin.gov/epht/criteriapollutants.htm.
WATER QUALITY  ASHLAND COUNTY

Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

PUBLIC DRINKING WATER

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 μg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

- **Statewide: 8.2**
- **Ashland County: 14.5**

**Childhood Lead Poisoning**

- **Statewide: 6.3%**
- **Ashland County: 5.2%**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

- **4.4%** LOW BIRTH WEIGHT
  - PERCENT BIRTHS <2,500 GRAMS
  - STATEWIDE: 7.3%
- **8.1%** PRETERM BIRTH
  - PERCENT BIRTHS <37 WEEKS GESTATION
  - STATEWIDE: 10.3%

**LOW BIRTH WEIGHT**

PERCENT OF BIRTHS BELOW 2,500 GRAMS

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby's body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**Heat Stress**

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.

**Melanoma**

Melanoma is a type of cancer that develops from melanocytes, which are cells that produce melanin, the pigment that gives skin its color.

**Lung Cancer**

Lung cancer is the leading cause of cancer-related deaths in the United States. It is more common in men and smoking is the most significant risk factor.

**Asthma**

Asthma is a chronic disease that affects the airways. It causes inflammation and swelling, which can block breathing. This makes it hard to breathe and can cause coughing, wheezing, chest tightness, and shortness of breath.

TAKE A CLOSER LOOK AT THE DATA:

dhs.wi.gov/epht

Wisconsin Environmental Public Health Tracking | 13
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.
Particulate Matter 2.5 (PM$_{2.5}$)

**Measures:** Annual Average PM$_{2.5}$ ($\mu$g/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency's National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 $\mu$g/m$^3$.

Ozone

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heart Attack

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Asthma

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

Lung Cancer and Melanoma

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
DATA DETAILS

WATER QUALITY

Arsenic

**Measure:** Mean concentration of arsenic (µg/L) in public drinking water

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** Averaged data from 2011-2013

**Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

Nitrate

**Measure:** Mean concentration of nitrate (mg/L) in public drinking water

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** Averaged data from 2011-2013

**Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

HOME HAZARDS

Lead Poisoning

**Measure:** Percent of children tested who had a blood lead level ≥5 µg/dL

**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2001-2014, data from 2014 displayed on dashboard

**Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

Carbon Monoxide Poisoning

**Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard

**Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

BIRTH OUTCOMES

Low Birth Weight

**Measures:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard

**Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

Preterm Birth

**Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard

**Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD  
Principal Investigator, Chief Medical Officer  
608-266-1253  
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD  
Senior Epidemiologist  
608-267-9752  
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA  
Evaluator  
608-267-3830  
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON  
IS Systems Development Services Professional  
608-266-6696  
josepha.olson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS  
Program Manager  
608-267-3811  
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES  
Communications and Education Coordinator  
608-267-2488  
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH  
Epidemiologist  
608-266-7897  
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD  
Chief, Health Hazard Evaluation Section  
608-266-7480  
mark.werner@dhs.wisconsin.gov

SPECIAL THANKS

Iowa Environmental Public Health Tracking Program

Wisconsin Environmental Public Health Tracking Program’s Technical Advisory Group

Jeff Phillips, Bureau of Environmental and Occupational Health, Wisconsin Department of Health Services

Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services

Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital’s community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
## AIR QUALITY

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Annual days above standard</th>
<th>Wisconsin:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozone</td>
<td>0.0</td>
<td>0.7</td>
</tr>
<tr>
<td>Particulate Matter 2.5</td>
<td>0.0</td>
<td>0.1</td>
</tr>
</tbody>
</table>

## WATER QUALITY

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Average concentration in µg/L</th>
<th>Wisconsin:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic</td>
<td>3.4</td>
<td>1.3</td>
</tr>
<tr>
<td>Nitrate</td>
<td>1.4</td>
<td>1.5</td>
</tr>
</tbody>
</table>

## HOME HAZARDS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Rate of ER visits per 100,000 people</th>
<th>Wisconsin:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon Monoxide (CO)</td>
<td>9.4</td>
<td>8.2</td>
</tr>
<tr>
<td>Childhood Lead Poisoning</td>
<td>1.5%</td>
<td>6.3%</td>
</tr>
</tbody>
</table>

## BIRTH OUTCOMES

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Percent of births &lt;2500 grams</th>
<th>Wisconsin:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Birth Weight</td>
<td>6.5%</td>
<td>7.3%</td>
</tr>
<tr>
<td>Preterm Birth</td>
<td>10.3%</td>
<td>10.3%</td>
</tr>
</tbody>
</table>

## HEALTH INDICATORS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Rate of cases per 100,000 people</th>
<th>Wisconsin:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat Stress</td>
<td>23.5</td>
<td>16.5</td>
</tr>
<tr>
<td>Melanoma</td>
<td>19.6</td>
<td>18.4</td>
</tr>
<tr>
<td>Lung Cancer</td>
<td>64.8</td>
<td>62.0</td>
</tr>
<tr>
<td>Asthma</td>
<td>312.0</td>
<td>376.0</td>
</tr>
</tbody>
</table>

*This indicator is represented per 10,000 people on the data portal.*
**DASHBOARD DATA DETAILS**

Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.

### AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2011

### WATER QUALITY

Arsenic and Nitrate: Measured concentrations from public water systems  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Years displayed: Averaged data from 2011-2013

### HOME HAZARDS

Childhood Lead Poisoning: Reported blood lead test results  
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.  
Year displayed: 2014  
Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013

### BIRTH OUTCOMES

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2011-2013

### HEALTH INDICATORS

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013  
Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers  
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2006-2010  
Asthma: Age-adjusted rate of emergency room visits related to asthma  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

### OZONE

- **0.0**
  - ANNUAL DAYS ABOVE STANDARD
  - STATEWIDE: 0.7

### PARTICULATE MATTER 2.5

- **0.0**
  - ANNUAL DAYS ABOVE STANDARD
  - STATEWIDE: 0.1

- **8.6**
  - ANNUAL AVERAGE (µg/m³)
  - STATEWIDE: 9.4

**OZONE**

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.

**OZONE**

- Above state value
- At or below state value
- Suppressed
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit dhs.wisconsin.gov/epht/criteriapollutants.htm.

PARTICULATE MATTER 2.5
ANNUAL AVERAGE
($\mu$g/m$^3$)

HEART ATTACK
HOSPITALIZATIONS
Rate per 10,000 people

ASTHMA
EMERGENCY ROOM VISITS
Rate per 100,000 people
Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

**ARSENIC AND NITRATE**

**MEAN CONCENTRATION LEVELS IN PUBLIC WATER (2011-2013)**

- **Arsenic**: Average concentration in public water (µg/L)
  - STATEWIDE: 1.3
  - BARRON COUNTY: 3.4

- **Nitrate**: Average concentration in public water (mg/L)
  - STATEWIDE: 1.5
  - BARRON COUNTY: 1.4

**PUBLIC DRINKING WATER**

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit [dhs.wi.gov/epht](dhs.wi.gov/epht).

**TAKE A CLOSER LOOK AT THE DATA:**

- [dhs.wi.gov/epht](dhs.wi.gov/epht)
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit [dhs.wisconsin.gov/air/co.htm](http://dhs.wisconsin.gov/air/co.htm).

**HOME HAZARDS  BARRON COUNTY**
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.
Reproduction is complex, and many factors affect a mother's ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**Heat Stress**

- **Rate of ER Visits per 100,000 People**
  - **Barron County**: 23.5
  - **Statewide**: 16.5

**Melanoma**

- **Rate of Cases per 100,000 People**
  - **Barron County**: 19.6
  - **Statewide**: 18.4

**Lung Cancer**

- **Rate of Cases per 100,000 People**
  - **Barron County**: 64.8
  - **Statewide**: 62

**Asthma**

- **Rate of ER Visits per 100,000 People**
  - **Barron County**: 312.0
  - **Statewide**: 376

**Heat Stress**

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.

**Take a Closer Look at the Data:**

dhs.wi.gov/epht
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA

RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

LUNG CANCER

RATE OF CASES PER 100,000 PEOPLE

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.
DATA DETAILS

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$)

**Measures:** Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

Ozone

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heart Attack

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

HEALTH INDICATORS

Asthma

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

Lung Cancer and Melanoma

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E909.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
**WATER QUALITY**

**Arsenic**

**Measures:** Mean concentration of arsenic (µg/L) in public drinking water

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** Averaged data from 2011-2013

**Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**

**Measure:** Mean concentration of nitrate (mg/L) in public drinking water

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** Averaged data from 2011-2013

**Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**HOME HAZARDS**

**Lead Poisoning**

**Measure:** Percent of children tested who had a blood lead level ≥ 5 µg/dL

**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2001-2014, data from 2014 displayed on dashboard

**Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**

**Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard

**Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**BIRTH OUTCOMES**

**Low Birth Weight**

**Measures:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard

**Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**

**Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard

**Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD  
Principal Investigator, Chief Medical Officer  
608-266-1253  
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD  
Senior Epidemiologist  
608-267-9752  
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA  
Evaluator  
608-267-3830  
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON  
IS Systems Development Services Professional  
608-266-6696  
josephaolson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS  
Program Manager  
608-267-3811  
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES  
Communications and Education Coordinator  
608-267-2488  
christy.vogt@dhs.wisconsin.gov

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608-266-7897  
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD  
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COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile?  Tell us about it!

dhstracking@wi.gov
608-267-2488
### AIR QUALITY

- **Ozone**
  - Annual days above standard
  - Wisconsin: 0.7

- **Particulate Matter 2.5**
  - Annual days above standard
  - Wisconsin: 0.1

### WATER QUALITY

- **Arsenic**
  - Average concentration in µg/L
  - Wisconsin: 1.3

- **Nitrate**
  - Average concentration in mg/L
  - Wisconsin: 1.5

### HOME HAZARDS

- **Carbon Monoxide (CO)**
  - Rate of ER visits per 100,000 people
  - Wisconsin: 8.2

- **Childhood Lead Poisoning**
  - Percent with blood lead ≥5 µg/L
  - Wisconsin: 6.3%

### BIRTH OUTCOMES

- **Low Birth Weight**
  - Percent of births <2500 grams
  - Wisconsin: 7.3%

- **Preterm Birth**
  - Percent of births <37 weeks gestation
  - Wisconsin: 10.3%

### HEALTH INDICATORS

- **Heat Stress**
  - Rate of ER visits per 100,000 people
  - Wisconsin: 16.5

- **Melanoma**
  - Rate of cases per 100,000 people
  - Wisconsin: 18.4

- **Lung Cancer**
  - Rate of cases per 100,000 people
  - Wisconsin: 62.0

- **Asthma**
  - Rate of ER visits per 100,000 people*
  - Wisconsin: 376.0

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*This indicator is represented per 10,000 people on the data portal.

**Above state value** | **At or below state value** | **Data are suppressed** | **References on next page**
# DASHBOARD DATA DETAILS

Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at [dhs.wi.gov/epht](http://dhs.wi.gov/epht). For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at [dhs.wisconsin.gov/epht/glossary.htm](http://dhs.wisconsin.gov/epht/glossary.htm).

## AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Year displayed:** 2011

## WATER QUALITY

Arsenic and Nitrate: Measured concentrations from public water systems  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013

## HOME HAZARDS

Childhood Lead Poisoning: Reported blood lead test results  
**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
**Note:** The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.  
**Year displayed:** 2014  
Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** Averaged data from 2009-2013

## BIRTH OUTCOMES

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** Averaged data from 2011-2013

## HEALTH INDICATORS

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** Averaged data from 2009-2013  
Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers  
**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** Averaged data from 2006-2010  
Asthma: Age-adjusted rate of emergency room visits related to asthma  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Year displayed:** 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.

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PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit dhs.wisconsin.gov/epht/criteriapollutants.htm.
WATER QUALITY BAYFIELD COUNTY

Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

ARSENIC AND NITRATE
MEAN CONCENTRATION LEVELS IN PUBLIC WATER (2011-2013)

PUBLIC DRINKING WATER

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**Carbon Monoxide Poisoning**

- Statewide: 8.2 per 100,000 people
- Bayfield County: 14.7 per 100,000 people

**Childhood Lead Poisoning**

- Statewide: 6.3% of tested children with blood lead ≥5 µg/dL
- Bayfield County: 0.8% of tested children with blood lead ≥5 µg/dL

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit [dhs.wisconsin.gov/air/co.htm](http://dhs.wisconsin.gov/air/co.htm).

**Take a Closer Look at the Data:**

- [dhs.wi.gov/epht](http://dhs.wi.gov/epht)
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby's body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

### Heat Stress

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.

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**Take a Closer Look at the Data:**

dhs.wi.gov/epht

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HEALTH INDICATORS  BAYFIELD COUNTY

Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.
**MELANOMA AND LUNG CANCER**

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

### MELANOMA

**RATE OF CASES PER 100,000 PEOPLE**

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit [dhs.wisconsin.gov/epht/melanoma.htm](http://dhs.wisconsin.gov/epht/melanoma.htm). To read more about lung cancer, visit [dhs.wisconsin.gov/epht/lung.htm](http://dhs.wisconsin.gov/epht/lung.htm).

### LUNG CANCER

**RATE OF CASES PER 100,000 PEOPLE**

**ASTHMA**

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit [dhs.wisconsin.gov/asthma/Index.htm](http://dhs.wisconsin.gov/asthma/Index.htm).
DATA DETAILS

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$)

**Measures:** Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

Ozone

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2001-2011, data from 2011 are displayed on the dashboard

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heart Attack

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

HEALTH INDICATORS

Asthma

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

Lung Cancer and Melanoma

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
**WATER QUALITY**

**Arsenic**
- **Measures**: Mean concentration of arsenic (µg/L) in public drinking water
- **Source**: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed**: Averaged data from 2011-2013
- **Data details**: Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**
- **Measure**: Mean concentration of nitrate (mg/L) in public drinking water
- **Source**: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed**: Averaged data from 2011-2013
- **Data details**: Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**HOME HAZARDS**

**Lead Poisoning**
- **Measure**: Percent of children tested who had a blood lead level ≥ 5 µg/dL
- **Source**: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed**: 2001-2014, data from 2014 displayed on dashboard
- **Data details**: Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**
- **Measure**: Annual average rate of emergency room visits, age adjusted per 100,000 people
- **Source**: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed**: 2004-2013, data averaged from 2009-2013 displayed on dashboard
- **Data details**: This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**BIRTH OUTCOMES**

**Low Birth Weight**
- **Measures**: Percentage of babies weighing <2,500 grams at birth among all babies born to county residents
- **Source**: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed**: 2002-2013, data from 2011-2013 are displayed on dashboard
- **Data details**: Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**
- **Measure**: Percentage of babies born at <37 weeks gestation among all babies born to county residents
- **Source**: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed**: 2002-2013, data from 2011-2013 are displayed on dashboard
- **Data details**: Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
WISCONSIN ENVIRONMENTAL PUBLIC HEALTH TRACKING PROGRAM

HENRY ANDERSON, MD
Principal Investigator, Chief Medical Officer
608-266-1253
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD
Senior Epidemiologist
608-267-9752
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA
Evaluator
608-267-3830
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON
IS Systems Development Services Professional
608-266-6696
josepha.olson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS
Program Manager
608-267-3811
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES
Communications and Education Coordinator
608-267-2488
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH
Epidemiologist
608-266-7897
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD
Chief, Health Hazard Evaluation Section
608-266-7480
mark.werner@dhs.wisconsin.gov

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Jeff Phillips, Bureau of Environmental and Occupational Health, Wisconsin Department of Health Services
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**BROWN COUNTY**

**DASHBOARD | 2015 ENVIRONMENTAL HEALTH PROFILE**

### AIR QUALITY

- **Ozone**
  - Annual days above standard
  - Wisconsin: 0.7
  - Wisconsin: 2.0
- **Particulate Matter 2.5**
  - Annual days above standard
  - Wisconsin: 0.1
  - Wisconsin: 1.8

### WATER QUALITY

- **Arsenic**
  - Average concentration in µg/L
  - Wisconsin: 1.2
  - Wisconsin: 1.3
- **Nitrate**
  - Average concentration in mg/L
  - Wisconsin: 0.1
  - Wisconsin: 1.5

### HOME HAZARDS

- **Carbon Monoxide (CO)**
  - Rate of ER visits per 100,000 people
  - Wisconsin: 8.2
  - Wisconsin: 11.6
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  - Percent with blood lead ≥5 µg/L
  - Wisconsin: 6.3%
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  - Wisconsin: 10.3%
  - Wisconsin: 10.1%

### HEALTH INDICATORS

- **Heat Stress**
  - Rate of ER visits per 100,000 people
  - Wisconsin: 16.5
  - Wisconsin: 21.3
- **Melanoma**
  - Rate of cases per 100,000 people
  - Wisconsin: 18.4
  - Wisconsin: 30.6
- **Lung Cancer**
  - Rate of cases per 100,000 people
  - Wisconsin: 62.0
  - Wisconsin: 58.4
- **Asthma**
  - Rate of ER visits per 100,000 people*
  - Wisconsin: 376.0
  - Wisconsin: 461.0

*This indicator is represented per 10,000 people on the data portal.

Above state value | At or below state value |

| References on next page |

**Wisconsin Department of Health Services | Division of Public Health | Bureau of Environmental and Occupational Health**
DASHBOARD DATA DETAILS

Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at [dhs.wi.gov/epht](http://dhs.wi.gov/epht). For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at [dhs.wisconsin.gov/epht/glossary.htm](http://dhs.wisconsin.gov/epht/glossary.htm).

**AIR QUALITY**

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2011

**WATER QUALITY**

Arsenic and Nitrate: Measured concentrations from public water systems
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013

**HOME HAZARDS**

Childhood Lead Poisoning: Reported blood lead test results
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.
Year displayed: 2014

Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

**BIRTH OUTCOMES**

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2011-2013

**HEALTH INDICATORS**

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2006-2010

Asthma: Age-adjusted rate of emergency room visits related to asthma
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

**OZONE**

ANNUAL DAYS ABOVE STANDARD

STATEWIDE: 0.7

**2.0**

Brown County

Wisconsin Average

**PARTICULATE MATTER 2.5**

ANNUAL DAYS ABOVE STANDARD

STATEWIDE: 0.1

**1.8**

STATEWIDE: 9.4

**PARTICULATE MATTER 2.5**

ANNUAL AVERAGE (µg/m$^3$)

**10.0**

Above state value

At or below state value

^ Suppressed

**OZONE**

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.

**TAKE A CLOSER LOOK AT THE DATA:**

dhs.wi.gov/epht
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM\(_{2.5}\)) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM\(_{2.5}\), heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit [dhs.wisconsin.gov/epht/criteriapollutants.htm](http://dhs.wisconsin.gov/epht/criteriapollutants.htm).
WATER QUALITY  BROWN COUNTY

Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

PUBLIC DRINKING WATER

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

- **Rate of ER visits related to CO per 100,000 people**
  - Statewide: 8.2
  - Brown County: 11.6

**CHILDHOOD LEAD POISONING**

- **Percent of tested children with blood lead ≥5 µg/dL**
  - Statewide: 6.3%
  - Brown County: 2.3%

**Carbon Monoxide**

- **Rate of ER visits per 100,000 people**

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.

**Carbon Monoxide**

- **At or below state value**
- **Above state value**
- **Suppressed**

**Take a Closer Look at the Data:**

dhs.wi.gov/epht
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

**LOW BIRTH WEIGHT PERCENT OF BIRTHS BELOW 2,500 GRAMS**

- **6.4%** Brown County
- **10.1%** Wisconsin Average

<table>
<thead>
<tr>
<th>Year</th>
<th>Brown County</th>
<th>Wisconsin Average</th>
<th>Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002-2004</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005-2007</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008-2010</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011-2013</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby's body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**HEAT STRESS**

- **RATE OF ER VISITS PER 100,000 PEOPLE**
  - **STATEWIDE:** 16.5
  - **BROWN COUNTY:** 21.3

**MELANOMA**

- **RATE OF CASES PER 100,000 PEOPLE**
  - **STATEWIDE:** 18.4
  - **BROWN COUNTY:** 30.6

**LUNG CANCER**

- **RATE OF CASES PER 100,000 PEOPLE**
  - **STATEWIDE:** 62
  - **BROWN COUNTY:** 58.4

**ASTHMA**

- **RATE OF ER VISITS PER 100,000 PEOPLE**
  - **STATEWIDE:** 376
  - **BROWN COUNTY:** 461.0

**HEAT STRESS**

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.

**TAKE A CLOSER LOOK AT THE DATA:**

dhs.wi.gov/epht

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Wisconsin Environmental Public Health Tracking | 13
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.
DATA DETAILS

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$)

**Measures:** Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

Ozone

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heart Attack

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

HEALTH INDICATORS

Asthma

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. For use in this profile, it is converted to per 10,000 people.

Lung Cancer and Melanoma

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E909.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
DATA DETAILS

WATER QUALITY

### Arsenic

**Measures:** Mean concentration of arsenic (µg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

### Nitrate

**Measure:** Mean concentration of nitrate (mg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, we aggregated three years of data (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

HOME HAZARDS

### Lead Poisoning

**Measure:** Percent of children tested who had a blood lead level ≥ 5 µg/dL  
**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2001-2014, data from 2014 displayed on dashboard  
**Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

### Carbon Monoxide Poisoning

**Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard  
**Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

BIRTH OUTCOMES

### Low Birth Weight

**Measures:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

### Preterm Birth

**Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD  
Principal Investigator, Chief Medical Officer  
608-266-1253  
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD  
Senior Epidemiologist  
608-267-9752  
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA  
Evaluator  
608-267-3830  
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON  
IS Systems Development Services Professional  
608-266-6696  
joseph.olson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS  
Program Manager  
608-267-3811  
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES  
Communications and Education Coordinator  
608-267-2488  
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH  
Epidemiologist  
608-266-7897  
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD  
Chief, Health Hazard Evaluation Section  
608-266-7480  
mark.werner@dhs.wisconsin.gov

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Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
BUFFALO COUNTY
DASHBOARD | 2015 ENVIRONMENTAL HEALTH PROFILE

AIR QUALITY

Ozone
- Annual days above standard
  - Wisconsin: 0.7
- 0.0

Particulate Matter 2.5
- Annual days above standard
  - Wisconsin: 0.1
- 0.0

WATER QUALITY

Arsenic
- Average concentration in µg/L
  - Wisconsin: 1.3
  - 0.1

Nitrate
- Average concentration in mg/L
  - Wisconsin: 1.5
  - 1.0

HOME HAZARDS

Carbon Monoxide (CO)
- Rate of ER visits per 100,000 people
  - Wisconsin: 8.7
  - 10.7

Childhood Lead Poisoning
- Percent with blood lead ≥5 µg/L
  - Wisconsin: 6.3%
  - 12.7%

BIRTH OUTCOMES

Low Birth Weight
- Percent of births <2500 grams
  - Wisconsin: 7.3%
  - 3.9%

Preterm Birth
- Percent of births <37 weeks gestation
  - Wisconsin: 10.3%
  - 10.8%

HEALTH INDICATORS

Heat Stress
- Rate of ER visits per 100,000 people
  - Wisconsin: 16.5
  - 22.0

Melanoma
- Rate of cases per 100,000 people
  - Wisconsin: 18.4
  - 9.2

Lung Cancer
- Rate of cases per 100,000 people
  - Wisconsin: 62.0
  - 49.3

Asthma
- Rate of ER visits per 100,000 people*
  - Wisconsin: 376.0
  - 257.0

*This indicator is represented per 10,000 people on the data portal.

Above state value | At or below state value | Data are suppressed | References on next page
DASHBOARD DATA DETAILS

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Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
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Year displayed: 2014

Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Due to small numbers, aggregated rates were calculated for this county.
Years displayed in this profile: Aggregated data from 2004-2013

**BIRTH OUTCOMES**

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2011-2013

**HEALTH INDICATORS**

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Years displayed: Averaged data from 2009-2013

Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2006-2010

Asthma: Age-adjusted rate of emergency room visits related to asthma
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

**OZONE**

ANNUAL DAYS ABOVE STANDARD

STATEWIDE: 0.7

**PARTICULATE MATTER 2.5**

ANNUAL DAYS ABOVE STANDARD

STATEWIDE: 0.1

**PARTICULATE MATTER 2.5**

ANNUAL AVERAGE ($\mu$g/m$^3$)

STATEWIDE: 9.4

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit dhs.wisconsin.gov/epht/criteriapollutants.htm.
BUFFALO COUNTY

ARSENIC AND NITRATE MEAN CONCENTRATION LEVELS IN PUBLIC WATER (2011-2013)

Wisconsin Environmental Public Health Tracking  |  7

WATER QUALITY

Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

PUBLIC DRINKING WATER

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.

TAKE A CLOSER LOOK AT THE DATA:

dhs.wi.gov/epht
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

**Rate of ER Visits Related to CO per 100,000 People**

- **Statewide:** 8.7

**Childhood Lead Poisoning**

**Percent of Tested Children with Blood Lead ≥5 µg/dL**

- **Statewide:** 6.3%

**Carbon Monoxide**

<table>
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<tr>
<th>Year</th>
<th>Buffalo County</th>
<th>Wisconsin Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004-2013</td>
<td><strong>10.7</strong></td>
<td><strong>12.7%</strong></td>
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**Carbon Monoxide (CO) is a toxic, colorless, and odorless gas.** CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit [dhs.wisconsin.gov/air/co.htm](http://dhs.wisconsin.gov/air/co.htm).
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

**LOW BIRTH WEIGHT**

- **3.9%**
  - LOW BIRTH WEIGHT
  - PERCENT BIRTHS
  - <2,500 GRAMS
  - STATEWIDE: 7.3%

- **10.8%**
  - PRETERM BIRTH
  - PERCENT BIRTHS
  - <37 WEEKS GESTATION
  - STATEWIDE: 10.3%

Above state value  
At or below state value  
^ Suppressed
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother's body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby's body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**HEAT STRESS**
RATE OF ER VISITS PER 100,000 PEOPLE

STATEWIDE: 16.5

- **Buffalo County**: 22.0
- **Wisconsin Average**: 16.5

**MELANOMA**
RATE OF CASES PER 100,000 PEOPLE

STATEWIDE: 18.4

- **Buffalo County**: 9.2
- **Wisconsin Average**: 18.4

**LUNG CANCER**
RATE OF CASES PER 100,000 PEOPLE

STATEWIDE: 62

- **Buffalo County**: 49.3
- **Wisconsin Average**: 62

**ASTHMA**
RATE OF ER VISITS PER 100,000 PEOPLE

STATEWIDE: 376

- **Buffalo County**: 257.0
- **Wisconsin Average**: 376

**HEAT STRESS**

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.
DATA DETAILS

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$)
Measures: Annual Average PM$_{2.5}$ ($\mu$g/m$^3$), Percent of days above standard set by the US Environmental Protection Agency
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: 2002-2011, data from 2011 are displayed on the dashboard
Data details: These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 $\mu$g/m$^3$.

Ozone
Measure: Number of days above standard set by the US Environmental Protection Agency
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: 2001-2011, data from 2011 are displayed on the dashboard
Data details: This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heart Attack
Measure: Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: 2002-2011
Data details: These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

HEALTH INDICATORS

Asthma
Measures: Annual age-adjusted rate of emergency department visits per 100,000 people
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: 2002-2012, data from 2012 are displayed on the dashboard
Data details: These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Lung Cancer and Melanoma
Measure: Age-adjusted rates of cases among persons age 35 and over per 100,000 people
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 1996-2010, data from 2006-2010 are displayed on the dashboard
Data details: Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress
Measure: Age-adjusted rate of emergency department visits per 100,000 people
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2004-2013, data from 2009-2013 are displayed on the dashboard
Data details: These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
WATER QUALITY

**Arsenic**

**Measures:** Mean concentration of arsenic (µg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**

**Measure:** Mean concentration of nitrate (mg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, we aggregated three years of data (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

HOME HAZARDS

**Lead Poisoning**

**Measure:** Percent of children tested who had a blood lead level ≥5 µg/dL  
**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2001-2014, data from 2014 displayed on dashboard  
**Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**

**Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2004-2013, data from 2004-2013 displayed on the dashboard  
**Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. Due to small numbers, aggregated rates were calculated for this county.

BIRTH OUTCOMES

**Low Birth Weight**

**Measures:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**

**Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
WISCONSIN ENVIRONMENTAL PUBLIC HEALTH TRACKING PROGRAM

HENRY ANDERSON, MD
Principal Investigator, Chief Medical Officer
608-266-1253
henry.anderson@dhs.wisconsin.gov

DAWN BERNEY, MPA
Evaluator
608-267-3830
dawn.berney@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS
Program Manager
608-267-3811
jennifer.camponeschi@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH
Epidemiologist
608-266-7897
megan.christenson@dhs.wisconsin.gov

PAUL CRESWELL, PhD
Senior Epidemiologist
608-267-9752
paul.creswell@dhs.wisconsin.gov

JOSEPH OLSON
IS Systems Development Services Professional
608-266-6696
josepha.olson@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES
Communications and Education Coordinator
608-267-2488
christy.vogt@dhs.wisconsin.gov

MARK WERNER, PhD
Chief, Health Hazard Evaluation Section
608-266-7480
mark.werner@dhs.wisconsin.gov

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HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: *Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.*

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.
BURNETT COUNTY
DASHBOARD | 2015 ENVIRONMENTAL HEALTH PROFILE

AIR QUALITY

Ozone
- Annual days above standard
- Wisconsin: 0.7

Particulate Matter 2.5
- Annual days above standard
- Wisconsin: 0.1

WATER QUALITY

Arsenic
- Average concentration in µg/L
- Wisconsin: 1.3

Nitrate
- Average concentration in mg/L
- Wisconsin: 1.5

HOME HAZARDS

Carbon Monoxide (CO)
- Rate of ER visits per 100,000 people
- Wisconsin: 8.2

Childhood Lead Poisoning
- Percent with blood lead ≥5 µg/L
- Wisconsin: 6.3%

BIRTH OUTCOMES

Low Birth Weight
- Percent of births <2500 grams
- Wisconsin: 7.3%

Preterm Birth
- Percent of births <37 weeks gestation
- Wisconsin: 10.3%

HEALTH INDICATORS

Heat Stress
- Rate of ER visits per 100,000 people
- Wisconsin: 16.5

Melanoma
- Rate of cases per 100,000 people
- Wisconsin: 18.4

Lung Cancer
- Rate of cases per 100,000 people
- Wisconsin: 62.0

Asthma
- Rate of ER visits per 100,000 people*
- Wisconsin: 376.0

*This indicator is represented per 10,000 people on the data portal.
Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at [dhs.wi.gov/epht](dhs.wi.gov/epht). For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at [dhs.wisconsin.gov/epht/glossary.htm](dhs.wisconsin.gov/epht/glossary.htm).

### AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2011

### WATER QUALITY

Arsenic and Nitrate: Measured concentrations from public water systems  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Years displayed: Averaged data from 2011-2013

### HOME HAZARDS

Childhood Lead Poisoning: Reported blood lead test results  
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.  
Year displayed: 2014  
Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013

### BIRTH OUTCOMES

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2011-2013

### HEALTH INDICATORS

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013  
Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers  
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2006-2010  
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Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

**OZONE**

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**PARTICULATE MATTER 2.5**

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<tr>
<td>2011</td>
<td>2.5</td>
<td>0.1</td>
</tr>
</tbody>
</table>

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit [dhs.wisconsin.gov/epht/criteriapollutants.htm](http://dhs.wisconsin.gov/epht/criteriapollutants.htm).
WATER QUALITY  BURNETT COUNTY

Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

**PUBLIC DRINKING WATER**

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.

**ARSENIC AND NITRATE**

**MEAN CONCENTRATION LEVELS IN PUBLIC WATER (2011-2013)**

- **Arsenic**
  - Average concentration: 2.1 µg/L
  - Statewide: 1.3 µg/L

- **Nitrate**
  - Average concentration: 0.0 mg/L
  - Statewide: 1.5 mg/L

**Bar Chart**

- **Burnett County**
  - Arsenic: 2.1 µg/L
  - Nitrate: 0.0 mg/L

- **Wisconsin Average**
  - Arsenic: 1.3 µg/L
  - Nitrate: 1.5 mg/L

**Notes**

- Above state value
- At or below state value
- Suppressed
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

ARSENIC IN PRIVATE WELLS
AVERAGE CONCENTRATION (µg/L)

NITRATE IN PRIVATE WELLS
AVERAGE CONCENTRATION (mg/L)

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit [dhs.wisconsin.gov/air/co.htm](http://dhs.wisconsin.gov/air/co.htm).

**HOME HAZARDS**

**BURNETT COUNTY**

**CARBON MONOXIDE POISONING**

- **Rate of ER visits related to CO per 100,000 people**
  - **Burnett County: 11.7**
  - **Wisconsin Average: 8.2**
  - | **Above state value** | **At or below state value** | **Suppressed** |
  - **Carbon monoxide poisoning**
  - **Childhood lead poisoning**
  - **Percent of tested children with blood lead ≥5 µg/dL**
  - **Burnett County: 4.2%**
  - **Wisconsin Average: 6.3%**
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL. This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.
Reproduction is complex, and many factors affect a mother's ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**HEAT STRESS**
RATE OF ER VISITS PER 100,000 PEOPLE

- **Burnett County**: 14.7
- **Wisconsin Average**: 16.5

**MELANOMA**
RATE OF CASES PER 100,000 PEOPLE

- **Burnett County**: 10.9
- **Wisconsin Average**: 18.4

**LUNG CANCER**
RATE OF CASES PER 100,000 PEOPLE

- **Burnett County**: 63.3
- **Wisconsin Average**: 62

**ASTHMA**
RATE OF ER VISITS PER 100,000 PEOPLE

- **Burnett County**: 298.0
- **Wisconsin Average**: 376

**HEAT STRESS**
Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit [dhs.wisconsin.gov/epht/melanoma.htm](http://dhs.wisconsin.gov/epht/melanoma.htm). To read more about lung cancer, visit [dhs.wisconsin.gov/epht/lung.htm](http://dhs.wisconsin.gov/epht/lung.htm).

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit [dhs.wisconsin.gov/asthma/Index.htm](http://dhs.wisconsin.gov/asthma/Index.htm).
**DATA DETAILS**

**AIR QUALITY**

**Particulate Matter 2.5 (PM$_{2.5}$)**

**Measures:** Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

**Ozone**

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2001-2011, data from 2011 are displayed on the dashboard

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

**Heart Attack**

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**HEALTH INDICATORS**

**Asthma**

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

**Lung Cancer and Melanoma**

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**Heat Stress**

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
**WATER QUALITY**

**Arsenic**
- **Measures:** Mean concentration of arsenic (µg/L) in public drinking water
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** Averaged data from 2011-2013
- **Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**
- **Measure:** Mean concentration of nitrate (mg/L) in public drinking water
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** Averaged data from 2011-2013
- **Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**HOME HAZARDS**

**Lead Poisoning**
- **Measure:** Percent of children tested who had a blood lead level ≥ 5 µg/dL
- **Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2001-2014, data from 2014 displayed on dashboard
- **Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**
- **Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard
- **Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825 ,E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**BIRTH OUTCOMES**

**Low Birth Weight**
- **Measures:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard
- **Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**
- **Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard
- **Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD
Principal Investigator, Chief Medical Officer
608-266-1253
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD
Senior Epidemiologist
608-267-9752
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA
Evaluator
608-267-3830
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON
IS Systems Development Services Professional
608-266-6696
josepha.olson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS
Program Manager
608-267-3811
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES
Communications and Education Coordinator
608-267-2488
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSEN, MS, MPH
Epidemiologist
608-266-7897
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD
Chief, Health Hazard Evaluation Section
608-266-7480
mark.werner@dhs.wisconsin.gov

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HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
CALUMET COUNTY
DASHBOARD | 2015 ENVIRONMENTAL HEALTH PROFILE

**AIR QUALITY**

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<tr>
<th>Compounds</th>
<th>Days Above Standard</th>
<th>Average Concentration</th>
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<tbody>
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<td>Wisconsin: 0.7</td>
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<tr>
<td>Particulate Matter 2.5</td>
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**WATER QUALITY**

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<tr>
<td>Nitrate</td>
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**HOME HAZARDS**

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<td>Carbon Monoxide (CO)</td>
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<tr>
<td>Childhood Lead Poisoning</td>
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**BIRTH OUTCOMES**

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<tr>
<td>Low Birth Weight</td>
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<tr>
<td>Preterm Birth</td>
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**HEALTH INDICATORS**

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<td>Melanoma</td>
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<tr>
<td>Lung Cancer</td>
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<td>Asthma</td>
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</table>

*This indicator is represented per 10,000 people on the data portal.

Above state value  | At or below state value  | Data are suppressed  | References on next page
Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at [dhs.wi.gov/epht](http://dhs.wi.gov/epht). For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at [dhs.wisconsin.gov/epht/glossary.htm](http://dhs.wisconsin.gov/epht/glossary.htm).

### AIR QUALITY
- **Particulate Matter 2.5 (PM$_{2.5}$) and Ozone:** Monitored and modeled estimates of air quality readings  
  Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
  Year displayed: 2011

### WATER QUALITY
- **Arsenic and Nitrate:** Measured concentrations from public water systems  
  Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
  Years displayed: Averaged data from 2011-2013

### HOME HAZARDS
- **Childhood Lead Poisoning:** Reported blood lead test results  
  Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
  Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.  
  Year displayed: 2014  
- **Carbon Monoxide (CO) Poisoning:** Age-adjusted rate of emergency room visits related to CO poisoning  
  Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
  Years displayed: Averaged data from 2009-2013

### BIRTH OUTCOMES
- **Low Birth Weight and Preterm Birth:** Wisconsin birth certificate data  
  Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
  Years displayed: Averaged data from 2011-2013

### HEALTH INDICATORS
- **Heat Stress:** Age-adjusted rate of emergency room visits related to heat stress  
  Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
  Years displayed: Averaged data from 2009-2013  
- **Melanoma and Lung Cancer:** Age-adjusted rate of cases reported by health care providers  
  Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
  Years displayed: Averaged data from 2006-2010  
- **Asthma:** Age-adjusted rate of emergency room visits related to asthma  
  Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
  Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

**OZONE**

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit [dhs.wisconsin.gov/epht/criteriapollutants.htm](http://dhs.wisconsin.gov/epht/criteriapollutants.htm).
WATER QUALITY  CALUMET COUNTY

Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

PUBLIC DRINKING WATER

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

**ARSENIC IN PRIVATE WELLS**

**AVERAGE CONCENTRATION (µg/L)**

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**Carbon Monoxide Poisoning**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.

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**Take a Closer Look at the Data:**

dhs.wi.gov/epht
CHILDOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF
CHILDOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby's body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**HEAT STRESS**

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.

**HEALTH INDICATORS**

Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

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MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

**MELANOMA**
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

**LUNG CANCER**
RATE OF CASES PER 100,000 PEOPLE

**ASTHMA**

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/index.htm.
DATA DETAILS

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$)
- **Measures:** Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard
- **Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency's National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

Ozone
- **Measure:** Number of days above standard set by the US Environmental Protection Agency
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** 2002-2011
- **Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heat Stress
- **Measure:** Age-adjusted rate of emergency department visits per 100,000 people
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard
- **Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

HEALTH INDICATORS

Asthma
- **Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** 2002-2011
- **Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Lung Cancer and Melanoma
- **Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people
- **Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard
- **Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress
- **Measure:** Age-adjusted rate of emergency department visits per 100,000 people
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard
- **Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
**WATER QUALITY**

**Arsenic**

**Measures:** Mean concentration of arsenic (µg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**

**Measure:** Mean concentration of nitrate (mg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data (2011-2013) were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**HOME HAZARDS**

**Lead Poisoning**

**Measure:** Percent of children tested who had a blood lead level ≥ 5 µg/dL  
**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2001-2014, data from 2014 displayed on dashboard  
**Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**

**Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard  
**Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**BIRTH OUTCOMES**

**Low Birth Weight**

**Measures:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**

**Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD
Principal Investigator, Chief Medical Officer
608-266-1253
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD
Senior Epidemiologist
608-267-9752
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA
Evaluator
608-267-3830
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON
IS Systems Development Services Professional
608-266-6696
josepha.olson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS
Program Manager
608-267-3811
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES
Communications and Education Coordinator
608-267-2488
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH
Epidemiologist
608-266-7897
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD
Chief, Health Hazard Evaluation Section
608-266-7480
mark.werner@dhs.wisconsin.gov

SPECIAL THANKS
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Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services
Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
### AIR QUALITY

- **Ozone**
  - Annual days above standard
  - Wisconsin: 0.7
  - CHIPPEWA COUNTY: 0.0

- **Particulate Matter 2.5**
  - Annual days above standard
  - Wisconsin: 0.1
  - CHIPPEWA COUNTY: 0.0

### WATER QUALITY

- **Arsenic**
  - Average concentration in µg/L
  - Wisconsin: 1.3
  - CHIPPEWA COUNTY: 0.2

- **Nitrate**
  - Average concentration in mg/L
  - Wisconsin: 1.5
  - CHIPPEWA COUNTY: 3.5

### HOME HAZARDS

- **Carbon Monoxide (CO)**
  - Rate of ER visits per 100,000 people
  - Wisconsin: 8.2
  - CHIPPEWA COUNTY: 6.2

- **Childhood Lead Poisoning**
  - Percent with blood lead ≥5 µg/L
  - Wisconsin: 6.3%
  - CHIPPEWA COUNTY: 2.0%

### BIRTH OUTCOMES

- **Low Birth Weight**
  - Percent of births <2500 grams
  - Wisconsin: 7.3%
  - CHIPPEWA COUNTY: 6.8%

- **Preterm Birth**
  - Percent of births <37 weeks gestation
  - Wisconsin: 10.3%
  - CHIPPEWA COUNTY: 8.9%

### HEALTH INDICATORS

- **Heat Stress**
  - Rate of ER visits per 100,000 people
  - Wisconsin: 16.5
  - CHIPPEWA COUNTY: 18.6

- **Melanoma**
  - Rate of cases per 100,000 people
  - Wisconsin: 18.4
  - CHIPPEWA COUNTY: 17.5

- **Lung Cancer**
  - Rate of cases per 100,000 people
  - Wisconsin: 62.0
  - CHIPPEWA COUNTY: 68.6

- **Asthma**
  - Rate of ER visits per 100,000 people*
  - Wisconsin: 376.0
  - CHIPPEWA COUNTY: 143.0

*This indicator is represented per 10,000 people on the data portal.

**References on next page**
### AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2011

### WATER QUALITY

Arsenic and Nitrate: Measured concentrations from public water systems  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Years displayed: Averaged data from 2011-2013

### HOME HAZARDS

Childhood Lead Poisoning: Reported blood lead test results  
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.  
Year displayed: 2014

Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013

### BIRTH OUTCOMES

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2011-2013

### HEALTH INDICATORS

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013

Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers  
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2006-2010

Asthma: Age-adjusted rate of emergency room visits related to asthma  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2012

Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at [dhs.wi.gov/epht](http://dhs.wi.gov/epht). For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at [dhs.wisconsin.gov/epht/glossary.htm](http://dhs.wisconsin.gov/epht/glossary.htm).
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**OZONE**

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.

**PARTICULATE MATTER 2.5**

STATEWIDE: 0.1

STATEWIDE: 9.4

TAKE A CLOSER LOOK AT THE DATA:
dhs.wi.gov/epht
PARTICULATE MATTER 2.5

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### Public Drinking Water
About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit [dhs.wi.gov/epht](http://dhs.wi.gov/epht).

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**Arsenic and Nitrate**

Mean concentration levels in public water (2011-2013)

- **Arsenic**
  - Average concentration in public water: 0.2 µg/L
  - Statewide average: 1.3 µg/L

- **Nitrate**
  - Average concentration in public water: 3.5 mg/L
  - Statewide average: 1.5 mg/L

<table>
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<th>Concentration Level</th>
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<tr>
<td>At or below state value</td>
<td>□</td>
</tr>
<tr>
<td>Suppressed</td>
<td>^</td>
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</table>

**Maximum contaminant level**

- Arsenic: (10 µg/L)
- Nitrate: (10 mg/L)
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

ARSENIC IN PRIVATE WELLS
AVERAGE CONCENTRATION (µg/L)

NITRATE IN PRIVATE WELLS
AVERAGE CONCENTRATION (mg/L)

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level. The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.

**CHILDDHOOD LEAD POISONING**

PERCENT OF TESTED CHILDREN WITH BLOOD LEAD ≥5 µg/dL

STATEWIDE: 6.3%

**6.2**

CARBON MONOXIDE POISONING

RATE OF ER VISITS RELATED TO CO PER 100,000

STATEWIDE: 8.2

**2.0%**

CHILDHOOD LEAD POISONING

PERCENT OF TESTED CHILDREN WITH BLOOD LEAD ≥5 µg/dL

STATEWIDE: 6.3%

**TAKE A CLOSER LOOK AT THE DATA:**

dhs.wi.gov/epht
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11(9)). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
**PRETERM BIRTH**

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit [dhs.wi.gov/epht/premature.htm](http://dhs.wi.gov/epht/premature.htm).

**BIRTH DEFECTS**

A birth defect is a problem that happens while the baby is developing in the mother's body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby's body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at [dhs.wisconsin.gov/epht/birthdefects.htm](http://dhs.wisconsin.gov/epht/birthdefects.htm).
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**HEAT STRESS**

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.

**HEALTH INDICATORS**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Chippewa County</th>
<th>Wisconsin Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat Stress</td>
<td>18.6</td>
<td>16.5</td>
</tr>
<tr>
<td>Melanoma</td>
<td>17.5</td>
<td>18.4</td>
</tr>
<tr>
<td>Lung Cancer</td>
<td>68.6</td>
<td>62</td>
</tr>
<tr>
<td>Asthma</td>
<td>143.0</td>
<td>376</td>
</tr>
</tbody>
</table>

**HEAT STRESS**

![Graph showing heat stress rates]

Above state value
At or below state value
^ Suppressed

**TAKE A CLOSER LOOK AT THE DATA:**

dhs.wi.gov/epht
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm
However, Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations.

Data details:
- **Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard.
- **Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

**Ozone**

Measure: Number of days above standard set by the US Environmental Protection Agency

Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

Years displayed: 2002-2011

Data details: This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

**Heart Attack**

Measure: Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

Years displayed: 2002-2011

Data details: These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**Asthma**

Measure: Annual age-adjusted rate of emergency department visits per 100,000 people

Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

Years displayed: 2002-2012, data from 2012 are displayed on the dashboard

Data details: These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**Lung Cancer and Melanoma**

Measure: Age-adjusted rates of cases among persons age 35 and over per 100,000 people

Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

Years displayed: 1996-2010, data from 2006-2010 are displayed on the dashboard

Data details: Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**Heat Stress**

Measure: Age-adjusted rate of emergency department visits per 100,000 people

Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

Years displayed: 2004-2013, data from 2009-2013 are displayed on the dashboard

Data details: These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
**WATER QUALITY**

**Arsenic**

**Measure:** Mean concentration of arsenic (µg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**

**Measure:** Mean concentration of nitrate (mg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, we aggregated three years of data (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**HOME HAZARDS**

**Lead Poisoning**

**Measure:** Percent of children tested who had a blood lead level ≥ 5 µg/dL  
**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2001-2014, data from 2014 displayed on dashboard  
**Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**

**Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard  
**Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**BIRTH OUTCOMES**

**Low Birth Weight**

**Measure:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**

**Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
SPECIAL THANKS

Iowa Environmental Public Health Tracking Program
Wisconsin Environmental Public Health Tracking Program’s Technical Advisory Group
Jeff Phillips, Bureau of Environmental and Occupational Health, Wisconsin Department of Health Services
Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services
Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
<table>
<thead>
<tr>
<th><strong>AIR QUALITY</strong></th>
<th><strong>WATER QUALITY</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ozone</strong></td>
<td><strong>Arsenic</strong></td>
</tr>
<tr>
<td>Annual days above standard: 0.0</td>
<td>Average concentration in µg/L: 0.2</td>
</tr>
<tr>
<td>Wisconsin: 0.7</td>
<td>Wisconsin: 1.3</td>
</tr>
<tr>
<td><strong>Particulate Matter 2.5</strong></td>
<td><strong>Nitrate</strong></td>
</tr>
<tr>
<td>Annual days above standard: 0.0</td>
<td>Average concentration in mg/L: 3.9</td>
</tr>
<tr>
<td>Wisconsin: 0.1</td>
<td>Wisconsin: 1.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>HOME HAZARDS</strong></th>
<th><strong>BIRTH OUTCOMES</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Carbon Monoxide (CO)</strong></td>
<td><strong>Low Birth Weight</strong></td>
</tr>
<tr>
<td>Rate of ER visits per 100,000 people: 9.3</td>
<td>Percent of births &lt;2500 grams: 5.5%</td>
</tr>
<tr>
<td>Wisconsin: 8.2</td>
<td>Wisconsin: 7.3</td>
</tr>
<tr>
<td><strong>Childhood Lead Poisoning</strong></td>
<td><strong>Preterm Birth</strong></td>
</tr>
<tr>
<td>Percent with blood lead ≥5 µg/L: 3.2%</td>
<td>Percent of births &lt;37 weeks gestation: 8.7%</td>
</tr>
<tr>
<td>Wisconsin: 6.3%</td>
<td>Wisconsin: 10.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>HEALTH INDICATORS</strong></th>
<th><strong>Lung Cancer</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Heat Stress</strong></td>
<td>Rate of cases per 100,000 people: 61.0</td>
</tr>
<tr>
<td>Rate of ER visits per 100,000 people: 16.2</td>
<td>Wisconsin: 62.0</td>
</tr>
<tr>
<td>Wisconsin: 16.5</td>
<td></td>
</tr>
<tr>
<td><strong>Melanoma</strong></td>
<td><strong>Asthma</strong></td>
</tr>
<tr>
<td>Rate of cases per 100,000 people: 18.9</td>
<td>Rate of ER visits per 100,000 people*: 231.0</td>
</tr>
<tr>
<td>Wisconsin: 18.4</td>
<td>Wisconsin: 376.0</td>
</tr>
</tbody>
</table>

*This indicator is represented per 10,000 people on the data portal.*

Above state value | At or below state value | Data are suppressed | References on next page
# DASHBOARD DATA DETAILS

Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at [dhs.wi.gov/epht](http://dhs.wi.gov/epht). For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at [dhs.wisconsin.gov/epht/glossary.htm](http://dhs.wisconsin.gov/epht/glossary.htm).

## AIR QUALITY

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Description</th>
<th>Source</th>
<th>Year Displayed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Particulate Matter 2.5 (PM$_{2.5}$) and Ozone</td>
<td>Monitored and modeled estimates of air quality readings</td>
<td>National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention</td>
<td>2011</td>
</tr>
</tbody>
</table>

## WATER QUALITY

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Description</th>
<th>Source</th>
<th>Years Displayed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic and Nitrate</td>
<td>Measured concentrations from public water systems</td>
<td>National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention</td>
<td>Averaged data from 2011-2013</td>
</tr>
</tbody>
</table>

## HOME HAZARDS

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Description</th>
<th>Source</th>
<th>Years Displayed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Childhood Lead Poisoning</td>
<td>Reported blood lead test results</td>
<td>Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services</td>
<td>2014</td>
</tr>
<tr>
<td>Carbon Monoxide (CO) Poisoning</td>
<td>Age-adjusted rate of emergency room visits related to CO poisoning</td>
<td>Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services</td>
<td>Averaged data from 2009-2013</td>
</tr>
</tbody>
</table>

## BIRTH OUTCOMES

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Description</th>
<th>Source</th>
<th>Years Displayed</th>
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</thead>
<tbody>
<tr>
<td>Low Birth Weight and Preterm Birth</td>
<td>Wisconsin birth certificate data</td>
<td>Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services</td>
<td>Averaged data from 2011-2013</td>
</tr>
</tbody>
</table>

## HEALTH INDICATORS

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Description</th>
<th>Source</th>
<th>Years Displayed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat Stress</td>
<td>Age-adjusted rate of emergency room visits related to heat stress</td>
<td>Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services</td>
<td>Averaged data from 2009-2013</td>
</tr>
<tr>
<td>Melanoma and Lung Cancer</td>
<td>Age-adjusted rate of cases reported by health care providers</td>
<td>Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services</td>
<td>Averaged data from 2006-2010</td>
</tr>
<tr>
<td>Asthma</td>
<td>Age-adjusted rate of emergency room visits related to asthma</td>
<td>National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention</td>
<td>2012</td>
</tr>
</tbody>
</table>
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

**OZONE**

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit dhs.wisconsin.gov/epht/criteriapollutants.htm.
Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

PUBLIC DRINKING WATER

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.

TAKE A CLOSER LOOK AT THE DATA:
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

### CARBON MONOXIDE POISONING

**Rate of ER Visits Related to CO Per 100,000 People**

- **Clark County**: 9.3
- **Wisconsin Average**: 8.2

**Statewide**: 8.2

### CHILDHOOD LEAD POISONING

**Percent of Tested Children with Blood Lead ≥5 µg/dL**

- **Clark County**: 3.2%
- **Wisconsin Average**: 6.3%

**Statewide**: 6.3%

**Above state value**

**At or below state value**

**Suppressed**

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit [dhs.wisconsin.gov/air/co.htm](http://dhs.wisconsin.gov/air/co.htm).

---

**Carbon Monoxide**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level. The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit [dhs.wisconsin.gov/air/co.htm](http://dhs.wisconsin.gov/air/co.htm).
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

**LOW BIRTH WEIGHT**

<table>
<thead>
<tr>
<th>Year Range</th>
<th>Clark County</th>
<th>Wisconsin Average</th>
<th>Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002-2004</td>
<td>7.0%</td>
<td>6.3%</td>
<td></td>
</tr>
<tr>
<td>2005-2007</td>
<td>6.5%</td>
<td>6.3%</td>
<td></td>
</tr>
<tr>
<td>2008-2010</td>
<td>6.0%</td>
<td>5.8%</td>
<td></td>
</tr>
<tr>
<td>2011-2013</td>
<td>5.5%</td>
<td>5.4%</td>
<td></td>
</tr>
</tbody>
</table>
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/preadterm.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby's body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

- **HEAT STRESS**
  - RATE OF ER VISITS PER 100,000 PEOPLE
  - STATEWIDE: 16.5
  - **16.2** Clark County

- **MELANOMA**
  - RATE OF CASES PER 100,000 PEOPLE
  - STATEWIDE: 18.4
  - **18.9** Clark County

- **LUNG CANCER**
  - RATE OF CASES PER 100,000 PEOPLE
  - STATEWIDE: 62
  - **61.0** Clark County

- **ASTHMA**
  - RATE OF ER VISITS PER 100,000 PEOPLE
  - STATEWIDE: 376
  - **231.0** Clark County

**HEAT STRESS**

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.

TAKE A CLOSER LOOK AT THE DATA:

dhs.wi.gov/epht

Wisconsin Environmental Public Health Tracking | 13
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.
**DATA DETAILS**

**AIR QUALITY**

**Particulate Matter 2.5 (PM$_{2.5}$)**

**Measures:** Annual Average PM$_{2.5}$ ($\mu$g/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 $\mu$g/m$^3$.

**Ozone**

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

**Heart Attack**

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**HEALTH INDICATORS**

**Asthma**

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. For use in this profile, it is converted to per 10,000 people.

**Lung Cancer and Melanoma**

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**Heat Stress**

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
WATER QUALITY

Arsenic
Measure: Mean concentration of arsenic (µg/L) in public drinking water
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013
Data details: Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

Nitrate
Measure: Mean concentration of nitrate (mg/L) in public drinking water
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013
Data details: Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, we aggregated three years of data (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

HOME HAZARDS

Lead Poisoning
Measure: Percent of children tested who had a blood lead level ≥5 µg/dL
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2001-2014, data from 2014 displayed on dashboard
Data details: Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

Carbon Monoxide Poisoning
Measure: Annual average rate of emergency room visits, age adjusted per 100,000 people
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2004-2013, data averaged from 2009-2013 displayed on dashboard
Data details: This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

BIRTH OUTCOMES

Low Birth Weight
Measures: Percentage of babies weighing <2,500 grams at birth among all babies born to county residents
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2002-2013, data from 2011-2013 are displayed on dashboard
Data details: Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

Preterm Birth
Measure: Percentage of babies born at <37 weeks gestation among all babies born to county residents
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2002-2013, data from 2011-2013 are displayed on dashboard
Data details: Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD
Principal Investigator, Chief Medical Officer
608-266-1253
henry.anderson@dhs.wisconsin.gov

DAWN BERNEY, MPA
Evaluator
608-267-3830
dawn.berney@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS
Program Manager
608-267-3811
jennifer.camponeschi@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH
Epidemiologist
608-266-7897
megan.christenson@dhs.wisconsin.gov

PAUL CRESWELL, PhD
Senior Epidemiologist
608-267-9752
paul.creswell@dhs.wisconsin.gov

JOSEPH OLSON
IS Systems Development Services Professional
608-266-6696
joseph.olson@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES
Communications and Education Coordinator
608-267-2488
christy.vogt@dhs.wisconsin.gov

MARK WERNER, PhD
Chief, Health Hazard Evaluation Section
608-266-7480
mark.werner@dhs.wisconsin.gov

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Jeff Phillips, Bureau of Environmental and Occupational Health, Wisconsin Department of Health Services
Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services
Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488

HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital’s community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.
COLUMBIA COUNTY
DASHBOARD  |  2015 ENVIRONMENTAL HEALTH PROFILE

AIR QUALITY

Ozone
- Annual days above standard
  - Wisconsin: 0.7

Particulate Matter 2.5
- Annual days above standard
  - Wisconsin: 0.1

WATER QUALITY

Arsenic
- Average concentration in µg/L
  - Wisconsin: 1.3

Nitrate
- Average concentration in mg/L
  - Wisconsin: 1.5

HOME HAZARDS

Carbon Monoxide (CO)
- Rate of ER visits per 100,000 people
  - Wisconsin: 8.2

Childhood Lead Poisoning
- Percent with blood lead ≥5 µg/L
  - Wisconsin: 6.3%

BIRTH OUTCOMES

Low Birth Weight
- Percent of births <2500 grams
  - Wisconsin: 7.3%

Preterm Birth
- Percent of births <37 weeks gestation
  - Wisconsin: 10.3%

HEALTH INDICATORS

Heat Stress
- Rate of ER visits per 100,000 people
  - Wisconsin: 16.5

Melanoma
- Rate of cases per 100,000 people
  - Wisconsin: 18.4

Lung Cancer
- Rate of cases per 100,000 people
  - Wisconsin: 62.0

Asthma
- Rate of ER visits per 100,000 people
  - Wisconsin: 376.0

*This indicator is represented per 10,000 people on the data portal.

Above state value
At or below state value
Data are suppressed
References on next page

WISCONSIN ENVIRONMENTAL PUBLIC HEALTH TRACKING PROGRAM
dhs.wi.gov/epht | dhstracking@wi.gov | 608-267-2488
Wisconsin Department of Health Services | Division of Public Health | Bureau of Environmental and Occupational Health
DASHBOARD DATA DETAILS

Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2011

WATER QUALITY

Arsenic and Nitrate: Measured concentrations from public water systems
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013

HOME HAZARDS

Childhood Lead Poisoning: Reported blood lead test results
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.
Year displayed: 2014

Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

BIRTH OUTCOMES

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2011-2013

HEALTH INDICATORS

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2006-2010

Asthma: Age-adjusted rate of emergency room visits related to asthma
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit [dhs.wisconsin.gov/epht/criteriapollutants.htm](http://dhs.wisconsin.gov/epht/criteriapollutants.htm).
Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

### Arsenic and Nitrate

<table>
<thead>
<tr>
<th>Contaminant</th>
<th>Mean Concentration (µg/L)</th>
<th>Average Statewide</th>
<th>Columbia County</th>
<th>Above State Value</th>
<th>At or Below State Value</th>
<th>Suppressed</th>
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<tbody>
<tr>
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<td>2.2</td>
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<td>Nitrate</td>
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<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

#### Public Drinking Water

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

ARSENIC IN PRIVATE WELLS
AVERAGE CONCENTRATION (µg/L)

NITRATE IN PRIVATE WELLS
AVERAGE CONCENTRATION (mg/L)

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**6.2**

**CARBON MONOXIDE POISONING**

*RATE OF ER VISITS RELATED TO CO PER 100,000*

STATEWIDE: 8.2

**5.2%**

**CHILDHOOD LEAD POISONING**

*PERCENT OF TESTED CHILDREN WITH BLOOD LEAD ≥5 µg/dL*

STATEWIDE: 6.3%

**CARBON MONOXIDE POISONING**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
PRETERM BIRTH
A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS
A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.

**HEAT STRESS**

RATE OF ER VISITS PER 100,000 PEOPLE

<table>
<thead>
<tr>
<th>Year</th>
<th>Columbia County</th>
<th>Wisconsin Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004-2008</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009-2013</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**MELANOMA**

RATE OF CASES PER 100,000 PEOPLE

STATEWIDE: 18.4

**LUNG CANCER**

RATE OF CASES PER 100,000 PEOPLE

STATEWIDE: 62

**ASTHMA**

RATE OF ER VISITS PER 100,000 PEOPLE

STATEWIDE: 376

Above state value  
At or below state value  
^ Suppressed
Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke.

In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.
DATA DETAILS

AIR QUALITY

Particulate Matter 2.5 (PM\textsubscript{2.5})

**Measures:** Annual Average PM\textsubscript{2.5} (\textmu g/m\textsuperscript{3}), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM\textsubscript{2.5} levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency's National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM\textsubscript{2.5} concentration is 35 \textmu g/m\textsuperscript{3}.

Ozone

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2001-2011, data from 2011 are displayed on the dashboard

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heart Attack

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

HEALTH INDICATORS

Asthma

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

Lung Cancer and Melanoma

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
WATER QUALITY

Arsenic

**Measures:** Mean concentration of arsenic (µg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

Nitrate

**Measure:** Mean concentration of nitrate (mg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

HOME HAZARDS

Lead Poisoning

**Measure:** Percent of children tested who had a blood lead level ≥ 5 µg/dL  
**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2001-2014, data from 2014 displayed on dashboard  
**Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

Carbon Monoxide Poisoning

**Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard  
**Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

BIRTH OUTCOMES

Low Birth Weight

**Measures:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

Preterm Birth

**Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD
Principal Investigator, Chief Medical Officer
608-266-1253
henry.anderson@dhs.wisconsin.gov

DAWN BERNEY, MPA
Evaluator
608-267-3830
dawn.berney@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS
Program Manager
608-267-3811
jennifer.camponeschi@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH
Epidemiologist
608-266-7897
megan.christenson@dhs.wisconsin.gov

PAUL CRESWELL, PhD
Senior Epidemiologist
608-267-9752
paul.creswell@dhs.wisconsin.gov

JOSEPH OLSON
IS Systems Development Services Professional
608-266-6696
joseph.olson@dhs.wisconsin.gov

MARK WERNER, PhD
Chief, Health Hazard Evaluation Section
608-266-7480
mark.werner@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES
Communications and Education Coordinator
608-267-2488
christy.vogt@dhs.wisconsin.gov

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Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services
Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
CRAWFORD COUNTY ENVIRONMENTAL HEALTH PROFILE 2015

WISCONSIN ENVIRONMENTAL PUBLIC HEALTH TRACKING PROGRAM
Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital’s community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? **Tell us about it!**

dhstracking@wi.gov
608-267-2488
**CRAWFORD COUNTY**

**DASHBOARD | 2015 ENVIRONMENTAL HEALTH PROFILE**

### AIR QUALITY

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Annual days above standard</th>
<th>Average concentration in µg/L (Wisconsin: X)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozone</td>
<td>0.0</td>
<td>0.7</td>
</tr>
<tr>
<td>Particulate Matter 2.5</td>
<td>0.0</td>
<td>0.1</td>
</tr>
</tbody>
</table>

### WATER QUALITY

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Average concentration in µg/L (Wisconsin: X)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic</td>
<td>0.2</td>
</tr>
<tr>
<td>Nitrate</td>
<td>1.2</td>
</tr>
</tbody>
</table>

### HOME HAZARDS

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Rate of ER visits per 100,000 people (Wisconsin: X)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon Monoxide (CO)</td>
<td>3.9</td>
</tr>
<tr>
<td>Childhood Lead Poisoning</td>
<td>2.3%</td>
</tr>
</tbody>
</table>

### BIRTH OUTCOMES

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Percent of births &lt;y&gt; grams (Wisconsin: X)%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Birth Weight</td>
<td>6.9%</td>
</tr>
<tr>
<td>Preterm Birth</td>
<td>10.1%</td>
</tr>
</tbody>
</table>

### HEALTH INDICATORS

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Rate of cases per 100,000 people (Wisconsin: X)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat Stress</td>
<td>36.2</td>
</tr>
<tr>
<td>Melanoma</td>
<td>15.1</td>
</tr>
<tr>
<td>Lung Cancer</td>
<td>74.4</td>
</tr>
<tr>
<td>Asthma</td>
<td>197.0</td>
</tr>
</tbody>
</table>

---

*This indicator is represented per 10,000 people on the data portal.*

---

WISCONSIN ENVIRONMENTAL PUBLIC HEALTH TRACKING PROGRAM

dhs.wi.gov/epht  I  dhstracking@wi.gov  I  608-267-2488

Wisconsin Department of Health Services  I  Division of Public Health  I  Bureau of Environmental and Occupational Health
DASHBOARD DATA DETAILS

Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2011

WATER QUALITY

Arsenic and Nitrate: Measured concentrations from public water systems
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013

HOME HAZARDS

Childhood Lead Poisoning: Reported blood lead test results
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.
Year displayed: 2014
Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Due to small numbers, aggregated rates were calculated for this county.
Years displayed in this profile: Aggregated data from 2004-2013

BIRTH OUTCOMES

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2011-2013

HEALTH INDICATORS

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013
Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2006-2010
Asthma: Age-adjusted rate of emergency room visits related to asthma
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

Air Quality Crawford County

Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

OZONE
ANNUAL DAYS ABOVE STANDARD
STATEWIDE: 0.7

PARTICULATE MATTER 2.5
ANNUAL DAYS ABOVE STANDARD
STATEWIDE: 0.1

PARTICULATE MATTER 2.5
ANNUAL AVERAGE (µg/m³)
STATEWIDE: 9.4

Above state value  At or below state value  ^ Suppressed

OZONE
ANNUAL DAYS ABOVE STANDARD

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit dhs.wisconsin.gov/epht/criteriapollutants.htm.

**PARTICULATE MATTER 2.5 ANNUAL AVERAGE**

(µg/m$^3$)

**HEART ATTACK HOSPITALIZATIONS**

Rate per 10,000 people

**ASTHMA EMERGENCY ROOM VISITS**

Rate per 100,000 people
WATER QUALITY  CRAWFORD COUNTY

Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

PUBLIC DRINKING WATER

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

- **Rate of ER Visits Related to CO per 100,000 People**
  - Crawford County: 3.9
  - Wisconsin Average: 8.7
  - Statewide: 8.7

**CHILDHOOD LEAD POISONING**

- **Percent of Tested Children with Blood Lead ≥5 µg/dL**
  - Crawford County: 2.3%
  - Wisconsin Average: 6.3%
  - Statewide: 6.3%

**CARBON MONOXIDE**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit [dhs.wisconsin.gov/air/co.htm](http://dhs.wisconsin.gov/air/co.htm).

**TAKE A CLOSER LOOK AT THE DATA:**
[dhs.wi.gov/epht](http://dhs.wi.gov/epht)
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

LOW BIRTH WEIGHT

- **6.9%**
  - LOW BIRTH WEIGHT
  - PERCENT BIRTHS <2,500 GRAMS
  - STATEWIDE: 7.3%

- **10.1%**
  - PRETERM BIRTH
  - PERCENT BIRTHS <37 WEEKS GESTATION
  - STATEWIDE: 10.3%

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

LOW BIRTH WEIGHT

PERCENT OF BIRTHS BELOW 2,500 GRAMS

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
**PRETERM BIRTH**

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit [dhs.wi.gov/epht/premature.htm](http://dhs.wi.gov/epht/premature.htm).

**BIRTH DEFECTS**

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at [dhs.wisconsin.gov/epht/birthdefects.htm](http://dhs.wisconsin.gov/epht/birthdefects.htm).
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**HEAT STRESS**

- **Rate of ER Visits**
  - Crawford County: 36.2
  - Wisconsin Average: 16.5
  - Statewide: 16.5

- **Melanoma**
  - Rate of Cases
  - Crawford County: 15.1
  - Wisconsin Average: 18.4
  - Statewide: 18.4

- **Lung Cancer**
  - Rate of Cases
  - Crawford County: 74.4
  - Wisconsin Average: 62
  - Statewide: 62

- **Asthma**
  - Rate of ER Visits
  - Crawford County: 197.0
  - Wisconsin Average: 376
  - Statewide: 376

**HEAT STRESS**

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.

**TAKE A CLOSER LOOK AT THE DATA:**

dhs.wi.gov/epht
**MELANOMA AND LUNG CANCER**

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

**MELANOMA**

RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit [dhs.wisconsin.gov/epht/melanoma.htm](http://dhs.wisconsin.gov/epht/melanoma.htm). To read more about lung cancer, visit [dhs.wisconsin.gov/epht/lung.htm](http://dhs.wisconsin.gov/epht/lung.htm).

**LUNG CANCER**

RATE OF CASES PER 100,000 PEOPLE

**ASTHMA**

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit [dhs.wisconsin.gov/asthma/Index.htm](http://dhs.wisconsin.gov/asthma/Index.htm).
DATA DETAILS

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$)
Measure: Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: 2002-2011, data from 2011 are displayed on the dashboard
Data details: These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

Ozone
Measure: Number of days above standard set by the US Environmental Protection Agency
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: 2001-2011, data from 2011 are displayed on the dashboard
Data details: This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heart Attack
Measure: Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: 2002-2011
Data details: These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

HEALTH INDICATORS

Asthma
Measure: Annual age-adjusted rate of emergency department visits per 100,000 people
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: 2002-2012, data from 2012 are displayed on the dashboard
Data details: These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

Lung Cancer and Melanoma
Measure: Age-adjusted rates of cases among persons age 35 and over per 100,000 people
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 1996-2010, data from 2006-2010 are displayed on the dashboard
Data details: Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress
Measure: Age-adjusted rate of emergency department visits per 100,000 people
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2004-2013, data from 2009-2013 are displayed on the dashboard
Data details: These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
WATER QUALITY

Arsenic

**Measures:** Mean concentration of arsenic (µg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

Nitrate

**Measure:** Mean concentration of nitrate (mg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, we aggregated three years of data (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

HOME HAZARDS

Lead Poisoning

**Measure:** Percent of children tested who had a blood lead level ≥ 5 µg/dL  
**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2001-2014, data from 2014 displayed on dashboard  
**Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

Carbon Monoxide Poisoning

**Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2004-2013, data aggregated from 2004-2013 displayed on the dashboard  
**Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. Due to small numbers, aggregated rates were calculated for this county.

BIRTH OUTCOMES

Low Birth Weight

**Measures:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

Preterm Birth

**Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD
Principal Investigator, Chief Medical Officer
608-266-1253
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD
Senior Epidemiologist
608-267-9752
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA
Evaluator
608-267-3830
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON
IS Systems Development Services Professional
608-266-6696
josepha.olson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS
Program Manager
608-267-3811
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES
Communications and Education Coordinator
608-267-2488
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH
Epidemiologist
608-266-7897
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD
Chief, Health Hazard Evaluation Section
608-266-7480
mark.werner@dhs.wisconsin.gov

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Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
### AIR QUALITY

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Annual days above standard</th>
<th>Average concentration in µg/L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozone</td>
<td>0.0</td>
<td>Wisconsin: 0.7</td>
</tr>
<tr>
<td>Particulate Matter 2.5</td>
<td>1.1</td>
<td>Wisconsin: 0.1</td>
</tr>
</tbody>
</table>

### WATER QUALITY

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Average concentration in µg/L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic</td>
<td>0.4</td>
</tr>
<tr>
<td>Nitrate</td>
<td>1.5</td>
</tr>
</tbody>
</table>

### HOME HAZARDS

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Rate of ER visits per 100,000 people</th>
<th>Percent with blood lead ≥5 µg/L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon Monoxide (CO)</td>
<td>7.1</td>
<td>Wisconsin: 8.2</td>
</tr>
<tr>
<td>Childhood Lead Poisoning</td>
<td>1.4%</td>
<td>Wisconsin: 6.3%</td>
</tr>
</tbody>
</table>

### BIRTH OUTCOMES

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Percent of births &lt;2500 grams</th>
<th>Percent of births &lt;37 weeks gestation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Birth Weight</td>
<td>7.0%</td>
<td>Wisconsin: 7.3%</td>
</tr>
<tr>
<td>Preterm Birth</td>
<td>9.4%</td>
<td>Wisconsin: 10.3%</td>
</tr>
</tbody>
</table>

### HEALTH INDICATORS

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Rate of ER visits per 100,000 people</th>
<th>Rate of cases per 100,000 people</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat Stress</td>
<td>11.2</td>
<td>Wisconsin: 16.5</td>
</tr>
<tr>
<td>Melanoma</td>
<td>19.2</td>
<td>Wisconsin: 18.4</td>
</tr>
<tr>
<td>Lung Cancer</td>
<td>54.2</td>
<td>Wisconsin: 62.0</td>
</tr>
<tr>
<td>Asthma</td>
<td>198.0</td>
<td>Wisconsin: 376.0</td>
</tr>
</tbody>
</table>

*This indicator is represented per 10,000 people on the data portal.*

References on next page
DASHBOARD DATA DETAILS

Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2011

WATER QUALITY

Arsenic and Nitrate: Measured concentrations from public water systems
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013

HOME HAZARDS

Childhood Lead Poisoning: Reported blood lead test results
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.
Year displayed: 2014

Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

BIRTH OUTCOMES

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2011-2013

HEALTH INDICATORS

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2006-2010

Asthma: Age-adjusted rate of emergency room visits related to asthma
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

**OZONE**

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit dhs.wisconsin.gov/epht/criteriapollutants.htm.
Water Quality

Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

**Arsenic and Nitrate**

Mean Concentration Levels in Public Water (2011-2013)

- **Arsenic**
  - Average Concentration in Public Water: 0.4 µg/L
  - Statewide: 1.3 µg/L
- **Nitrate**
  - Average Concentration in Public Water: 1.5 mg/L
  - Statewide: 1.5 mg/L

**Public Drinking Water**

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit [dhs.wi.gov/epht](http://dhs.wi.gov/epht).

Take a closer look at the data: [dhs.wi.gov/epht](http://dhs.wi.gov/epht)
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

- **7.0%**
  - LOW BIRTH WEIGHT
  - PERCENT BIRTHS
  - <2,500 GRAMS
  - STATEWIDE: 7.3%

- **9.4%**
  - PRETERM BIRTH
  - PERCENT BIRTHS
  - <37 WEEKS GESTATION
  - STATEWIDE: 10.3%

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**HEAT STRESS**
RATE OF ER VISITS PER 100,000 PEOPLE
STATEWIDE: 16.5

**MELANOMA**
RATE OF CASES PER 100,000 PEOPLE
STATEWIDE: 18.4

**LUNG CANCER**
RATE OF CASES PER 100,000 PEOPLE
STATEWIDE: 62

**ASTHMA**
RATE OF ER VISITS PER 100,000 PEOPLE
STATEWIDE: 376

**HEAT STRESS**
Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.

TAKING A CLOSER LOOK AT THE DATA:
dhs.wi.gov/epht

Wisconsin Environmental Public Health Tracking | 13
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/index.htm.
DATA DETAILS

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$)

**Measures:** Annual Average PM$_{2.5}$ ($\mu$g/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 $\mu$g/m$^3$.

Ozone

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** This is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heart Attack

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

HEALTH INDICATORS

Asthma

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. For use in this profile, it is converted to per 10,000 people.

Lung Cancer and Melanoma

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
WATER QUALITY

Arsenic

Measure: Mean concentration of arsenic (µg/L) in public drinking water
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013
Data details: Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

Nitrate

Measure: Mean concentration of nitrate (mg/L) in public drinking water
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013
Data details: Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

HOME HAZARDS

Lead Poisoning

Measure: Percent of children tested who had a blood lead level ≥ 5 µg/dL
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2001-2014, data from 2014 displayed on dashboard
Data details: Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

Carbon Monoxide Poisoning

Measure: Annual average rate of emergency room visits, age adjusted per 100,000 people
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2004-2013, data averaged from 2009-2013 displayed on dashboard
Data details: This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

BIRTH OUTCOMES

Low Birth Weight

Measure: Percentage of babies weighing <2,500 grams at birth among all babies born to county residents
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2002-2013, data from 2011-2013 are displayed on dashboard
Data details: Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

Preterm Birth

Measure: Percentage of babies born at <37 weeks gestation among all babies born to county residents
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2002-2013, data from 2011-2013 are displayed on dashboard
Data details: Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
SPECIAL THANKS

Iowa Environmental Public Health Tracking Program
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Jeff Phillips, Bureau of Environmental and Occupational Health, Wisconsin Department of Health Services
Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services
Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
DODGE COUNTY
ENVIRONMENTAL HEALTH PROFILE

2015

WISCONSIN ENVIRONMENTAL PUBLIC HEALTH TRACKING PROGRAM
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
**DODGE COUNTY**

**DASHBOARD | 2015 ENVIRONMENTAL HEALTH PROFILE**

### AIR QUALITY

**Ozone**
- Annual days above standard
  - Dodge County: 0.0
  - Wisconsin: 0.7

**Particulate Matter 2.5**
- Annual days above standard
  - Dodge County: 0.0
  - Wisconsin: 0.1

### WATER QUALITY

**Arsenic**
- Average concentration in µg/L
  - Dodge County: 4.6
  - Wisconsin: 1.3

**Nitrate**
- Average concentration in mg/L
  - Dodge County: 0.4
  - Wisconsin: 1.5

### HOME HAZARDS

**Carbon Monoxide (CO)**
- Rate of ER visits per 100,000 people
  - Dodge County: 10.2
  - Wisconsin: 8.2

**Childhood Lead Poisoning**
- Percent with blood lead ≥5 µg/L
  - Dodge County: 4.4%
  - Wisconsin: 6.3%

### BIRTH OUTCOMES

**Low Birth Weight**
- Percent of births <2500 grams
  - Dodge County: 6.8%
  - Wisconsin: 7.3%

**Preterm Birth**
- Percent of births <37 weeks gestation
  - Dodge County: 9.1%
  - Wisconsin: 10.3%

### HEALTH INDICATORS

**Heat Stress**
- Rate of ER visits per 100,000 people
  - Dodge County: 28.6
  - Wisconsin: 16.5

**Melanoma**
- Rate of cases per 100,000 people
  - Dodge County: 13.3
  - Wisconsin: 18.4

**Lung Cancer**
- Rate of cases per 100,000 people
  - Dodge County: 58.8
  - Wisconsin: 62.0

**Asthma**
- Rate of ER visits per 100,000 people*
  - Dodge County: 368.0
  - Wisconsin: 376.0

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*This indicator is represented per 10,000 people on the data portal.  
Above state value  At or below state value  ^ Data are suppressed  | References on next page

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**WISCONSIN ENVIRONMENTAL PUBLIC HEALTH TRACKING PROGRAM**

dhs.wi.gov/epht | dhstracking@wi.gov | 608-267-2488

Wisconsin Department of Health Services | Division of Public Health | Bureau of Environmental and Occupational Health
### DASHBOARD DATA DETAILS

Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.

### AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2011

### WATER QUALITY

Arsenic and Nitrate: Measured concentrations from public water systems  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Years displayed: Averaged data from 2011-2013

### HOME HAZARDS

Childhood Lead Poisoning: Reported blood lead test results  
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.  
Year displayed: 2014  
Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013

### BIRTH OUTCOMES

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2011-2013

### HEALTH INDICATORS

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013  
Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers  
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2006-2010  
Asthma: Age-adjusted rate of emergency room visits related to asthma  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit [dhs.wisconsin.gov/epht/criteriapollutants.htm](http://dhs.wisconsin.gov/epht/criteriapollutants.htm).
WATER QUALITY  DODGE COUNTY

Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

**ARSENIC AND NITRATE**

**MEAN CONCENTRATION LEVELS IN PUBLIC WATER (2011-2013)**

- **ARSENIC**
  - Average Concentration in Public Water (µg/L)
  - **4.6**
  - **STATEWIDE: 1.3**
  - **Above state value**

- **NITRATE**
  - Average Concentration in Public Water (mg/L)
  - **0.4**
  - **STATEWIDE: 1.5**
  - **At or below state value**

**PUBLIC DRINKING WATER**

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit [dhs.wi.gov/epht](http://dhs.wi.gov/epht).

**TAKE A CLOSER LOOK AT THE DATA:**

[Visit Website]
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

ARSENIC IN PRIVATE WELLS
AVERAGE CONCENTRATION (µg/L)

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF
CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
**PRETERM BIRTH**

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

**BIRTH DEFECTS**

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**HEAT STRESS**
Rate of ER Visits per 100,000 People

**MELANOMA**
Rate of Cases per 100,000 People

**LUNG CANCER**
Rate of Cases per 100,000 People

**ASTHMA**
Rate of ER Visits per 100,000 People

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.

**HEALTH STRESS**
Rate of ER Visits per 100,000 People
HEALTH INDICATORS

MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.
DATA DETAILS

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$)

**Measures:** Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency's National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

Ozone

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heart Attack

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

HEALTH INDICATORS

Asthma

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

Lung Cancer and Melanoma

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E909.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
**WATER QUALITY**

**Arsenic**

**Measures:** Mean concentration of arsenic (µg/L) in public drinking water

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** Averaged data from 2011-2013

**Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**

**Measure:** Mean concentration of nitrate (mg/L) in public drinking water

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** Averaged data from 2011-2013

**Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, we aggregated three years of data (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**HOME HAZARDS**

**Lead Poisoning**

**Measure:** Percent of children tested who had a blood lead level ≥ 5 µg/dL

**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2001-2014, data from 2014 displayed on dashboard

**Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**

**Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard

**Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**BIRTH OUTCOMES**

**Low Birth Weight**

**Measures:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard

**Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**

**Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard

**Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD  
Principal Investigator, Chief Medical Officer  
608-266-1253  
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD  
Senior Epidemiologist  
608-267-9752  
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA  
Evaluator  
608-267-3830  
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON  
IS Systems Development Services Professional  
608-266-6696  
josepha.olson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS  
Program Manager  
608-267-3811  
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES  
Communications and Education Coordinator  
608-267-2488  
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH  
Epidemiologist  
608-266-7897  
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD  
Chief, Health Hazard Evaluation Section  
608-266-7480  
mark.werner@dhs.wisconsin.gov

SPECIAL THANKS

Iowa Environmental Public Health Tracking Program

Wisconsin Environmental Public Health Tracking Program’s Technical Advisory Group

Jeff Phillips, Bureau of Environmental and Occupational Health, Wisconsin Department of Health Services

Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services

Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
DOOR COUNTY ENVIRONMENTAL HEALTH PROFILE 2015

WISCONSIN ENVIRONMENTAL PUBLIC HEALTH TRACKING PROGRAM
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
### Door County Dashboard  |  2015 Environmental Health Profile

**Air Quality**

<table>
<thead>
<tr>
<th></th>
<th>Ozone</th>
<th>Annual days above standard</th>
<th>Wisconsin: 0.7</th>
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<th>Particulate Matter 2.5</th>
<th>Annual days above standard</th>
<th>Wisconsin: 0.1</th>
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**Water Quality**

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<th>Arsenic</th>
<th>Average concentration in µg/L</th>
<th>Wisconsin: 1.3</th>
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<th>Nitrate</th>
<th>Average concentration in mg/L</th>
<th>Wisconsin: 1.5</th>
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**Home Hazards**

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<th>Carbon Monoxide (CO)</th>
<th>Rate of ER visits per 100,000 people</th>
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<th>Childhood Lead Poisoning</th>
<th>Percent with blood lead ≥5 µg/L</th>
<th>Wisconsin: 6.3%</th>
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**Birth Outcomes**

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<thead>
<tr>
<th></th>
<th>Low Birth Weight</th>
<th>Percent of births &lt;2500 grams</th>
<th>Wisconsin: 7.3%</th>
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<th>Preterm Birth</th>
<th>Percent of births &lt;37 weeks gestation</th>
<th>Wisconsin: 10.3%</th>
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**Health Indicators**

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<th>Heat Stress</th>
<th>Rate of ER visits per 100,000 people</th>
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<th>Melanoma</th>
<th>Rate of cases per 100,000 people</th>
<th>Wisconsin: 18.4</th>
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<th></th>
<th>Lung Cancer</th>
<th>Rate of cases per 100,000 people</th>
<th>Wisconsin: 62.0</th>
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<tr>
<th></th>
<th>Asthma</th>
<th>Rate of ER visits per 100,000 people*</th>
<th>Wisconsin: 376.0</th>
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*This indicator is represented per 10,000 people on the data portal.

Above state value | At or below state value | Data are suppressed | References on next page
DASHBOARD DATA DETAILS

Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2011

WATER QUALITY

Arsenic and Nitrate: Measured concentrations from public water systems
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013

HOME HAZARDS

Childhood Lead Poisoning: Reported blood lead test results
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.
Year displayed: 2014

Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

BIRTH OUTCOMES

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2011-2013

HEALTH INDICATORS

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2006-2010

Asthma: Age-adjusted rate of emergency room visits related to asthma
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

### Door County

**OZONE**

- **ANNUAL DAYS ABOVE STANDARD**
  - **STATEWIDE:** 0.7
  - **DOOR COUNTY:** 3.0

**PARTICULATE MATTER 2.5**

- **ANNUAL DAYS ABOVE STANDARD**
  - **STATEWIDE:** 0.1
  - **DOOR COUNTY:** 0.0

- **ANNUAL AVERAGE (µg/m³)**
  - **STATEWIDE:** 9.4
  - **DOOR COUNTY:** 8.9

**TAKE A CLOSER LOOK AT THE DATA:**

[Website Link]

---

OZONE

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit [dhs.wisconsin.gov/epht/criteriapollutants.htm](http://dhs.wisconsin.gov/epht/criteriapollutants.htm).
WATER QUALITY

Door County

Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

### PUBLIC DRINKING WATER

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit [dhs.wi.gov/epht](http://dhs.wi.gov/epht).

**ARSENIC AND NITRATE**

**MEAN CONCENTRATION LEVELS IN PUBLIC WATER (2011-2013)**

- **Arsenic**: 0.3 µg/L (Door County) vs. STATEWIDE: 1.3 µg/L
- **Nitrate**: 2.3 mg/L (Door County) vs. STATEWIDE: 1.5 mg/L

**Bar Chart**

- **Maximum contaminant level**: (10 µg/L) for Arsenic, (10 mg/L) for Nitrate

**Legend**

- **Above state value**
- **At or below state value**
- **Suppressed**
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**Carbon Monoxide Poisoning**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

- **5.6%**
  - LOW BIRTH WEIGHT
  - PERCENT BIRTHS <2,500 GRAMS
  - STATEWIDE: 7.3%

- **9.7%**
  - PRETERM BIRTH
  - PERCENT BIRTHS <37 WEEKS GESTATION
  - STATEWIDE: 10.3%

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Take a closer look at the data: [dhs.wi.gov/epht]
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit [dhs.wi.gov/epht/premature.htm](http://dhs.wi.gov/epht/premature.htm).

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at [dhs.wisconsin.gov/epht/birthdefects.htm](http://dhs.wisconsin.gov/epht/birthdefects.htm).
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**HEAT STRESS**
RATE OF ER VISITS PER 100,000 PEOPLE

- **Door County**: 11.3
- **Statewide**: 16.5

**MELANOMA**
RATE OF CASES PER 100,000 PEOPLE

- **Door County**: 36.8
- **Statewide**: 18.4

**LUNG CANCER**
RATE OF CASES PER 100,000 PEOPLE

- **Door County**: 54.0
- **Statewide**: 62

**ASTHMA**
RATE OF ER VISITS PER 100,000 PEOPLE

- **Door County**: 332.0
- **Statewide**: 376

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.

**TAKE A CLOSER LOOK AT THE DATA:**
dhs.wi.gov/epht

*Suppressed*
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.
DATA DETAILS

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$)

**Measures:** Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard  
**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

Ozone

**Measure:** Number of days above standard set by the US Environmental Protection Agency  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** 2001-2011, data from 2011 are displayed on the dashboard  
**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heart Attack

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** 2002-2011  
**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

HEALTH INDICATORS

Asthma

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard  
**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

Lung Cancer and Melanoma

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people  
**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard  
**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than eight cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard  
**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E909.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
DATA DETAILS continued

WATER QUALITY

**Arsenic**

**Measures:** Mean concentration of arsenic (µg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**

**Measure:** Mean concentration of nitrate (mg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

HOME HAZARDS

**Lead Poisoning**

**Measure:** Percent of children tested who had a blood lead level ≥ 5 µg/dL  
**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2001-2014, data from 2014 displayed on dashboard  
**Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**

**Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard  
**Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

BIRTH OUTCOMES

**Low Birth Weight**

**Measures:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**

**Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
WISCONSIN ENVIRONMENTAL PUBLIC HEALTH TRACKING PROGRAM

HENRY ANDERSON, MD
Principal Investigator, Chief Medical Officer
608-266-1253
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD
Senior Epidemiologist
608-267-9752
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA
Evaluator
608-267-3830
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON
IS Systems Development Services Professional
608-266-6696
josephaolson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS
Program Manager
608-267-3811
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VO GT, MPH, CHES
Communications and Education Coordinator
608-267-2488
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH
Epidemiologist
608-266-7897
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD
Chief, Health Hazard Evaluation Section
608-266-7480
mark.werner@dhs.wisconsin.gov

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Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services
Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488

HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS

Data from the profiles can be used in your health department or hospital’s community health assessments to help meet state and federal requirements.

ACCREDITATION

The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS

Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH

When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT

This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
DOUGLAS COUNTY
DASHBOARD  |  2015 ENVIRONMENTAL HEALTH PROFILE

AIR QUALITY

Ozone
- Annual days above standard
  - 0.0
  - Wisconsin: 0.7

Particulate Matter 2.5
- Annual days above standard
  - 0.0
  - Wisconsin: 0.1

WATER QUALITY

Arsenic
- Average concentration in µg/L
  - 1.0
  - Wisconsin: 1.3

Nitrate
- Average concentration in mg/L
  - 0.0
  - Wisconsin: 1.5

HOME HAZARDS

Carbon Monoxide (CO)
- Rate of ER visits per 100,000 people
  - 10.3
  - Wisconsin: 8.2

Childhood Lead Poisoning
- Percent with blood lead ≥5 µg/L
  - 2.0%
  - Wisconsin: 6.3%

BIRTH OUTCOMES

Low Birth Weight
- Percent of births <2500 grams
  - 6.8%
  - Wisconsin: 7.3%

Preterm Birth
- Percent of births <37 weeks gestation
  - 8.8%
  - Wisconsin: 10.3%

HEALTH INDICATORS

Heat Stress
- Rate of ER visits per 100,000 people
  - 17.5
  - Wisconsin: 16.5

Melanoma
- Rate of cases per 100,000 people
  - 15.2
  - Wisconsin: 18.4

Lung Cancer
- Rate of cases per 100,000 people
  - 62.8
  - Wisconsin: 62.0

Asthma
- Rate of ER visits per 100,000 people*
  - 462.0
  - Wisconsin: 376.0

*This indicator is represented per 10,000 people on the data portal.
Above state value  At or below state value  Data are suppressed  References on next page
DASHBOARD DATA DETAILS

Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2011

WATER QUALITY

Arsenic and Nitrate: Measured concentrations from public water systems
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013

HOME HAZARDS

Childhood Lead Poisoning: Reported blood lead test results
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.
Year displayed: 2014

Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

BIRTH OUTCOMES

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2011-2013

HEALTH INDICATORS

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2006-2010

Asthma: Age-adjusted rate of emergency room visits related to asthma
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

**OZONE**

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<th>Douglas County</th>
<th>Wisconsin Average</th>
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</thead>
<tbody>
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<td>2011</td>
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</table>

**PARTICULATE MATTER 2.5**

<table>
<thead>
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<th>Year</th>
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<th>Wisconsin Average</th>
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</thead>
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<td>0.1</td>
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<tr>
<td>2011</td>
<td>8.4</td>
<td>9.4</td>
</tr>
</tbody>
</table>

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.

**OZONE**
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit [dhs.wisconsin.gov/epht/criteriapollutants.htm](http://dhs.wisconsin.gov/epht/criteriapollutants.htm).
WATER QUALITY

Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

PUBLIC DRINKING WATER

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**Carbon Monoxide Poisoning**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.

**Childhood Lead Poisoning**

Statewide: 6.3%

**Statewide:** 8.2

**Above state value**

**At or below state value**

**Suppressed**

**Take a Closer Look at the Data:**

dhs.wi.gov/epht
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

- **6.8%**
  - LOW BIRTH WEIGHT
  - PERCENT BIRTHS
  - <2,500 GRAMS
  - STATEWIDE: 7.3%

- **8.8%**
  - PRETERM BIRTH
  - PERCENT BIRTHS
  - <37 WEEKS GESTATION
  - STATEWIDE: 10.3%

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

- **Heat Stress**: 17.5 per 100,000 people (Douglas County) vs. 16.5 statewide.
- **Melanoma**: 15.2 per 100,000 people (Douglas County) vs. 18.4 statewide.
- **Lung Cancer**: 62.8 per 100,000 people (Douglas County) vs. 62 statewide.
- **Asthma**: 462.0 per 100,000 people (Douglas County) vs. 376 statewide.

**Heat Stress**

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.
DATA DETAILS

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$)

**Measures:** Annual Average PM$_{2.5}$ ($\mu g/m^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 $\mu g/m^3$.

Ozone

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2001-2011, data from 2011 are displayed on the dashboard

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heart Attack

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

HEALTH INDICATORS

Asthma

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

Lung Cancer and Melanoma

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
**WATER QUALITY**

**Arsenic**
- **Measures:** Mean concentration of arsenic ($\mu$g/L) in public drinking water
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** Averaged data from 2011-2013
- **Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**
- **Measure:** Mean concentration of nitrate (mg/L) in public drinking water
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** Averaged data from 2011-2013
- **Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**HOME HAZARDS**

**Lead Poisoning**
- **Measure:** Percent of children tested who had a blood lead level $\geq$ $\mu$g/dL
- **Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2001-2014, data from 2014 displayed on dashboard
- **Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile included lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**
- **Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard
- **Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**BIRTH OUTCOMES**

**Low Birth Weight**
- **Measures:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard
- **Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**
- **Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard
- **Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD
Principal Investigator, Chief Medical Officer
608-266-1253
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD
Senior Epidemiologist
608-267-9752
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA
Evaluator
608-267-3830
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON
IS Systems Development Services Professional
608-266-6696
joseph.olson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS
Program Manager
608-267-3811
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY Vogt, MPH, CHES
Communications and Education Coordinator
608-267-2488
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH
Epidemiologist
608-266-7897
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD
Chief, Health Hazard Evaluation Section
608-266-7480
mark.werner@dhs.wisconsin.gov

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DUNN COUNTY
ENVIRONMENTAL HEALTH PROFILE

2015

WISCONSIN ENVIRONMENTAL PUBLIC HEALTH TRACKING PROGRAM
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital’s community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
DUNN COUNTY
DASHBOARD  |  2015 ENVIRONMENTAL HEALTH PROFILE

AIR QUALITY

Ozone
0.0  |  Annual days above standard
Wisconsin: 0.7

Particulate Matter 2.5
0.0  |  Annual days above standard
Wisconsin: 0.1

WATER QUALITY

Arsenic
0.3  |  Average concentration in µg/L
Wisconsin: 1.3

Nitrate
2.8  |  Average concentration in mg/L
Wisconsin: 1.5

HOME HAZARDS

Carbon Monoxide (CO)
5.5  |  Rate of ER visits per 100,000 people
Wisconsin: 8.2

Childhood Lead Poisoning
2.6% |  Percent with blood lead ≥5 µg/L
Wisconsin: 6.3%

BIRTH OUTCOMES

Low Birth Weight
6.2% |  Percent of births <2500 grams
Wisconsin: 7.3%

Preterm Birth
9.9% |  Percent of births <37 weeks gestation
Wisconsin: 10.3%

HEALTH INDICATORS

Heat Stress
18.9  |  Rate of ER visits per 100,000 people
Wisconsin: 16.5

Melanoma
13.0  |  Rate of cases per 100,000 people
Wisconsin: 18.4

Lung Cancer
54.2  |  Rate of cases per 100,000 people
Wisconsin: 62.0

Asthma
212.0 |  Rate of ER visits per 100,000 people*
Wisconsin: 376.0

*This indicator is represented per 10,000 people on the data portal.  Above state value  At or below state value  ^ Data are suppressed  References on next page
### AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2011

### WATER QUALITY

Arsenic and Nitrate: Measured concentrations from public water systems  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Years displayed: Averaged data from 2011-2013

### HOME HAZARDS

Childhood Lead Poisoning: Reported blood lead test results  
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.  
Year displayed: 2014  
Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013

### BIRTH OUTCOMES

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2011-2013

### HEALTH INDICATORS

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013  
Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers  
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2006-2010  
Asthma: Age-adjusted rate of emergency room visits related to asthma  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2012

Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

Air Quality Dunn County

Ozone

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit dhs.wisconsin.gov/epht/criteriapollutants.htm.
WATER QUALITY  DUNN COUNTY

Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

PUBLIC DRINKING WATER

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.

ARSENIC AND NITRATE
MEAN CONCENTRATION LEVELS IN PUBLIC WATER (2011-2013)

- Arsenic mean concentration (µg/L): 0.3
- Nitrate mean concentration (mg/L): 2.8

- Dunn County
- Wisconsin Average

Maximum contaminant level:
- Arsenic: 10 µg/L
- Nitrate: 10 mg/L
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**Carbon Monoxide Poisoning**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.

**Childhood Lead Poisoning**

PERCENT OF TESTED CHILDREN WITH BLOOD LEAD ≥5 µg/dL
STATEWIDE: 6.3%

**Dunn County**

<table>
<thead>
<tr>
<th>Year</th>
<th>Dunn County</th>
<th>Wisconsin Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004-2008</td>
<td>5.5</td>
<td>8.2</td>
</tr>
<tr>
<td>2009-2013</td>
<td>2.6%</td>
<td>6.3%</td>
</tr>
</tbody>
</table>

**Take a Closer Look at the Data:**

dhs.wi.gov/epht
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL. This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

**LOW BIRTH WEIGHT**

PERCENT OF BIRTHS BELOW 2,500 GRAMS

- **Dunn County**: Above state value
- **Wisconsin Average**: At or below state value
- **Confidence Interval**: Suppressed

![Graph showing Dunn County vs Wisconsin Average for low birth weight percentages from 2002-2013](image-url)
**PRETERM BIRTH**

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

![Graph showing preterm births in Dunn County and Wisconsin from 2002-2013](image)

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit [dhs.wi.gov/epht/premature.htm](dhs.wi.gov/epht/premature.htm).

**BIRTH DEFECTS**

A birth defect is a problem that happens while the baby is developing in the mother's body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby's body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at [dhs.wisconsin.gov/epht/birthdefects.htm](dhs.wisconsin.gov/epht/birthdefects.htm).
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**HEAT STRESS**
Rate of ER visits per 100,000 people

**MELANOMA**
Rate of cases per 100,000 people

**LUNG CANCER**
Rate of cases per 100,000 people

**ASTHMA**
Rate of ER visits per 100,000 people

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit [dhs.wisconsin.gov/epht/melanoma.htm](http://dhs.wisconsin.gov/epht/melanoma.htm). To read more about lung cancer, visit [dhs.wisconsin.gov/epht/lung.htm](http://dhs.wisconsin.gov/epht/lung.htm).

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit [dhs.wisconsin.gov/asthma/Index.htm](http://dhs.wisconsin.gov/asthma/Index.htm)

ASTHMA
RATE OF ER VISITS PER 100,000 PEOPLE

For more information on melanoma, visit [dhs.wisconsin.gov/epht/melanoma.htm](http://dhs.wisconsin.gov/epht/melanoma.htm). To read more about lung cancer, visit [dhs.wisconsin.gov/epht/lung.htm](http://dhs.wisconsin.gov/epht/lung.htm).
DATA DETAILS

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$)

**Measures:** Annual Average PM$_{2.5}$ ($\mu$g/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 $\mu$g/m$^3$.

Ozone

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heart Attack

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

HEALTH INDICATORS

Asthma

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

Lung Cancer and Melanoma

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E909.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
WATER QUALITY

Arsenic
Measure: Mean concentration of arsenic (µg/L) in public drinking water
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013
Data details: Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

Nitrate
Measure: Mean concentration of nitrate (mg/L) in public drinking water
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013
Data details: Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

HOME HAZARDS

Lead Poisoning
Measure: Percent of children tested who had a blood lead level ≥5 µg/dL
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2001-2014, data from 2014 displayed on dashboard
Data details: Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

Carbon Monoxide Poisoning
Measure: Annual average rate of emergency room visits, age adjusted per 100,000 people
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2004-2013, data averaged from 2009-2013 displayed on dashboard
Data details: This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

BIRTH OUTCOMES

Low Birth Weight
Measure: Percentage of babies weighing <2,500 grams at birth among all babies born to county residents
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2002-2013, data from 2011-2013 are displayed on dashboard
Data details: Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

Preterm Birth
Measure: Percentage of babies born at <37 weeks gestation among all babies born to county residents
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2002-2013, data from 2011-2013 are displayed on dashboard
Data details: Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician's estimated weeks of gestation is used.
HENRY ANDERSON, MD
Principal Investigator, Chief Medical Officer
608-266-1253
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD
Senior Epidemiologist
608-267-9752
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA
Evaluator
608-267-3830
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON
IS Systems Development Services Professional
608-266-6696
josephaolson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS
Program Manager
608-267-3811
jennifer.camponeschiodhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES
Communications and Education Coordinator
608-267-2488
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH
Epidemiologist
608-266-7897
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD
Chief, Health Hazard Evaluation Section
608-266-7480
mark.werner@dhs.wisconsin.gov

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EAU CLAIRE COUNTY
ENVIRONMENTAL HEALTH PROFILE

2015

WISCONSIN ENVIRONMENTAL PUBLIC HEALTH TRACKING PROGRAM
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
**EAU CLAIRE COUNTY**
**DASHBOARD | 2015 ENVIRONMENTAL HEALTH PROFILE**

**AIR QUALITY**

Ozone
- Annual days above standard
  - 0.0
  - Wisconsin: 0.7

Particulate Matter 2.5
- Annual days above standard
  - 0.0
  - Wisconsin: 0.1

**WATER QUALITY**

Arsenic
- Average concentration in µg/L
  - 0.4
  - Wisconsin: 1.3

Nitrate
- Average concentration in mg/L
  - 2.5
  - Wisconsin: 1.5

**HOME HAZARDS**

Carbon Monoxide (CO)
- Rate of ER visits per 100,000 people
  - 6.4
  - Wisconsin: 8.2

Childhood Lead Poisoning
- Percent with blood lead ≥ 5 µg/L
  - 1.9%
  - Wisconsin: 6.3%

**BIRTH OUTCOMES**

Low Birth Weight
- Percent of births <2500 grams
  - 6.0%
  - Wisconsin: 7.3%

Preterm Birth
- Percent of births <37 weeks gestation
  - 7.9%
  - Wisconsin: 10.3%

**HEALTH INDICATORS**

Heat Stress
- Rate of ER visits per 100,000 people
  - 9.6
  - Wisconsin: 16.5

Melanoma
- Rate of cases per 100,000 people
  - 16.7
  - Wisconsin: 18.4

Lung Cancer
- Rate of cases per 100,000 people
  - 52.2
  - Wisconsin: 62.0

Asthma
- Rate of ER visits per 100,000 people*
  - 230.0
  - Wisconsin: 376.0

---

*This indicator is represented per 10,000 people on the data portal.

- Above state value
- At or below state value
- Data are suppressed

---

WISCONSIN ENVIRONMENTAL PUBLIC HEALTH TRACKING PROGRAM

dhs.wi.gov/epht | dhstracking@wi.gov | 608-267-2488

Wisconsin Department of Health Services | Division of Public Health | Bureau of Environmental and Occupational Health
**DASHBOARD DATA DETAILS**

Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.

### AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2011

### WATER QUALITY

Arsenic and Nitrate: Measured concentrations from public water systems  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Years displayed: Averaged data from 2011-2013

### HOME HAZARDS

Childhood Lead Poisoning: Reported blood lead test results  
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.  
Year displayed: 2014  
Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013

### BIRTH OUTCOMES

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2011-2013

### HEALTH INDICATORS

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013  
Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers  
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2006-2010  
Asthma: Age-adjusted rate of emergency room visits related to asthma  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

**OZONE**

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.

**PARTICULATE MATTER 2.5**

**ANNUAL AVERAGE (µg/m3)**

STATEWIDE: 0.1

STATEWIDE: 9.4
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit dhs.wisconsin.gov/epht/criteriapollutants.htm.
Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

PUBLIC DRINKING WATER
About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.

**CARBON MONOXIDE**

RATE OF ER VISITS PER 100,000 PEOPLE

<table>
<thead>
<tr>
<th>Year</th>
<th>Eau Claire County</th>
<th>Wisconsin Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004-08</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009-13</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more μg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 μg/dL. This decision was made due to the overwhelming evidence that blood lead levels below 10 μg/dL can cause damage to the brain and other parts of the body. There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 μg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 μg/dL to ≥5 μg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

LOW BIRTH WEIGHT

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**HEAT STRESS**

- **9.6**
  - RATE OF ER VISITS PER 100,000 PEOPLE
  - STATEWIDE: 16.5

- **16.7**
  - RATE OF CASES PER 100,000 PEOPLE
  - STATEWIDE: 18.4

- **52.2**
  - RATE OF CASES PER 100,000 PEOPLE
  - STATEWIDE: 62

- **230.0**
  - RATE OF ER VISITS PER 100,000 PEOPLE
  - STATEWIDE: 376

**HEAT STRESS**

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhswisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhswisconsin.gov/epht/lung.htm.

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhswisconsin.gov/asthma/Index.htm.
**DATA DETAILS**

**AIR QUALITY**

**Particulate Matter 2.5 (PM$_{2.5}$)**

**Measures:** Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

**Ozone**

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

**Heat Attack**

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**HEALTH INDICATORS**

**Asthma**

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

**Lung Cancer and Melanoma**

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**Heat Stress**

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
WATER QUALITY

**Arsenic**

**Measures:** Mean concentration of arsenic (µg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**

**Measure:** Mean concentration of nitrate (mg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

HOME HAZARDS

**Lead Poisoning**

**Measure:** Percent of children tested who had a blood lead level ≥ 5 µg/dL  
**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2001-2014, data from 2014 displayed on dashboard  
**Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**

**Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard  
**Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825 ,E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

BIRTH OUTCOMES

**Low Birth Weight**

**Measures:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**

**Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
<table>
<thead>
<tr>
<th>Name</th>
<th>Title/Position</th>
<th>Phone</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>HENRY ANDERSON, MD</td>
<td>Principal Investigator, Chief Medical Officer</td>
<td>608-266-1253</td>
<td><a href="mailto:henry.anderson@dhs.wisconsin.gov">henry.anderson@dhs.wisconsin.gov</a></td>
</tr>
<tr>
<td>PAUL CRESWELL, PhD</td>
<td>Senior Epidemiologist</td>
<td>608-267-9752</td>
<td><a href="mailto:paul.creswell@dhs.wisconsin.gov">paul.creswell@dhs.wisconsin.gov</a></td>
</tr>
<tr>
<td>DAWN BERNY, MPA</td>
<td>Evaluator</td>
<td>608-267-3830</td>
<td><a href="mailto:dawn.berney@dhs.wisconsin.gov">dawn.berney@dhs.wisconsin.gov</a></td>
</tr>
<tr>
<td>JOSEPH OLSON</td>
<td>IS Systems Development Services Professional</td>
<td>608-266-6696</td>
<td><a href="mailto:joseph.a.olson@dhs.wisconsin.gov">joseph.a.olson@dhs.wisconsin.gov</a></td>
</tr>
<tr>
<td>JENNY CAMPONESCHI, MS</td>
<td>Program Manager</td>
<td>608-267-3811</td>
<td><a href="mailto:jennifer.camponeschi@dhs.wisconsin.gov">jennifer.camponeschi@dhs.wisconsin.gov</a></td>
</tr>
<tr>
<td>CHRISTY VOGT, MPH, CHES</td>
<td>Communications and Education Coordinator</td>
<td>608-267-2488</td>
<td><a href="mailto:christy.vogt@dhs.wisconsin.gov">christy.vogt@dhs.wisconsin.gov</a></td>
</tr>
<tr>
<td>MEGAN CHRISTENSON, MS, MPH</td>
<td>Epidemiologist</td>
<td>608-266-7897</td>
<td><a href="mailto:megan.christenson@dhs.wisconsin.gov">megan.christenson@dhs.wisconsin.gov</a></td>
</tr>
<tr>
<td>MARK WERNER, PhD</td>
<td>Chief, Health Hazard Evaluation Section</td>
<td>608-266-7480</td>
<td><a href="mailto:mark.werner@dhs.wisconsin.gov">mark.werner@dhs.wisconsin.gov</a></td>
</tr>
</tbody>
</table>

**SPECIAL THANKS**

Iowa Environmental Public Health Tracking Program
Wisconsin Environmental Public Health Tracking Program’s Technical Advisory Group
Jeff Phillips, Bureau of Environmental and Occupational Health, Wisconsin Department of Health Services
Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services
Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
FLORENCE COUNTY
DASHBOARD  |  2015 ENVIRONMENTAL HEALTH PROFILE

**AIR QUALITY**

**Ozone**
- Annual days above standard
  - 0.0
  - Wisconsin: 0.7

**Particulate Matter 2.5**
- Annual days above standard
  - 0.0
  - Wisconsin: 0.1

**WATER QUALITY**

**Arsenic**
- Average concentration in µg/L
  - 2.7
  - Wisconsin: 1.3

**Nitrate**
- Average concentration in mg/L
  - 0.5
  - Wisconsin: 1.5

**HOME HAZARDS**

**Carbon Monoxide (CO)**
- Rate of ER visits per 100,000 people
  - 0.0
  - Wisconsin: 8.2

**Childhood Lead Poisoning**
- Percent with blood lead ≥5 µg/L
  - 0.0%
  - Wisconsin: 6.3%

**BIRTH OUTCOMES**

**Low Birth Weight**
- Percent of births <2500 grams
  - 66.0%
  - Wisconsin: 7.3%

**Preterm Birth**
- Percent of births <37 weeks gestation
  - 6.3%
  - Wisconsin: 10.3%

**HEALTH INDICATORS**

**Heat Stress**
- Rate of ER visits per 100,000 people
  - 0.0
  - Wisconsin: 16.5

**Melanoma**
- Rate of cases per 100,000 people
  - 179.0
  - Wisconsin: 18.4

**Lung Cancer**
- Rate of cases per 100,000 people
  - 66.0
  - Wisconsin: 62.0

**Asthma**
- Rate of ER visits per 100,000 people*
  - 0.0
  - Wisconsin: 376.0

*This indicator is represented per 10,000 people on the data portal.  
Above state value  |  At or below state value  |  Data are suppressed  |  References on next page
Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at [dhs.wi.gov/epht](http://dhs.wi.gov/epht). For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at [dhs.wisconsin.gov/epht/glossary.htm](http://dhs.wisconsin.gov/epht/glossary.htm).

**AIR QUALITY**
Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2011

**WATER QUALITY**
Arsenic and Nitrate: Measured concentrations from public water systems
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013

**HOME HAZARDS**
Childhood Lead Poisoning: Reported blood lead test results
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.
Year displayed: 2014
Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

**BIRTH OUTCOMES**
Low Birth Weight and Preterm Birth: Wisconsin birth certificate data
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2011-2013

**HEALTH INDICATORS**
Heat Stress: Age-adjusted rate of emergency room visits related to heat stress
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013
Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2006-2010
Asthma: Age-adjusted rate of emergency room visits related to asthma
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

**OZONE**

- **0.0**
  - Annual days above standard
  - Florence County: 0.0
  - Wisconsin Average: 0.7

**PARTICULATE MATTER 2.5**

- **0.0**
  - Annual days above standard
  - Florence County: 0.0
  - Wisconsin Average: 0.1

- **7.3**
  - Annual average (µg/m$^3$)
  - Florence County: 9.4
  - Wisconsin Average: 7.3

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit dhs.wisconsin.gov/epht/criteriapollutants.htm.
Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

**PUBLIC DRINKING WATER**

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit [dhs.wi.gov/epht](http://dhs.wi.gov/epht).

**ARSENIC AND NITRATE**

**MEAN CONCENTRATION LEVELS IN PUBLIC WATER (2011-2013)**

- **Arsenic**
  - Average concentration in public water (µg/L) 2.7
  - Statewide: 1.3

- **Nitrate**
  - Average concentration in public water (mg/L) 0.5
  - Statewide: 1.5

*(Above state value, At or below state value, Suppressed)*

**Graph:**

- Arsenic mean concentration (µg/L): Florence County 2.7, Wisconsin Average 1.3
- Nitrate mean concentration (mg/L): Florence County 0.5, Wisconsin Average 1.5

*(Maximum contaminant level: 10 µg/L, 10 mg/L)*

*Take a closer look at the data: [dhs.wi.gov/epht]*

PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL. This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother's ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

**LOW BIRTH WEIGHT**

PERCENT OF BIRTHS BELOW 2,500 GRAMS

<table>
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<tr>
<th>Year</th>
<th>Florence County</th>
<th>Wisconsin Average</th>
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<tr>
<td>2008-2010</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011-2013</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

All data are suppressed for Florence County.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**HEAT STRESS**

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.

**HEALTH INDICATORS**

**HEAT STRESS**

- **Rate of ER Visits per 100,000 People**
  - **Florence County**: 0.0
  - **Statewide**: 16.5

**MELANOMA**

- **Rate of Cases per 100,000 People**
  - **Florence County**: 66.0
  - **Statewide**: 62

**LUNG CANCER**

- **Rate of Cases per 100,000 People**
  - **Florence County**: 0.0
  - **Statewide**: 376

**ASTHMA**

- **Rate of ER Visits per 100,000 People**
  - **Florence County**: 0.0
  - **Statewide**: 376

**TAKE A CLOSER LOOK AT THE DATA:**

dhs.wi.gov/epht
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

ASTHMA
Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm

ASTHMA
RATE OF ER VISITS PER 100,000 PEOPLE
**DATA DETAILS**

**AIR QUALITY**

**Particulate Matter 2.5 (PM$_{2.5}$)**

**Measures:** Annual Average PM$_{2.5}$ ($\mu$g/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency's National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 $\mu$g/m$^3$.

**Ozone**

**Measures:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

**Heart Attack**

**Measures:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**HEALTH INDICATORS**

**Asthma**

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

**Lung Cancer and Melanoma**

**Measures:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**Heat Stress**

**Measures:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
DATA DETAILS continued

WATER QUALITY

Arsenic
Measure: Mean concentration of arsenic (µg/L) in public drinking water
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013
Data details: Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

Nitrate
Measure: Mean concentration of nitrate (mg/L) in public drinking water
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013
Data details: Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

HOME HAZARDS

Lead Poisoning
Measure: Percent of children tested who had a blood lead level ≥ 5 µg/dL
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2001-2014, data from 2014 displayed on dashboard
Data details: Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

Carbon Monoxide Poisoning
Measure: Annual average rate of emergency room visits, age adjusted per 100,000 people
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2004-2013, data averaged from 2009-2013 displayed on dashboard
Data details: This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

BIRTH OUTCOMES

Low Birth Weight
Measure: Percentage of babies weighing <2,500 grams at birth among all babies born to county residents
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2002-2013, data from 2011-2013 are displayed on dashboard
Data details: Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

Preterm Birth
Measure: Percentage of babies born at <37 weeks gestation among all babies born to county residents
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2002-2013, data from 2011-2013 are displayed on dashboard
Data details: Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD  
Principal Investigator, Chief Medical Officer  
608-266-1253  
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD  
Senior Epidemiologist  
608-267-9752  
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA  
Evaluator  
608-267-3830  
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON  
IS Systems Development Services Professional  
608-266-6696  
josepha.olson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS  
Program Manager  
608-267-3811  
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES  
Communications and Education Coordinator  
608-267-2488  
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH  
Epidemiologist  
608-266-7897  
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD  
Chief, Health Hazard Evaluation Section  
608-266-7480  
mark.werner@dhs.wisconsin.gov

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Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services
Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS

Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION

The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS

Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH

When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT

This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
## Air Quality

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Value</th>
<th>Above State Value</th>
<th>Below State Value</th>
<th>Data Suppressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozone</td>
<td>2.0</td>
<td>No</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Particulate Matter 2.5</td>
<td>0.0</td>
<td>No</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

## Water Quality

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Value</th>
<th>Above State Value</th>
<th>Below State Value</th>
<th>Data Suppressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic</td>
<td>1.0</td>
<td>No</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Nitrate</td>
<td>0.9</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

## Home Hazards

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Value</th>
<th>Above State Value</th>
<th>Below State Value</th>
<th>Data Suppressed</th>
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<tbody>
<tr>
<td>Carbon Monoxide (CO)</td>
<td>3.6</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Childhood Lead Poisoning</td>
<td>4.9%</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

## Birth Outcomes

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Value</th>
<th>Above State Value</th>
<th>Below State Value</th>
<th>Data Suppressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Birth Weight</td>
<td>6.4%</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Preterm Birth</td>
<td>8.9%</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

## Health Indicators

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Value</th>
<th>Above State Value</th>
<th>Below State Value</th>
<th>Data Suppressed</th>
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</thead>
<tbody>
<tr>
<td>Heat Stress</td>
<td>19.2</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Melanoma</td>
<td>28.6</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Lung Cancer</td>
<td>62.9</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Asthma</td>
<td>195.0</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

*This indicator is represented per 10,000 people on the data portal.*
## DASHBOARD DATA DETAILS

Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at [dhs.wi.gov/epht](http://dhs.wi.gov/epht). For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at [dhs.wisconsin.gov/epht/glossary.htm](http://dhs.wisconsin.gov/epht/glossary.htm).

### AIR QUALITY

Particulate Matter 2.5 (PM\textsubscript{2.5}) and Ozone: Monitored and modeled estimates of air quality readings  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2011

### WATER QUALITY

Arsenic and Nitrate: Measured concentrations from public water systems  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Years displayed: Averaged data from 2011-2013

### HOME HAZARDS

Childhood Lead Poisoning: Reported blood lead test results  
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.  
Year displayed: 2014  
Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013

### BIRTH OUTCOMES

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2011-2013

### HEALTH INDICATORS

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013  
Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers  
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2006-2010  
Asthma: Age-adjusted rate of emergency room visits related to asthma  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

### OZONE

- **2.0**
  - **ANNUAL DAYS ABOVE STANDARD**
  - **STATEWIDE:** 0.7

### PARTICULATE MATTER 2.5

- **0.0**
  - **ANNUAL DAYS ABOVE STANDARD**
  - **STATEWIDE:** 0.1

- **10.2**
  - **ANNUAL AVERAGE (µg/m³)**
  - **STATEWIDE:** 9.4

#### OZONE

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.

Take a closer look at the data: [dhs.wi.gov/epht](http://dhs.wi.gov/epht)
Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit [dhs.wisconsin.gov/epht/criteriapollutants.htm](http://dhs.wisconsin.gov/epht/criteriapollutants.htm).
Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

PUBLIC DRINKING WATER

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

ARSENIC IN PRIVATE WELLS
AVERAGE CONCENTRATION (µg/L)

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

<table>
<thead>
<tr>
<th>Year</th>
<th>Data Range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004-2008</td>
<td>3.6</td>
<td>Above state value</td>
</tr>
<tr>
<td>2009-2013</td>
<td>4.9%</td>
<td>At or below state value</td>
</tr>
</tbody>
</table>

**CHILDHOOD LEAD POISONING**

<table>
<thead>
<tr>
<th>Year</th>
<th>Data Range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004-2008</td>
<td>8.2</td>
<td>Above state value</td>
</tr>
<tr>
<td>2009-2013</td>
<td>6.3%</td>
<td>At or below state value</td>
</tr>
</tbody>
</table>

**CARBON MONOXIDE**

**RATE OF ER VISITS PER 100,000 PEOPLE**

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

LOW BIRTH WEIGHT

- **6.4%**
  - **LOW BIRTH WEIGHT**
  - **PERCENT BIRTHS**
  - <2,500 GRAMS
  - **STATEWIDE: 7.3%**

- **8.9%**
  - **PRETERM BIRTH**
  - **PERCENT BIRTHS**
  - <37 WEEKS GESTATION
  - **STATEWIDE: 10.3%**

LOW BIRTH WEIGHT

**PERCENT OF BIRTHS BELOW 2,500 GRAMS**

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

LOW BIRTH WEIGHT

- **Above state value**
- **At or below state value**
- **Suppressed**

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

**TAKE A CLOSER LOOK AT THE DATA:**

[Link to Wisconsin Environmental Public Health Tracking](dhs.wi.gov/epht)
**PRETERM BIRTH**

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

**BIRTH DEFECTS**

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Health indicators

Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

- **Heat Stress**: 19.2
  - Rate of ER visits per 100,000 people
  - Statewide: 16.5

- **Melanoma**: 28.6
  - Rate of cases per 100,000 people
  - Statewide: 18.4

- **Lung Cancer**: 62.9
  - Rate of cases per 100,000 people
  - Statewide: 62

- **Asthma**: 195.0
  - Rate of ER visits per 100,000 people
  - Statewide: 376

### Heat Stress

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.

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**Take a Closer Look at the Data:**

dhs.wi.gov/epht

Wisconsin Environmental Public Health Tracking | 13
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/index.htm.

ASTHMA
RATE OF ER VISITS PER 100,000 PEOPLE
DATA DETAILS

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$)

**Measures:** Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

Ozone

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2001-2011, data from 2011 are displayed on the dashboard

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heart Attack

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

HEALTH INDICATORS

Asthma

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

Lung Cancer and Melanoma

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
DATA DETAILS continued

WATER QUALITY

Arsenic

**Measures:** Mean concentration of arsenic (µg/L) in public drinking water

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** Averaged data from 2011-2013

**Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

Nitrate

**Measure:** Mean concentration of nitrate (mg/L) in public drinking water

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** Averaged data from 2011-2013

**Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

HOME HAZARDS

Lead Poisoning

**Measure:** Percent of children tested who had a blood lead level ≥ 5 µg/dL

**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2001-2014, data from 2014 displayed on dashboard

**Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

Carbon Monoxide Poisoning

**Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard

**Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

BIRTH OUTCOMES

Low Birth Weight

**Measures:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard

**Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

Preterm Birth

**Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard

**Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD
Principal Investigator, Chief Medical Officer
608-266-1253
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD
Senior Epidemiologist
608-267-9752
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA
Evaluator
608-267-3830
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON
IS Systems Development Services Professional
608-266-6696
josepha.olson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS
Program Manager
608-267-3811
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES
Communications and Education Coordinator
608-267-2488
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH
Epidemiologist
608-266-7897
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD
Chief, Health Hazard Evaluation Section
608-266-7480
mark.werner@dhs.wisconsin.gov

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Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.
<table>
<thead>
<tr>
<th>AIR QUALITY</th>
<th>WATER QUALITY</th>
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<tbody>
<tr>
<td><strong>Ozone</strong></td>
<td>Arsenic</td>
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<tr>
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<td>1.9</td>
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<tr>
<td><strong>Particulate Matter 2.5</strong></td>
<td>Nitrate</td>
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<th>HOME HAZARDS</th>
<th>BIRTH OUTCOMES</th>
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<tr>
<td><strong>Carbon Monoxide (CO)</strong></td>
<td>Low Birth Weight</td>
</tr>
<tr>
<td>7.1</td>
<td>6.6%</td>
</tr>
<tr>
<td><strong>Childhood Lead Poisoning</strong></td>
<td>Percent of births &lt;2500 grams</td>
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<tr>
<td>3.0%</td>
<td>Wisconsin: 8.7</td>
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**Wisconsin:**

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<td><strong>Lung Cancer</strong></td>
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<td>80.6</td>
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<td><strong>Melanoma</strong></td>
<td><strong>Asthma</strong></td>
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Wisconsin Department of Health Services | Division of Public Health | Bureau of Environmental and Occupational Health
Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.

**AIR QUALITY**
Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2011

**WATER QUALITY**
Arsenic and Nitrate: Measured concentrations from public water systems
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013

**HOME HAZARDS**
Childhood Lead Poisoning: Reported blood lead test results
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.
Year displayed: 2014
Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Due to small numbers, aggregated rates were calculated for this county.
Years displayed in this profile: Aggregated data from 2004-2013

**BIRTH OUTCOMES**
Low Birth Weight and Preterm Birth: Wisconsin birth certificate data
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2011-2013

**HEALTH INDICATORS**
Heat Stress: Age-adjusted rate of emergency room visits related to heat stress
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013
Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2006-2010
Asthma: Age-adjusted rate of emergency room visits related to asthma
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

### Forest County

**OZONE**

- Annual Days Above Standard
  - Statewide: 0.7
- Annual Average (µg/m³)
  - Statewide: 9.4

**PARTICULATE MATTER 2.5**

- Annual Days Above Standard
  - Statewide: 0.1
- Annual Average (µg/m³)
  - Statewide: 7.4

**TAKE A CLOSER LOOK AT THE DATA:**

dhs.wi.gov/epht

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit dhs.wisconsin.gov/epht/criteriapollutants.htm.
WATER QUALITY

FOREST COUNTY

Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

**ARSENIC AND NITRATE**

**MEAN CONCENTRATION LEVELS IN PUBLIC WATER (2011-2013)**

- **Arsenic** mean concentration (µg/L):
  - **Forest County**: 1.9
  - **Wisconsin Average**: 1.3

- **Nitrate** mean concentration (mg/L):
  - **Forest County**: 0.7
  - **Wisconsin Average**: 1.5

PUBLIC DRINKING WATER

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit [dhs.wi.gov/epht](http://dhs.wi.gov/epht).
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**7.1**

**CARBON MONOXIDE POISONING**  
RATE OF ER VISITS RELATED TO CO PER 100,000  
STATEWIDE: 8.7

**3.0%**

**CHILDHOOD LEAD POISONING**  
PERCENT OF TESTED CHILDREN WITH BLOOD LEAD ≥5 µg/dL  
STATEWIDE: 6.3%

**CARBON MONOXIDE POISONING**
Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**HEAT STRESS**
RATE OF ER VISITS PER 100,000 PEOPLE
STATEWIDE: 16.5

**MELANOMA**
RATE OF CASES PER 100,000 PEOPLE
STATEWIDE: 18.4

**LUNG CANCER**
RATE OF CASES PER 100,000 PEOPLE
STATEWIDE: 62

**ASTHMA**
RATE OF ER VISITS PER 100,000 PEOPLE
STATEWIDE: 376

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/index.htm
DATA DETAILS

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$)

**Measures:** Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

Ozone

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heart Attack

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

HEALTH INDICATORS

Asthma

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

Lung Cancer and Melanoma

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
**WATER QUALITY**

**Arsenic**
- **Measures:** Mean concentration of arsenic (µg/L) in public drinking water
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** Averaged data from 2011-2013
- **Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**
- **Measure:** Mean concentration of nitrate (mg/L) in public drinking water
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** Averaged data from 2011-2013
- **Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, we aggregated three years of data (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**HOME HAZARDS**

**Lead Poisoning**
- **Measure:** Percent of children tested who had a blood lead level ≥ 5 µg/dL
- **Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2001-2014, data from 2014 displayed on dashboard
- **Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**
- **Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2004-2013, data aggregated from 2004-2013 displayed on the dashboard
- **Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. Due to small numbers, aggregated rates were calculated for this county.

**BIRTH OUTCOMES**

**Low Birth Weight**
- **Measures:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard
- **Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**
- **Measures:** Percentage of babies born at <37 weeks gestation among all babies born to county residents
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard
- **Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
SPECIAL THANKS

Iowa Environmental Public Health Tracking Program
Wisconsin Environmental Public Health Tracking Program’s Technical Advisory Group
Jeff Phillips, Bureau of Environmental and Occupational Health, Wisconsin Department of Health Services
Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services
Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
GRANT COUNTY
DASHBOARD  |  2015 ENVIRONMENTAL HEALTH PROFILE

AIR QUALITY

Ozone
- Annual days above standard
  Wisconsin: 0.7

Particulate Matter 2.5
- Annual days above standard
  Wisconsin: 0.1

WATER QUALITY

Arsenic
- Average concentration in µg/L
  Wisconsin: 1.3

Nitrate
- Average concentration in mg/L
  Wisconsin: 1.2

HOME HAZARDS

Carbon Monoxide (CO)
- Rate of ER visits per 100,000 people
  Wisconsin: 8.2

Childhood Lead Poisoning
- Percent with blood lead ≥5 µg/L
  Wisconsin: 6.3%

BIRTH OUTCOMES

Low Birth Weight
- Percent of births <2500 grams
  Wisconsin: 7.3%

Preterm Birth
- Percent of births <37 weeks gestation
  Wisconsin: 10.3%

HEALTH INDICATORS

Heat Stress
- Rate of ER visits per 100,000 people
  Wisconsin: 16.5

Melanoma
- Rate of cases per 100,000 people
  Wisconsin: 18.4

Lung Cancer
- Rate of cases per 100,000 people
  Wisconsin: 62.0

Asthma
- Rate of ER visits per 100,000 people*
  Wisconsin: 376.0

*This indicator is represented per 10,000 people on the data portal.
Above state value       At or below state value     ^  Data are suppressed    |  References on next page

Wisconsin Department of Health Services  |  Division of Public Health  |  Bureau of Environmental and Occupational Health
WISCONSIN ENVIRONMENTAL PUBLIC HEALTH TRACKING PROGRAM
dhs.wi.gov/epht  |  dhstracking@wi.gov  |  608-267-2488
Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.

### AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2011

### WATER QUALITY

Arsenic and Nitrate: Measured concentrations from public water systems  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Years displayed: Averaged data from 2011-2013

### HOME HAZARDS

Childhood Lead Poisoning: Reported blood lead test results  
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.  
Year displayed: 2014  
Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013

### BIRTH OUTCOMES

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2011-2013

### HEALTH INDICATORS

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013  
Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers  
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2006-2010  
Asthma: Age-adjusted rate of emergency room visits related to asthma  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

### OZONE

0.0

ANNUAL DAYS ABOVE STANDARD

STATEWIDE: 0.7

### PARTICULATE MATTER 2.5

0.0

ANNUAL DAYS ABOVE STANDARD

STATEWIDE: 0.1

10.4

PARTICULATE MATTER 2.5

ANNUAL AVERAGE (µg/m³)

STATEWIDE: 9.4

#### OZONE

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit dhs.wisconsin.gov/epht/criteriapollutants.htm.
Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

**ARSENIC AND NITRATE**

**MEAN CONCENTRATION LEVELS IN PUBLIC WATER (2011-2013)**

<table>
<thead>
<tr>
<th>Arsenic Mean Concentration (µg/L)</th>
<th>Nitrate Mean Concentration (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grant County</td>
<td>Wisconsin Average</td>
</tr>
<tr>
<td>0.5</td>
<td>1.2</td>
</tr>
</tbody>
</table>

**PUBLIC DRINKING WATER**

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit [dhs.wi.gov/epht](http://dhs.wi.gov/epht).
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**
Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.

**TAKE A CLOSER LOOK AT THE DATA:**
dhs.wi.gov/epht
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

###LOW BIRTH WEIGHT

<table>
<thead>
<tr>
<th>Year</th>
<th>Grant County</th>
<th>Wisconsin Average</th>
<th>Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002-2004</td>
<td>6.4%</td>
<td>7.3%</td>
<td></td>
</tr>
<tr>
<td>2005-2007</td>
<td>6.4%</td>
<td>7.3%</td>
<td></td>
</tr>
<tr>
<td>2008-2010</td>
<td>6.4%</td>
<td>7.3%</td>
<td></td>
</tr>
<tr>
<td>2011-2013</td>
<td>6.4%</td>
<td>7.3%</td>
<td></td>
</tr>
</tbody>
</table>

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**HEAT STRESS**
RATE OF ER VISITS PER 100,000 PEOPLE

- **32.4**
  - STATEWIDE: 16.5

**MELANOMA**
RATE OF CASES PER 100,000 PEOPLE

- **12.9**
  - STATEWIDE: 18.4

**LUNG CANCER**
RATE OF CASES PER 100,000 PEOPLE

- **53.3**
  - STATEWIDE: 62

**ASTHMA**
RATE OF ER VISITS PER 100,000 PEOPLE

- **311.0**
  - STATEWIDE: 376

**HEAT STRESS**
Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.

ASTHMA
RATE OF ER VISITS PER 100,000 PEOPLE
**DATA DETAILS**

**AIR QUALITY**

**Particulate Matter 2.5 (PM$_{2.5}$)**

**Measures:** Annual Average PM$_{2.5}$ ($\mu g/m^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 $\mu g/m^3$.

**Ozone**

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

**Heart Attack**

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**HEALTH INDICATORS**

**Asthma**

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

**Lung Cancer and Melanoma**

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**Heat Stress**

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
**WATER QUALITY**

**Arsenic**

**Measure:** Mean concentration of arsenic (µg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**

**Measure:** Mean concentration of nitrate (mg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**HOME HAZARDS**

**Lead Poisoning**

**Measure:** Percent of children tested who had a blood lead level ≥5 µg/dL  
**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2001-2014, data from 2014 displayed on dashboard  
**Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**

**Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard  
**Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**BIRTH OUTCOMES**

**Low Birth Weight**

**Measure:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**

**Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD  
Principal Investigator, Chief Medical Officer  
608-266-1253  
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD  
Senior Epidemiologist  
608-267-9752  
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA  
Evaluator  
608-267-3830  
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON  
IS Systems Development Services Professional  
608-266-6696  
josephaolson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS  
Program Manager  
608-267-3811  
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES  
Communications and Education Coordinator  
608-267-2488  
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH  
Epidemiologist  
608-266-7897  
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD  
Chief, Health Hazard Evaluation Section  
608-266-7480  
mark.werner@dhs.wisconsin.gov

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GREEN COUNTY ENVIRONMENTAL HEALTH PROFILE

2015

WISCONSIN ENVIRONMENTAL PUBLIC HEALTH TRACKING PROGRAM
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.
## GREEN COUNTY DASHBOARD  |  2015 ENVIRONMENTAL HEALTH PROFILE

### AIR QUALITY

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Value</th>
<th>Wisconsin</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozone Annual days above standard</td>
<td>0.0</td>
<td>0.7</td>
<td></td>
</tr>
<tr>
<td>Particulate Matter 2.5 Annual days above standard</td>
<td>0.0</td>
<td>0.1</td>
<td></td>
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</table>

### WATER QUALITY

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Value</th>
<th>Wisconsin</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic Average concentration in µg/L</td>
<td>0.2</td>
<td>1.3</td>
<td></td>
</tr>
<tr>
<td>Nitrate Average concentration in mg/L</td>
<td>2.0</td>
<td>1.5</td>
<td></td>
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</tbody>
</table>

### HOME HAZARDS

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Value</th>
<th>Wisconsin</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon Monoxide (CO) Rate of ER visits per 100,000 people</td>
<td>5.1</td>
<td>8.2</td>
<td></td>
</tr>
<tr>
<td>Childhood Lead Poisoning Percent with blood lead ≥5 µg/L</td>
<td>6.6%</td>
<td>6.3%</td>
<td></td>
</tr>
</tbody>
</table>

### BIRTH OUTCOMES

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Value</th>
<th>Wisconsin</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Birth Weight Percent of births &lt;2500 grams</td>
<td>5.9%</td>
<td>7.3%</td>
<td></td>
</tr>
<tr>
<td>Preterm Birth Percent of births &lt;37 weeks gestation</td>
<td>10.8%</td>
<td>10.3%</td>
<td></td>
</tr>
</tbody>
</table>

### HEALTH INDICATORS

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Value</th>
<th>Wisconsin</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat Stress Rate of ER visits per 100,000 people</td>
<td>19.3</td>
<td>16.5</td>
<td></td>
</tr>
<tr>
<td>Melanoma Rate of cases per 100,000 people</td>
<td>18.0</td>
<td>18.4</td>
<td></td>
</tr>
<tr>
<td>Lung Cancer Rate of cases per 100,000 people</td>
<td>45.2</td>
<td>62.0</td>
<td></td>
</tr>
<tr>
<td>Asthma Rate of ER visits per 100,000 people*</td>
<td>303.0</td>
<td>376.0</td>
<td></td>
</tr>
</tbody>
</table>

*This indicator is represented per 10,000 people on the data portal.

Above state value  | At or below state value  | Data are suppressed  | References on next page
Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.

### AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2011

### WATER QUALITY

Arsenic and Nitrate: Measured concentrations from public water systems  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Years displayed: Averaged data from 2011-2013

### HOME HAZARDS

Childhood Lead Poisoning: Reported blood lead test results  
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.  
Year displayed: 2014  
Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013

### BIRTH OUTCOMES

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2011-2013

### HEALTH INDICATORS

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013  
Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers  
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2006-2010  
Asthma: Age-adjusted rate of emergency room visits related to asthma  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person's lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit [dhs.wisconsin.gov/epht/criteriapollutants.htm](dhs.wisconsin.gov/epht/criteriapollutants.htm).
Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

**PUBLIC DRINKING WATER**

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit [dhs.wi.gov/epht](http://dhs.wi.gov/epht).
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

ARSENIC IN PRIVATE WELLS
AVERAGE CONCENTRATION (µg/L)

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.

**CARBON MONOXIDE POISONING**

<table>
<thead>
<tr>
<th>CARBON MONOXIDE POISONING</th>
<th>CHILDHOOD LEAD POISONING</th>
</tr>
</thead>
<tbody>
<tr>
<td>RATE OF ER VISITS RELATED TO CO PER 100,000</td>
<td>PERCENT OF TESTED CHILDREN WITH BLOOD LEAD ≥5 µg/dL</td>
</tr>
<tr>
<td>STATEWIDE: 8.2</td>
<td>STATEWIDE: 6.3%</td>
</tr>
</tbody>
</table>

- Above state value
- At or below state value
- Suppressed

**CARBON MONOXIDE**

**RATE OF ER VISITS PER 100,000 PEOPLE**

- Green County
- Wisconsin Average
**CHILDHOOD LEAD POISONING**

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

**CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)**
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
BIRTH OUTCOMES
GREEN COUNTY

PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013. Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

- **Heat Stress**: 19.3 per 100,000 people (STATEWIDE: 16.5)
- **Melanoma**: 18.0 per 100,000 people (STATEWIDE: 18.4)
- **Lung Cancer**: 45.2 per 100,000 people (STATEWIDE: 62)
- **Asthma**: 303.0 per 100,000 people (STATEWIDE: 376)

**Heat Stress**

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.
DATA DETAILS

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$)

**Measures:** Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

Ozone

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2001-2011, data from 2011 are displayed on the dashboard

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heart Attack

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

HEALTH INDICATORS

Asthma

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

Lung Cancer and Melanoma

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E909.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
**DATA DETAILS**

**WATER QUALITY**

**Arsenic**
- **Measure:** Mean concentration of arsenic ($\mu g/L$) in public drinking water
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** Averaged data from 2011-2013
- **Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**
- **Measure:** Mean concentration of nitrate (mg/L) in public drinking water
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** Averaged data from 2011-2013
- **Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**HOME HAZARDS**

**Lead Poisoning**
- **Measure:** Percent of children tested who had a blood lead level $\geq 5 \mu g/dL$
- **Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2001-2014, data from 2014 displayed on dashboard
- **Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**
- **Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard
- **Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**BIRTH OUTCOMES**

**Low Birth Weight**
- **Measure:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard
- **Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**
- **Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard
- **Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
WISCONSIN ENVIRONMENTAL PUBLIC HEALTH TRACKING PROGRAM

HENRY ANDERSON, MD
Principal Investigator, Chief Medical Officer
608-266-1253
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD
Senior Epidemiologist
608-267-9752
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA
Evaluator
608-267-3830
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON
IS Systems Development Services Professional
608-266-6696
joseph.olson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS
Program Manager
608-267-3811
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES
Communications and Education Coordinator
608-267-2488
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH
Epidemiologist
608-266-7897
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD
Chief, Health Hazard Evaluation Section
608-266-7480
mark.werner@dhs.wisconsin.gov

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Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services
Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.
### AIR QUALITY

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Green Lake County</th>
<th>Wisconsin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozone</td>
<td>0.0</td>
<td>0.7</td>
</tr>
<tr>
<td>Annual days above standard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Particulate Matter 2.5</td>
<td>0.0</td>
<td>0.1</td>
</tr>
<tr>
<td>Annual days above standard</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### WATER QUALITY

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Green Lake County</th>
<th>Wisconsin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic</td>
<td>0.6</td>
<td>1.3</td>
</tr>
<tr>
<td>Average concentration in µg/L</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nitrate</td>
<td>4.9</td>
<td>1.5</td>
</tr>
<tr>
<td>Average concentration in mg/L</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### HOME HAZARDS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Green Lake County</th>
<th>Wisconsin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon Monoxide (CO)</td>
<td>14.0</td>
<td>8.2</td>
</tr>
<tr>
<td>Rate of ER visits per 100,000 people</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Childhood Lead Poisoning</td>
<td>4.5%</td>
<td>6.3%</td>
</tr>
<tr>
<td>Percent with blood lead ≥5 µg/L</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### BIRTH OUTCOMES

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Green Lake County</th>
<th>Wisconsin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Birth Weight</td>
<td>6.0%</td>
<td>7.3%</td>
</tr>
<tr>
<td>Percent of births &lt;2500 grams</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preterm Birth</td>
<td>8.9%</td>
<td>10.3%</td>
</tr>
<tr>
<td>Percent of births &lt;37 weeks gestation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### HEALTH INDICATORS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Green Lake County</th>
<th>Wisconsin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat Stress</td>
<td>19.2</td>
<td>16.5</td>
</tr>
<tr>
<td>Rate of ER visits per 100,000 people</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Melanoma</td>
<td>19.5</td>
<td>18.4</td>
</tr>
<tr>
<td>Rate of cases per 100,000 people</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Green Lake County</th>
<th>Wisconsin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lung Cancer</td>
<td>59.0</td>
<td>62.0</td>
</tr>
<tr>
<td>Rate of cases per 100,000 people</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asthma</td>
<td>312.0</td>
<td>376.0</td>
</tr>
<tr>
<td>Rate of ER visits per 100,000 people*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*This indicator is represented per 10,000 people on the data portal.*

Above state value At or below state value Data are suppressed References on next page
Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.

**AIR QUALITY**

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2011

**WATER QUALITY**

Arsenic and Nitrate: Measured concentrations from public water systems
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013

**HOME HAZARDS**

Childhood Lead Poisoning: Reported blood lead test results
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.
Year displayed: 2014
Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

**BIRTH OUTCOMES**

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2011-2013

**HEALTH INDICATORS**

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013
Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2006-2010
Asthma: Age-adjusted rate of emergency room visits related to asthma
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM_{2.5})" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

**OZONE**

<table>
<thead>
<tr>
<th>Year</th>
<th>Green Lake County</th>
<th>Wisconsin Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>9.7</td>
<td>0.7</td>
</tr>
<tr>
<td>2002</td>
<td>9.8</td>
<td>0.7</td>
</tr>
<tr>
<td>2003</td>
<td>9.8</td>
<td>0.7</td>
</tr>
<tr>
<td>2004</td>
<td>9.8</td>
<td>0.7</td>
</tr>
<tr>
<td>2005</td>
<td>9.8</td>
<td>0.7</td>
</tr>
<tr>
<td>2006</td>
<td>9.8</td>
<td>0.7</td>
</tr>
<tr>
<td>2007</td>
<td>9.8</td>
<td>0.7</td>
</tr>
<tr>
<td>2008</td>
<td>9.8</td>
<td>0.7</td>
</tr>
<tr>
<td>2009</td>
<td>9.8</td>
<td>0.7</td>
</tr>
<tr>
<td>2010</td>
<td>9.8</td>
<td>0.7</td>
</tr>
<tr>
<td>2011</td>
<td>9.8</td>
<td>0.7</td>
</tr>
</tbody>
</table>

**PARTICULATE MATTER 2.5**

<table>
<thead>
<tr>
<th>Year</th>
<th>Green Lake County</th>
<th>Wisconsin Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>0.0</td>
<td>0.1</td>
</tr>
<tr>
<td>2002</td>
<td>0.0</td>
<td>0.1</td>
</tr>
<tr>
<td>2003</td>
<td>0.0</td>
<td>0.1</td>
</tr>
<tr>
<td>2004</td>
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</tr>
<tr>
<td>2005</td>
<td>0.0</td>
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<tr>
<td>2006</td>
<td>0.0</td>
<td>0.1</td>
</tr>
<tr>
<td>2007</td>
<td>0.0</td>
<td>0.1</td>
</tr>
<tr>
<td>2008</td>
<td>0.0</td>
<td>0.1</td>
</tr>
<tr>
<td>2009</td>
<td>0.0</td>
<td>0.1</td>
</tr>
<tr>
<td>2010</td>
<td>0.0</td>
<td>0.1</td>
</tr>
<tr>
<td>2011</td>
<td>0.0</td>
<td>0.1</td>
</tr>
</tbody>
</table>

Ozone levels are compared to the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit [dhs.wisconsin.gov/epht/criteriapollutants.htm](http://dhs.wisconsin.gov/epht/criteriapollutants.htm).
Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

**PUBLIC DRINKING WATER**

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.

**ARSENIC AND NITRATE**

**MEAN CONCENTRATION LEVELS IN PUBLIC WATER (2011-2013)**

![Graph showing arsenic and nitrate concentrations in Green Lake County and Wisconsin average.](image-url)
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.

**HOME HAZARDS**

**GREEN LAKE COUNTY**

Statewide: 8.2

**PERCENT OF TESTED CHILDREN WITH BLOOD LEAD ≥ 5 µg/dL**

Statewide: 6.3%

**CARBON MONOXIDE POISONING**

Rate of ER visits related to CO per 100,000 people

**CHILDHOOD LEAD POISONING**

Percent of tested children with blood lead ≥ 5 µg/dL

**TAKE A CLOSER LOOK AT THE DATA:**

dhs.wi.gov/epht
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body. There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.
Reproduction is complex, and many factors affect a mother's ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**HEAT STRESS**
RATE OF ER VISITS PER 100,000 PEOPLE
STATEWIDE: 16.5

**MELANOMA**
RATE OF CASES PER 100,000 PEOPLE
STATEWIDE: 18.4

**LUNG CANCER**
RATE OF CASES PER 100,000 PEOPLE
STATEWIDE: 62

**ASTHMA**
RATE OF ER VISITS PER 100,000 PEOPLE
STATEWIDE: 376

**HEAT STRESS**

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.
HEALTH INDICATORS  GREEN LAKE COUNTY

MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA

RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

LUNG CANCER

RATE OF CASES PER 100,000 PEOPLE

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.
**DATA DETAILS**

**AIR QUALITY**

**Particulate Matter 2.5 (PM$_{2.5}$)**
- **Measures:** Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard
- **Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

**Ozone**
- **Measure:** Number of days above standard set by the US Environmental Protection Agency
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** 2002-2011
- **Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

**Heart Attack**
- **Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** 2002-2011
- **Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**HEALTH INDICATORS**

**Asthma**
- **Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard
- **Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

**Lung Cancer and Melanoma**
- **Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people
- **Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard
- **Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**Heat Stress**
- **Measure:** Age-adjusted rate of emergency department visits per 100,000 people
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard
- **Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
WATER QUALITY

**Arsenic**

**Measures:** Mean concentration of arsenic (µg/L) in public drinking water

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** Averaged data from 2011-2013

**Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**

**Measure:** Mean concentration of nitrate (mg/L) in public drinking water

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** Averaged data from 2011-2013

**Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

HOME HAZARDS

**Lead Poisoning**

**Measure:** Percent of children tested who had a blood lead level ≥ 5 µg/dL

**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2001-2014, data from 2014 displayed on dashboard

**Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**

**Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard

**Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825 ,E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

BIRTH OUTCOMES

**Low Birth Weight**

**Measures:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard

**Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**

**Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard

**Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD
Principal Investigator, Chief Medical Officer
608-266-1253
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD
Senior Epidemiologist
608-267-9752
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA
Evaluator
608-267-3830
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON
IS Systems Development Services Professional
608-266-6696
josephaolson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS
Program Manager
608-267-3811
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES
Communications and Education Coordinator
608-267-2488
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH
Epidemiologist
608-266-7897
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD
Chief, Health Hazard Evaluation Section
608-266-7480
mark.werner@dhs.wisconsin.gov

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HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital’s community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
IOWA COUNTY
DASHBOARD | 2015 ENVIRONMENTAL HEALTH PROFILE

AIR QUALITY

Ozone
Annual days above standard
Wisconsin: 0.7

Particulate Matter 2.5
Annual days above standard
Wisconsin: 0.1

WATER QUALITY

Arsenic
Average concentration in µg/L
Wisconsin: 1.3

Nitrate
Average concentration in mg/L
Wisconsin: 1.5

HOME HAZARDS

Carbon Monoxide (CO)
Rate of ER visits per 100,000 people
Wisconsin: 8.2

Childhood Lead Poisoning
Percent with blood lead ≥5 µg/L
Wisconsin: 6.3%

BIRTH OUTCOMES

Low Birth Weight
Percent of births <2500 grams
Wisconsin: 7.3%

Preterm Birth
Percent of births <37 weeks gestation
Wisconsin: 10.3%

HEALTH INDICATORS

Heat Stress
Rate of ER visits per 100,000 people
Wisconsin: 16.5

Melanoma
Rate of cases per 100,000 people
Wisconsin: 18.4

Lung Cancer
Rate of cases per 100,000 people
Wisconsin: 62.0

Asthma
Rate of ER visits per 100,000 people*
Wisconsin: 376.0

*This indicator is represented per 10,000 people on the data portal.

Above state value | At or below state value | Data are suppressed | References on next page

WISCONSIN ENVIRONMENTAL PUBLIC HEALTH TRACKING PROGRAM
dhs.wi.gov/epht | dhstracking@wi.gov | 608-267-2488
Wisconsin Department of Health Services | Division of Public Health | Bureau of Environmental and Occupational Health
DASHBOARD DATA DETAILS

Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.

**AIR QUALITY**

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2011

**WATER QUALITY**

Arsenic and Nitrate: Measured concentrations from public water systems
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013

**HOME HAZARDS**

Childhood Lead Poisoning: Reported blood lead test results
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.
Year displayed: 2014

Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

**BIRTH OUTCOMES**

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2011-2013

**HEALTH INDICATORS**

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2006-2010

Asthma: Age-adjusted rate of emergency room visits related to asthma
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM\textsubscript{2.5})" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

**OZONE**

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.

**PARTICULATE MATTER 2.5**

The chart to the left provides a year-to-year comparison of the number of days in which particulate matter was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit dhs.wisconsin.gov/epht/criteriapollutants.htm.
Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

**ARSENIC AND NITRATE**
**MEAN CONCENTRATION LEVELS IN PUBLIC WATER (2011-2013)**

- **0.9**
  **ARSENIC**
  AVERAGE CONCENTRATION IN PUBLIC WATER (µg/L)
  STATEWIDE: 1.3

- **0.7**
  **NITRATE**
  AVERAGE CONCENTRATION IN PUBLIC WATER (mg/L)
  STATEWIDE: 1.5

- Above state value
- At or below state value
- Suppressed

**PUBLIC DRINKING WATER**

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit [dhs.wi.gov/epht](http://dhs.wi.gov/epht).
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

ARSENIC IN PRIVATE WELLS
AVERAGE CONCENTRATION (µg/L)

NITRATE IN PRIVATE WELLS
AVERAGE CONCENTRATION (mg/L)

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**HEALTH INDICATORS**

IOWA COUNTY

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.
**DATA DETAILS**

**AIR QUALITY**

**Particulate Matter 2.5 (PM$_{2.5}$)**

**Measures:** Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard  
**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

**Ozone**

**Measure:** Number of days above standard set by the US Environmental Protection Agency  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** 2001-2011, data from 2011 are displayed on the dashboard  
**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

**Heart Attack**

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** 2002-2011  
**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**HEALTH INDICATORS**

**Asthma**

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard  
**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

**Lung Cancer and Melanoma**

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people  
**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard  
**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**Heat Stress**

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard  
**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
### WATER QUALITY

**Arsenic**
*Measure:* Mean concentration of arsenic (µg/L) in public drinking water  
*Source:* National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
*Years displayed:* Averaged data from 2011-2013  
*Data details:* Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**
*Measure:* Mean concentration of nitrate (mg/L) in public drinking water  
*Source:* National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
*Years displayed:* Averaged data from 2011-2013  
*Data details:* Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

### HOME HAZARDS

**Lead Poisoning**
*Measure:* Percent of children tested who had a blood lead level ≥ 5 µg/dL  
*Source:* Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
*Years displayed:* 2001-2014, data from 2014 displayed on dashboard  
*Data details:* Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**
*Measure:* Annual average rate of emergency room visits, age adjusted per 100,000 people  
*Source:* Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
*Years displayed:* 2004-2013, data averaged from 2009-2013 displayed on dashboard  
*Data details:* This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

### BIRTH OUTCOMES

**Low Birth Weight**
*Measures:* Percentage of babies weighing <2,500 grams at birth among all babies born to county residents  
*Source:* Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
*Years displayed:* 2002-2013, data from 2011-2013 are displayed on dashboard  
*Data details:* Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**
*Measure:* Percentage of babies born at <37 weeks gestation among all babies born to county residents  
*Source:* Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
*Years displayed:* 2002-2013, data from 2011-2013 are displayed on dashboard  
*Data details:* Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
SPECIAL THANKS

Iowa Environmental Public Health Tracking Program

Wisconsin Environmental Public Health Tracking Program’s Technical Advisory Group

Jeff Phillips, Bureau of Environmental and Occupational Health, Wisconsin Department of Health Services

Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services

Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
IRON COUNTY
ENVIRONMENTAL HEALTH PROFILE

2015

WISCONSIN ENVIRONMENTAL PUBLIC HEALTH TRACKING PROGRAM
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
### AIR QUALITY

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Annual days above standard</th>
<th>Wisconsin:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozone</td>
<td>0.0</td>
<td>0.7</td>
</tr>
<tr>
<td>Particulate Matter 2.5</td>
<td>0.0</td>
<td>0.1</td>
</tr>
</tbody>
</table>

### WATER QUALITY

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Average concentration in µg/L</th>
<th>Wisconsin:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic</td>
<td>1.3</td>
<td>1.3</td>
</tr>
<tr>
<td>Nitrate</td>
<td>0.2</td>
<td>1.5</td>
</tr>
</tbody>
</table>

### HOME HAZARDS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Rate of cases per 100,000</th>
<th>Wisconsin:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon Monoxide (CO)</td>
<td>Rate of ER visits per 100,000 people</td>
<td>8.7</td>
</tr>
<tr>
<td>Childhood Lead Poisoning</td>
<td>Percent with blood lead ≥5 µg/L</td>
<td>6.3%</td>
</tr>
</tbody>
</table>

### BIRTH OUTCOMES

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Percent of births</th>
<th>Wisconsin:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Birth Weight</td>
<td>&lt;2500 grams</td>
<td>7.3%</td>
</tr>
<tr>
<td>Preterm Birth</td>
<td>&lt;37 weeks gestation</td>
<td>10.3%</td>
</tr>
</tbody>
</table>

### HEALTH INDICATORS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Rate of cases per 100,000</th>
<th>Wisconsin:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat Stress</td>
<td>Rate of ER visits per 100,000 people</td>
<td>16.5</td>
</tr>
<tr>
<td>Melanoma</td>
<td>Rate of cases per 100,000 people</td>
<td>18.4</td>
</tr>
<tr>
<td>Lung Cancer</td>
<td>Rate of cases per 100,000 people</td>
<td>62.0</td>
</tr>
<tr>
<td>Asthma</td>
<td>Rate of ER visits per 100,000 people*</td>
<td>376.0</td>
</tr>
</tbody>
</table>

*This indicator is represented per 10,000 people on the data portal.*
DASHBOARD DATA DETAILS

Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.

**AIR QUALITY**

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2011

**WATER QUALITY**

Arsenic and Nitrate: Measured concentrations from public water systems  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Years displayed: Averaged data from 2011-2013

**HOME HAZARDS**

Childhood Lead Poisoning: Reported blood lead test results  
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.  
Year displayed: 2014  
Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Due to small numbers, aggregated rates were calculated for this county.  
Years displayed in this profile: Aggregated data from 2004-2013

**BIRTH OUTCOMES**

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2011-2013

**HEALTH INDICATORS**

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013  
Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers  
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2006-2010  
Asthma: Age-adjusted rate of emergency room visits related to asthma  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM\textsubscript{2.5})" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

### Ozone

<table>
<thead>
<tr>
<th>Year</th>
<th>Iron County</th>
<th>Wisconsin Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>2002</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>2003</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>2004</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>2005</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>2006</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>2007</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>2008</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>2009</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>2010</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>2011</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

### Particulate Matter 2.5

<table>
<thead>
<tr>
<th>Year</th>
<th>Iron County</th>
<th>Wisconsin Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>2002</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>2003</td>
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<tr>
<td>2004</td>
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<tr>
<td>2005</td>
<td>0.0</td>
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<tr>
<td>2006</td>
<td>0.0</td>
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<tr>
<td>2007</td>
<td>0.0</td>
<td>0.0</td>
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<tr>
<td>2008</td>
<td>0.0</td>
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<tr>
<td>2009</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>2010</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>2011</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit dhs.wisconsin.gov/epht/criteriapollutants.htm.
Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

**PUBLIC DRINKING WATER**

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit [dhs.wi.gov/epht](http://dhs.wi.gov/epht).

### ARSENIC AND NITRATE

**MEAN CONCENTRATION LEVELS IN PUBLIC WATER (2011-2013)**

- **Arsenic**: Mean concentration in Iron County is 1.3 µg/L compared to the statewide average of 1.3 µg/L.
- **Nitrate**: Mean concentration in Iron County is 0.2 mg/L compared to the statewide average of 1.5 mg/L.

For a closer look at the data, visit [dhs.wi.gov/epht](http://dhs.wi.gov/epht).
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

Country-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

Rate of ER visits related to CO per 100,000 people

**Statewide:** 8.7

Above state value | At or below state value | Suppressed

**CHILDHOOD LEAD POISONING**

Percent of tested children with blood lead ≥5 µg/dL

**Statewide:** 6.3%

Above state value | At or below state value | Suppressed

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

**LOW BIRTH WEIGHT**

PERCENT OF BIRTHS BELOW 2,500 GRAMS

- Iron County
- Wisconsin Average
- Confidence Interval

All data are suppressed for Iron County.
**PRETERM BIRTH**

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit [dhs.wi.gov/epht/premature.htm](http://dhs.wi.gov/epht/premature.htm).

**BIRTH DEFECTS**

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby's body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at [dhs.wisconsin.gov/epht/birthdefects.htm](http://dhs.wisconsin.gov/epht/birthdefects.htm).
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**HEAT STRESS**
RATE OF ER VISITS PER 100,000 PEOPLE
STATEWIDE: 16.5

**MELANOMA**
RATE OF CASES PER 100,000 PEOPLE
STATEWIDE: 18.4

**LUNG CANCER**
RATE OF CASES PER 100,000 PEOPLE
STATEWIDE: 62

**ASTHMA**
RATE OF ER VISITS PER 100,000 PEOPLE
STATEWIDE: 376

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.

ASTHMA
RATE OF ER VISITS PER 100,000 PEOPLE

2006-2008 and 2010-2011 data from Iron County are suppressed.
Particulate Matter 2.5 (PM$_{2.5}$)

**Measures:** Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

Ozone

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heart Attack

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Asthma

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

Lung Cancer and Melanoma

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
### WATER QUALITY

**Arsenic**

**Measures:** Mean concentration of arsenic (µg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**

**Measure:** Mean concentration of nitrate (mg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

### HOME HAZARDS

**Lead Poisoning**

**Measure:** Percent of children tested who had a blood lead level ≥5 µg/dL  
**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2001-2014, data from 2014 displayed on dashboard  
**Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**

**Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2004-2013, data aggregated from 2004-2013 displayed on the dashboard  
**Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. Due to small numbers, aggregated rates were calculated for this county.

### BIRTH OUTCOMES

**Low Birth Weight**

**Measures:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**

**Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD
Principal Investigator, Chief Medical Officer
608-266-1253
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD
Senior Epidemiologist
608-267-9752
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA
Evaluator
608-267-3830
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON
IS Systems Development Services Professional
608-266-6696
josephaolson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS
Program Manager
608-267-3811
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES
Communications and Education Coordinator
608-267-2488
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH
Epidemiologist
608-266-7897
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD
Chief, Health Hazard Evaluation Section
608-266-7480
mark.werner@dhs.wisconsin.gov

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HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital’s community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
JACKSON COUNTY
DASHBOARD  |  2015 ENVIRONMENTAL HEALTH PROFILE

**AIR QUALITY**

**Ozone**
- 0.0  Annual days above standard
  - Wisconsin: 0.7

**Particulate Matter 2.5**
- 0.0  Annual days above standard
  - Wisconsin: 0.1

**WATER QUALITY**

**Arsenic**
- 0.2  Average concentration in µg/L
  - Wisconsin: 1.3

**Nitrate**
- 0.9  Average concentration in mg/L
  - Wisconsin: 1.5

**HOME HAZARDS**

**Carbon Monoxide (CO)**
- 29.9  Rate of ER visits per 100,000 people
  - Wisconsin: 8.2

**Childhood Lead Poisoning**
- 0.0%  Percent with blood lead ≥5 µg/L
  - Wisconsin: 6.3%

**BIRTH OUTCOMES**

**Low Birth Weight**
- 5.9%  Percent of births <2500 grams
  - Wisconsin: 7.3%

**Preterm Birth**
- 9.9%  Percent of births <37 weeks gestation
  - Wisconsin: 10.3%

**HEALTH INDICATORS**

**Heat Stress**
- 41.8  Rate of ER visits per 100,000 people
  - Wisconsin: 16.5

**Melanoma**
- 14.0  Rate of cases per 100,000 people
  - Wisconsin: 18.4

**Lung Cancer**
- 57.8  Rate of cases per 100,000 people
  - Wisconsin: 62.0

**Asthma**
- 359.0  Rate of ER visits per 100,000 people*
  - Wisconsin: 376.0

*This indicator is represented per 10,000 people on the data portal.

Above state value  |  At or below state value  |  Data are suppressed  |  References on next page
### AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2011

### WATER QUALITY

Arsenic and Nitrate: Measured concentrations from public water systems  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Years displayed: Averaged data from 2011-2013

### HOME HAZARDS

Childhood Lead Poisoning: Reported blood lead test results  
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.  
Year displayed: 2014  
Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013

### BIRTH OUTCOMES

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2011-2013

### HEALTH INDICATORS

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013  
Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers  
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2006-2010  
Asthma: Age-adjusted rate of emergency room visits related to asthma  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

**OZONE**
annual days above standard
statewide: 0.7

**PARTICULATE MATTER 2.5**
annual days above standard
statewide: 0.1

**PARTICULATE MATTER 2.5**
annual average (µg/m³)
statewide: 9.4

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.

Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

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statewide: 9.4

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit [dhs.wisconsin.gov/epht/criteriapollutants.htm](http://dhs.wisconsin.gov/epht/criteriapollutants.htm).
Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

**PUBLIC DRINKING WATER**

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

ARSENIC IN PRIVATE WELLS
AVERAGE CONCENTRATION (µg/L)

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit [dhs.wisconsin.gov/air/co.htm](http://dhs.wisconsin.gov/air/co.htm).

**CARBON MONOXIDE**

RATE OF ER VISITS PER 100,000 PEOPLE

<table>
<thead>
<tr>
<th>Year</th>
<th>Rate of ER Visits Related to CO</th>
<th>Jackson County</th>
<th>Wisconsin Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004-2008</td>
<td>9.5</td>
<td>10.2</td>
<td>10.0</td>
</tr>
<tr>
<td>2009-2013</td>
<td>14.3</td>
<td>10.2</td>
<td>10.0</td>
</tr>
</tbody>
</table>

**CHILDHOOD LEAD POISONING**

PERCENT OF TESTED CHILDREN WITH BLOOD LEAD ≥5 µg/dL

<table>
<thead>
<tr>
<th>STATEWIDE</th>
<th>Wisconsin Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.3%</td>
<td>6.0%</td>
</tr>
</tbody>
</table>

**Above state value**

**At or below state value**

**Suppressed**
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit [dhs.wi.gov/epht/premature.htm](http://dhs.wi.gov/epht/premature.htm).

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at [dhs.wisconsin.gov/epht/birthdefects.htm](http://dhs.wisconsin.gov/epht/birthdefects.htm).
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**HEAT STRESS**
RATE OF ER VISITS PER 100,000 PEOPLE

**41.8**
STATEWIDE: 16.5

**MELANOMA**
RATE OF CASES PER 100,000 PEOPLE

**14.0**
STATEWIDE: 18.4

**LUNG CANCER**
RATE OF CASES PER 100,000 PEOPLE

**57.8**
STATEWIDE: 62

**ASTHMA**
RATE OF ER VISITS PER 100,000 PEOPLE

**359.0**
STATEWIDE: 376

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.
**MELANOMA AND LUNG CANCER**

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

**MELANOMA**

RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit [dhs.wisconsin.gov/epht/melanoma.htm](http://dhs.wisconsin.gov/epht/melanoma.htm). To read more about lung cancer, visit [dhs.wisconsin.gov/epht/lung.htm](http://dhs.wisconsin.gov/epht/lung.htm).

**LUNG CANCER**

RATE OF CASES PER 100,000 PEOPLE

**ASTHMA**

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit [dhs.wisconsin.gov/asthma/Index.htm](http://dhs.wisconsin.gov/asthma/Index.htm).
DATA DETAILS

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$)

**Measures:** Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard  
**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

Ozone

**Measure:** Number of days above standard set by the US Environmental Protection Agency  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** 2002-2011  
**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heart Attack

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** 2002-2011  
**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

HEALTH INDICATORS

Asthma

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard  
**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

Lung Cancer and Melanoma

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people  
**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard  
**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard  
**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
**DATA DETAILS**

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### WATER QUALITY

**Arsenic**
- **Measures**: Mean concentration of arsenic (µg/L) in public drinking water
- **Source**: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed**: Averaged data from 2011-2013
- **Data details**: Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**
- **Measure**: Mean concentration of nitrate (mg/L) in public drinking water
- **Source**: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed**: Averaged data from 2011-2013
- **Data details**: Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

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### HOME HAZARDS

**Lead Poisoning**
- **Measure**: Percent of children tested who had a blood lead level ≥ 5 µg/dL
- **Source**: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed**: 2001-2014, data from 2014 displayed on dashboard
- **Data details**: Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**
- **Measure**: Annual average rate of emergency room visits, age adjusted per 100,000 people
- **Source**: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed**: 2004-2013, data averaged from 2009-2013 displayed on dashboard
- **Data details**: This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

---

### BIRTH OUTCOMES

**Low Birth Weight**
- **Measures**: Percentage of babies weighing <2,500 grams at birth among all babies born to county residents
- **Source**: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed**: 2002-2013, data from 2011-2013 are displayed on dashboard
- **Data details**: Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**
- **Measure**: Percentage of babies born at <37 weeks gestation among all babies born to county residents
- **Source**: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed**: 2002-2013, data from 2011-2013 are displayed on dashboard
- **Data details**: Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
SPECIAL THANKS

Iowa Environmental Public Health Tracking Program
Wisconsin Environmental Public Health Tracking Program’s Technical Advisory Group
Jeff Phillips, Bureau of Environmental and Occupational Health, Wisconsin Department of Health Services
Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services
Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
## Jefferson County Dashboard

### 2015 Environmental Health Profile

<table>
<thead>
<tr>
<th>Category</th>
<th>Indicator</th>
<th>Wisconsin Value</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Air Quality</strong></td>
<td>Ozone</td>
<td>0.7</td>
<td></td>
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<tr>
<td></td>
<td>Annual days above standard</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Particulate Matter 2.5</td>
<td>0.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Annual days above standard</td>
<td></td>
<td></td>
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<tr>
<td><strong>Water Quality</strong></td>
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<tr>
<td></td>
<td>Average concentration in µg/L</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Nitrate</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Average concentration in mg/L</td>
<td></td>
<td></td>
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<tr>
<td><strong>Home Hazards</strong></td>
<td>Carbon Monoxide (CO)</td>
<td>8.2</td>
<td></td>
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<tr>
<td></td>
<td>Rate of ER visits per 100,000 people</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Childhood Lead Poisoning</td>
<td>6.3%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Percent with blood lead ≥ 5 µg/L</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Birth Outcomes</strong></td>
<td>Low Birth Weight</td>
<td>7.3%</td>
<td></td>
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<td></td>
<td>Percent of births &lt;2500 grams</td>
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<tr>
<td></td>
<td>Preterm Birth</td>
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<tr>
<td></td>
<td>Percent of births &lt;37 weeks gestation</td>
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<tr>
<td><strong>Health Indicators</strong></td>
<td>Heat Stress</td>
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<td>Rate of ER visits per 100,000 people</td>
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<td></td>
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<tr>
<td></td>
<td>Melanoma</td>
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</tr>
<tr>
<td></td>
<td>Rate of cases per 100,000 people</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Asthma</td>
<td>376.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rate of ER visits per 100,000 people*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*This indicator is represented per 10,000 people on the data portal.*  
Above state value  At or below state value  \(^\) Data are suppressed  References on next page
Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at [dhs.wi.gov/epht](dhs.wi.gov/epht). For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at [dhs.wisconsin.gov/epht/glossary.htm](dhs.wisconsin.gov/epht/glossary.htm).

### AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2011

### WATER QUALITY

Arsenic and Nitrate: Measured concentrations from public water systems  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Years displayed: Averaged data from 2011-2013

### HOME HAZARDS

Childhood Lead Poisoning: Reported blood lead test results  
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.  
Year displayed: 2014  
Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013

### BIRTH OUTCOMES

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2011-2013

### HEALTH INDICATORS

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013  
Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers  
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2006-2010  
Asthma: Age-adjusted rate of emergency room visits related to asthma  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

**OZONE**

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
JEFFERSON COUNTY

PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit [dhs.wisconsin.gov/epht/criteriapollutants.htm](https://dhs.wisconsin.gov/epht/criteriapollutants.htm).
WATER QUALITY JEFFERSON COUNTY

Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

PUBLIC DRINKING WATER

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

ARSENIC IN PRIVATE WELLS
AVERAGE CONCENTRATION (µg/L)

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**Carbon Monoxide Poisoning**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level. The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit [dhs.wisconsin.gov/air/co.htm](http://dhs.wisconsin.gov/air/co.htm).

**Childhood Lead Poisoning**

PERCENT OF TESTED CHILDREN WITH BLOOD LEAD ≥5 µg/dL

STATEWIDE: 6.3%
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

LOW BIRTH WEIGHT

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby's body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Jefferson County</th>
<th>Wisconsin Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat Stress</td>
<td>17.7</td>
<td>16.5</td>
</tr>
<tr>
<td>Melanoma</td>
<td>12.0</td>
<td>18.4</td>
</tr>
<tr>
<td>Lung Cancer</td>
<td>56.3</td>
<td>62</td>
</tr>
<tr>
<td>Asthma</td>
<td>316.0</td>
<td>376</td>
</tr>
</tbody>
</table>

**HEAT STRESS**

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.

**TAKE A CLOSER LOOK AT THE DATA:**

dhs.wi.gov/epht
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.
DATA DETAILS

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$)

**Measures:** Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

Ozone

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2001-2011, data from 2011 are displayed on the dashboard

**Data details:** This is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heart Attack

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

HEALTH INDICATORS

Asthma

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

Lung Cancer and Melanoma

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
DATA DETAILS

WATER QUALITY

Arsenic

Measure: Mean concentration of arsenic (µg/L) in public drinking water
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013
Data details: Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

Nitrate

Measure: Mean concentration of nitrate (mg/L) in public drinking water
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013
Data details: Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, we aggregated three years of data (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

HOME HAZARDS

Lead Poisoning

Measure: Percent of children tested who had a blood lead level ≥ 5 µg/dL
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2001-2014, data from 2014 displayed on dashboard
Data details: Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

Carbon Monoxide Poisoning

Measure: Annual average rate of emergency room visits, age adjusted per 100,000 people
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2004-2013, data averaged from 2009-2013 displayed on dashboard
Data details: This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825 ,E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

BIRTH OUTCOMES

Low Birth Weight

Measures: Percentage of babies weighing <2,500 grams at birth among all babies born to county residents
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2002-2013, data from 2011-2013 are displayed on dashboard
Data details: Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

Preterm Birth

Measure: Percentage of babies born at <37 weeks gestation among all babies born to county residents
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2002-2013, data from 2011-2013 are displayed on dashboard
Data details: Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD  
Principal Investigator, Chief Medical Officer  
608-266-1253  
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD  
Senior Epidemiologist  
608-267-9752  
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA  
Evaluator  
608-267-3830  
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON  
IS Systems Development Services Professional  
608-266-6696  
josepha.olson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS  
Program Manager  
608-267-3811  
jennifer.camponeschi@dhs.wisconsin.gov

CHRYSTY VOGT, MPH, CHES  
Communications and Education Coordinator  
608-267-2488  
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH  
Epidemiologist  
608-266-7897  
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD  
Chief, Health Hazard Evaluation Section  
608-266-7480  
mark.werner@dhs.wisconsin.gov

SPECIAL THANKS
Iowa Environmental Public Health Tracking Program
Wisconsin Environmental Public Health Tracking Program’s Technical Advisory Group
Jeff Phillips, Bureau of Environmental and Occupational Health, Wisconsin Department of Health Services
Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services
Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.
## JUNEAU COUNTY

**DASHBOARD | 2015 ENVIRONMENTAL HEALTH PROFILE**

### AIR QUALITY

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Annual days above standard</th>
<th>Average concentration in µg/L</th>
<th>Wisconsin:</th>
<th>JUNEAU COUNTY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozone</td>
<td>0.0</td>
<td>0.0</td>
<td>Wisconsin: 0.7</td>
<td>0.0</td>
</tr>
<tr>
<td>Particulate Matter 2.5</td>
<td>0.0</td>
<td>2.6</td>
<td>Wisconsin: 0.1</td>
<td>0.0</td>
</tr>
</tbody>
</table>

### WATER QUALITY

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Average concentration in µg/L</th>
<th>Wisconsin:</th>
<th>JUNEAU COUNTY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic</td>
<td>0.2</td>
<td>1.3</td>
<td>0.2</td>
</tr>
<tr>
<td>Nitrate</td>
<td>2.6</td>
<td>1.5</td>
<td>2.6</td>
</tr>
</tbody>
</table>

### HOME HAZARDS

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Rate of ER visits per 100,000 people</th>
<th>Percent with blood lead ≥5 µg/L</th>
<th>Wisconsin:</th>
<th>JUNEAU COUNTY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon Monoxide (CO)</td>
<td>10.0</td>
<td>6.2%</td>
<td>Wisconsin: 8.2</td>
<td>6.2%</td>
</tr>
<tr>
<td>Childhood Lead Poisoning</td>
<td>3.0%</td>
<td>3.0%</td>
<td>Wisconsin: 6.3%</td>
<td>6.3%</td>
</tr>
</tbody>
</table>

### BIRTH OUTCOMES

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Rate of cases per 100,000 people</th>
<th>Percent of births &lt;2500 grams</th>
<th>Wisconsin:</th>
<th>JUNEAU COUNTY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Birth Weight</td>
<td>6.2%</td>
<td>6.2%</td>
<td>Wisconsin: 7.3%</td>
<td>7.3%</td>
</tr>
<tr>
<td>Preterm Birth</td>
<td>9.3%</td>
<td>9.3%</td>
<td>Wisconsin: 10.3%</td>
<td>10.3%</td>
</tr>
</tbody>
</table>

### HEALTH INDICATORS

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Rate of cases per 100,000 people</th>
<th>Rate of ER visits per 100,000 people*</th>
<th>Wisconsin:</th>
<th>JUNEAU COUNTY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat Stress</td>
<td>48.6</td>
<td>48.6</td>
<td>Wisconsin: 16.5</td>
<td>16.5</td>
</tr>
<tr>
<td>Melanoma</td>
<td>13.2</td>
<td>13.2</td>
<td>Wisconsin: 18.4</td>
<td>18.4</td>
</tr>
<tr>
<td>Lung Cancer</td>
<td>78.9</td>
<td>78.9</td>
<td>Wisconsin: 62.0</td>
<td>62.0</td>
</tr>
<tr>
<td>Asthma</td>
<td>331.0</td>
<td>331.0</td>
<td>Wisconsin: 376.0</td>
<td>376.0</td>
</tr>
</tbody>
</table>

*This indicator is represented per 10,000 people on the data portal.

References on next page
### AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2011

### WATER QUALITY

Arsenic and Nitrate: Measured concentrations from public water systems  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Years displayed: Averaged data from 2011-2013

### HOME HAZARDS

Childhood Lead Poisoning: Reported blood lead test results  
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.  
Year displayed: 2014  
Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013

### BIRTH OUTCOMES

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2011-2013

### HEALTH INDICATORS

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013  
Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers  
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2006-2010  
Asthma: Age-adjusted rate of emergency room visits related to asthma  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

### OZONE

**ANNUAL DAYS ABOVE STANDARD**

- **Statewide**: 0.7
- **Juneau County**

### PARTICULATE MATTER 2.5

**ANNUAL DAYS ABOVE STANDARD**

- **Statewide**: 0.1
- **Juneau County**

### PARTICULATE MATTER 2.5

**ANNUAL AVERAGE (µg/m3)**

- **Statewide**: 9.4
- **Juneau County**

#### TAKE A CLOSER LOOK AT THE DATA:

dhs.wi.gov/epht
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit dhs.wisconsin.gov/epht/criteriapollutants.htm.
WATER QUALITY JUNEAU COUNTY

Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

ARSENIC AND NITRATE
MEAN CONCENTRATION LEVELS IN PUBLIC WATER (2011-2013)

PUBLIC DRINKING WATER

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.

ARSENIC IN PRIVATE WELLS
AVERAGE CONCENTRATION (µg/L)

NITRATE IN PRIVATE WELLS
AVERAGE CONCENTRATION (mg/L)
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

### Carbon Monoxide Poisoning

**Rate of ER Visits Related to CO per 100,000 People**

- **Juneau County**: 10.0
- **Wisconsin Average**: 8.2

**Statewide**: 8.2

### Childhood Lead Poisoning

**Percent of Tested Children with Blood Lead ≥5 µg/dL**

- **Juneau County**: 3.0%
- **Wisconsin Average**: 6.3%

**Statewide**: 6.3%

### Carbon Monoxide Poisoning

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit [dhs.wisconsin.gov/air/co.htm](http://dhs.wisconsin.gov/air/co.htm).

**Take a Closer Look at the Data:**

[Link to dhs.wi.gov/epht]
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013. Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother's body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby's body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**HEAT STRESS**
RATE OF ER VISITS PER 100,000 PEOPLE

- **Juneau County:** 48.6
- **Wisconsin Average:** 16.5

**MELANOMA**
RATE OF CASES PER 100,000 PEOPLE

- **Juneau County:** 13.2
- **Statewide:** 18.4

**LUNG CANCER**
RATE OF CASES PER 100,000 PEOPLE

- **Juneau County:** 78.9
- **Statewide:** 62

**ASTHMA**
RATE OF ER VISITS PER 100,000 PEOPLE

- **Juneau County:** 331.0
- **Statewide:** 376

**HEAT STRESS**
Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.

**TAKE A CLOSER LOOK AT THE DATA:**
dhs.wi.gov/epht

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JUNEAU COUNTY

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**TAKE A CLOSER LOOK AT THE DATA:**
dhs.wi.gov/epht
HEALTH INDICATORS
JUNEAU COUNTY

MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm

ASTHMA
RATE OF ER VISITS PER 100,000 PEOPLE

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.
However, Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations.

Data details: These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency's National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

**Ozone**

Measure: Number of days above standard set by the US Environmental Protection Agency

Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

Years displayed: 2002-2011

Data details: This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency's National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

**Heart Attack**

Measure: Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

Years displayed: 2002-2011

Data details: These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**Health Indicators**

**Asthma**

Measure: Annual age-adjusted rate of emergency department visits per 100,000 people

Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

Years displayed: 2002-2012

Data details: These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

**Lung Cancer and Melanoma**

Measure: Age-adjusted rates of cases among persons age 35 and over per 100,000 people

Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

Years displayed: 1996-2010, data from 2006-2010 are displayed on the dashboard

Data details: Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**Heat Stress**

Measure: Age-adjusted rate of emergency department visits per 100,000 people

Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

Years displayed: 2004-2013, data from 2009-2013 are displayed on the dashboard

Data details: These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
DATA DETAILS

WATER QUALITY

Arsenic
Measure: Mean concentration of arsenic (µg/L) in public drinking water
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013
Data details: Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

Nitrate
Measure: Mean concentration of nitrate (mg/L) in public drinking water
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013
Data details: Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, we aggregated three years of data (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

HOME HAZARDS

Lead Poisoning
Measure: Percent of children tested who had a blood lead level ≥ 5 µg/dL
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2001-2014, data from 2014 displayed on dashboard
Data details: Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

Carbon Monoxide Poisoning
Measure: Annual average rate of emergency room visits, age adjusted per 100,000 people
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2004-2013, data averaged from 2009-2013 displayed on dashboard
Data details: This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

BIRTH OUTCOMES

Low Birth Weight
Measure: Percentage of babies weighing <2,500 grams at birth among all babies born to county residents
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2002-2013, data from 2011-2013 are displayed on dashboard
Data details: Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

Preterm Birth
Measure: Percentage of babies born at <37 weeks gestation among all babies born to county residents
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2002-2013, data from 2011-2013 are displayed on dashboard
Data details: Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
SPECIAL THANKS

Iowa Environmental Public Health Tracking Program
Wisconsin Environmental Public Health Tracking Program’s Technical Advisory Group
Jeff Phillips, Bureau of Environmental and Occupational Health, Wisconsin Department of Health Services
Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services
Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital’s community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

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When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
KENOSHA COUNTY
DASHBOARD | 2015 ENVIRONMENTAL HEALTH PROFILE

AIR QUALITY

Ozone
7.0 Annual days above standard
Wisconsin: 0.7

Particulate Matter 2.5
0.0 Annual days above standard
Wisconsin: 0.1

WATER QUALITY

Arsenic
1.8 Average concentration in µg/L
Wisconsin: 1.3

Nitrate
0.3 Average concentration in mg/L
Wisconsin: 1.5

HOME HAZARDS

Carbon Monoxide (CO)
4.6 Rate of ER visits per 100,000 people
Wisconsin: 8.2

Childhood Lead Poisoning
5.8% Percent with blood lead ≥5 µg/L
Wisconsin: 6.3%

BIRTH OUTCOMES

Low Birth Weight
7.7% Percent of births <2500 grams
Wisconsin: 7.3%

Preterm Birth
11.5% Percent of births <37 weeks gestation
Wisconsin: 10.3%

HEALTH INDICATORS

Heat Stress
15.4 Rate of ER visits per 100,000 people
Wisconsin: 16.5

Melanoma
12.3 Rate of cases per 100,000 people
Wisconsin: 18.4

Lung Cancer
78.5 Rate of cases per 100,000 people
Wisconsin: 62.0

Asthma
528.0 Rate of ER visits per 100,000 people*
Wisconsin: 376.0

*This indicator is represented per 10,000 people on the data portal.

References on next page
DASHBOARD DATA DETAILS

Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.

**AIR QUALITY**

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2011

**WATER QUALITY**

Arsenic and Nitrate: Measured concentrations from public water systems
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013

**HOME HAZARDS**

Childhood Lead Poisoning: Reported blood lead test results
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.
Year displayed: 2014
Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

**BIRTH OUTCOMES**

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2011-2013

**HEALTH INDICATORS**

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013
Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2006-2010
Asthma: Age-adjusted rate of emergency room visits related to asthma
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

**OZONE**

- **7.0**
  - ANNUAL DAYS ABOVE STANDARD
  - KENOSHA COUNTY: 7.0
  - STATEWIDE: 0.7

**PARTICULATE MATTER 2.5**

- **0.0**
  - ANNUAL DAYS ABOVE STANDARD
  - KENOSHA COUNTY: 0.0
  - STATEWIDE: 0.1

- **11.1**
  - ANNUAL AVERAGE ($\mu g/m^3$)
  - KENOSHA COUNTY: 11.1
  - STATEWIDE: 9.4

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit dhs.wisconsin.gov/epht/criteriapollutants.htm.
Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

**PUBLIC DRINKING WATER**

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit [dhs.wi.gov/epht](http://dhs.wi.gov/epht).

**ARSENIC AND NITRATE**

**MEAN CONCENTRATION LEVELS IN PUBLIC WATER (2011-2013)**

- Arsenic mean concentration (µg/L): Kenosha County = 1.8, Wisconsin Average = 1.3
- Nitrate mean concentration (mg/L): Kenosha County = 0.3, Wisconsin Average = 1.5

*Above state value  At or below state value  Suppressed*
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

ARSENIC IN PRIVATE WELLS
AVERAGE CONCENTRATION (µg/L)

NITRATE IN PRIVATE WELLS
AVERAGE CONCENTRATION (mg/L)

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

CARBON MONOXIDE POISONING

- **4.6**
  - **Carbon Monoxide Poisoning**
  - Rate of ER visits related to CO per 100,000 people
  - **Statewide:** 8.2

- **5.8%**
  - **Childhood Lead Poisoning**
  - Percent of tested children with blood lead ≥5 µg/dL
  - **Statewide:** 6.3%

**CARBON MONOXIDE POISONING**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit [dhs.wisconsin.gov/air/co.htm](http://dhs.wisconsin.gov/air/co.htm).

TAKE A CLOSER LOOK AT THE DATA:
[dhs.wi.gov/epht](http://dhs.wi.gov/epht)
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body. There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

LOW BIRTH WEIGHT

- **7.7%**
  - LOW BIRTH WEIGHT
  - PERCENT BIRTHS <2,500 GRAMS
  - STATEWIDE: 7.3%

- **11.5%**
  - PRETERM BIRTH
  - PERCENT BIRTHS <37 WEEKS GESTATION
  - STATEWIDE: 10.3%

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
**PRETERM BIRTH**

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

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**BIRTH DEFECTS**

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

- **15.4** HEAT STRESS
  RATE OF ER VISITS PER 100,000 PEOPLE
  STATEWIDE: 16.5

- **12.3** MELANOMA
  RATE OF CASES PER 100,000 PEOPLE
  STATEWIDE: 18.4

- **78.5** LUNG CANCER
  RATE OF CASES PER 100,000 PEOPLE
  STATEWIDE: 62

- **528.0** ASTHMA
  RATE OF ER VISITS PER 100,000 PEOPLE
  STATEWIDE: 376

**HEAT STRESS**
Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.
DATA DETAILS

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$)

**Measures:** Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency's National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

Ozone

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heart Attack

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

HEALTH INDICATORS

Asthma

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

Lung Cancer and Melanoma

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
**WATER QUALITY**

**Arsenic**
- **Measures:** Mean concentration of arsenic (µg/L) in public drinking water
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** Averaged data from 2011-2013
- **Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**
- **Measures:** Mean concentration of nitrate (mg/L) in public drinking water
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** Averaged data from 2011-2013
- **Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**HOME HAZARDS**

**Lead Poisoning**
- **Measures:** Percent of children tested who had a blood lead level ≥ 5µg/dL
- **Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2001-2014, data from 2014 displayed on dashboard
- **Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**
- **Measures:** Annual average rate of emergency room visits, age adjusted per 100,000 people
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard
- **Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**BIRTH OUTCOMES**

**Low Birth Weight**
- **Measures:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard
- **Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**
- **Measures:** Percentage of babies born at <37 weeks gestation among all babies born to county residents
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard
- **Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
SPECIAL THANKS

Iowa Environmental Public Health Tracking Program

Wisconsin Environmental Public Health Tracking Program’s Technical Advisory Group

Jeff Phillips, Bureau of Environmental and Occupational Health, Wisconsin Department of Health Services

Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services

Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
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KEWAUNEE COUNTY
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**Particulate Matter 2.5**
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**Nitrate**
- Average concentration in mg/L Wisconsin: 1.5

**HOME HAZARDS**

**Carbon Monoxide (CO)**
- Rate of ER visits per 100,000 people Wisconsin: 8.2

**Childhood Lead Poisoning**
- Percent with blood lead ≥5 µg/L Wisconsin: 6.3%

**BIRTH OUTCOMES**

**Low Birth Weight**
- Percent of births <2500 grams Wisconsin: 7.3%

**Preterm Birth**
- Percent of births <37 weeks gestation Wisconsin: 10.3%

**HEALTH INDICATORS**

**Heat Stress**
- Rate of ER visits per 100,000 people Wisconsin: 16.5

**Melanoma**
- Rate of cases per 100,000 people Wisconsin: 18.4

**Lung Cancer**
- Rate of cases per 100,000 people Wisconsin: 62.0

**Asthma**
- Rate of ER visits per 100,000 people Wisconsin: 376.0

*This indicator is represented per 10,000 people on the data portal.*
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Heat Stress: Age-adjusted rate of emergency room visits related to heat stress
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2006-2010

Asthma: Age-adjusted rate of emergency room visits related to asthma
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

Air Quality

Ozone

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit [dhs.wisconsin.gov/epht/criteriapollutants.htm](http://dhs.wisconsin.gov/epht/criteriapollutants.htm).
Water Quality  Kewaunee County

Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

**PUBLIC DRINKING WATER**

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

8.3

**Rate of ER Visits Related to CO Per 100,000**

Statewide: 8.2

**Childhood Lead Poisoning**

0.9%

Percent of Tested Children With Blood Lead ≥5 µg/dL

Statewide: 6.3%

**Carbon Monoxide Poisoning**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)

Previous Blood Lead Level Reference Value (10 µg/dL)

Post-2012 Blood Lead Level Reference Value (5 µg/dL)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
**PRETERM BIRTH**

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit [dhs.wi.gov/epht/premature.htm](http://dhs.wi.gov/epht/premature.htm).

### BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother's body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby's body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at [dhs.wisconsin.gov/epht/birthdefects.htm](http://dhs.wisconsin.gov/epht/birthdefects.htm).
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

### Heat Stress

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.

### Other Health Indicators

- **Melanoma Rate of Cases**: 47.4 per 100,000 people
  - **Statewide**: 18.4
  - Above state value

- **Lung Cancer Rate of Cases**: 166.0 per 100,000 people
  - **Statewide**: 16.5
  - Above state value

- **Heat Stress Rate of ER Visits**: 15.5 per 100,000 people
  - **Statewide**: 16.5
  - Above state value

- **Asthma Rate of ER Visits**: 20.8 per 100,000 people
  - **Statewide**: 376
  - Suppressed

---

**HEALTH INDICATORS**

**KEWAUNEE COUNTY**

**HEAT STRESS**

RATE OF ER VISITS PER 100,000 PEOPLE

<table>
<thead>
<tr>
<th>Year</th>
<th>Kewaunee County</th>
<th>Wisconsin Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004-2008</td>
<td>14.0</td>
<td>16.0</td>
</tr>
<tr>
<td>2009-2013</td>
<td>16.0</td>
<td>18.0</td>
</tr>
</tbody>
</table>

**HEALTH INDICATORS**

**KEWAUNEE COUNTY**

Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

### Heat Stress

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.

ASTHMA
RATE OF ER VISITS PER 100,000 PEOPLE
DATA DETAILS

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$)

**Measures:** Annual Average PM$_{2.5}$ ($\mu$g/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Ozone

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heart Attack

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

HEALTH INDICATORS

Asthma

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

Lung Cancer and Melanoma

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
**WATER QUALITY**

**Arsenic**

**Measures:** Mean concentration of arsenic (µg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**

**Measure:** Mean concentration of nitrate (mg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**HOME HAZARDS**

**Lead Poisoning**

**Measure:** Percent of children tested who had a blood lead level ≥5 µg/dL  
**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2001-2014, data from 2014 displayed on dashboard  
**Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**

**Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard  
**Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825 ,E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**BIRTH OUTCOMES**

**Low Birth Weight**

**Measures:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**

**Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
WISCONSIN ENVIRONMENTAL
PUBLIC HEALTH TRACKING PROGRAM

HENRY ANDERSON, MD
Principal Investigator, Chief Medical Officer
608-266-1253
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD
Senior Epidemiologist
608-267-9752
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA
Evaluator
608-267-3830
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON
IS Systems Development Services Professional
608-266-6696
josephaolson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS
Program Manager
608-267-3811
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES
Communications and Education Coordinator
608-267-2488
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH
Epidemiologist
608-266-7897
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD
Chief, Health Hazard Evaluation Section
608-266-7480
mark.werner@dhs.wisconsin.gov

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Jeff Phillips, Bureau of Environmental and Occupational Health, Wisconsin Department of Health Services
Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services
Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488

HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital’s community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.
<table>
<thead>
<tr>
<th><strong>AIR QUALITY</strong></th>
<th><strong>WATER QUALITY</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ozone</strong></td>
<td><strong>Arsenic</strong></td>
</tr>
<tr>
<td>0.0</td>
<td>0.5</td>
</tr>
<tr>
<td>Annual days above standard</td>
<td>Average concentration in µg/L</td>
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<tr>
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<td><strong>Particulate Matter 2.5</strong></td>
<td><strong>Nitrate</strong></td>
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<td>Annual days above standard</td>
<td>Average concentration in mg/L</td>
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<td>Wisconsin: 1.5</td>
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<table>
<thead>
<tr>
<th><strong>HOME HAZARDS</strong></th>
<th><strong>BIRTH OUTCOMES</strong></th>
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<tr>
<td><strong>Carbon Monoxide (CO)</strong></td>
<td><strong>Low Birth Weight</strong></td>
</tr>
<tr>
<td>3.7</td>
<td>6.5%</td>
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<tr>
<td>Rate of ER visits per 100,000 people</td>
<td>Percent of births &lt;2500 grams</td>
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<tr>
<td>Wisconsin: 8.2</td>
<td>Wisconsin: 7.3%</td>
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<tr>
<td><strong>Childhood Lead Poisoning</strong></td>
<td><strong>Preterm Birth</strong></td>
</tr>
<tr>
<td>1.9%</td>
<td>9.0%</td>
</tr>
<tr>
<td>Percent with blood lead ≥5 µg/L</td>
<td>Percent of births &lt;37 weeks gestation</td>
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<tr>
<td>Wisconsin: 6.3%</td>
<td>Wisconsin: 10.3%</td>
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<tr>
<th><strong>HEALTH INDICATORS</strong></th>
<th><strong>LUNG CANCER</strong></th>
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<tr>
<td><strong>Heat Stress</strong></td>
<td><strong>MELANOMA</strong></td>
</tr>
<tr>
<td>15.0</td>
<td>58.5</td>
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<tr>
<td>Rate of ER visits per 100,000 people</td>
<td>Rate of cases per 100,000 people</td>
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<td>Wisconsin: 16.5</td>
<td>Wisconsin: 62.0</td>
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<th><strong>ASTHMA</strong></th>
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<td>22.2</td>
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<td>Rate of cases per 100,000 people</td>
<td>Rate of ER visits per 100,000 people*</td>
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<tr>
<td>Wisconsin: 18.4</td>
<td>Wisconsin: 376.0</td>
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</table>

*This indicator is represented per 10,000 people on the data portal.

References on next page
### AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2011

### WATER QUALITY

Arsenic and Nitrate: Measured concentrations from public water systems  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Years displayed: Averaged data from 2011-2013

### HOME HAZARDS

Childhood Lead Poisoning: Reported blood lead test results  
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.  
Year displayed: 2014  
Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013

### BIRTH OUTCOMES

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2011-2013

### HEALTH INDICATORS

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
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Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers  
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2006-2010  
Asthma: Age-adjusted rate of emergency room visits related to asthma  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

### OZONE

**OZONE**

**ANNUAL DAYS ABOVE STANDARD**

- **STATEWIDE:** 0.7
- **La Crosse County:** 0.0
- **Wisconsin Average:** 0.0

**PARTICULATE MATTER 2.5**

**ANNUAL DAYS ABOVE STANDARD**

- **STATEWIDE:** 0.1
- **La Crosse County:** 0.0
- **Wisconsin Average:** 0.0

**PARTICULATE MATTER 2.5**

**ANNUAL AVERAGE (µg/m3)**

- **STATEWIDE:** 9.4
- **La Crosse County:** 9.8
- **Wisconsin Average:** 0.7

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit dhs.wisconsin.gov/epht/criteriapollutants.htm.
LA CROSSE COUNTY

ARSENIC AND NITRATE MEAN CONCENTRATION LEVELS IN PUBLIC WATER (2011-2013)

WATER QUALITY

Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

<table>
<thead>
<tr>
<th></th>
<th>La Crosse County</th>
<th>Wisconsin Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic</td>
<td>0.5 µg/L</td>
<td>1.3 µg/L</td>
</tr>
<tr>
<td>Nitrate</td>
<td>1.4 mg/L</td>
<td>1.5 mg/L</td>
</tr>
</tbody>
</table>

PUBLIC DRINKING WATER

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.

ARSENIC AND NITRATE MEAN CONCENTRATION LEVELS IN PUBLIC WATER (2011-2013)

(10 µg/L) (10 mg/L)

Maximum contaminant level

La Crosse County
Wisconsin Average

TAKE A CLOSER LOOK AT THE DATA:
dhs.wi.gov/epht

Wisconsin Environmental Public Health Tracking | 7
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

### Carbon Monoxide Poisoning

- **Rate of ER Visits Related to CO**
  - **La Crosse County: 3.7**
  - **Statewide: 8.2**

### Childhood Lead Poisoning

- **Percent of Tested Children with Blood Lead ≥5 µg/dL**
  - **La Crosse County: 1.9%**
  - **Statewide: 6.3%**

---

**Carbon Monoxide Poisoning**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit [dhs.wisconsin.gov/air/co.htm](http://dhs.wisconsin.gov/air/co.htm).
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body. There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
BIRTH OUTCOMES  LA CROSSE COUNTY

PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby's body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**Heat Stress**

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.

**Melanoma**

**Lung Cancer**

**Asthma**

**Heat Stress**

Rate of ER Visits per 100,000 people

**La Crosse County**

**Wisconsin Average**

Take a closer look at the data: dhs.wi.gov/epht
Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit [dhs.wisconsin.gov/epht/melanoma.htm](http://dhs.wisconsin.gov/epht/melanoma.htm). To read more about lung cancer, visit [dhs.wisconsin.gov/epht/lung.htm](http://dhs.wisconsin.gov/epht/lung.htm).
DATA DETAILS

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$)

**Measures:** Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

Ozone

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2001-2011, data from 2011 are displayed on the dashboard

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heat Attack

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

HEALTH INDICATORS

Asthma

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

Lung Cancer and Melanoma

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
**WATER QUALITY**

**Arsenic**

**Measures:** Mean concentration of arsenic (µg/L) in public drinking water

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** Averaged data from 2011-2013

**Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**

**Measure:** Mean concentration of nitrate (mg/L) in public drinking water

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** Averaged data from 2011-2013

**Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

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**HOME HAZARDS**

**Lead Poisoning**

**Measure:** Percent of children tested who had a blood lead level ≥ 10 µg/dL

**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2001-2014, data from 2014 displayed on dashboard

**Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**

**Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard

**Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

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**BIRTH OUTCOMES**

**Low Birth Weight**

**Measures:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard

**Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**

**Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard

**Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD
Principal Investigator, Chief Medical Officer
608-266-1253
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD
Senior Epidemiologist
608-267-9752
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA
Evaluator
608-267-3830
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON
IS Systems Development Services Professional
608-266-6696
josepha.olson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS
Program Manager
608-267-3811
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES
Communications and Education Coordinator
608-267-2488
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH
Epidemiologist
608-266-7897
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD
Chief, Health Hazard Evaluation Section
608-266-7480
mark.werner@dhs.wisconsin.gov

SPECIAL THANKS
Iowa Environmental Public Health Tracking Program
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Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services
Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
LAFAYETTE COUNTY
DASHBOARD  |  2015 ENVIRONMENTAL HEALTH PROFILE

AIR QUALITY

Ozone
0.0  Annual days above standard
Wisconsin: 0.7

Particulate Matter 2.5
0.0  Annual days above standard
Wisconsin: 0.1

WATER QUALITY

Arsenic
0.4  Average concentration in µg/L
Wisconsin: 1.3

Nitrate
0.3  Average concentration in mg/L
Wisconsin: 1.5

HOME HAZARDS

Carbon Monoxide (CO)
7.1  Rate of ER visits per 100,000 people
Wisconsin: 8.2

Childhood Lead Poisoning
6.3%  Percent with blood lead ≥5 µg/L
Wisconsin: 6.3%

BIRTH OUTCOMES

Low Birth Weight
8.0%  Percent of births <2500 grams
Wisconsin: 7.3%

Preterm Birth
11.0%  Percent of births <37 weeks gestation
Wisconsin: 10.3%

HEALTH INDICATORS

Heat Stress
25.6  Rate of ER visits per 100,000 people
Wisconsin: 16.5

Melanoma
23.4  Rate of cases per 100,000 people
Wisconsin: 18.4

Lung Cancer
43.7  Rate of cases per 100,000 people
Wisconsin: 62.0

Asthma
360.0  Rate of ER visits per 100,000 people*
Wisconsin: 376.0

*This indicator is represented per 10,000 people on the data portal.
Above state value  At or below state value  Data are suppressed  References on next page

WISCONSIN ENVIRONMENTAL PUBLIC HEALTH TRACKING PROGRAM
dhs.wi.gov/eph | dhstracking@wi.gov | 608-267-2488
Wisconsin Department of Health Services | Division of Public Health | Bureau of Environmental and Occupational Health
Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at [dhs.wi.gov/epht](http://dhs.wi.gov/epht). For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at [dhs.wisconsin.gov/epht/glossary.htm](http://dhs.wisconsin.gov/epht/glossary.htm).

### AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2011

### WATER QUALITY

Arsenic and Nitrate: Measured concentrations from public water systems  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Years displayed: Averaged data from 2011-2013

### HOME HAZARDS

Childhood Lead Poisoning: Reported blood lead test results  
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.  
Year displayed: 2014  
Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013

### BIRTH OUTCOMES

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2011-2013

### HEALTH INDICATORS

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013  
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Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

**AIR QUALITY**

LAFAYETTE COUNTY

Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

- **OZONE**
  - ANNUAL DAYS ABOVE STANDARD
  - STATEWIDE: 0.7
  - 0.0

- **PARTICULATE MATTER 2.5**
  - ANNUAL DAYS ABOVE STANDARD
  - STATEWIDE: 0.1
  - 0.0

- **PARTICULATE MATTER 2.5**
  - ANNUAL AVERAGE (µg/m³)
  - STATEWIDE: 9.4
  - 10.2

**OZONE**

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.

**OZONE**

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.

TAKING A CLOSER LOOK AT THE DATA:

dhs.wi.gov/epht
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit dhs.wisconsin.gov/epht/criteriapolllutants.htm.
WATER QUALITY LAFAYETTE COUNTY

Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

**PUBLIC DRINKING WATER**

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit [dhs.wi.gov/epht](https://dhs.wi.gov/epht).

**ARSENIC AND NITRATE**

**MEAN CONCENTRATION LEVELS IN PUBLIC WATER (2011-2013)**

![Graph showing arsenic and nitrate concentrations](image)

### Arsenic
- **Average Concentration** in public water: 0.4 µg/L
- **Statewide**: 1.3 µg/L

### Nitrate
- **Average Concentration** in public water: 0.3 mg/L
- **Statewide**: 1.5 mg/L

[Take a closer look at the data: dhs.wi.gov/epht](https://dhs.wi.gov/epht)
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

ARSENIC IN PRIVATE WELLS
AVERAGE CONCENTRATION (µg/L)

NITRATE IN PRIVATE WELLS
AVERAGE CONCENTRATION (mg/L)

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
**PRETERM BIRTH**

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit [dhs.wi.gov/epht/premature.htm](http://dhs.wi.gov/epht/premature.htm).

**BIRTH DEFECTS**

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastrochisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at [dhs.wisconsin.gov/epht/birthdefects.htm](http://dhs.wisconsin.gov/epht/birthdefects.htm).
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**HEAT STRESS**
- Rate of ER visits per 100,000 people: 25.6
  - Above state value

**MELANOMA**
- Rate of cases per 100,000 people: 23.4
  - At or below state value

**LUNG CANCER**
- Rate of cases per 100,000 people: 43.7
  - Statewide: 16.5

**ASTHMA**
- Rate of ER visits per 100,000 people: 360.0
  - Statewide: 376

**HEAT STRESS**
Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.
**HEALTH INDICATORS**

**LAFAYETTE COUNTY**

**MELANOMA AND LUNG CANCER**

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

**MELANOMA**

RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit [dhs.wisconsin.gov/epht/melanoma.htm](http://dhs.wisconsin.gov/epht/melanoma.htm). To read more about lung cancer, visit [dhs.wisconsin.gov/epht/lung.htm](http://dhs.wisconsin.gov/epht/lung.htm).

**LUNG CANCER**

RATE OF CASES PER 100,000 PEOPLE

**ASTHMA**

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit [dhs.wisconsin.gov/asthma/Index.htm](http://dhs.wisconsin.gov/asthma/Index.htm).

**ASTHMA**

RATE OF ER VISITS PER 100,000 PEOPLE

For more information on melanoma, visit [dhs.wisconsin.gov/epht/melanoma.htm](http://dhs.wisconsin.gov/epht/melanoma.htm). To read more about lung cancer, visit [dhs.wisconsin.gov/epht/lung.htm](http://dhs.wisconsin.gov/epht/lung.htm).
**AIR QUALITY**

**Particulate Matter 2.5 (PM$_{2.5}$)**
- **Measures:** Annual Average PM$_{2.5}$ ($\mu$g/m$^3$), Percent of days above standard set by the US Environmental Protection Agency
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard
- **Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 $\mu$g/m$^3$.

**Ozone**
- **Measure:** Number of days above standard set by the US Environmental Protection Agency
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** 2002-2011
- **Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

**Heart Attack**
- **Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** 2002-2011
- **Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**HEALTH INDICATORS**

**Asthma**
- **Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard
- **Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

**Lung Cancer and Melanoma**
- **Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people
- **Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard
- **Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**Heat Stress**
- **Measure:** Age-adjusted rate of emergency department visits per 100,000 people
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard
- **Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
WATER QUALITY

Arsenic
Measure: Mean concentration of arsenic (µg/L) in public drinking water
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013
Data details: Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

Nitrate
Measure: Mean concentration of nitrate (mg/L) in public drinking water
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013
Data details: Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

HOME HAZARDS

Lead Poisoning
Measure: Percent of children tested who had a blood lead level ≥5 µg/dL
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2001-2014, data from 2014 displayed on dashboard
Data details: Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

Carbon Monoxide Poisoning
Measure: Annual average rate of emergency room visits, age adjusted per 100,000 people
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2004-2013, data averaged from 2009-2013 displayed on dashboard
Data details: This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825,E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

BIRTH OUTCOMES

Low Birth Weight
Measure: Percentage of babies weighing <2,500 grams at birth among all babies born to county residents
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2002-2013, data from 2011-2013 are displayed on dashboard
Data details: Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

Preterm Birth
Measure: Percentage of babies born at <37 weeks gestation among all babies born to county residents
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2002-2013, data from 2011-2013 are displayed on dashboard
Data details: Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
SPECIAL THANKS

Iowa Environmental Public Health Tracking Program
Wisconsin Environmental Public Health Tracking Program’s Technical Advisory Group
Jeff Phillips, Bureau of Environmental and Occupational Health, Wisconsin Department of Health Services
Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services
Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
LANGLADE COUNTY
ENVIRONMENTAL
HEALTH PROFILE

2015

WISCONSIN ENVIRONMENTAL PUBLIC HEALTH TRACKING PROGRAM
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.
LANGLADE COUNTY
DASHBOARD  |  2015 ENVIRONMENTAL HEALTH PROFILE

AIR QUALITY
- Ozone
  - Annual days above standard: 0.0
  - Wisconsin: 0.7
- Particulate Matter 2.5
  - Annual days above standard: 0.0
  - Wisconsin: 0.1

WATER QUALITY
- Arsenic
  - Average concentration in µg/L: 0.8
  - Wisconsin: 1.3
- Nitrate
  - Average concentration in mg/L: 1.9
  - Wisconsin: 1.5

HOME HAZARDS
- Carbon Monoxide (CO)
  - Rate of ER visits per 100,000 people: 10.4
  - Wisconsin: 8.2
- Childhood Lead Poisoning
  - Percent with blood lead ≥5 µg/L: 3.0%
  - Wisconsin: 6.3%

BIRTH OUTCOMES
- Low Birth Weight
  - Percent of births <2500 grams: 5.7%
  - Wisconsin: 7.3%
- Preterm Birth
  - Percent of births <37 weeks gestation: 10.5%
  - Wisconsin: 10.3%

HEALTH INDICATORS
- Heat Stress
  - Rate of ER visits per 100,000 people: 14.8
  - Wisconsin: 16.5
- Melanoma
  - Rate of cases per 100,000 people: 9.0
  - Wisconsin: 18.4
- Lung Cancer
  - Rate of cases per 100,000 people: 63.2
  - Wisconsin: 62.0
- Asthma
  - Rate of ER visits per 100,000 people:
    - Above state value: 460.0
    - At or below state value: Wisconsin: 376.0

*This indicator is represented per 10,000 people on the data portal.

References on next page
### AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Year displayed:** 2011

### WATER QUALITY

Arsenic and Nitrate: Measured concentrations from public water systems  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013

### HOME HAZARDS

Childhood Lead Poisoning: Reported blood lead test results  
**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
**Note:** The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.  
**Year displayed:** 2014  
Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** Averaged data from 2009-2013

### BIRTH OUTCOMES

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** Averaged data from 2011-2013

### HEALTH INDICATORS

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
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Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers  
**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** Averaged data from 2006-2010  
Asthma: Age-adjusted rate of emergency room visits related to asthma  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Year displayed:** 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

**OZONE**

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.

**PARTICULATE MATTER 2.5**

**PARTICULATE MATTER 2.5**

**STATEWIDE: 0.1**

**STATEWIDE: 9.4**

**Above state value**  **At or below state value**  **^ Suppressed**


**Langlade County**  **Wisconsin Average**

**TAKE A CLOSER LOOK AT THE DATA:**

dhs.wi.gov/epht
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit [dhs.wisconsin.gov/epht/criteriapollutants.htm](dhs.wisconsin.gov/epht/criteriapollutants.htm).
WATER QUALITY  LANGLADE COUNTY

Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

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About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

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For more information and to explore data about other drinking water contaminants in Wisconsin, visit [dhs.wi.gov/epht](http://dhs.wi.gov/epht).

ARSENIC AND NITRATE
MEAN CONCENTRATION LEVELS IN PUBLIC WATER (2011-2013)

- **0.8** ARSENIC
  - AVERAGE CONCENTRATION IN PUBLIC WATER (µg/L)
  - STATEWIDE: 1.3

- **1.9** NITRATE
  - AVERAGE CONCENTRATION IN PUBLIC WATER (mg/L)
  - STATEWIDE: 1.5

Maximum contaminant level

(10 µg/L) - (10 mg/L)

- Above state value
- At or below state value
- Suppressed

**Langlade County**

**Wisconsin Average**
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

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**HOME HAZARDS**  

LANGLADE COUNTY

Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

- **10.4**  
  **CARBON MONOXIDE POISONING**  
  RATE OF ER VISITS RELATED TO CO PER 100,000 PEOPLE  
  STATEWIDE: 8.2

- **3.0%**  
  **CHILDHOOD LEAD POISONING**  
  PERCENT OF TESTED CHILDREN WITH BLOOD LEAD ≥5 µg/dL  
  STATEWIDE: 6.3%

**CARBON MONOXIDE POISONING**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit [dhs.wisconsin.gov/air/co.htm](http://dhs.wisconsin.gov/air/co.htm).

**TAKE A CLOSER LOOK AT THE DATA:**  
[dhs.wi.gov/epht](http://dhs.wi.gov/epht)
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.
Reproduction is complex, and many factors affect a mother's ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

LOW BIRTH WEIGHT

- 5.7%
- 10.5%

LOW BIRTH WEIGHT
PERCENT BIRTHS <2,500 GRAMS
STATEWIDE: 7.3%

PRETERM BIRTH
PERCENT BIRTHS <37 WEEKS GESTATION
STATEWIDE: 10.3%

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**HEAT STRESS**

Rate of ER visits per 100,000 people

- **Langlade County**: 14.8
- **Wisconsin Average**: 16.5

**MELANOMA**

Rate of cases per 100,000 people

- **Langlade County**: 9.0
- **Wisconsin Average**: 18.4

**LUNG CANCER**

Rate of cases per 100,000 people

- **Langlade County**: 63.2
- **Wisconsin Average**: 62

**ASTHMA**

Rate of ER visits per 100,000 people

- **Langlade County**: 460.0
- **Wisconsin Average**: 376

**HEAT STRESS**

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.
DATA DETAILS

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$)
Measures: Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: 2002-2011, data from 2011 are displayed on the dashboard
Data details: These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency's National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

Ozone
Measure: Number of days above standard set by the US Environmental Protection Agency
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: 2002-2011
Data details: This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heart Attack
Measure: Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: 2002-2011
Data details: These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

HEALTH INDICATORS

Asthma
Measures: Annual age-adjusted rate of emergency department visits per 100,000 people
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: 2002-2012, data from 2012 are displayed on the dashboard
Data details: These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

Lung Cancer and Melanoma
Measure: Age-adjusted rates of cases among persons age 35 and over per 100,000 people
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 1996-2010, data from 2006-2010 are displayed on the dashboard
Data details: Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress
Measure: Age-adjusted rate of emergency department visits per 100,000 people
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2004-2013, data from 2009-2013 are displayed on the dashboard
Data details: These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
**WATER QUALITY**

**Arsenic**

**Measures:** Mean concentration of arsenic (µg/L) in public drinking water

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** Averaged data from 2011-2013

**Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**

**Measure:** Mean concentration of nitrate (mg/L) in public drinking water

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** Averaged data from 2011-2013

**Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**HOME HAZARDS**

**Lead Poisoning**

**Measure:** Percent of children tested who had a blood lead level ≥ 5µg/dL

**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2001-2014, data from 2014 displayed on dashboard

**Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**

**Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard

**Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**BIRTH OUTCOMES**

**Low Birth Weight**

**Measures:** Percentage of babies weighing < 2,500 grams at birth among all babies born to county residents

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard

**Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**

**Measure:** Percentage of babies born at < 37 weeks gestation among all babies born to county residents

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard

**Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD
Principal Investigator, Chief Medical Officer
608-266-1253
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD
Senior Epidemiologist
608-267-9752
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA
Evaluator
608-267-3830
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON
IS Systems Development Services Professional
608-266-6696
joseph.olson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS
Program Manager
608-267-3811
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES
Communications and Education Coordinator
608-267-2488
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH
Epidemiologist
608-266-7897
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD
Chief, Health Hazard Evaluation Section
608-266-7480
mark.werner@dhs.wisconsin.gov

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Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services
Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital’s community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
# LINCOLN COUNTY DASHBOARD | 2015 ENVIRONMENTAL HEALTH PROFILE

## AIR QUALITY

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
<th>Description</th>
<th>Wisconsin Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozone</td>
<td>0.0</td>
<td>Annual days above standard</td>
<td>0.7</td>
</tr>
<tr>
<td>Particulate Matter 2.5</td>
<td>0.0</td>
<td>Annual days above standard</td>
<td>0.1</td>
</tr>
</tbody>
</table>

## WATER QUALITY

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
<th>Description</th>
<th>Wisconsin Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic</td>
<td>0.3</td>
<td>Average concentration in µg/L</td>
<td>1.3</td>
</tr>
<tr>
<td>Nitrate</td>
<td>2.0</td>
<td>Average concentration in mg/L</td>
<td>1.5</td>
</tr>
</tbody>
</table>

## HOME HAZARDS

<table>
<thead>
<tr>
<th>Metric</th>
<th>Rate</th>
<th>Description</th>
<th>Wisconsin Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon Monoxide (CO)</td>
<td>7.4</td>
<td>Rate of ER visits per 100,000 people</td>
<td>8.2</td>
</tr>
<tr>
<td>Childhood Lead Poisoning</td>
<td>1.9%</td>
<td>Percent with blood lead ≥5 µg/L</td>
<td>6.3%</td>
</tr>
</tbody>
</table>

## BIRTH OUTCOMES

<table>
<thead>
<tr>
<th>Metric</th>
<th>Rate</th>
<th>Description</th>
<th>Wisconsin Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Birth Weight</td>
<td>7.8%</td>
<td>Percent of births &lt;2500 grams</td>
<td>7.3%</td>
</tr>
<tr>
<td>Preterm Birth</td>
<td>10.4%</td>
<td>Percent of births &lt;37 weeks gestation</td>
<td>10.3%</td>
</tr>
</tbody>
</table>

## HEALTH INDICATORS

<table>
<thead>
<tr>
<th>Metric</th>
<th>Rate</th>
<th>Description</th>
<th>Wisconsin Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat Stress</td>
<td>25.6</td>
<td>Rate of ER visits per 100,000 people</td>
<td>16.5</td>
</tr>
<tr>
<td>Melanoma</td>
<td>19.8</td>
<td>Rate of cases per 100,000 people</td>
<td>18.4</td>
</tr>
<tr>
<td>Lung Cancer</td>
<td>58.6</td>
<td>Rate of cases per 100,000 people</td>
<td>62.0</td>
</tr>
<tr>
<td>Asthma</td>
<td>336.0</td>
<td>Rate of ER visits per 100,000 people*</td>
<td>376.0</td>
</tr>
</tbody>
</table>

*This indicator is represented per 10,000 people on the data portal.*
Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at [dhs.wi.gov/epht](http://dhs.wi.gov/epht). For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at [dhs.wisconsin.gov/epht/glossary.htm](http://dhs.wisconsin.gov/epht/glossary.htm).

### AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2011

### WATER QUALITY

Arsenic and Nitrate: Measured concentrations from public water systems  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Years displayed: Averaged data from 2011-2013

### HOME HAZARDS

Childhood Lead Poisoning: Reported blood lead test results  
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.  
Year displayed: 2014  
Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013

### BIRTH OUTCOMES

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2011-2013

### HEALTH INDICATORS

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013  
Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers  
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2006-2010  
Asthma: Age-adjusted rate of emergency room visits related to asthma  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM\textsubscript{2.5})" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

### OZONE

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.

**OZONE**

<table>
<thead>
<tr>
<th>Year</th>
<th>Lincoln County</th>
<th>Wisconsin Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>2002</td>
<td>0.0</td>
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</tr>
<tr>
<td>2003</td>
<td>1.5</td>
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<tr>
<td>2004</td>
<td>2.0</td>
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<td>2005</td>
<td>3.0</td>
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<tr>
<td>2006</td>
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<td>0.0</td>
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<tr>
<td>2008</td>
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<td>0.0</td>
</tr>
<tr>
<td>2011</td>
<td>0.0</td>
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**PARTICULATE MATTER 2.5**

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<th>Wisconsin Average</th>
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<td>8.5</td>
<td>9.4</td>
</tr>
<tr>
<td>2011</td>
<td>8.5</td>
<td>9.4</td>
</tr>
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</table>

**STATEWIDE**

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<th>Wisconsin Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
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<td>0.1</td>
</tr>
<tr>
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<td>2003</td>
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<tr>
<td>2008</td>
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<td>2010</td>
<td>0.7</td>
<td>0.1</td>
</tr>
<tr>
<td>2011</td>
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</tbody>
</table>
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit [dhs.wisconsin.gov/epht/criteriapollutants.htm](http://dhs.wisconsin.gov/epht/criteriapollutants.htm).
WATER QUALITY  LINCOLN COUNTY

Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

0.3
ARSENIC
AVERAGE CONCENTRATION IN PUBLIC WATER (µg/L)
STATEWIDE: 1.3

2.0
NITRATE
AVERAGE CONCENTRATION IN PUBLIC WATER (mg/L)
STATEWIDE: 1.5

PUBLIC DRINKING WATER

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.

ARSENIC AND NITRATE
MEAN CONCENTRATION LEVELS IN PUBLIC WATER (2011-2013)

Maximum contaminant level

(10 µg/L)  (10 mg/L)

Lincoln County
Wisconsin Average

TAKE A CLOSER LOOK AT THE DATA:
dhs.wi.gov/epht
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

### CARBON MONOXIDE POISONING

- **Rate of ER Visits Related to CO per 100,000 People**
  - **Lincoln County**: 7.4
  - **Wisconsin Average**: 8.2
  - **Statewide**: 8.2

### CHILDHOOD LEAD POISONING

- **Percent of Tested Children with Blood Lead ≥ 5 µg/dL**
  - **Lincoln County**: 1.9%
  - **Wisconsin Average**: 6.3%
  - **Statewide**: 6.3%

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit [dhs.wisconsin.gov/air/co.htm](http://dhs.wisconsin.gov/air/co.htm).
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**HEAT STRESS**
Rate of ER visits per 100,000 people  
**Lincoln County:** 25.6  
**Statewide:** 16.5

**MELANOMA**
Rate of cases per 100,000 people  
**Lincoln County:** 19.8  
**Statewide:** 18.4

**LUNG CANCER**
Rate of cases per 100,000 people  
**Lincoln County:** 58.6  
**Statewide:** 62

**ASTHMA**
Rate of ER visits per 100,000 people  
**Lincoln County:** 336.0  
**Statewide:** 376

**HEAT STRESS**
Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA

RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

LUNG CANCER

RATE OF CASES PER 100,000 PEOPLE

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.
**DATA DETAILS**

**AIR QUALITY**

**Particulate Matter 2.5 (PM$_{2.5}$)**

**Measures:** Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

**Ozone**

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2001-2011, data from 2011 are displayed on the dashboard

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

**Heart Attack**

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**HEALTH INDICATORS**

**Asthma**

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

**Lung Cancer and Melanoma**

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**Heat Stress**

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
**WATER QUALITY**

**Arsenic**
- **Measure:** Mean concentration of arsenic (µg/L) in public drinking water
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** Averaged data from 2011-2013
- **Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**
- **Measure:** Mean concentration of nitrate (mg/L) in public drinking water
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** Averaged data from 2011-2013
- **Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, we aggregated three years of data (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**HOME HAZARDS**

**Lead Poisoning**
- **Measure:** Percent of children tested who had a blood lead level ≥ 5 µg/dL
- **Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2001-2014, data from 2014 displayed on dashboard
- **Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**
- **Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard
- **Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**BIRTH OUTCOMES**

**Low Birth Weight**
- **Measure:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard
- **Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**
- **Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard
- **Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD  
Principal Investigator, Chief Medical Officer  
608-266-1253  
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD  
Senior Epidemiologist  
608-267-9752  
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA  
Evaluator  
608-267-3830  
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON  
IS Systems Development Services Professional  
608-266-6696  
joseph.olson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS  
Program Manager  
608-267-3811  
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES  
Communications and Education Coordinator  
608-267-2488  
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH  
Epidemiologist  
608-266-7897  
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD  
Chief, Health Hazard Evaluation Section  
608-266-7480  
mark.werner@dhs.wisconsin.gov

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MANITOWOC COUNTY ENVIRONMENTAL HEALTH PROFILE 2015

WISCONSIN ENVIRONMENTAL PUBLIC HEALTH TRACKING PROGRAM
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
MANITOWOC COUNTY
DASHBOARD  |  2015 ENVIRONMENTAL HEALTH PROFILE

**AIR QUALITY**

**Ozone**
- Annual days above standard
  - 4.0
  - Wisconsin: 0.7

**Particulate Matter 2.5**
- Annual days above standard
  - 0.0
  - Wisconsin: 0.1

**WATER QUALITY**

**Arsenic**
- Average concentration in µg/L
  - 0.5
  - Wisconsin: 1.3

**Nitrate**
- Average concentration in mg/L
  - 2.6
  - Wisconsin: 1.5

**HOME HAZARDS**

**Carbon Monoxide (CO)**
- Rate of ER visits per 100,000 people
  - 7.2
  - Wisconsin: 8.2

**Childhood Lead Poisoning**
- Percent with blood lead ≥ 5 µg/L
  - 4.4%
  - Wisconsin: 6.3%

**BIRTH OUTCOMES**

**Low Birth Weight**
- Percent of births <2500 grams
  - 6.4%
  - Wisconsin: 7.3%

**Preterm Birth**
- Percent of births <37 weeks gestation
  - 9.0%
  - Wisconsin: 10.3%

**HEALTH INDICATORS**

**Heat Stress**
- Rate of ER visits per 100,000 people
  - 23.9
  - Wisconsin: 16.5

**Melanoma**
- Rate of cases per 100,000 people
  - 32.6
  - Wisconsin: 18.4

**Lung Cancer**
- Rate of cases per 100,000 people
  - 53.7
  - Wisconsin: 62.0

**Asthma**
- Rate of ER visits per 100,000 people*
  - 353.0
  - Wisconsin: 376.0

*This indicator is represented per 10,000 people on the data portal.

Above state value  At or below state value  Data are suppressed  References on next page

WISCONSIN ENVIRONMENTAL PUBLIC HEALTH TRACKING PROGRAM

dhs.wi.gov/epht  |  dhstracking@wi.gov  |  608-267-2488
Wisconsin Department of Health Services  |  Division of Public Health  |  Bureau of Environmental and Occupational Health
DASHBOARD DATA DETAILS

Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.

**AIR QUALITY**

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2011

**WATER QUALITY**

Arsenic and Nitrate: Measured concentrations from public water systems
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013

**HOME HAZARDS**

Childhood Lead Poisoning: Reported blood lead test results
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.
Year displayed: 2014

Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

**BIRTH OUTCOMES**

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2011-2013

**HEALTH INDICATORS**

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2006-2010

Asthma: Age-adjusted rate of emergency room visits related to asthma
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2012
Air pollution means substances are in the air that should not be there — or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

### Air Quality

**Manitowoc County**

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**Wisconsin Average**

- **Ozone**: 0.0
- **Particulate Matter 2.5**: 0.0

**Statewide**

- **Ozone**: 0.1
- **Particulate Matter 2.5**: 9.4

#### Ozone

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit dhs.wisconsin.gov/epht/criteriapollutants.htm.
WATER QUALITY MANITOWOC COUNTY

Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

**ARSENIC AND NITRATE MEAN CONCENTRATION LEVELS IN PUBLIC WATER (2011-2013)**

- **ARSENIC**
  - Average concentration in public water (µg/L)
  - Statewide: 1.3
  - Above state value: 0.5
  - At or below state value

- **NITRATE**
  - Average concentration in public water (mg/L)
  - Statewide: 1.5
  - Above state value: 2.6
  - At or below state value

**PUBLIC DRINKING WATER**

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit [dhs.wi.gov/epht](http://dhs.wi.gov/epht).
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**Carbon Monoxide Poisoning**

- **Rate of ER Visits** related to CO per 100,000 people
  - **Statewide**: 8.2
  - **Manitowoc County**: 7.2

**Childhood Lead Poisoning**

- **Percent of tested children with blood lead ≥5 µg/dL**
  - **Statewide**: 6.3%
  - **Manitowoc County**: 4.4%

**Carbon Monoxide**

- A toxic, colorless, and odorless gas.
- Created whenever fuel or other materials are burned.
- Wisconsin state law requires carbon monoxide detectors on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit [dhs.wisconsin.gov/air/co.htm](http://dhs.wisconsin.gov/air/co.htm).

**Take a Closer Look at the Data:**

[dhs.wi.gov/epht](http://dhs.wi.gov/epht)
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013. Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

### HEALTH INDICATORS

**Manitowoc County**

Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

- **Heat Stress**: Rate of ER visits per 100,000 people. Statewide: 16.5. Manistowoc County: 23.9. At or below state value.
- **Melanoma**: Rate of cases per 100,000 people. Statewide: 18.4. Manistowoc County: 32.6. Above state value.
- **Lung Cancer**: Rate of cases per 100,000 people. Statewide: 62. Manistowoc County: 53.7. Above state value.
- **Asthma**: Rate of ER visits per 100,000 people. Statewide: 376. Manistowoc County: 353.0. At or below state value.

**HEAT STRESS**

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit [bit.ly/cdcheatstress](http://bit.ly/cdcheatstress).

**TAKE A CLOSER LOOK AT THE DATA:**

dhs.wi.gov/epht

Wisconsin Environmental Public Health Tracking | 13
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm

ASTHMA
RATE OF ER VISITS PER 100,000 PEOPLE
DATA DETAILS

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$)

**Measures:** Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

Ozone

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heart Attack

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

HEALTH INDICATORS

Asthma

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

Lung Cancer and Melanoma

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
**WATER QUALITY**

**Arsenic**

**Measures:** Mean concentration of arsenic (µg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**

**Measure:** Mean concentration of nitrate (mg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, we aggregated three years of data (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**HOME HAZARDS**

**Lead Poisoning**

**Measure:** Percent of children tested who had a blood lead level ≥5 µg/dL  
**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2001-2014, data from 2014 displayed on dashboard  
**Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**

**Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard  
**Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**BIRTH OUTCOMES**

**Low Birth Weight**

**Measures:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**

**Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD  
Principal Investigator, Chief Medical Officer  
608-266-1253  
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD  
Senior Epidemiologist  
608-267-9752  
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA  
Evaluator  
608-267-3830  
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON  
IS Systems Development Services Professional  
608-266-6696  
josepha.olson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS  
Program Manager  
608-267-3811  
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES  
Communications and Education Coordinator  
608-267-2488  
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH  
Epidemiologist  
608-266-7897  
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD  
Chief, Health Hazard Evaluation Section  
608-266-7480  
mark.werner@dhs.wisconsin.gov

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Jeff Phillips, Bureau of Environmental and Occupational Health, Wisconsin Department of Health Services
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Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital’s community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
MARATHON COUNTY
DASHBOARD | 2015 ENVIRONMENTAL HEALTH PROFILE

AIR QUALITY

Ozone
- Annual days above standard
  - Wisconsin: 0.7

Particulate Matter 2.5
- Annual days above standard
  - Wisconsin: 0.1

WATER QUALITY

Arsenic
- Average concentration in µg/L
  - Wisconsin: 1.3

Nitrate
- Average concentration in mg/L
  - Wisconsin: 1.5

HOME HAZARDS

Carbon Monoxide (CO)
- Rate of ER visits per 100,000 people
  - Wisconsin: 8.2

Childhood Lead Poisoning
- Percent with blood lead ≥5 µg/L
  - Wisconsin: 6.3%

BIRTH OUTCOMES

Low Birth Weight
- Percent of births <2500 grams
  - Wisconsin: 7.3%

Preterm Birth
- Percent of births <37 weeks gestation
  - Wisconsin: 10.3%

HEALTH INDICATORS

Heat Stress
- Rate of ER visits per 100,000 people
  - Wisconsin: 16.5

Melanoma
- Rate of cases per 100,000 people
  - Wisconsin: 18.4

Lung Cancer
- Rate of cases per 100,000 people
  - Wisconsin: 62.0

Asthma
- Rate of ER visits per 100,000 people*
  - Wisconsin: 376.0

*This indicator is represented per 10,000 people on the data portal.

References on next page
Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.

### AIR QUALITY
Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2011

### WATER QUALITY
Arsenic and Nitrate: Measured concentrations from public water systems  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Years displayed: Averaged data from 2011-2013

### HOME HAZARDS
Childhood Lead Poisoning: Reported blood lead test results  
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.  
Year displayed: 2014  
Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013

### BIRTH OUTCOMES
Low Birth Weight and Preterm Birth: Wisconsin birth certificate data  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2011-2013

### HEALTH INDICATORS
Heat Stress: Age-adjusted rate of emergency room visits related to heat stress  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013  
Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers  
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2006-2010  
Asthma: Age-adjusted rate of emergency room visits related to asthma  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

**OZONE**

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit [dhs.wisconsin.gov/epht/criteriapollutants.htm](http://dhs.wisconsin.gov/epht/criteriapollutants.htm).
Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

**PUBLIC DRINKING WATER**

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

ARSENIC IN PRIVATE WELLS
AVERAGE CONCENTRATION (µg/L)

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.

**Childhood Lead Poisoning**

PERCENT OF TESTED CHILDREN WITH BLOOD LEAD ≥5 µg/dL

STATEWIDE: 6.3%

**Take a Closer Look at the Data:**

dhs.wi.gov/epht
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

LOW BIRTH WEIGHT

LOW BIRTH WEIGHT
PERCENT BIRTHS
<2,500 GRAMS
STATEWIDE: 7.3%

PRETERM BIRTH
PERCENT BIRTHS
<37 WEEKS GESTATION
STATEWIDE: 10.3%

LOW BIRTH WEIGHT
PERCENT OF BIRTHS BELOW 2,500 GRAMS

CONFIDENCE INTERVAL

Take a closer look at the data:
dhs.wi.gov/epht

LOW BIRTH WEIGHT

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

- **Heat Stress**: 13.8 rate of ER visits per 100,000 people. Statewide: 16.5.
- **Melanoma**: 18.3 rate of cases per 100,000 people. Statewide: 18.4.
- **Lung Cancer**: 56.5 rate of cases per 100,000 people. Statewide: 62.
- **Asthma**: 236.0 rate of ER visits per 100,000 people. Statewide: 376.

**Heat Stress**

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.

ASTHMA
RATE OF ER VISITS PER 100,000 PEOPLE
**DATA DETAILS**

### AIR QUALITY

**Particulate Matter 2.5 (PM$_{2.5}$)**
- **Measures:** Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard
- **Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

**Ozone**
- **Measure:** Number of days above standard set by the US Environmental Protection Agency
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** 2001-2011, data from 2011 are displayed on the dashboard
- **Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

### HEALTH INDICATORS

**Asthma**
- **Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** 2002-2011
- **Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**Lung Cancer and Melanoma**
- **Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people
- **Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard
- **Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**Heat Stress**
- **Measure:** Age-adjusted rate of emergency department visits per 100,000 people
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard
- **Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
**WATER QUALITY**

**Arsenic**

**Measures:** Mean concentration of arsenic (µg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**

**Measure:** Mean concentration of nitrate (mg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**HOME HAZARDS**

**Lead Poisoning**

**Measure:** Percent of children tested who had a blood lead level ≥5 µg/dL  
**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2001-2014, data from 2014 displayed on dashboard  
**Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**

**Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard  
**Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**BIRTH OUTCOMES**

**Low Birth Weight**

**Measures:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**

**Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
SPECIAL THANKS

Iowa Environmental Public Health Tracking Program
Wisconsin Environmental Public Health Tracking Program’s Technical Advisory Group
Jeff Phillips, Bureau of Environmental and Occupational Health, Wisconsin Department of Health Services
Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services
Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital’s community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
## MARINETTE COUNTY

### DASHBOARD  |  2015 ENVIRONMENTAL HEALTH PROFILE

### AIR QUALITY

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Standard Information</th>
<th>Wisconsin:</th>
<th>MARINETTE COUNTY:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ozone</strong></td>
<td>Annual days above standard</td>
<td>0.7</td>
<td>2.0</td>
</tr>
<tr>
<td><strong>Particulate Matter 2.5</strong></td>
<td>Annual days above standard</td>
<td>0.1</td>
<td>0.0</td>
</tr>
</tbody>
</table>

### WATER QUALITY

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Concentration</th>
<th>Wisconsin:</th>
<th>MARINETTE COUNTY:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Arsenic</strong></td>
<td>Average concentration</td>
<td>1.3</td>
<td>5.0</td>
</tr>
<tr>
<td><strong>Nitrate</strong></td>
<td>Average concentration</td>
<td>1.5</td>
<td>2.1</td>
</tr>
</tbody>
</table>

### HOME HAZARDS

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Rate</th>
<th>Wisconsin:</th>
<th>MARINETTE COUNTY:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Carbon Monoxide (CO)</strong></td>
<td>8.2</td>
<td>12.4</td>
<td>10.3</td>
</tr>
<tr>
<td><strong>Childhood Lead Poisoning</strong></td>
<td>6.3%</td>
<td>7.3%</td>
<td>6.3%</td>
</tr>
</tbody>
</table>

### BIRTH OUTCOMES

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Rate</th>
<th>Wisconsin:</th>
<th>MARINETTE COUNTY:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Low Birth Weight</strong></td>
<td>7.3%</td>
<td>8.2%</td>
<td>10.3%</td>
</tr>
<tr>
<td><strong>Preterm Birth</strong></td>
<td>10.3%</td>
<td>10.3%</td>
<td>10.3%</td>
</tr>
</tbody>
</table>

### HEALTH INDICATORS

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Rate</th>
<th>Wisconsin:</th>
<th>MARINETTE COUNTY:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Heat Stress</strong></td>
<td>16.5</td>
<td>16.5</td>
<td>16.5</td>
</tr>
<tr>
<td><strong>Melanoma</strong></td>
<td>18.4</td>
<td>18.4</td>
<td>18.4</td>
</tr>
<tr>
<td><strong>Lung Cancer</strong></td>
<td>62.0</td>
<td>62.0</td>
<td>62.0</td>
</tr>
<tr>
<td><strong>Asthma</strong></td>
<td>376.0</td>
<td>376.0</td>
<td>376.0</td>
</tr>
</tbody>
</table>

*This indicator is represented per 10,000 people on the data portal.*
DASHBOARD DATA DETAILS

Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2011

WATER QUALITY

Arsenic and Nitrate: Measured concentrations from public water systems
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013

HOME HAZARDS

Childhood Lead Poisoning: Reported blood lead test results
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.
Year displayed: 2014

Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

BIRTH OUTCOMES

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2011-2013

HEALTH INDICATORS

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2006-2010

Asthma: Age-adjusted rate of emergency room visits related to asthma
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM\textsubscript{2.5})" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

**OZONE**

ANNUAL DAYS ABOVE STANDARD

STATEWIDE: 0.7

**PARTICULATE MATTER 2.5**

ANNUAL DAYS ABOVE STANDARD

STATEWIDE: 0.1

**PARTICULATE MATTER 2.5**

ANNUAL AVERAGE (µg/m\(^3\))

STATEWIDE: 9.4

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.

**TAKE A CLOSER LOOK AT THE DATA:**

dhs.wi.gov/epht
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit [dhs.wisconsin.gov/epht/criteriapollutants.htm](http://dhs.wisconsin.gov/epht/criteriapollutants.htm).
Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

**ARSENIC AND NITRATE**
**MEAN CONCENTRATION LEVELS IN PUBLIC WATER (2011-2013)**

**ARSENIC**
- **STATEWIDE:** 1.3 µg/L
- **Marinette County:** 5.0 µg/L

**NITRATE**
- **STATEWIDE:** 1.5 mg/L
- **Marinette County:** 2.1 mg/L

PUBLIC DRINKING WATER

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit [dhs.wi.gov/epht](http://dhs.wi.gov/epht).

**TAKE A CLOSER LOOK AT THE DATA:**
[dhs.wi.gov/epht](http://dhs.wi.gov/epht)
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 μg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.
Reproduction is complex, and many factors affect a mother's ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

LOW BIRTH WEIGHT

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

LOW BIRTH WEIGHT

PERCENT OF BIRTHS BELOW 2,500 GRAMS

<table>
<thead>
<tr>
<th>Year</th>
<th>Marinette County</th>
<th>Wisconsin Average</th>
<th>Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002-2004</td>
<td>6.6%</td>
<td>6.3%</td>
<td></td>
</tr>
<tr>
<td>2005-2007</td>
<td>6.7%</td>
<td>6.4%</td>
<td></td>
</tr>
<tr>
<td>2008-2010</td>
<td>6.7%</td>
<td>6.5%</td>
<td></td>
</tr>
<tr>
<td>2011-2013</td>
<td>6.5%</td>
<td>6.4%</td>
<td></td>
</tr>
</tbody>
</table>
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit [dhs.wi.gov/epht/premature.htm](http://dhs.wi.gov/epht/premature.htm).

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at [dhs.wisconsin.gov/epht/birthdefects.htm](http://dhs.wisconsin.gov/epht/birthdefects.htm).
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**HEAT STRESS**

RATE OF ER VISITS PER 100,000 PEOPLE

- **Marinette County:** 30.1
- **Wisconsin Average:** 16.5

**HEALTH INDICATORS**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Rate of ER Visits Per 100,000 People</th>
<th>Rate of Cases Per 100,000 People</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat Stress</td>
<td>Marinette County: 30.1</td>
<td>Wisconsin Average: 16.5</td>
</tr>
<tr>
<td>Melanoma</td>
<td>Marinette County: 22.6</td>
<td>Wisconsin Average: 18.4</td>
</tr>
<tr>
<td>Lung Cancer</td>
<td>Marinette County: 65.7</td>
<td>Wisconsin Average: 62</td>
</tr>
<tr>
<td>Asthma</td>
<td>Marinette County: 583.0</td>
<td>Wisconsin Average: 376</td>
</tr>
</tbody>
</table>

**HEAT STRESS**

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.
Particulate Matter 2.5 (PM$_{2.5}$)

**Measures:** Annual Average PM$_{2.5}$ ($\mu$g/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 $\mu$g/m$^3$.

Ozone

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heart Attack

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Asthma

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

Lung Cancer and Melanoma

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
**WATER QUALITY**

**Arsenic**

**Measure:** Mean concentration of arsenic (µg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**

**Measure:** Mean concentration of nitrate (mg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, we aggregated three years of data (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**HOME HAZARDS**

**Lead Poisoning**

**Measure:** Percent of children tested who had a blood lead level ≥ 5 µg/dL  
**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2001-2014, data from 2014 displayed on dashboard  
**Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**

**Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard  
**Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**BIRTH OUTCOMES**

**Low Birth Weight**

**Measures:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**

**Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD
Principal Investigator, Chief Medical Officer
608-266-1253
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD
Senior Epidemiologist
608-267-9752
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA
Evaluator
608-267-3830
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON
IS Systems Development Services Professional
608-266-6696
joseph.olson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS
Program Manager
608-267-3811
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES
Communications and Education Coordinator
608-267-2488
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH
Epidemiologist
608-266-7897
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD
Chief, Health Hazard Evaluation Section
608-266-7480
mark.werner@dhs.wisconsin.gov

SPECIAL THANKS
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Jeff Phillips, Bureau of Environmental and Occupational Health, Wisconsin Department of Health Services
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Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
MARQUETTE COUNTY ENVIRONMENTAL HEALTH PROFILE

2015

WISCONSIN ENVIRONMENTAL PUBLIC HEALTH TRACKING PROGRAM
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
AIR QUALITY

Ozone
- Annual days above standard
  - Wisconsin: 0.7

Particulate Matter 2.5
- Annual days above standard
  - Wisconsin: 0.1

WATER QUALITY

Arsenic
- Average concentration in µg/L
  - Wisconsin: 1.3

Nitrate
- Average concentration in mg/L
  - Wisconsin: 1.5

HOME HAZARDS

Carbon Monoxide (CO)
- Rate of ER visits per 100,000 people
  - Wisconsin: 8.2

Childhood Lead Poisoning
- Percent with blood lead ≥5 µg/L
  - Wisconsin: 6.3%

BIRTH OUTCOMES

Low Birth Weight
- Percent of births <2500 grams
  - Wisconsin: 7.3%

Preterm Birth
- Percent of births <37 weeks gestation
  - Wisconsin: 10.3%

HEALTH INDICATORS

Heat Stress
- Rate of ER visits per 100,000 people
  - Wisconsin: 16.5

Melanoma
- Rate of cases per 100,000 people
  - Wisconsin: 18.4

Lung Cancer
- Rate of cases per 100,000 people
  - Wisconsin: 62.0

Asthma
- Rate of ER visits per 100,000 people*
  - Wisconsin: 376.0

*This indicator is represented per 10,000 people on the data portal.

References on next page
**DASHBOARD DATA DETAILS**

Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at [dhs.wi.gov/epht](http://dhs.wi.gov/epht). For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at [dhs.wisconsin.gov/epht/glossary.htm](http://dhs.wisconsin.gov/epht/glossary.htm).

### AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2011

### WATER QUALITY

Arsenic and Nitrate: Measured concentrations from public water systems  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Years displayed: Averaged data from 2011-2013

### HOME HAZARDS

Childhood Lead Poisoning: Reported blood lead test results  
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.  
Year displayed: 2014  
Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013

### BIRTH OUTCOMES

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2011-2013

### HEALTH INDICATORS

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013  
Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers  
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2006-2010  
Asthma: Age-adjusted rate of emergency room visits related to asthma  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

**OZONE**

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit dhs.wisconsin.gov/epht/criteriapollutants.htm.
Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

PUBLIC DRINKING WATER

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.
About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

<table>
<thead>
<tr>
<th>Rate of ER Visits</th>
<th>Value</th>
<th>Above state value</th>
<th>At or below state value</th>
<th>Suppressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marquette County</td>
<td>10.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wisconsin Average</td>
<td>8.2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**CHILDHOOD LEAD POISONING**

<table>
<thead>
<tr>
<th>Percent of Tested Children</th>
<th>Value</th>
<th>Above state value</th>
<th>At or below state value</th>
<th>Suppressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marquette County</td>
<td>5.5%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wisconsin Average</td>
<td>6.3%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level. The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body. There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**HEAT STRESS**

**HEAT STRESS**
RATE OF ER VISITS PER 100,000 PEOPLE

**MELANOMA**

RATE OF CASES PER 100,000 PEOPLE

**LUNG CANCER**

RATE OF CASES PER 100,000 PEOPLE

**ASTHMA**

RATE OF ER VISITS PER 100,000 PEOPLE

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm

ASTHMA
RATE OF ER VISITS PER 100,000 PEOPLE
Particulate Matter 2.5 (PM$_{2.5}$)

**Measures:** Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

Ozone

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2001-2011, data from 2011 are displayed on the dashboard

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heart Attack

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Asthma

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. For use in this profile, it is converted to per 10,000 people.

Lung Cancer and Melanoma

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E909.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
DATA DETAILS continued

WATER QUALITY

**Arsenic**

**Measures:** Mean concentration of arsenic (µg/L) in public drinking water

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** Averaged data from 2011-2013

**Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**

**Measure:** Mean concentration of nitrate (mg/L) in public drinking water

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** Averaged data from 2011-2013

**Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

HOME HAZARDS

**Lead Poisoning**

**Measure:** Percent of children tested who had a blood lead level ≥5 µg/dL

**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division ofPublic Health, Wisconsin Department of Health Services

**Years displayed:** 2001-2014, data from 2014 displayed on dashboard

**Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**

**Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard

**Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

BIRTH OUTCOMES

**Low Birth Weight**

**Measures:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard

**Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**

**Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard

**Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD  
Principal Investigator, Chief Medical Officer  
608-266-1253  
henry.anderson@dhs.wisconsin.gov

DAWN BERNEY, MPA  
Evaluator  
608-267-3830  
dawn.berney@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS  
Program Manager  
608-267-3811  
jennifer.camponeschi@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH  
Epidemiologist  
608-266-7897  
megan.christenson@dhs.wisconsin.gov

PAUL CRESWELL, PhD  
Senior Epidemiologist  
608-267-9752  
paul.creswell@dhs.wisconsin.gov

JOSEPH OLSON  
IS Systems Development Services Professional  
608-266-6696  
josephaolson@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES  
Communications and Education Coordinator  
608-267-2488  
christy.vogt@dhs.wisconsin.gov

MARK WERNER, PhD  
Chief, Health Hazard Evaluation Section  
608-266-7480  
mark.werner@dhs.wisconsin.gov

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Wisconsin Environmental Public Health Tracking Program’s Technical Advisory Group
Jeff Phillips, Bureau of Environmental and Occupational Health, Wisconsin Department of Health Services
Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services
Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.
MENOMINEE COUNTY
DASHBOARD  |  2015 ENVIRONMENTAL HEALTH PROFILE

AIR QUALITY

Ozone
- Annual days above standard
  Wisconsin: 0.7

Particulate Matter 2.5
- Annual days above standard
  Wisconsin: 0.1

WATER QUALITY

Arsenic
- Average concentration in µg/L
  Wisconsin: 1.3

Nitrate
- Average concentration in mg/L
  Wisconsin: 1.5

HOME HAZARDS

Carbon Monoxide (CO)
- Rate of ER visits per 100,000 people
  Wisconsin: 8.2

Childhood Lead Poisoning
- Percent with blood lead ≥5 µg/L
  Wisconsin: 6.3%

BIRTH OUTCOMES

Low Birth Weight
- Percent of births <2500 grams
  Wisconsin: 7.3%

Preterm Birth
- Percent of births <37 weeks gestation
  Wisconsin: 10.3%

HEALTH INDICATORS

Heat Stress
- Rate of ER visits per 100,000 people
  Wisconsin: 16.5

Melanoma
- Rate of cases per 100,000 people
  Wisconsin: 18.4

Lung Cancer
- Rate of cases per 100,000 people
  Wisconsin: 62.0

Asthma
- Rate of ER visits per 100,000 people*
  Wisconsin: 376.0

# There is no mandatory reporting of these data because Menominee County is a sovereign nation.
**This indicator is represented per 10,000 people on the data portal.

References on next page
Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.

**AIR QUALITY**

Particulate Matter 2.5 ($PM_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2011

**WATER QUALITY**

Arsenic and Nitrate: Measured concentrations from public water systems  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Years displayed: Averaged data from 2011-2013

**HOME HAZARDS**

Childhood Lead Poisoning: Reported blood lead test results  
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.  
Year displayed: 2014  
Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013

**BIRTH OUTCOMES**

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2011-2013

**HEALTH INDICATORS**

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013  
Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers  
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2006-2010  
Asthma: Age-adjusted rate of emergency room visits related to asthma  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

**OZONE**

<table>
<thead>
<tr>
<th>Menominee County</th>
<th>Wisconsin Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

**PARTICULATE MATTER 2.5**

<table>
<thead>
<tr>
<th>Menominee County</th>
<th>Wisconsin Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0</td>
<td>0.1</td>
</tr>
</tbody>
</table>

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit dhs.wisconsin.gov/epht/criteriapollutants.htm.
Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

PUBLIC DRINKING WATER

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**Carbon Monoxide Poisoning**

<table>
<thead>
<tr>
<th>Rate of ER Visits per 100,000 People</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Menominee County</strong></td>
</tr>
<tr>
<td><strong>Wisconsin Average</strong></td>
</tr>
</tbody>
</table>

**Childhood Lead Poisoning**

<table>
<thead>
<tr>
<th>Percent of Tested Children with Blood Lead ≥5 μg/dL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Menominee County</strong></td>
</tr>
<tr>
<td><strong>Wisconsin Average</strong></td>
</tr>
</tbody>
</table>

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.
MENOMINEE COUNTY

CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body. There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from \( \geq 10 \) µg/dL to \( \geq 5 \) µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastrochisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Rate of ER Visits per 100,000 People</th>
<th>Rate of Cases per 100,000 People</th>
<th>Statewide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat stress</td>
<td>53.1</td>
<td></td>
<td>16.5</td>
</tr>
<tr>
<td>Melanoma</td>
<td>94.8</td>
<td></td>
<td>62</td>
</tr>
<tr>
<td>Lung cancer</td>
<td>671.0</td>
<td></td>
<td>376</td>
</tr>
</tbody>
</table>

**Heat Stress**

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.

ASTHMA
RATE OF ER VISITS PER 100,000 PEOPLE

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.
**DATA DETAILS**

### AIR QUALITY

**Particulate Matter 2.5 (PM$_{2.5}$)**

**Measures:** Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

### Ozone

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2001-2011, data from 2011 are displayed on the dashboard

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

### Heart Attack

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

### HEALTH INDICATORS

**Asthma**

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

**Lung Cancer and Melanoma**

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**Heat Stress**

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
**WATER QUALITY**

**Arsenic**

*Measures:* Mean concentration of arsenic (µg/L) in public drinking water

*Source:* National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

*Years displayed:* Averaged data from 2011-2013

*Data details:* Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**

*Measure:* Mean concentration of nitrate (mg/L) in public drinking water

*Source:* National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

*Years displayed:* Averaged data from 2011-2013

*Data details:* Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**HOME HAZARDS**

**Lead Poisoning**

*Measure:* Percent of children tested who had a blood lead level ≥5 µg/dL

*Source:* Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services

*Years displayed:* 2001-2014, data from 2014 displayed on dashboard

*Data details:* Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**

*Measure:* Annual average rate of emergency room visits, age adjusted per 100,000 people

*Source:* Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

*Years displayed:* 2004-2013, data averaged from 2009-2013 displayed on dashboard

*Data details:* This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**BIRTH OUTCOMES**

**Low Birth Weight**

*Measures:* Percentage of babies weighing <2,500 grams at birth among all babies born to county residents

*Source:* Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

*Years displayed:* 2002-2013, data from 2011-2013 are displayed on dashboard

*Data details:* Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**

*Measure:* Percentage of babies born at <37 weeks gestation among all babies born to county residents

*Source:* Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

*Years displayed:* 2002-2013, data from 2011-2013 are displayed on dashboard

*Data details:* Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD
Principal Investigator, Chief Medical Officer
608-266-1253
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD
Senior Epidemiologist
608-267-9752
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA
Evaluator
608-267-3830
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON
IS Systems Development Services Professional
608-266-6696
josephaolson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS
Program Manager
608-267-3811
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES
Communications and Education Coordinator
608-267-2488
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH
Epidemiologist
608-266-7897
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD
Chief, Health Hazard Evaluation Section
608-266-7480
mark.werner@dhs.wisconsin.gov

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Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services
Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.
## AIR QUALITY

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozone</td>
<td>2.0</td>
<td>Annual days above standard</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wisconsin: 0.7</td>
</tr>
<tr>
<td>Particulate Matter 2.5</td>
<td>1.1</td>
<td>Annual days above standard</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wisconsin: 0.1</td>
</tr>
</tbody>
</table>

## WATER QUALITY

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic</td>
<td>0.7</td>
<td>Average concentration in µg/L</td>
</tr>
<tr>
<td>Nitrate</td>
<td>0.1</td>
<td>Average concentration in mg/L</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wisconsin: 1.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wisconsin: 1.5</td>
</tr>
</tbody>
</table>

## HOME HAZARDS

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon Monoxide (CO)</td>
<td>8.9</td>
<td>Rate of ER visits per 100,000 people</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wisconsin: 8.2</td>
</tr>
<tr>
<td>Childhood Lead Poisoning</td>
<td>9.6%</td>
<td>Percent with blood lead ≥5 µg/L</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wisconsin: 6.3%</td>
</tr>
</tbody>
</table>

## BIRTH OUTCOMES

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Birth Weight</td>
<td>10.1%</td>
<td>Percent of births &lt;2500 grams</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wisconsin: 7.3%</td>
</tr>
<tr>
<td>Preterm Birth</td>
<td>12.3%</td>
<td>Percent of births &lt;37 weeks gestation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wisconsin: 10.3%</td>
</tr>
</tbody>
</table>

## HEALTH INDICATORS

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat Stress</td>
<td>12.0</td>
<td>Rate of ER visits per 100,000 people</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wisconsin: 16.5</td>
</tr>
<tr>
<td>Melanoma</td>
<td>12.0</td>
<td>Rate of cases per 100,000 people</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wisconsin: 18.4</td>
</tr>
<tr>
<td>Lung Cancer</td>
<td>72.1</td>
<td>Rate of cases per 100,000 people</td>
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<tr>
<td></td>
<td></td>
<td>Wisconsin: 62.0</td>
</tr>
<tr>
<td>Asthma</td>
<td>766.0</td>
<td>Rate of ER visits per 100,000 people*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wisconsin: 376.0</td>
</tr>
</tbody>
</table>

*This indicator is represented per 10,000 people on the data portal.

Above state value  At or below state value  Data are suppressed  References on next page
DASHBOARD DATA DETAILS

Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.

**AIR QUALITY**

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2011

**WATER QUALITY**

Arsenic and Nitrate: Measured concentrations from public water systems
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013

**HOME HAZARDS**

Childhood Lead Poisoning: Reported blood lead test results
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.
Year displayed: 2014
Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

**BIRTH OUTCOMES**

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2011-2013

**HEALTH INDICATORS**

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013
Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2006-2010
Asthma: Age-adjusted rate of emergency room visits related to asthma
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

**OZONE**

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit dhs.wisconsin.gov/epht/criteriapollutants.htm.
WATER QUALITY MILWAUKEE COUNTY

Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

ARSENIC AND NITRATE
MEAN CONCENTRATION LEVELS IN PUBLIC WATER (2011-2013)

PUBLIC DRINKING WATER

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit [bit.ly/wellwaterviewer](http://bit.ly/wellwaterviewer).

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
HOME HAZARDS  MILWAUKEE COUNTY

Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

- **8.9**
  - CARBON MONOXIDE POISONING
  - RATE OF ER VISITS RELATED TO CO PER 100,000
  - STATEWIDE: 8.2

- **9.6%**
  - CHILDHOOD LEAD POISONING
  - PERCENT OF TESTED CHILDREN WITH BLOOD LEAD ≥ 5 µg/dL
  - STATEWIDE: 6.3%

CARBON MONOXIDE POISONING
Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.
**CHILDHOOD LEAD POISONING**

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

**CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)**

![Previous Blood Lead Level Reference Value (10 µg/dL)](image1)

![Post-2012 Blood Lead Level Reference Value (5 µg/dL)](image2)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
**PRETERM BIRTH**

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

![Preterm Births Chart](chart.png)

**BIRTH DEFECTS**

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby's body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**Heat Stress**

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.

**Melanoma**

**Lung Cancer**

**Asthma**

Take a closer look at the data: dhs.wi.gov/epht
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.
**DATA DETAILS**

**AIR QUALITY**

**Particulate Matter 2.5 (PM$_{2.5}$)**

**Measures:** Annual Average PM$_{2.5}$ ($\mu$g/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 $\mu$g/m$^3$.

**Ozone**

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

**Heart Attack**

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**HEALTH INDICATORS**

**Asthma**

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

**Lung Cancer and Melanoma**

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**Heat Stress**

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
### WATER QUALITY

**Arsenic**
**Measures:** Mean concentration of arsenic ($\mu g/L$) in public drinking water
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
**Years displayed:** Averaged data from 2011-2013
**Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**
**Measure:** Mean concentration of nitrate (mg/L) in public drinking water
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
**Years displayed:** Averaged data from 2011-2013
**Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

### HOME HAZARDS

**Lead Poisoning**
**Measure:** Percent of children tested who had a blood lead level $\geq 5$ $\mu g/dL$
**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
**Years displayed:** 2001-2014, data from 2014 displayed on dashboard
**Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**
**Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
**Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard
**Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

### BIRTH OUTCOMES

**Low Birth Weight**
**Measures:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard
**Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**
**Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard
**Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
WISCONSIN ENVIRONMENTAL PUBLIC HEALTH TRACKING PROGRAM

HENRY ANDERSON, MD
Principal Investigator, Chief Medical Officer
608-266-1253
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD
Senior Epidemiologist
608-267-9752
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA
Evaluator
608-267-3830
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON
IS Systems Development Services Professional
608-266-6696
joseph.olson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS
Program Manager
608-267-3811
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES
Communications and Education Coordinator
608-267-2488
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH
Epidemiologist
608-266-7897
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD
Chief, Health Hazard Evaluation Section
608-266-7480
mark.werner@dhs.wisconsin.gov

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Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services
Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
# Monroe County Dashboard

## 2015 Environmental Health Profile

### Air Quality

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Wisconsin</th>
<th>Value</th>
<th>Monroe County</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozone</td>
<td>0.7</td>
<td>0.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual days above standard</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Particulate Matter 2.5</td>
<td>0.1</td>
<td>0.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual days above standard</td>
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<td></td>
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### Water Quality

<table>
<thead>
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<th>Wisconsin</th>
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<th>Monroe County</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Arsenic</td>
<td>1.3</td>
<td>0.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average concentration in µg/L</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nitrate</td>
<td>1.5</td>
<td>1.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average concentration in mg/L</td>
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<td></td>
<td></td>
<td></td>
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</tbody>
</table>

### Home Hazards

<table>
<thead>
<tr>
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<th>Wisconsin</th>
<th>Value</th>
<th>Monroe County</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon Monoxide (CO)</td>
<td>8.2</td>
<td>13.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rate of ER visits per 100,000 people</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Childhood Lead Poisoning</td>
<td>6.3%</td>
<td>5.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percent with blood lead ≥5 µg/L</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Birth Outcomes

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Wisconsin</th>
<th>Value</th>
<th>Monroe County</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Birth Weight</td>
<td>7.3%</td>
<td>6.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percent of births &lt;2500 grams</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preterm Birth</td>
<td>10.3%</td>
<td>9.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percent of births &lt;37 weeks gestation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Health Indicators

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Wisconsin</th>
<th>Value</th>
<th>Monroe County</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat Stress</td>
<td>16.5</td>
<td>33.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rate of ER visits per 100,000 people</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Melanoma</td>
<td>18.4</td>
<td>22.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rate of cases per 100,000 people</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lung Cancer</td>
<td>62.0</td>
<td>63.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rate of cases per 100,000 people</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asthma</td>
<td>376.0</td>
<td>344.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rate of ER visits per 100,000 people*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*This indicator is represented per 10,000 people on the data portal.

Text are suppressed.

References on next page.
DASHBOARD DATA DETAILS

Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.

**AIR QUALITY**

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2011

**WATER QUALITY**

Arsenic and Nitrate: Measured concentrations from public water systems
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013

**HOME HAZARDS**

Childhood Lead Poisoning: Reported blood lead test results
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.
Year displayed: 2014
Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

**BIRTH OUTCOMES**

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2011-2013

**HEALTH INDICATORS**

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013
Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2006-2010
Asthma: Age-adjusted rate of emergency room visits related to asthma
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit [dhs.wisconsin.gov/epht/criteriapollutants.htm](http://dhs.wisconsin.gov/epht/criteriapollutants.htm).
Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

PUBLIC DRINKING WATER

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

<table>
<thead>
<tr>
<th>Rate of ER Visits Related to CO per 100,000 Population</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Monroe County</strong></td>
</tr>
<tr>
<td>13.2</td>
</tr>
</tbody>
</table>

**CHILDHOOD LEAD POISONING**

<table>
<thead>
<tr>
<th>Percent of Tested Children with Blood Lead ≥5 μg/dL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Monroe County</strong></td>
</tr>
<tr>
<td>5.4%</td>
</tr>
</tbody>
</table>

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit [dhs.wisconsin.gov/air/co.htm](http://dhs.wisconsin.gov/air/co.htm).
MONROE COUNTY
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**HEAT STRESS**
RATE OF ER VISITS PER 100,000 PEOPLE

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.
Particulate Matter 2.5 (PM$_{2.5}$)

Measures: Annual Average PM$_{2.5}$ ($\mu g/m^3$), Percent of days above standard set by the US Environmental Protection Agency

Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

Years displayed: 2002-2011, data from 2011 are displayed on the dashboard

Data details: These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 $\mu g/m^3$.

Ozone

Measure: Number of days above standard set by the US Environmental Protection Agency

Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

Years displayed: 2001-2011, data from 2011 are displayed on the dashboard

Data details: This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heart Attack

Measure: Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

Years displayed: 2002-2011

Data details: These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Asthma

Measure: Annual age-adjusted rate of emergency department visits per 100,000 people

Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

Years displayed: 2002-2012, data from 2012 are displayed on the dashboard

Data details: These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

Lung Cancer and Melanoma

Measure: Age-adjusted rates of cases among persons age 35 and over per 100,000 people

Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

Years displayed: 1996-2010, data from 2006-2010 are displayed on the dashboard

Data details: Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress

Measure: Age-adjusted rate of emergency department visits per 100,000 people

Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

Years displayed: 2004-2013, data from 2009-2013 are displayed on the dashboard

Data details: These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
**WATER QUALITY**

**Arsenic**

**Measure:** Mean concentration of arsenic (µg/L) in public drinking water

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** Averaged data from 2011-2013

**Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**

**Measure:** Mean concentration of nitrate (mg/L) in public drinking water

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** Averaged data from 2011-2013

**Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**HOME HAZARDS**

**Lead Poisoning**

**Measure:** Percent of children tested who had a blood lead level ≥ 5 µg/dL

**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2001-2014, data from 2014 displayed on dashboard

**Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile included lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**

**Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard

**Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**BIRTH OUTCOMES**

**Low Birth Weight**

**Measures:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard

**Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**

**Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard

**Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD
Principal Investigator, Chief Medical Officer
608-266-1253
henry.anderson@dhs.wisconsin.gov

DAWN BERNEY, MPA
Evaluator
608-267-3830
dawn.berney@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS
Program Manager
608-267-3811
jennifer.camponeschi@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH
Epidemiologist
608-266-7897
megan.christenson@dhs.wisconsin.gov

PAUL CRESWELL, PhD
Senior Epidemiologist
608-267-9752
paul.creswell@dhs.wisconsin.gov

JOSEPH OLSON
IS Systems Development Services Professional
608-266-6696
josephaolson@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES
Communications and Education Coordinator
608-267-2488
christy.vogt@dhs.wisconsin.gov

MARK WERNER, PhD
Chief, Health Hazard Evaluation Section
608-266-7480
mark.werner@dhs.wisconsin.gov

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OCONTO COUNTY
ENVIRONMENTAL HEALTH PROFILE

WISCONSIN ENVIRONMENTAL PUBLIC HEALTH TRACKING PROGRAM
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
**OCONTO COUNTY**

**DASHBOARD | 2015 ENVIRONMENTAL HEALTH PROFILE**

### AIR QUALITY

**Ozone**
- Annual days above standard: 0.0
- Wisconsin: 0.7

**Particulate Matter 2.5**
- Annual days above standard: 0.0
- Wisconsin: 0.1

### WATER QUALITY

**Arsenic**
- Average concentration in µg/L: 3.8
- Wisconsin: 1.3

**Nitrate**
- Average concentration in mg/L: 0.6
- Wisconsin: 1.5

### HOME HAZARDS

**Carbon Monoxide (CO)**
- Rate of ER visits per 100,000 people: 6.6
- Wisconsin: 8.2

**Childhood Lead Poisoning**
- Percent with blood lead ≥5 µg/L: 3.0%
- Wisconsin: 6.3%

### BIRTH OUTCOMES

**Low Birth Weight**
- Percent of births <2500 grams: 6.5%
- Wisconsin: 7.3%

**Preterm Birth**
- Percent of births <37 weeks gestation: 10.4%
- Wisconsin: 10.3%

### HEALTH INDICATORS

**Heat Stress**
- Rate of ER visits per 100,000 people: 12.8
- Wisconsin: 16.5

**Melanoma**
- Rate of cases per 100,000 people: 22.6
- Wisconsin: 18.4

**Lung Cancer**
- Rate of cases per 100,000 people: 71.4
- Wisconsin: 62.0

**Asthma**
- Rate of ER visits per 100,000 people: 238.0
- Wisconsin: 376.0

---

*This indicator is represented per 10,000 people on the data portal.*  
[References on next page]
Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.

**AIR QUALITY**

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2011

**WATER QUALITY**

Arsenic and Nitrate: Measured concentrations from public water systems  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Years displayed: Averaged data from 2011-2013

**HOME HAZARDS**

Childhood Lead Poisoning: Reported blood lead test results  
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.  
Year displayed: 2014  
Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013

**BIRTH OUTCOMES**

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2011-2013

**HEALTH INDICATORS**

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013

Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers  
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2006-2010

Asthma: Age-adjusted rate of emergency room visits related to asthma  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

**Ozone**

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit [dhs.wisconsin.gov/epht/criteriapollutants.htm](http://dhs.wisconsin.gov/epht/criteriapollutants.htm).

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**PARTICULATE MATTER 2.5 ANNUAL AVERAGE**

(µg/m$^3$)

**HEART ATTACK HOSPITALIZATIONS**

Rate per 10,000 people

**ASTHMA EMERGENCY ROOM VISITS**

Rate per 100,000 people
WATER QUALITY  OCONTO COUNTY

Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

**ARSENIC**

AVERAGE CONCENTRATION IN PUBLIC WATER (µg/L)

STATEWIDE: 1.3

**NITRATE**

AVERAGE CONCENTRATION IN PUBLIC WATER (mg/L)

STATEWIDE: 1.5

PUBLIC DRINKING WATER

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit [dhs.wi.gov/epht](http://dhs.wi.gov/epht).

ARSENIC AND NITRATE

MEAN CONCENTRATION LEVELS IN PUBLIC WATER (2011-2013)

- **3.8**
  - ARSENIC
  - ABOVE STATE VALUE
  - AVERAGE CONCENTRATION IN PUBLIC WATER (µg/L)
  - STATEWIDE: 1.3

- **0.6**
  - NITRATE
  - BELOW STATE VALUE
  - AVERAGE CONCENTRATION IN PUBLIC WATER (mg/L)
  - STATEWIDE: 1.5

- (10 µg/L)
- (10 mg/L)
- Maximum contaminant level

- Oconto County
- Wisconsin Average

TAKE A CLOSER LOOK AT THE DATA:
[dhs.wi.gov/epht](http://dhs.wi.gov/epht)
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

ARSENIC IN PRIVATE WELLS
AVERAGE CONCENTRATION (µg/L)

NITRATE IN PRIVATE WELLS
AVERAGE CONCENTRATION (mg/L)

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

### Carbon Monoxide Poisoning

<table>
<thead>
<tr>
<th>Rate of ER Visits</th>
<th>Above State Value</th>
<th>At or Below State Value</th>
<th>Suppressed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>6.6</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Statewide:** 8.2

### Childhood Lead Poisoning

<table>
<thead>
<tr>
<th>Percent of Tested Children with Blood Lead ≥5 µg/dL</th>
<th>Above State Value</th>
<th>At or Below State Value</th>
<th>Suppressed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3.0%</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Statewide:** 6.3%

**Carbon Monoxide Poisoning**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit [dhs.wisconsin.gov/air/co.htm](http://dhs.wisconsin.gov/air/co.htm).

**Take a Closer Look at the Data:**

[dhs.wi.gov/epht](http://dhs.wi.gov/epht)
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL. This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby's body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

HEAT STRESS
RATE OF ER VISITS PER 100,000 PEOPLE
STATEWIDE: 16.5

MELANOMA
RATE OF CASES PER 100,000 PEOPLE
STATEWIDE: 18.4

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE
STATEWIDE: 62

ASTHMA
RATE OF ER VISITS PER 100,000 PEOPLE
STATEWIDE: 376

HEAT STRESS encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.

TAKE A CLOSER LOOK AT THE DATA:
dhs.wi.gov/epht
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.

ASTHMA
RATE OF ER VISITS PER 100,000 PEOPLE

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.
**DATA DETAILS**

**AIR QUALITY**

**Particulate Matter 2.5 (PM$_{2.5}$)**

**Measures:** Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency's National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

**Ozone**

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency's National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

**Heart Attack**

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**HEALTH INDICATORS**

**Asthma**

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

**Lung Cancer and Melanoma**

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**Heat Stress**

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.


**WATER QUALITY**

**Arsenic**

**Measures:** Mean concentration of arsenic (µg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**

**Measure:** Mean concentration of nitrate (mg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**HOME HAZARDS**

**Lead Poisoning**

**Measure:** Percent of children tested who had a blood lead level ≥ 5 µg/dL  
**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2001-2014, data from 2014 displayed on dashboard  
**Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**

**Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard  
**Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**BIRTH OUTCOMES**

**Low Birth Weight**

**Measures:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**

**Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD
Principal Investigator, Chief Medical Officer
608-266-1253
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD
Senior Epidemiologist
608-267-9752
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA
Evaluator
608-267-3830
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON
IS Systems Development Services Professional
608-266-6696
josepha.olson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS
Program Manager
608-267-3811
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES
Communications and Education Coordinator
608-267-2488
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH
Epidemiologist
608-266-7897
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD
Chief, Health Hazard Evaluation Section
608-266-7480
mark.werner@dhs.wisconsin.gov

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Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services
Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital’s community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
| **ONEIDA COUNTY** |
| **DASHBOARD | 2015 ENVIRONMENTAL HEALTH PROFILE** |

### AIR QUALITY

<table>
<thead>
<tr>
<th><strong>Ozone</strong></th>
<th>Annual days above standard</th>
<th>Wisconsin: 0.7</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Particulate Matter 2.5</strong></td>
<td>Annual days above standard</td>
<td>Wisconsin: 0.1</td>
</tr>
</tbody>
</table>

### WATER QUALITY

<table>
<thead>
<tr>
<th><strong>Arsenic</strong></th>
<th>Average concentration in µg/L</th>
<th>Wisconsin: 1.3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nitrate</strong></td>
<td>Average concentration in mg/L</td>
<td>Wisconsin: 1.5</td>
</tr>
</tbody>
</table>

### HOME HAZARDS

<table>
<thead>
<tr>
<th><strong>Carbon Monoxide (CO)</strong></th>
<th>Rate of ER visits per 100,000 people</th>
<th>Wisconsin: 8.2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Childhood Lead Poisoning</strong></td>
<td>Percent with blood lead ≥5 µg/L</td>
<td>Wisconsin: 6.3%</td>
</tr>
</tbody>
</table>

### BIRTH OUTCOMES

<table>
<thead>
<tr>
<th><strong>Low Birth Weight</strong></th>
<th>Percent of births &lt;2500 grams</th>
<th>Wisconsin: 7.3%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Preterm Birth</strong></td>
<td>Percent of births &lt;37 weeks gestation</td>
<td>Wisconsin: 10.3%</td>
</tr>
</tbody>
</table>

### HEALTH INDICATORS

<table>
<thead>
<tr>
<th><strong>Heat Stress</strong></th>
<th>Rate of ER visits per 100,000 people</th>
<th>Wisconsin: 16.5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Melanoma</strong></td>
<td>Rate of cases per 100,000 people</td>
<td>Wisconsin: 18.4</td>
</tr>
<tr>
<td><strong>Lung Cancer</strong></td>
<td>Rate of cases per 100,000 people</td>
<td>Wisconsin: 62.0</td>
</tr>
<tr>
<td><strong>Asthma</strong></td>
<td>Rate of ER visits per 100,000 people*</td>
<td>Wisconsin: 376.0</td>
</tr>
</tbody>
</table>

*This indicator is represented per 10,000 people on the data portal. | Above state value | At or below state value | Data are suppressed | References on next page
### DASHBOARD DATA DETAILS

Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at [dhs.wi.gov/epht](http://dhs.wi.gov/epht). For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at [dhs.wisconsin.gov/epht/glossary.htm](http://dhs.wisconsin.gov/epht/glossary.htm).

### AIR QUALITY

> Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings  
> Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
> Year displayed: 2011

### WATER QUALITY

> Arsenic and Nitrate: Measured concentrations from public water systems  
> Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
> Years displayed: Averaged data from 2011-2013

### HOME HAZARDS

> Childhood Lead Poisoning: Reported blood lead test results  
> Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
> Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.  
> Year displayed: 2014

> Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning  
> Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
> Years displayed: Averaged data from 2009-2013

### BIRTH OUTCOMES

> Low Birth Weight and Preterm Birth: Wisconsin birth certificate data  
> Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
> Years displayed: Averaged data from 2011-2013

### HEALTH INDICATORS

> Heat Stress: Age-adjusted rate of emergency room visits related to heat stress  
> Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
> Years displayed: Averaged data from 2009-2013

> Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers  
> Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
> Years displayed: Averaged data from 2006-2010

> Asthma: Age-adjusted rate of emergency room visits related to asthma  
> Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
> Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

### Air Quality: Oneida County

- **Ozone**: 0.0 annual days above standard
  - Statewide: 0.7
- **Particulate Matter 2.5**: 7.8 annual average (µg/m³)
  - Statewide: 9.4

#### Ozone

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit [dhs.wisconsin.gov/epht/criteriapollutants.htm](http://dhs.wisconsin.gov/epht/criteriapollutants.htm).
Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

**PUBLIC DRINKING WATER**

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.

**ARSENIC AND NITRATE**

**MEAN CONCENTRATION LEVELS IN PUBLIC WATER (2011-2013)**

- **Arsenic**
  - Average concentration in public water: 1.4 µg/L
  - Statewide: 1.3 µg/L

- **Nitrate**
  - Average concentration in public water: 1.6 mg/L
  - Statewide: 1.5 mg/L

**Take a Closer Look at the Data:**

dhs.wi.gov/epht
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

**LOW BIRTH WEIGHT**

PERCENT OF BIRTHS BELOW 2,500 GRAMS

<table>
<thead>
<tr>
<th>Year</th>
<th>Oneida County</th>
<th>Wisconsin Average</th>
<th>Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002-2004</td>
<td>7.3%</td>
<td>7.3%</td>
<td>0.0%</td>
</tr>
<tr>
<td>2005-2007</td>
<td>7.1%</td>
<td>7.3%</td>
<td>0.0%</td>
</tr>
<tr>
<td>2008-2010</td>
<td>7.0%</td>
<td>7.3%</td>
<td>0.0%</td>
</tr>
<tr>
<td>2011-2013</td>
<td>6.8%</td>
<td>7.3%</td>
<td>0.0%</td>
</tr>
</tbody>
</table>
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby's body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**HEAT STRESS**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Rate of ER Visits per 100,000 People</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oneida County</td>
<td><strong>12.7</strong></td>
</tr>
<tr>
<td>Wisconsin Average</td>
<td><strong>16.5</strong></td>
</tr>
</tbody>
</table>

**MELANOMA**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Rate of Cases per 100,000 People</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oneida County</td>
<td><strong>17.5</strong></td>
</tr>
<tr>
<td>Wisconsin Average</td>
<td><strong>18.4</strong></td>
</tr>
</tbody>
</table>

**LUNG CANCER**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Rate of Cases per 100,000 People</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oneida County</td>
<td><strong>74.0</strong></td>
</tr>
<tr>
<td>Wisconsin Average</td>
<td><strong>62</strong></td>
</tr>
</tbody>
</table>

**ASTHMA**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Rate of ER Visits per 100,000 People</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oneida County</td>
<td><strong>385.0</strong></td>
</tr>
<tr>
<td>Wisconsin Average</td>
<td><strong>376</strong></td>
</tr>
</tbody>
</table>

**HEAT STRESS**

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.
DATA DETAILS

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$)
Measure: Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: 2002-2011, data from 2011 are displayed on the dashboard
Data details: These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

Ozone
Measure: Number of days above standard set by the US Environmental Protection Agency
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: 2002-2011, data from 2011 are displayed on the dashboard
Data details: This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heart Attack
Measure: Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: 2002-2011
Data details: These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

HEALTH INDICATORS

Asthma
Measure: Annual age-adjusted rate of emergency department visits per 100,000 people
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: 2002-2012, data from 2012 are displayed on the dashboard
Data details: These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

Lung Cancer and Melanoma
Measure: Age-adjusted rates of cases among persons age 35 and over per 100,000 people
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 1996-2010, data from 2006-2010 are displayed on the dashboard
Data details: Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress
Measure: Age-adjusted rate of emergency department visits per 100,000 people
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2004-2013, data from 2009-2013 are displayed on the dashboard
Data details: These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
**WATER QUALITY**

**Arsenic**

**Measure:** Mean concentration of arsenic (µg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**

**Measure:** Mean concentration of nitrate (mg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**HOME HAZARDS**

**Lead Poisoning**

**Measure:** Percent of children tested who had a blood lead level ≥ 0.5 µg/dL  
**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2001-2014, data from 2014 displayed on dashboard  
**Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**

**Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard  
**Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**BIRTH OUTCOMES**

**Low Birth Weight**

**Measures:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**

**Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD
Principal Investigator, Chief Medical Officer
608-266-1253
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD
Senior Epidemiologist
608-267-9752
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA
Evaluator
608-267-3830
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON
IS Systems Development Services Professional
608-266-6696
josepha.olson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS
Program Manager
608-267-3811
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES
Communications and Education Coordinator
608-267-2488
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH
Epidemiologist
608-266-7897
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD
Chief, Health Hazard Evaluation Section
608-266-7480
mark.werner@dhs.wisconsin.gov

SPECIAL THANKS
Iowa Environmental Public Health Tracking Program
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Jeff Phillips, Bureau of Environmental and Occupational Health, Wisconsin Department of Health Services
Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services
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OUTAGAMIE COUNTY
ENVIRONMENTAL
HEALTH PROFILE

2015

WISCONSIN ENVIRONMENTAL PUBLIC HEALTH
TRACKING PROGRAM
COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital’s community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: **Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.**

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? **Tell us about it!**

dhstracking@wi.gov
608-267-2488
OUTAGAMIE COUNTY
DASHBOARD | 2015 ENVIRONMENTAL HEALTH PROFILE

AIR QUALITY

- **Ozone**
  - Annual days above standard
  - Wisconsin: 0.7

- **Particulate Matter 2.5**
  - Annual days above standard
  - Wisconsin: 0.1

WATER QUALITY

- **Arsenic**
  - Average concentration in µg/L
  - Wisconsin: 1.3

- **Nitrate**
  - Average concentration in mg/L
  - Wisconsin: 1.5

HOME HAZARDS

- **Carbon Monoxide (CO)**
  - Rate of ER visits per 100,000 people
  - Wisconsin: 8.2

- **Childhood Lead Poisoning**
  - Percent with blood lead ≥5 µg/L
  - Wisconsin: 6.3%

BIRTH OUTCOMES

- **Low Birth Weight**
  - Percent of births <2500 grams
  - Wisconsin: 7.3%

- **Preterm Birth**
  - Percent of births <37 weeks gestation
  - Wisconsin: 10.3%

HEALTH INDICATORS

- **Heat Stress**
  - Rate of ER visits per 100,000 people
  - Wisconsin: 16.5

- **Melanoma**
  - Rate of cases per 100,000 people
  - Wisconsin: 18.4

- **Lung Cancer**
  - Rate of cases per 100,000 people
  - Wisconsin: 62.0

- **Asthma**
  - Rate of ER visits per 100,000 people
  - Wisconsin: 376.0

*This indicator is represented per 10,000 people on the data portal.*
Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.

**AIR QUALITY**

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2011

**WATER QUALITY**

Arsenic and Nitrate: Measured concentrations from public water systems  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Years displayed: Averaged data from 2011-2013

**HOME HAZARDS**

Childhood Lead Poisoning: Reported blood lead test results  
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.  
Year displayed: 2014  
Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013

**BIRTH OUTCOMES**

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2011-2013

**HEALTH INDICATORS**

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013  
Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers  
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2006-2010  
Asthma: Age-adjusted rate of emergency room visits related to asthma  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

**OZONE**

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.

**PARTICULATE MATTER 2.5**

Statewide: 9.4

2001: 1.0
2002: 1.1
2003: 10.5
2004: 1.0
2005: 1.0
2006: 1.0
2007: 1.0
2008: 1.0
2009: 1.0
2010: 1.0
2011: 1.0

Above state value  Green At or below state value  Suppressed
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit [dhs.wisconsin.gov/epht/criteriapollutants.htm](dhs.wisconsin.gov/epht/criteriapollutants.htm).
WATER QUALITY
OUTAGAMIE COUNTY

Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

PUBLIC DRINKING WATER

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit [dhs.wisconsin.gov/air/co.htm](http://dhs.wisconsin.gov/air/co.htm).
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother's ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

**LOW BIRTH WEIGHT**

PERCENT OF BIRTHS BELOW 2,500 GRAMS


Outagamie County Wisconsin Average Confidence Interval
**PRETERM BIRTH**

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit [dhs.wi.gov/epht/premature.htm](http://dhs.wi.gov/epht/premature.htm).

**BIRTH DEFECTS**

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at [dhs.wisconsin.gov/epht/birthdefects.htm](http://dhs.wisconsin.gov/epht/birthdefects.htm).
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**Heat Stress**
Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.

**Melanoma**
Rate of cases per 100,000 people
Statewide: 18.4

**Lung Cancer**
Rate of cases per 100,000 people
Statewide: 62

**Asthma**
Rate of emergency room visits per 100,000 people
Statewide: 376

**Health Indicators**

- **Heat Stress**: 14.5 (Above state value)
- **Melanoma**: 25.3 (Above state value)
- **Lung Cancer**: 52.5 (At or below state value)
- **Asthma**: 244.0 (At or below state value)

**Take a Closer Look at the Data:**
[dhs.wi.gov/epht](dhs.wi.gov/epht)
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.
Data Details

Air Quality

Particulate Matter 2.5 (PM$_{2.5}$)

**Measures:** Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

Ozone

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heart Attack

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Health Indicators

Asthma

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

Lung Cancer and Melanoma

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
DATA DETAILS

WATER QUALITY

Artescin

**Measures:** Mean concentration of arsenic (µg/L) in public drinking water

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** Averaged data from 2011-2013

**Data details:** Artescin concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

Nitrate

**Measure:** Mean concentration of nitrate (mg/L) in public drinking water

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** Averaged data from 2011-2013

**Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

HOME HAZARDS

Lead Poisoning

**Measure:** Percent of children tested who had a blood lead level ≥ 5 µg/dL

**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2001-2014, data from 2014 displayed on dashboard

**Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

Carbon Monoxide Poisoning

**Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard

**Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

BIRTH OUTCOMES

Low Birth Weight

**Measures:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard

**Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

Preterm Birth

**Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard

**Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD
Principal Investigator, Chief Medical Officer
608-266-1253
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD
Senior Epidemiologist
608-267-9752
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA
Evaluator
608-267-3830
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON
IS Systems Development Services Professional
608-266-6696
josephaolson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS
Program Manager
608-267-3811
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES
Communications and Education Coordinator
608-267-2488
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH
Epidemiologist
608-266-7897
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD
Chief, Health Hazard Evaluation Section
608-266-7480
mark.werner@dhs.wisconsin.gov

SPECIAL THANKS
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Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
OZAUKEE COUNTY
DASHBOARD  |  2015 ENVIRONMENTAL HEALTH PROFILE

AIR QUALITY

Ozone
4.0  |  Annual days above standard
Wisconsin: 0.7

Particulate Matter 2.5
0.0  |  Annual days above standard
Wisconsin: 0.1

WATER QUALITY

Arsenic
3.7  |  Average concentration in µg/L
Wisconsin: 1.3

Nitrate
0.1  |  Average concentration in mg/L
Wisconsin: 1.5

HOME HAZARDS

Carbon Monoxide (CO)
3.9  |  Rate of ER visits per 100,000 people
Wisconsin: 8.2

Childhood Lead Poisoning
2.1% |  Percent with blood lead ≥5 µg/L
Wisconsin: 6.3%

BIRTH OUTCOMES

Low Birth Weight
5.9% |  Percent of births <2500 grams
Wisconsin: 7.3%

Preterm Birth
8.4% |  Percent of births <37 weeks gestation
Wisconsin: 10.3%

HEALTH INDICATORS

Heat Stress
10.2 |  Rate of ER visits per 100,000 people
Wisconsin: 16.5

Melanoma
24.8 |  Rate of cases per 100,000 people
Wisconsin: 18.4

Lung Cancer
49.7 |  Rate of cases per 100,000 people
Wisconsin: 62.0

Asthma
133.0 |  Rate of ER visits per 100,000 people
Wisconsin: 376.0

*This indicator is represented per 10,000 people on the data portal.
DASHBOARD DATA DETAILS

Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2011

WATER QUALITY

Arsenic and Nitrate: Measured concentrations from public water systems
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013

HOME HAZARDS

Childhood Lead Poisoning: Reported blood lead test results
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.
Year displayed: 2014
Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

BIRTH OUTCOMES

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2011-2013

HEALTH INDICATORS

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013
Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2006-2010
Asthma: Age-adjusted rate of emergency room visits related to asthma
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

### OZONE

<table>
<thead>
<tr>
<th>Year</th>
<th>Above State Value</th>
<th>At or Below State Value</th>
<th>Suppressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozaukee County</td>
<td>4.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wisconsin Average</td>
<td>0.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Statewide</td>
<td>10.3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### OZONE

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
**PARTICULATE MATTER 2.5**

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit [dhs.wisconsin.gov/epht/criteriapollutants.htm](http://dhs.wisconsin.gov/epht/criteriapollutants.htm).
WATER QUALITY  OZAUKEE COUNTY

Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

ARSENIC AND NITRATE
MEAN CONCENTRATION LEVELS IN PUBLIC WATER (2011-2013)

PUBLIC DRINKING WATER

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit [dhs.wi.gov/epht](http://dhs.wi.gov/epht).

TAKE A CLOSER LOOK AT THE DATA:
[dhs.wi.gov/epht](http://dhs.wi.gov/epht)
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point's Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

ARSENIC IN PRIVATE WELLS
AVERAGE CONCENTRATION (µg/L)

NITRATE IN PRIVATE WELLS
AVERAGE CONCENTRATION (mg/L)

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.

**CARBON MONOXIDE**

RATE OF ER VISITS PER 100,000 PEOPLE

<table>
<thead>
<tr>
<th>Year</th>
<th>Ozaukee County</th>
<th>Wisconsin Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004-2008</td>
<td>9.2</td>
<td>10.2</td>
</tr>
<tr>
<td>2009-2013</td>
<td>7.8</td>
<td>8.8</td>
</tr>
</tbody>
</table>

**CHILDHOOD LEAD POISONING**

PERCENT OF TESTED CHILDREN WITH BLOOD LEAD ≥5 µg/dL

<table>
<thead>
<tr>
<th>Year</th>
<th>Above state value</th>
<th>At or below state value</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004-2008</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009-2013</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Take a closer look at the data: dhs.wi.gov/epht
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013. Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**HEAT STRESS**
RATE OF ER VISITS PER 100,000 PEOPLE

- **Ozaukee County:** 10.2
- **Wisconsin Average:** 16.5

**MELANOMA**
RATE OF CASES PER 100,000 PEOPLE

- **Ozaukee County:** 24.8
- **Wisconsin Average:** 18.4

**LUNG CANCER**
RATE OF CASES PER 100,000 PEOPLE

- **Ozaukee County:** 49.7
- **Wisconsin Average:** 62

**ASTHMA**
RATE OF ER VISITS PER 100,000 PEOPLE

- **Ozaukee County:** 133.0
- **Wisconsin Average:** 376

**HEAT STRESS**

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

ASTHMA
Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.
DATA DETAILS

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$)

**Measures:** Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

Ozone

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** This is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heart Attack

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

HEALTH INDICATORS

Asthma

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

Lung Cancer and Melanoma

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
WATER QUALITY

**Arsenic**
- **Measure:** Mean concentration of arsenic (µg/L) in public drinking water
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** Averaged data from 2011-2013
- **Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**
- **Measure:** Mean concentration of nitrate (mg/L) in public drinking water
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** Averaged data from 2011-2013
- **Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

HOME HAZARDS

**Lead Poisoning**
- **Measure:** Percent of children tested who had a blood lead level ≥ 5 µg/dL
- **Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2001-2014, data from 2014 displayed on dashboard
- **Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile included lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**
- **Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard
- **Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

BIRTH OUTCOMES

**Low Birth Weight**
- **Measures:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard
- **Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**
- **Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard
- **Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD  
Principal Investigator, Chief Medical Officer  
608-266-1253  
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD  
Senior Epidemiologist  
608-267-9752  
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA  
Evaluator  
608-267-3830  
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON  
IS Systems Development Services Professional  
608-266-6696  
joseph.olson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS  
Program Manager  
608-267-3811  
jennifer.camponesci@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES  
Communications and Education Coordinator  
608-267-2488  
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH  
Epidemiologist  
608-266-7897  
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD  
Chief, Health Hazard Evaluation Section  
608-266-7480  
mark.werner@dhs.wisconsin.gov

SPECIAL THANKS

Iowa Environmental Public Health Tracking Program

Wisconsin Environmental Public Health Tracking Program’s Technical Advisory Group

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Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services

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Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
PEPIN COUNTY
DASHBOARD | 2015 ENVIRONMENTAL HEALTH PROFILE

**AIR QUALITY**
- **Ozone**
  - Annual days above standard
  - Wisconsin: 0.7

- **Particulate Matter 2.5**
  - Annual days above standard
  - Wisconsin: 0.1

**WATER QUALITY**
- **Arsenic**
  - Average concentration in µg/L
  - Wisconsin: 1.3

- **Nitrate**
  - Average concentration in mg/L
  - Wisconsin: 1.5

**HOME HAZARDS**
- **Carbon Monoxide (CO)**
  - Rate of ER visits per 100,000 people
  - Wisconsin: 8.2

- **Childhood Lead Poisoning**
  - Percent with blood lead ≥5 µg/L
  - Wisconsin: 6.3%

**BIRTH OUTCOMES**
- **Low Birth Weight**
  - Percent of births <2500 grams
  - Wisconsin: 7.3%

- **Preterm Birth**
  - Percent of births <37 weeks gestation
  - Wisconsin: 10.3%

**HEALTH INDICATORS**
- **Heat Stress**
  - Rate of ER visits per 100,000 people
  - Wisconsin: 16.5

- **Melanoma**
  - Rate of cases per 100,000 people
  - Wisconsin: 18.4

- **Lung Cancer**
  - Rate of cases per 100,000 people
  - Wisconsin: 62.0

- **Asthma**
  - Rate of ER visits per 100,000 people*
  - Wisconsin: 376.0

*This indicator is represented per 10,000 people on the data portal.

References on next page.
**DASHBOARD DATA DETAILS**

Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at [dhs.wi.gov/epht](http://dhs.wi.gov/epht). For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at [dhs.wisconsin.gov/epht/glossary.htm](http://dhs.wisconsin.gov/epht/glossary.htm).

### AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2011

### WATER QUALITY

Arsenic and Nitrate: Measured concentrations from public water systems  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Years displayed: Averaged data from 2011-2013

### HOME HAZARDS

Childhood Lead Poisoning: Reported blood lead test results  
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.  
Year displayed: 2014

Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013

### BIRTH OUTCOMES

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2011-2013

### HEALTH INDICATORS

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013

Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers  
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2006-2010

Asthma: Age-adjusted rate of emergency room visits related to asthma  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

**OZONE**

Statewide: 0.7
Annual Days Above Standard: 0.0

**PARTICULATE MATTER 2.5**

Statewide: 9.4
Annual Days Above Standard: 0.0
Annual Average (µg/m³): 9.2

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit dhs.wisconsin.gov/epht/criteriapollutants.htm.
Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit [dhs.wisconsin.gov/air/co.htm](http://dhs.wisconsin.gov/air/co.htm).

**HOME HAZARDS**

Pepin County

**CARBON MONOXIDE**

**RATe OF ER VISITS PER 100,000 PEOPLE**

- **0.0**
  - CARBON MONOXIDE POISONING
  - RATE OF ER VISITS RELATED TO CO PER 100,000
  - STATEWIDE: 8.2

- **3.9%**
  - CHILDHOOD LEAD POISONING
  - PERCENT OF TESTED CHILDREN WITH BLOOD LEAD ≥5 µg/dL
  - STATEWIDE: 6.3%

**TAKE A CLOSER LOOK AT THE DATA:**

dhs.wi.gov/epht
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.
BIRTH OUTCOMES  
PEPIN COUNTY

Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

LOW BIRTH WEIGHT

- **5.4%**
  - LOW BIRTH WEIGHT
  - PERCENT BIRTHS <2,500 GRAMS
  - STATEWIDE: 7.3%

- **10.1%**
  - PRETERM BIRTH
  - PERCENT BIRTHS <37 WEEKS GESTATION
  - STATEWIDE: 10.3%

LOW BIRTH WEIGHT

PERCENT OF BIRTHS BELOW 2,500 GRAMS

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

TAKE A CLOSER LOOK AT THE DATA:
dhs.wi.gov/epht
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.

TAKING A CLOSER LOOK AT THE DATA:

dhs.wi.gov/epht
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

**MELANOMA**
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit [dhs.wisconsin.gov/epht/melanoma.htm](http://dhs.wisconsin.gov/epht/melanoma.htm). To read more about lung cancer, visit [dhs.wisconsin.gov/epht/lung.htm](http://dhs.wisconsin.gov/epht/lung.htm).

**LUNG CANCER**
RATE OF CASES PER 100,000 PEOPLE

**ASThma**

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit [dhs.wisconsin.gov/asthma/Index.htm](http://dhs.wisconsin.gov/asthma/Index.htm)
Particulate Matter 2.5 (PM$_{2.5}$)

**Measures:** Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

**Ozone**

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2001-2011, data from 2011 are displayed on the dashboard

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

**Heart Attack**

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**Asthma**

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. For use in this profile, it is converted to per 10,000 people.

**Lung Cancer and Melanoma**

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**Heat Stress**

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E909.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
**WATER QUALITY**

**Arsenic**
- **Measure**: Mean concentration of arsenic (µg/L) in public drinking water
- **Source**: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed**: Averaged data from 2011-2013
- **Data details**: Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**
- **Measure**: Mean concentration of nitrate (mg/L) in public drinking water
- **Source**: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed**: Averaged data from 2011-2013
- **Data details**: Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**HOME HAZARDS**

**Lead Poisoning**
- **Measure**: Percent of children tested who had a blood lead level ≥5 µg/dL
- **Source**: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed**: 2001-2014, data from 2014 displayed on dashboard
- **Data details**: Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**
- **Measure**: Annual average rate of emergency room visits, age adjusted per 100,000 people
- **Source**: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed**: 2004-2013, data averaged from 2009-2013 displayed on dashboard
- **Data details**: This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**BIRTH OUTCOMES**

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- **Measures**: Percentage of babies weighing <2,500 grams at birth among all babies born to county residents
- **Source**: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
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- **Source**: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
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WISCONSIN ENVIRONMENTAL PUBLIC HEALTH TRACKING PROGRAM

HENRY ANDERSON, MD
Principal Investigator, Chief Medical Officer
608-266-1253
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD
Senior Epidemiologist
608-267-9752
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA
Evaluator
608-267-3830
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JOSEPH OLSON
IS Systems Development Services Professional
608-266-6696
josepha.olson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS
Program Manager
608-267-3811
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES
Communications and Education Coordinator
608-267-2488
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH
Epidemiologist
608-266-7897
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD
Chief, Health Hazard Evaluation Section
608-266-7480
mark.werner@dhs.wisconsin.gov

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This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.
PIERCe COUNTY
DASHBOARD | 2015 ENVIRONMENTAL HEALTH PROFILE

**AIR QUALITY**

**Ozone**
- Annual days above standard
  - Wisconsin: 0.7

**Particulate Matter 2.5**
- Annual days above standard
  - Wisconsin: 0.1

**WATER QUALITY**

**Arsenic**
- Average concentration in µg/L
  - Wisconsin: 1.3

**Nitrate**
- Average concentration in mg/L
  - Wisconsin: 1.5

**HOME HAZARDS**

**Carbon Monoxide (CO)**
- Rate of ER visits per 100,000 people
  - Wisconsin: 8.2

**Childhood Lead Poisoning**
- Percent with blood lead ≥5 µg/L
  - Wisconsin: 6.3%

**BIRTH OUTCOMES**

**Low Birth Weight**
- Percent of births <2500 grams
  - Wisconsin: 7.3%

**Preterm Birth**
- Percent of births <37 weeks gestation
  - Wisconsin: 10.3%

**HEALTH INDICATORS**

**Heat Stress**
- Rate of ER visits per 100,000 people
  - Wisconsin: 16.5

**Melanoma**
- Rate of cases per 100,000 people
  - Wisconsin: 18.4

**Lung Cancer**
- Rate of cases per 100,000 people
  - Wisconsin: 62.0

**Asthma**
- Rate of ER visits per 100,000 people
  - Wisconsin: 376.0

*This indicator is represented per 10,000 people on the data portal.

*References on next page*
DASHBOARD DATA DETAILS

Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at [dhs.wi.gov/epht](http://dhs.wi.gov/epht). For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at [dhs.wisconsin.gov/epht/glossary.htm](http://dhs.wisconsin.gov/epht/glossary.htm).

### AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2011

### WATER QUALITY

Arsenic and Nitrate: Measured concentrations from public water systems  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Years displayed: Averaged data from 2011-2013

### HOME HAZARDS

Childhood Lead Poisoning: Reported blood lead test results  
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.  
Year displayed: 2014

Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013

### BIRTH OUTCOMES

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2011-2013

### HEALTH INDICATORS

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013

Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers  
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2006-2010

Asthma: Age-adjusted rate of emergency room visits related to asthma  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

**OZONE**

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit dhs.wisconsin.gov/epht/criteriapollutants.htm.
WATER QUALITY  PIERCE COUNTY

Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

PUBLIC DRINKING WATER

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.

ARSENIC AND NITRATE
MEAN CONCENTRATION LEVELS IN PUBLIC WATER (2011-2013)

[Graph showing arsenic and nitrate mean concentrations in Pierce County compared to the Wisconsin average]
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.

**HOME HAZARDS PIERCE COUNTY**

- **2.6**
  - CARBON MONOXIDE POISONING
  - RATE OF ER VISITS RELATED TO CO PER 100,000 PEOPLE
  - STATEWIDE: 8.2
  - Above state value
  - At or below state value

- **2.1%**
  - CHILDHOOD LEAD POISONING
  - PERCENT OF TESTED CHILDREN WITH BLOOD LEAD ≥5 µg/dL
  - STATEWIDE: 6.3%
  - Suppressed
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

- **13.8** HEAT STRESS RATE OF ER VISITS PER 100,000 PEOPLE
  - Statewide: 16.5
- **11.8** MELANOMA RATE OF CASES PER 100,000 PEOPLE
  - Statewide: 18.4
- **34.7** LUNG CANCER RATE OF CASES PER 100,000 PEOPLE
  - Statewide: 62
- **293.0** ASTHMA RATE OF ER VISITS PER 100,000 PEOPLE
  - Statewide: 376

**HEAT STRESS**

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit [bit.ly/cdcheatstress](http://bit.ly/cdcheatstress).

**TAKE A CLOSER LOOK AT THE DATA:**
[dhs.wi.gov/epht](http://dhs.wi.gov/epht)
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.
### DATA DETAILS

#### AIR QUALITY

**Particulate Matter 2.5 (PM$_{2.5}$)**
- **Measures:** Annual Average PM$_{2.5}$ ($\mu$g/m$^3$), Percent of days above standard set by the US Environmental Protection Agency
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard
- **Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 $\mu$g/m$^3$.

**Ozone**
- **Measure:** Number of days above standard set by the US Environmental Protection Agency
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** 2002-2011
- **Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

**Heart Attack**
- **Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** 2002-2011
- **Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

### HEALTH INDICATORS

**Asthma**
- **Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard
- **Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

**Lung Cancer and Melanoma**
- **Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people
- **Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard
- **Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**Heat Stress**
- **Measure:** Age-adjusted rate of emergency department visits per 100,000 people
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard
- **Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E909.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
**WATER QUALITY**

**Arsenic**
- **Measures**: Mean concentration of arsenic (µg/L) in public drinking water
- **Source**: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed**: Averaged data from 2011-2013
- **Data details**: Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**
- **Measure**: Mean concentration of nitrate (mg/L) in public drinking water
- **Source**: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed**: Averaged data from 2011-2013
- **Data details**: Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**HOME HAZARDS**

**Lead Poisoning**
- **Measure**: Percent of children tested who had a blood lead level ≥ 5 µg/dL
- **Source**: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed**: 2001-2014, data from 2014 displayed on dashboard
- **Data details**: Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**
- **Measure**: Annual average rate of emergency room visits, age adjusted per 100,000 people
- **Source**: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed**: 2004-2013, data averaged from 2009-2013 displayed on dashboard
- **Data details**: This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**BIRTH OUTCOMES**

**Low Birth Weight**
- **Measures**: Percentage of babies weighing <2,500 grams at birth among all babies born to county residents
- **Source**: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed**: 2002-2013, data from 2011-2013 are displayed on dashboard
- **Data details**: Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**
- **Measure**: Percentage of babies born at <37 weeks gestation among all babies born to county residents
- **Source**: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed**: 2002-2013, data from 2011-2013 are displayed on dashboard
- **Data details**: Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD
Principal Investigator, Chief Medical Officer
608-266-1253
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD
Senior Epidemiologist
608-267-9752
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA
Evaluator
608-267-3830
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON
IS Systems Development Services Professional
608-266-6696
josepha.olson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS
Program Manager
608-267-3811
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES
Communications and Education Coordinator
608-267-2488
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH
Epidemiologist
608-266-7897
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD
Chief, Health Hazard Evaluation Section
608-266-7480
mark.werner@dhs.wisconsin.gov

SPECIAL THANKS

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Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
# Polk County Dashboard

## 2015 Environmental Health Profile

### Air Quality

**Ozone**
- Annual days above standard
- Value: 0.0
- State standard: 0.7

**Particulate Matter 2.5**
- Annual days above standard
- Value: 0.0
- State standard: 0.1

### Water Quality

**Arsenic**
- Average concentration in µg/L
- Value: 1.0
- State standard: 1.3

**Nitrate**
- Average concentration in mg/L
- Value: 1.4
- State standard: 1.5

### Home Hazards

**Carbon Monoxide (CO)**
- Rate of ER visits per 100,000 people
- Value: 11.5
- State standard: 8.2

**Childhood Lead Poisoning**
- Percent with blood lead ≥5 µg/L
- Value: 2.2%
- State standard: 6.3%

### Birth Outcomes

**Low Birth Weight**
- Percent of births <2500 grams
- Value: 4.9%
- State standard: 7.3%

**Preterm Birth**
- Percent of births <37 weeks gestation
- Value: 9.2%
- State standard: 10.3%

### Health Indicators

**Heat Stress**
- Rate of ER visits per 100,000 people
- Value: 22.2
- State standard: 16.5

**Melanoma**
- Rate of cases per 100,000 people
- Value: 9.4
- State standard: 18.4

**Lung Cancer**
- Rate of cases per 100,000 people
- Value: 41.0
- State standard: 62.0

**Asthma**
- Rate of ER visits per 100,000 people
- Value: 332.0
- State standard: 376.0

*This indicator is represented per 10,000 people on the data portal.*

- **Above state value**
- **At or below state value**
- **Data are suppressed**

**References on next page**
Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.

**AIR QUALITY**

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2011

**WATER QUALITY**

Arsenic and Nitrate: Measured concentrations from public water systems
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013

**HOME HAZARDS**

Childhood Lead Poisoning: Reported blood lead test results
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.
Year displayed: 2014

Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

**BIRTH OUTCOMES**

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2011-2013

**HEALTH INDICATORS**

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2006-2010

Asthma: Age-adjusted rate of emergency room visits related to asthma
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

Air Quality Polk County

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit dhs.wisconsin.gov/epht/criteriapollutants.htm.
Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

ARSENIC AND NITRATE
MEAN CONCENTRATION LEVELS IN PUBLIC WATER (2011-2013)

**PUBLIC DRINKING WATER**

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit [dhs.wi.gov/epht](http://dhs.wi.gov/epht).
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

<table>
<thead>
<tr>
<th>Statewide</th>
<th>Polk County</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.2</td>
<td>11.5</td>
</tr>
</tbody>
</table>

**CHILDHOOD LEAD POISONING**

<table>
<thead>
<tr>
<th>PERCENT OF TESTED CHILDREN WITH BLOOD LEAD ≥5 µg/dL</th>
</tr>
</thead>
<tbody>
<tr>
<td>STATEWIDE: 6.3%</td>
</tr>
<tr>
<td>At or below state value: Polk County: 2.2%</td>
</tr>
</tbody>
</table>

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning.

For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

**LOW BIRTH WEIGHT**

PERCENT OF BIRTHS BELOW 2,500 GRAMS

<table>
<thead>
<tr>
<th>Year</th>
<th>Polk County</th>
<th>Wisconsin Average</th>
<th>Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002-2004</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005-2007</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008-2010</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011-2013</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**LOW BIRTH WEIGHT**

PERCENT BIRTHS <2,500 GRAMS

STATEWIDE: 7.3%

STATEWIDE: 10.3%

**PRETERM BIRTH**

PERCENT BIRTHS <37 WEEKS GESTATION

STATEWIDE: 10.3%

Above state value  At or below state value  ^ Suppressed
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

HEAT STRESS
RATE OF ER VISITS PER 100,000 PEOPLE
STATEWIDE: 16.5

22.2

MELANOMA
RATE OF CASES PER 100,000 PEOPLE
STATEWIDE: 18.4

9.4

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE
STATEWIDE: 62

41.0

ASTHMA
RATE OF ER VISITS PER 100,000 PEOPLE
STATEWIDE: 376

332.0

HEAT STRESS

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.

TAKE A CLOSER LOOK AT THE DATA:
dhs.wi.gov/epht
**MELANOMA AND LUNG CANCER**

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

**MELANOMA**

**RATE OF CASES PER 100,000 PEOPLE**

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit [dhs.wisconsin.gov/epht/melanoma.htm](http://dhs.wisconsin.gov/epht/melanoma.htm). To read more about lung cancer, visit [dhs.wisconsin.gov/epht/lung.htm](http://dhs.wisconsin.gov/epht/lung.htm).

**LUNG CANCER**

**RATE OF CASES PER 100,000 PEOPLE**

**ASTHMA**

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit [dhs.wisconsin.gov/asthma/Index.htm](http://dhs.wisconsin.gov/asthma/Index.htm).
** DATA DETAILS **

** AIR QUALITY **

**Particulate Matter 2.5 (PM\textsubscript{2.5})**

*Measures:* Annual Average PM\textsubscript{2.5} (µg/m\textsuperscript{3}), Percent of days above standard set by the US Environmental Protection Agency  
*Source:* National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
*Years displayed:* 2002-2011, data from 2011 are displayed on the dashboard  
*Data details:* These measures include monitored and modeled estimates of PM\textsubscript{2.5} levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM\textsubscript{2.5} concentration is 35 µg/m\textsuperscript{3}.

**Ozone**

*Measure:* Number of days above standard set by the US Environmental Protection Agency  
*Source:* National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
*Years displayed:* 2002-2011, data from 2011 are displayed on the dashboard  
*Data details:* This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

**Heart Attack**

*Measure:* Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people  
*Source:* National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
*Years displayed:* 2002-2011  
*Data details:* These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**HEALTH INDICATORS **

**Asthma**

*Measures:* Annual age-adjusted rate of emergency department visits per 100,000 people  
*Source:* National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
*Years displayed:* 2002-2012, data from 2012 are displayed on the dashboard  
*Data details:* These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

**Lung Cancer and Melanoma**

*Measure:* Age-adjusted rates of cases among persons age 35 and over per 100,000 people  
*Source:* Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
*Years displayed:* 1996-2010, data from 2006-2010 are displayed on the dashboard  
*Data details:* Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**Heat Stress**

*Measure:* Age-adjusted rate of emergency department visits per 100,000 people  
*Source:* Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
*Years displayed:* 2004-2013, data from 2009-2013 are displayed on the dashboard  
*Data details:* These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
DATA DETAILS

WATER QUALITY

**Arsenic**
*Measure*: Mean concentration of arsenic (µg/L) in public drinking water
*Source*: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
*Years displayed*: Averaged data from 2011-2013
*Data details*: Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**
*Measure*: Mean concentration of nitrate (mg/L) in public drinking water
*Source*: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
*Years displayed*: Averaged data from 2011-2013
*Data details*: Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

HOME HAZARDS

**Lead Poisoning**
*Measure*: Percent of children tested who had a blood lead level ≥ 5 µg/dL
*Source*: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
*Years displayed*: 2001-2014, data from 2014 displayed on dashboard
*Data details*: Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**
*Measure*: Annual average rate of emergency room visits, age adjusted per 100,000 people
*Source*: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
*Years displayed*: 2004-2013, data averaged from 2009-2013 displayed on dashboard
*Data details*: This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825 ,E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

BIRTH OUTCOMES

**Low Birth Weight**
*Measures*: Percentage of babies weighing <2,500 grams at birth among all babies born to county residents
*Source*: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
*Years displayed*: 2002-2013, data from 2011-2013 are displayed on dashboard
*Data details*: Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**
*Measure*: Percentage of babies born at <37 weeks gestation among all babies born to county residents
*Source*: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
*Years displayed*: 2002-2013, data from 2011-2013 are displayed on dashboard
*Data details*: Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
SPECIAL THANKS

Iowa Environmental Public Health Tracking Program
Wisconsin Environmental Public Health Tracking Program’s Technical Advisory Group
Jeff Phillips, Bureau of Environmental and Occupational Health, Wisconsin Department of Health Services
Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services
Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
PORTAGE COUNTY
ENVIRONMENTAL HEALTH PROFILE

2015

WISCONSIN ENVIRONMENTAL PUBLIC HEALTH TRACKING PROGRAM
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
PORTAGE COUNTY
DASHBOARD | 2015 ENVIRONMENTAL HEALTH PROFILE

**AIR QUALITY**

- **Ozone**
  - Annual days above standard
  - Wisconsin: 0.7

- **Particulate Matter 2.5**
  - Annual days above standard
  - Wisconsin: 0.1

**WATER QUALITY**

- **Arsenic**
  - Average concentration in µg/L
  - Wisconsin: 1.3

- **Nitrate**
  - Average concentration in mg/L
  - Wisconsin: 1.5

**HOME HAZARDS**

- **Carbon Monoxide (CO)**
  - Rate of ER visits per 100,000 people
  - Wisconsin: 8.2

- **Childhood Lead Poisoning**
  - Percent with blood lead ≥5 µg/L
  - Wisconsin: 6.3%

**BIRTH OUTCOMES**

- **Low Birth Weight**
  - Percent of births <2500 grams
  - Wisconsin: 7.3%

- **Preterm Birth**
  - Percent of births <37 weeks gestation
  - Wisconsin: 10.3%

**HEALTH INDICATORS**

- **Heat Stress**
  - Rate of ER visits per 100,000 people
  - Wisconsin: 16.5

- **Melanoma**
  - Rate of cases per 100,000 people
  - Wisconsin: 18.4

- **Lung Cancer**
  - Rate of cases per 100,000 people
  - Wisconsin: 62.0

- **Asthma**
  - Rate of ER visits per 100,000 people*
  - Wisconsin: 376.0

---

*This indicator is represented per 10,000 people on the data portal.

Above state value | At or below state value | Data are suppressed | References on next page
Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.

### AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2011

### WATER QUALITY

Arsenic and Nitrate: Measured concentrations from public water systems  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Years displayed: Averaged data from 2011-2013

### HOME HAZARDS

Childhood Lead Poisoning: Reported blood lead test results  
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.  
Year displayed: 2014  
Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013

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**OZONE**

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

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For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.

![Graph showing carbon monoxide poisoning rates](image)

**HOME HAZARDS PORTAGE COUNTY**

**CARBON MONOXIDE**

<table>
<thead>
<tr>
<th>Year</th>
<th>Portage County</th>
<th>Wisconsin Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004-2008</td>
<td>7.4</td>
<td>8.2</td>
</tr>
<tr>
<td>2009-2013</td>
<td>7.4</td>
<td>8.2</td>
</tr>
</tbody>
</table>

**CHILDHOOD LEAD POISONING**

<table>
<thead>
<tr>
<th>Statewide Value</th>
<th>Portage County Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥5 µg/dL</td>
<td>1.3%</td>
</tr>
</tbody>
</table>

**TAKE A CLOSER LOOK AT THE DATA:**

dhs.wi.gov/epht
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother's ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013. Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**HEAT STRESS**

Rate of ER Visits per 100,000 People

- **20.8**
- **21.7**

**MELANOMA**

Rate of Cases per 100,000 People

- **59.4**

**LUNG CANCER**

Rate of Cases per 100,000 People

- **237.0**

**ASTHMA**

Rate of ER Visits per 100,000 People

- **STATEWIDE: 18.4**
- **STATEWIDE: 62**
- **STATEWIDE: 376**

**HEAT STRESS**

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.

TAKE A CLOSER LOOK AT THE DATA:

[State Health Department Website]
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/index.htm.

ASTHMA
RATE OF ER VISITS PER 100,000 PEOPLE

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.
**DATA DETAILS**

### AIR QUALITY

**Particulate Matter 2.5 (PM$_{2.5}$)**

**Measures:** Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard  
**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

**Ozone**

**Measure:** Number of days above standard set by the US Environmental Protection Agency  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** 2001-2011, data from 2011 are displayed on the dashboard  
**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

### HEALTh INDICATORS

**Asthma**

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard  
**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**Lung Cancer and Melanoma**

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people  
**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard  
**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**Heat Stress**

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard  
**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
**WATER QUALITY**

### Arsenic

**Measures:** Mean concentration of arsenic (µg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

### Nitrate

**Measure:** Mean concentration of nitrate (mg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, we aggregated three years of data (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**DATA DETAILS**

**WATER QUALITY**

**Lead Poisoning**

**Measure:** Percent of children tested who had a blood lead level ≥ 2 µg/dL  
**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2001-2014, data from 2014 displayed on dashboard  
**Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**

**Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard  
**Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**HOME HAZARDS**

**Lead Poisoning**

**Measure:** Percent of children tested who had a blood lead level ≥ 2 µg/dL  
**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2001-2014, data from 2014 displayed on dashboard  
**Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**

**Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard  
**Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**BIRTH OUTCOMES**

### Low Birth Weight

**Measures:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

### Preterm Birth

**Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD
Principal Investigator, Chief Medical Officer
608-266-1253
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD
Senior Epidemiologist
608-267-9752
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA
Evaluator
608-267-3830
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON
IS Systems Development Services Professional
608-266-6696
josepha.olson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS
Program Manager
608-267-3811
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES
Communications and Education Coordinator
608-267-2488
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH
Epidemiologist
608-266-7897
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD
Chief, Health Hazard Evaluation Section
608-266-7480
mark.werner@dhs.wisconsin.gov

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Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services
Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
### AIR QUALITY

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Price County</th>
<th>Wisconsin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozone</td>
<td>0.0</td>
<td>0.7</td>
</tr>
<tr>
<td>Annual days above standard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Particulate Matter 2.5</td>
<td>0.0</td>
<td>0.1</td>
</tr>
<tr>
<td>Annual days above standard</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### WATER QUALITY

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Price County</th>
<th>Wisconsin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic</td>
<td>0.4</td>
<td>1.3</td>
</tr>
<tr>
<td>Average conc. in µg/L</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nitrate</td>
<td>1.3</td>
<td>1.5</td>
</tr>
<tr>
<td>Average conc. in mg/L</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### HOME HAZARDS

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Price County</th>
<th>Wisconsin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon Monoxide (CO)</td>
<td>7.7</td>
<td>8.2</td>
</tr>
<tr>
<td>Rate of ER visits per 100,000 people</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Childhood Lead Poisoning</td>
<td>0.0%</td>
<td>6.3%</td>
</tr>
<tr>
<td>Percent with blood lead ≥5 µg/L</td>
<td></td>
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</table>

### BIRTH OUTCOMES

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Price County</th>
<th>Wisconsin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Birth Weight</td>
<td>4.5%</td>
<td>7.3%</td>
</tr>
<tr>
<td>Percent of births &lt;2500 grams</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preterm Birth</td>
<td>6.2%</td>
<td>10.3%</td>
</tr>
<tr>
<td>Percent of births &lt;37 weeks gestation</td>
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<td></td>
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### HEALTH INDICATORS

<table>
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<tr>
<th>Indicator</th>
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<th>Wisconsin</th>
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<tbody>
<tr>
<td>Heat Stress</td>
<td>14.0</td>
<td>16.5</td>
</tr>
<tr>
<td>Rate of ER visits per 100,000 people</td>
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<td></td>
</tr>
<tr>
<td>Melanoma</td>
<td>10.4</td>
<td>18.4</td>
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<tr>
<td>Rate of cases per 100,000 people</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lung Cancer</td>
<td>69.9</td>
<td>62.0</td>
</tr>
<tr>
<td>Rate of cases per 100,000 people</td>
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<td></td>
</tr>
<tr>
<td>Asthma</td>
<td>375.0</td>
<td>376.0</td>
</tr>
<tr>
<td>Rate of ER visits per 100,000 people*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

*This indicator is represented per 10,000 people on the data portal.*

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References on next page
Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.

### AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2011

### WATER QUALITY

Arsenic and Nitrate: Measured concentrations from public water systems  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Years displayed: Averaged data from 2011-2013

### HOME HAZARDS

Childhood Lead Poisoning: Reported blood lead test results  
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.  
Year displayed: 2014  
Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013

### BIRTH OUTCOMES

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2011-2013

### HEALTH INDICATORS

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013  
Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers  
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2006-2010  
Asthma: Age-adjusted rate of emergency room visits related to asthma  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM\textsubscript{2.5})" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit dhs.wisconsin.gov/epht/criteriapollutants.htm.

PARTICULATE MATTER 2.5 ANNUAL AVERAGE
(µg/m$^3$)

HEART ATTACK HOSPITALIZATIONS
Rate per 10,000 people

ASTHMA EMERGENCY ROOM VISITS
Rate per 100,000 people
Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

**PUBLIC DRINKING WATER**

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit [dhs.wi.gov/epht](http://dhs.wi.gov/epht).
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

ARSENIC IN PRIVATE WELLS
AVERAGE CONCENTRATION (µg/L)

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.

NITRATE IN PRIVATE WELLS
AVERAGE CONCENTRATION (mg/L)
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**Carbon Monoxide Poisoning**

- **Rate of ER Visits Related to CO per 100,000 People**
  - **Statewide:** 8.2
  - **Price County:** 7.7

**Childhood Lead Poisoning**

- **Percent of Tested Children with Blood Lead ≥ 5 µg/dL**
  - **Statewide:** 6.3%
  - **Price County:** 0.0%

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit [dhs.wisconsin.gov/air/co.htm](http://dhs.wisconsin.gov/air/co.htm).
**CHILDHOOD LEAD POISONING**

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

**CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)**

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**CHILDHOOD LEAD POISONING**

**PERCENT OF TESTED CHILDREN WITH BLOOD LEAD ≥5 µg/dL**

![Graph showing percentage of tested children with blood lead ≥5 µg/dL](image)

- **Price County**
- **Wisconsin Average**

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**Previous Blood Lead Level Reference Value (10 µg/dL)**

- **Post-2012 Blood Lead Level Reference Value (5 µg/dL)**

---

**Number of Children Poisoned**

- 0 - 6
- 7 - 11
- 12 - 19
- ≥20
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

- **Heat Stress**: Rate of ER visits per 100,000 people.
  - Price County: 14.0
  - Wisconsin Average: 16.5
  - Statewide: 16.5

- **Melanoma**: Rate of cases per 100,000 people.
  - Price County: 69.9
  - Wisconsin Average: 18.4
  - Statewide: 62

- **Lung Cancer**: Rate of cases per 100,000 people.
  - Price County: 10.4
  - Wisconsin Average: 18.4
  - Statewide: 18.4

- **Asthma**: Rate of ER visits per 100,000 people.
  - Price County: 375.0
  - Wisconsin Average: 376
  - Statewide: 376

**Heat Stress**

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.
Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.
**DATA DETAILS**

**AIR QUALITY**

**Particulate Matter 2.5 (PM$_{2.5}$)**
- **Measures**: Annual Average PM$_{2.5}$ ($\mu$g/m$^3$), Percent of days above standard set by the US Environmental Protection Agency
- **Source**: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed**: 2002-2011, data from 2011 are displayed on the dashboard
- **Data details**: These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 $\mu$g/m$^3$.

**Ozone**
- **Measure**: Number of days above standard set by the US Environmental Protection Agency
- **Source**: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed**: 2002-2011
- **Data details**: This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

**Heart Attack**
- **Measure**: Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people
- **Source**: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed**: 2002-2011
- **Data details**: These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**HEALTH INDICATORS**

**Asthma**
- **Measures**: Annual age-adjusted rate of emergency department visits per 100,000 people
- **Source**: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed**: 2002-2012, data from 2012 are displayed on the dashboard
- **Data details**: These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. For use in this profile, it is converted to per 10,000 people.

**Lung Cancer and Melanoma**
- **Measure**: Age-adjusted rates of cases among persons age 35 and over per 100,000 people
- **Source**: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed**: 1996-2010, data from 2006-2010 are displayed on the dashboard
- **Data details**: Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**Heat Stress**
- **Measure**: Age-adjusted rate of emergency department visits per 100,000 people
- **Source**: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed**: 2004-2013, data from 2009-2013 are displayed on the dashboard
- **Data details**: These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
DATA DETAILS

WATER QUALITY

Arsenic
Measures: Mean concentration of arsenic (µg/L) in public drinking water
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013
Data details: Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

Nitrate
Measure: Mean concentration of nitrate (mg/L) in public drinking water
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013
Data details: Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

HOME HAZARDS

Lead Poisoning
Measure: Percent of children tested who had a blood lead level ≥ 5 µg/dL
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2001-2014, data from 2014 displayed on dashboard
Data details: Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

Carbon Monoxide Poisoning
Measure: Annual average rate of emergency room visits, age adjusted per 100,000 people
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2004-2013, data averaged from 2009-2013 displayed on dashboard
Data details: This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

BIRTH OUTCOMES

Low Birth Weight
Measures: Percentage of babies weighing <2,500 grams at birth among all babies born to county residents
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2002-2013, data from 2011-2013 are displayed on dashboard
Data details: Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

Preterm Birth
Measure: Percentage of babies born at <37 weeks gestation among all babies born to county residents
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2002-2013, data from 2011-2013 are displayed on dashboard
Data details: Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
SPECIAL THANKS

Iowa Environmental Public Health Tracking Program
Wisconsin Environmental Public Health Tracking Program’s Technical Advisory Group
Jeff Phillips, Bureau of Environmental and Occupational Health, Wisconsin Department of Health Services
Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services
Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
RACINE COUNTY
ENVIRONMENTAL HEALTH PROFILE
2015
WISCONSIN ENVIRONMENTAL PUBLIC HEALTH TRACKING PROGRAM
Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital’s community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
RACINE COUNTY
DASHBOARD  |  2015 ENVIRONMENTAL HEALTH PROFILE

AIR QUALITY

- **Ozone**
  - Annual days above standard
  - Wisconsin: 0.7
  - 4.0

- **Particulate Matter 2.5**
  - Annual days above standard
  - Wisconsin: 0.1
  - 1.1

WATER QUALITY

- **Arsenic**
  - Average concentration in µg/L
  - Wisconsin: 1.3
  - 4.2

- **Nitrate**
  - Average concentration in mg/L
  - Wisconsin: 1.5
  - 0.2

HOME HAZARDS

- **Carbon Monoxide (CO)**
  - Rate of ER visits per 100,000 people
  - Wisconsin: 8.2
  - 9.2

- **Childhood Lead Poisoning**
  - Percent with blood lead ≥5 µg/L
  - Wisconsin: 6.3%
  - 7.4%

BIRTH OUTCOMES

- **Low Birth Weight**
  - Percent of births <2500 grams
  - Wisconsin: 7.3%
  - 7.9%

- **Preterm Birth**
  - Percent of births <37 weeks gestation
  - Wisconsin: 10.3%
  - 12.1%

HEALTH INDICATORS

- **Heat Stress**
  - Rate of ER visits per 100,000 people
  - Wisconsin: 16.5
  - 17.1

- **Melanoma**
  - Rate of cases per 100,000 people
  - Wisconsin: 18.4
  - 11.7

- **Lung Cancer**
  - Rate of cases per 100,000 people
  - Wisconsin: 62.0
  - 71.2

- **Asthma**
  - Rate of ER visits per 100,000 people*
  - Wisconsin: 376.0
  - 451.0

*This indicator is represented per 10,000 people on the data portal.
DASHBOARD DATA DETAILS

Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2011

WATER QUALITY

Arsenic and Nitrate: Measured concentrations from public water systems
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013

HOME HAZARDS

Childhood Lead Poisoning: Reported blood lead test results
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.
Year displayed: 2014

Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

BIRTH OUTCOMES

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2011-2013

HEALTH INDICATORS

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2006-2010

Asthma: Age-adjusted rate of emergency room visits related to asthma
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

**OZONE**

ANNUAL DAYS ABOVE STANDARD

- **Racine County:** 4.0
- **Statewide:** 0.7

**PARTICULATE MATTER 2.5**

ANNUAL DAYS ABOVE STANDARD

- **Racine County:** 1.1
- **Statewide:** 0.1

ANNUAL AVERAGE (µg/m³)

- **Racine County:** 11.2
- **Statewide:** 9.4

**OZONE**

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

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About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit [dhs.wi.gov/epht](http://dhs.wi.gov/epht).
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

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County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

ARSENIC IN PRIVATE WELLS
AVERAGE CONCENTRATION (µg/L)

NITRATE IN PRIVATE WELLS
AVERAGE CONCENTRATION (mg/L)

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
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**CARBON MONOXIDE POISONING**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit [dhs.wisconsin.gov/air/co.htm](http://dhs.wisconsin.gov/air/co.htm).

**HOME HAZARDS**

Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL. This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects. The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother's ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013. Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.

ASTHMA
RATE OF ER VISITS PER 100,000 PEOPLE
**DATA DETAILS**

**AIR QUALITY**

**Particulate Matter 2.5 (PM$_{2.5}$)**

**Measures:** Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

**Ozone**

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

**Heart Attack**

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**HEALTH INDICATORS**

**Asthma**

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

**Lung Cancer and Melanoma**

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**Heat Stress**

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
**WATER QUALITY**

**Arsenic**
- **Measure:** Mean concentration of arsenic (µg/L) in public drinking water
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** Averaged data from 2011-2013
- **Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**
- **Measure:** Mean concentration of nitrate (mg/L) in public drinking water
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** Averaged data from 2011-2013
- **Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**HOME HAZARDS**

**Lead Poisoning**
- **Measure:** Percent of children tested who had a blood lead level ≥ 5 µg/dL
- **Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2001-2014, data from 2014 displayed on dashboard
- **Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**
- **Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard
- **Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825 ,E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**BIRTH OUTCOMES**

**Low Birth Weight**
- **Measure:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard
- **Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**
- **Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard
- **Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD
Principal Investigator, Chief Medical Officer
608-266-1253
henry.anderson@dhs.wisconsin.gov

DAWN BERNEY, MPA
Evaluator
608-267-3830
dawn.berney@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS
Program Manager
608-267-3811
jennifer.camponeschi@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH
Epidemiologist
608-266-7897
megan.christenson@dhs.wisconsin.gov

PAUL CRESWELL, PhD
Senior Epidemiologist
608-267-9752
paul.creswell@dhs.wisconsin.gov

JOSEPH OLSON
IS Systems Development Services Professional
608-266-6696
josepha.olson@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES
Communications and Education Coordinator
608-267-2488
christy.vogt@dhs.wisconsin.gov

MARK WERNER, PhD
Chief, Health Hazard Evaluation Section
608-266-7480
mark.werner@dhs.wisconsin.gov

SPECIAL THANKS
Iowa Environmental Public Health Tracking Program
Wisconsin Environmental Public Health Tracking Program’s Technical Advisory Group
Jeff Phillips, Bureau of Environmental and Occupational Health, Wisconsin Department of Health Services
Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services
Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
RICHLAND COUNTY DASHBOARD | 2015 ENVIRONMENTAL HEALTH PROFILE

**AIR QUALITY**

**Ozone**
- Annual days above standard
- Wisconsin: 0.7

**Particulate Matter 2.5**
- Annual days above standard
- Wisconsin: 0.1

**WATER QUALITY**

**Arsenic**
- Average concentration in µg/L
- Wisconsin: 1.3

**Nitrate**
- Average concentration in mg/L
- Wisconsin: 1.5

**HOME HAZARDS**

**Carbon Monoxide (CO)**
- Rate of ER visits per 100,000 people
- Wisconsin: 8.2

**Childhood Lead Poisoning**
- Percent with blood lead ≥5 µg/L
- Wisconsin: 6.3%

**BIRTH OUTCOMES**

**Low Birth Weight**
- Percent of births <2500 grams
- Wisconsin: 7.3%

**Preterm Birth**
- Percent of births <37 weeks gestation
- Wisconsin: 10.3%

**HEALTH INDICATORS**

**Heat Stress**
- Rate of ER visits per 100,000 people
- Wisconsin: 16.5

**Melanoma**
- Rate of cases per 100,000 people
- Wisconsin: 18.4

**Lung Cancer**
- Rate of cases per 100,000 people
- Wisconsin: 62.0

**Asthma**
- Rate of ER visits per 100,000 people*
- Wisconsin: 376.0

*This indicator is represented per 10,000 people on the data portal.*
## Dashboard Data Details

Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at [dhs.wi.gov/epht](http://dhs.wi.gov/epht). For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at [dhs.wisconsin.gov/epht/glossary.htm](http://dhs.wisconsin.gov/epht/glossary.htm).

### Air Quality

- **Particulate Matter 2.5 (PM$_{2.5}$) and Ozone:** Monitored and modeled estimates of air quality readings  
  **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
  **Year displayed:** 2011

### Water Quality

- **Arsenic and Nitrate:** Measured concentrations from public water systems  
  **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
  **Years displayed:** Averaged data from 2011-2013

### Home Hazards

- **Childhood Lead Poisoning:** Reported blood lead test results  
  **Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
  **Note:** The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.  
  **Year displayed:** 2014  
  **Carbon Monoxide (CO) Poisoning:** Age-adjusted rate of emergency room visits related to CO poisoning  
  **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
  **Years displayed:** Averaged data from 2009-2013

### Birth Outcomes

- **Low Birth Weight and Preterm Birth:** Wisconsin birth certificate data  
  **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
  **Years displayed:** Averaged data from 2011-2013

### Health Indicators

- **Heat Stress:** Age-adjusted rate of emergency room visits related to heat stress  
  **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
  **Years displayed:** Averaged data from 2009-2013  
  **Melanoma and Lung Cancer:** Age-adjusted rate of cases reported by health care providers  
  **Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
  **Years displayed:** Averaged data from 2006-2010  
  **Asthma:** Age-adjusted rate of emergency room visits related to asthma  
  **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
  **Year displayed:** 2012

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4 | Wisconsin Environmental Public Health Tracking
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

**OZONE**

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit dhs.wisconsin.gov/epht/criteriapollutants.htm.
Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

Temperature

**ARSENIC**
AVERAGE CONCENTRATION IN PUBLIC WATER (µg/L)

**NITRATE**
AVERAGE CONCENTRATION IN PUBLIC WATER (mg/L)

**STATEWIDE**: 1.3

**STATEWIDE**: 1.5

- Above state value
- At or below state value
- Suppressed

**PUBLIC DRINKING WATER**

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit [dhs.wi.gov/epht](http://dhs.wi.gov/epht).

**ARSENIC AND NITRATE**

MEAN CONCENTRATION LEVELS IN PUBLIC WATER (2011-2013)

0 µg/L

0 mg/L

Maximum contaminant level

Richland County
Wisconsin Average
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

<table>
<thead>
<tr>
<th></th>
<th>Richland County</th>
<th>Wisconsin Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rate of ER Visits</td>
<td>11.9/p 100k</td>
<td>8.2/p 100k</td>
</tr>
<tr>
<td>PERCENT OF TESTED CHILDREN WITH BLOOD LEAD ≥5 µg/dL</td>
<td>3.8%</td>
<td>6.3%</td>
</tr>
</tbody>
</table>

**CARBON MONOXIDE POISONING**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

LOW BIRTH WEIGHT

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby's body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.

HEAT STRESS
RATE OF ER VISITS PER 100,000 PEOPLE

Richland County
Wisconsin Average

TAKE A CLOSER LOOK AT THE DATA:

dhs.wi.gov/epht
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit [dhs.wisconsin.gov/epht/melanoma.htm](http://dhs.wisconsin.gov/epht/melanoma.htm). To read more about lung cancer, visit [dhs.wisconsin.gov/epht/lung.htm](http://dhs.wisconsin.gov/epht/lung.htm).

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit [dhs.wisconsin.gov/asthma/](http://dhs.wisconsin.gov/asthma/)

ASTHMA
RATE OF ER VISITS PER 100,000 PEOPLE

For more information on melanoma, visit [dhs.wisconsin.gov/epht/melanoma.htm](http://dhs.wisconsin.gov/epht/melanoma.htm). To read more about lung cancer, visit [dhs.wisconsin.gov/epht/lung.htm](http://dhs.wisconsin.gov/epht/lung.htm).
DATA DETAILS

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$)

**Measures:** Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency's National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

Ozone

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2001-2011, data from 2011 are displayed on the dashboard

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heart Attack

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

HEALTH INDICATORS

Asthma

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

Lung Cancer and Melanoma

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
DATA DETAILS
continued

WATER QUALITY

Arsenic
Measures: Mean concentration of arsenic (µg/L) in public drinking water
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013
Data details: Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

Nitrate
Measure: Mean concentration of nitrate (mg/L) in public drinking water
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013
Data details: Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

HOME HAZARDS

Lead Poisoning
Measure: Percent of children tested who had a blood lead level ≥ 5 µg/dl
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2001-2014, data from 2014 displayed on dashboard
Data details: Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

Carbon Monoxide Poisoning
Measure: Annual average rate of emergency room visits, age adjusted per 100,000 people
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2004-2013, data averaged from 2009-2013 displayed on dashboard
Data details: This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

BIRTH OUTCOMES

Low Birth Weight
Measures: Percentage of babies weighing <2,500 grams at birth among all babies born to county residents
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2002-2013, data from 2011-2013 are displayed on dashboard
Data details: Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

Preterm Birth
Measure: Percentage of babies born at <37 weeks gestation among all babies born to county residents
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2002-2013, data from 2011-2013 are displayed on dashboard
Data details: Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD
Principal Investigator, Chief Medical Officer
608-266-1253
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD
Senior Epidemiologist
608-267-9752
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA
Evaluator
608-267-3830
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON
IS Systems Development Services Professional
608-266-6696
josephaolson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS
Program Manager
608-267-3811
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES
Communications and Education Coordinator
608-267-2488
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH
Epidemiologist
608-266-7897
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD
Chief, Health Hazard Evaluation Section
608-266-7480
mark.werner@dhs.wisconsin.gov

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ROCK COUNTY ENVIRONMENTAL HEALTH PROFILE

WISCONSIN ENVIRONMENTAL PUBLIC HEALTH TRACKING PROGRAM
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!
**ROCK COUNTY DASHBOARD | 2015 ENVIRONMENTAL HEALTH PROFILE**

### AIR QUALITY

- **Ozone**
  - Annual days above standard
  - Wisconsin: 0.7
  - Wisconsin: 0.0

- **Particulate Matter 2.5**
  - Annual days above standard
  - Wisconsin: 0.1

### WATER QUALITY

- **Arsenic**
  - Average concentration in µg/L
  - Wisconsin: 1.3
  - Wisconsin: 1.2

- **Nitrate**
  - Average concentration in mg/L
  - Wisconsin: 1.5
  - Wisconsin: 2.8

### HOME HAZARDS

- **Carbon Monoxide (CO)**
  - Rate of ER visits per 100,000 people
  - Wisconsin: 8.2
  - Wisconsin: 11.5

- **Childhood Lead Poisoning**
  - Percent with blood lead ≥5 µg/L
  - Wisconsin: 6.3%
  - Wisconsin: 6.2%

### BIRTH OUTCOMES

- **Low Birth Weight**
  - Percent of births <2500 grams
  - Wisconsin: 7.3%
  - Wisconsin: 7.7%

- **Preterm Birth**
  - Percent of births <37 weeks gestation
  - Wisconsin: 10.3%
  - Wisconsin: 11.1%

### HEALTH INDICATORS

- **Heat Stress**
  - Rate of ER visits per 100,000 people
  - Wisconsin: 16.5
  - Wisconsin: 19.9

- **Melanoma**
  - Rate of cases per 100,000 people
  - Wisconsin: 18.4

- **Lung Cancer**
  - Rate of cases per 100,000 people
  - Wisconsin: 62.0
  - Wisconsin: 72.0

- **Asthma**
  - Rate of ER visits per 100,000 people*
  - Wisconsin: 376.0
  - Wisconsin: 582.0

*This indicator is represented per 10,000 people on the data portal.

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**Wisconsin Environmental Public Health Tracking Program**

dhs.wi.gov/epht | dhstracking@wi.gov | 608-267-2488

Wisconsin Department of Health Services | Division of Public Health | Bureau of Environmental and Occupational Health
DASHBOARD DATA DETAILS

Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2011

WATER QUALITY

Arsenic and Nitrate: Measured concentrations from public water systems
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013

HOME HAZARDS

Childhood Lead Poisoning: Reported blood lead test results
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.
Year displayed: 2014
Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

BIRTH OUTCOMES

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2011-2013

HEALTH INDICATORS

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013
Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2006-2010
Asthma: Age-adjusted rate of emergency room visits related to asthma
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

**OZONE**

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.

**PARTICULATE MATTER 2.5**

**STATEWIDE: 0.1**

**STATEWIDE: 9.4**

**PARTICULATE MATTER 2.5**

**STATEWIDE: 0.7**

**STATEWIDE: 10.9**

Air Quality Report for Rock County
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit dhs.wisconsin.gov/epht/criteriapollutants.htm.
Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

ARSENIC AND NITRATE MEAN CONCENTRATION LEVELS IN PUBLIC WATER (2011-2013)

- **Arsenic**:
  - Average concentration: 1.2 µg/L
  - Statewide: 1.3 µg/L
  - Suppressed values indicated by a black triangle

- **Nitrate**:
  - Average concentration: 2.8 mg/L
  - Statewide: 1.5 mg/L
  - Suppressed values indicated by a black triangle

**PUBLIC DRINKING WATER**

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit [dhs.wi.gov/epht](http://dhs.wi.gov/epht).

**Take a Closer Look at the Data:**

[dhs.wi.gov/epht](http://dhs.wi.gov/epht)
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

ARSENIC IN PRIVATE WELLS
AVERAGE CONCENTRATION (µg/L)

NITRATE IN PRIVATE WELLS
AVERAGE CONCENTRATION (mg/L)

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body. There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

LOW BIRTH WEIGHT
Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother's body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby's body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
HEALTH INDICATORS ROCK COUNTY

Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

19.9
HEAT STRESS
RATE OF ER VISITS PER 100,000 PEOPLE
STATEWIDE: 16.5

18.5
MELANOMA
RATE OF CASES PER 100,000 PEOPLE
STATEWIDE: 18.4

72.0
LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE
STATEWIDE: 62

582.0
ASTHMA
RATE OF ER VISITS PER 100,000 PEOPLE
STATEWIDE: 376

HEAT STRESS
Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.

TAKE A CLOSER LOOK AT THE DATA:
dhs.wi.gov/epht
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

ASTHMA
Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.
**DATA DETAILS**

**AIR QUALITY**

**Particulate Matter 2.5 (PM$_{2.5}$)**

**Measures:** Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard  
**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

**Ozone**

**Measure:** Number of days above standard set by the US Environmental Protection Agency  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** 2002-2011  
**Data details:** This is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

**Heart Attack**

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** 2002-2011  
**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**HEALTH INDICATORS**

**Asthma**

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard  
**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

**Lung Cancer and Melanoma**

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people  
**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard  
**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**Heat Stress**

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard  
**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
**DATA DETAILS**

**WATER QUALITY**

**Arsenic**
- **Measures:** Mean concentration of arsenic (µg/L) in public drinking water
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** Averaged data from 2011-2013
- **Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**
- **Measure:** Mean concentration of nitrate (mg/L) in public drinking water
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** Averaged data from 2011-2013
- **Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**HOME HAZARDS**

**Lead Poisoning**
- **Measure:** Percent of children tested who had a blood lead level ≥5 µg/dL
- **Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2001-2014, data from 2014 displayed on dashboard
- **Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**
- **Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard
- **Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**BIRTH OUTCOMES**

**Low Birth Weight**
- **Measures:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard
- **Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**
- **Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard
- **Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD
Principal Investigator, Chief Medical Officer
608-266-1253
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD
Senior Epidemiologist
608-267-9752
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA
Evaluator
608-267-3830
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON
IS Systems Development Services Professional
608-266-6696
joseph.olson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS
Program Manager
608-267-3811
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES
Communications and Education Coordinator
608-267-2488
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH
Epidemiologist
608-266-7897
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD
Chief, Health Hazard Evaluation Section
608-266-7480
mark.werner@dhs.wisconsin.gov

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Iowa Environmental Public Health Tracking Program
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Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital’s community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
RUSK COUNTY
DASHBOARD | 2015 ENVIRONMENTAL HEALTH PROFILE

**AIR QUALITY**

- **Ozone**
  - Annual days above standard
  - Wisconsin: 0.7

- **Particulate Matter 2.5**
  - Annual days above standard
  - Wisconsin: 0.1

**WATER QUALITY**

- **Arsenic**
  - Average concentration in µg/L
  - Wisconsin: 1.3

- **Nitrate**
  - Average concentration in mg/L
  - Wisconsin: 1.5

**HOME HAZARDS**

- **Carbon Monoxide (CO)**
  - Rate of ER visits per 100,000 people
  - Wisconsin: 8.2

- **Childhood Lead Poisoning**
  - Percent with blood lead ≥5 µg/L
  - Wisconsin: 6.3%

**BIRTH OUTCOMES**

- **Low Birth Weight**
  - Percent of births <2500 grams
  - Wisconsin: 7.3%

- **Preterm Birth**
  - Percent of births <37 weeks gestation
  - Wisconsin: 10.3%

**HEALTH INDICATORS**

- **Heat Stress**
  - Rate of ER visits per 100,000 people
  - Wisconsin: 16.5

- **Melanoma**
  - Rate of cases per 100,000 people
  - Wisconsin: 18.4

- **Lung Cancer**
  - Rate of cases per 100,000 people
  - Wisconsin: 62.0

- **Asthma**
  - Rate of ER visits per 100,000 people*
  - Wisconsin: 376.0

---

*This indicator is represented per 10,000 people on the data portal.*

Wisconsin Department of Health Services | Division of Public Health | Bureau of Environmental and Occupational Health

Wisconsin Environmental Public Health Tracking Program
dhs.wi.gov/epht | dhstracking@wi.gov | 608-267-2488
### DASHBOARD DATA DETAILS

Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at [dhs.wi.gov/epht](http://dhs.wi.gov/epht). For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at [dhs.wisconsin.gov/epht/glossary.htm](http://dhs.wisconsin.gov/epht/glossary.htm).

<table>
<thead>
<tr>
<th>AIR QUALITY</th>
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<tbody>
<tr>
<td>Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings</td>
<td></td>
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<tr>
<td>Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention</td>
<td>Year displayed: 2011</td>
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<tr>
<th>WATER QUALITY</th>
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<tbody>
<tr>
<td>Arsenic and Nitrate: Measured concentrations from public water systems</td>
<td></td>
</tr>
<tr>
<td>Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention</td>
<td>Years displayed: Averaged data from 2011-2013</td>
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<tr>
<td>Childhood Lead Poisoning: Reported blood lead test results</td>
<td></td>
</tr>
<tr>
<td>Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services</td>
<td></td>
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<tr>
<td>Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.</td>
<td>Year displayed: 2014</td>
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<td>Low Birth Weight and Preterm Birth: Wisconsin birth certificate data</td>
<td></td>
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<td>Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services</td>
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<td>Heat Stress: Age-adjusted rate of emergency room visits related to heat stress</td>
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<tr>
<td>Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services</td>
<td>Years displayed: Averaged data from 2009-2013</td>
</tr>
</tbody>
</table>

| Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers |  |
| Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services | Years displayed: Averaged data from 2006-2010 |

| Asthma: Age-adjusted rate of emergency room visits related to asthma |  |
| Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention | Year displayed: 2012 |
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

**OZONE**

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit [dhs.wisconsin.gov/epht/criteriapollutants.htm](http://dhs.wisconsin.gov/epht/criteriapollutants.htm).
WATER QUALITY  RUSK COUNTY

Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

ARSENIC AND NITRATE
MEAN CONCENTRATION LEVELS IN PUBLIC WATER (2011-2013)

PUBLIC DRINKING WATER
About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Home Hazards  Rusk County

Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**20.6**

**Carbon Monoxide Poisoning**
Rate of ER Visits Related to CO per 100,000 People

- Statewide: 8.2

**1.1%**

**Childhood Lead Poisoning**
Percent of Tested Children with Blood Lead ≥5 µg/dL

- Statewide: 6.3%

**Carbon Monoxide Poisoning**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.

**Take a Closer Look at the Data:**
dhs.wi.gov/epht
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body. There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

LOW BIRTH WEIGHT

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit [dhs.wi.gov/epht/premature.htm](http://dhs.wi.gov/epht/premature.htm).

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at [dhs.wisconsin.gov/epht/birthdefects.htm](http://dhs.wisconsin.gov/epht/birthdefects.htm).
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**HEAT STRESS**

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.
DATA DETAILS

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$)

**Measures:** Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency's National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

Ozone

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2001-2011, data from 2011 are displayed on the dashboard

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heart Attack

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

HEALTH INDICATORS

Asthma

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

Lung Cancer and Melanoma

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
WATER QUALITY

Arsenic
Measure: Mean concentration of arsenic (µg/L) in public drinking water
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013
Data details: Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

Nitrate
Measure: Mean concentration of nitrate (mg/L) in public drinking water
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013
Data details: Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

HOME HAZARDS

Lead Poisoning
Measure: Percent of children tested who had a blood lead level ≥ 5 µg/dL
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2001-2014, data from 2014 displayed on dashboard
Data details: Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

Carbon Monoxide Poisoning
Measure: Annual average rate of emergency room visits, age adjusted per 100,000 people
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2004-2013, data averaged from 2009-2013 displayed on dashboard
Data details: This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825 ,E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

BIRTH OUTCOMES

Low Birth Weight
Measure: Percentage of babies weighing <2,500 grams at birth among all babies born to county residents
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2002-2013, data from 2011-2013 are displayed on dashboard
Data details: Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

Preterm Birth
Measure: Percentage of babies born at <37 weeks gestation among all babies born to county residents
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2002-2013, data from 2011-2013 are displayed on dashboard
Data details: Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD  
Principal Investigator, Chief Medical Officer  
608-266-1253  
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD  
Senior Epidemiologist  
608-267-9752  
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA  
Evaluator  
608-267-3830  
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON  
IS Systems Development Services Professional  
608-266-6696  
joseph.olson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS  
Program Manager  
608-267-3811  
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES  
Communications and Education Coordinator  
608-267-2488  
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH  
Epidemiologist  
608-266-7897  
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD  
Chief, Health Hazard Evaluation Section  
608-266-7480  
mark.werner@dhs.wisconsin.gov

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HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, **Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.**

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? **Tell us about it!**

dhstracking@wi.gov
608-267-2488
SAUK COUNTY
DASHBOARD  |  2015 ENVIRONMENTAL HEALTH PROFILE

AIR QUALITY

Ozone

- Annual days above standard
- Wisconsin: 0.7

Particulate Matter 2.5

- Annual days above standard
- Wisconsin: 0.1

WATER QUALITY

Arsenic

- Average concentration in µg/L
- Wisconsin: 1.3

Nitrate

- Average concentration in mg/L
- Wisconsin: 1.5

HOME HAZARDS

Carbon Monoxide (CO)

- Rate of ER visits per 100,000 people
- Wisconsin: 8.2

Childhood Lead Poisoning

- Percent with blood lead ≥5 µg/L
- Wisconsin: 6.3%

BIRTH OUTCOMES

Low Birth Weight

- Percent of births <2500 grams
- Wisconsin: 7.3%

Preterm Birth

- Percent of births <37 weeks gestation
- Wisconsin: 10.3%

HEALTH INDICATORS

Heat Stress

- Rate of ER visits per 100,000 people
- Wisconsin: 16.5

Melanoma

- Rate of cases per 100,000 people
- Wisconsin: 18.4

Lung Cancer

- Rate of cases per 100,000 people
- Wisconsin: 62.0

Asthma

- Rate of ER visits per 100,000 people*
- Wisconsin: 376.0

*This indicator is represented per 10,000 people on the data portal. 
Above state value  At or below state value  Data are suppressed  References on next page
Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.

**AIR QUALITY**

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2011

**WATER QUALITY**

Arsenic and Nitrate: Measured concentrations from public water systems
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013

**HOME HAZARDS**

Childhood Lead Poisoning: Reported blood lead test results
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.
Year displayed: 2014

Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

**BIRTH OUTCOMES**

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2011-2013

**HEALTH INDICATORS**

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2006-2010

Asthma: Age-adjusted rate of emergency room visits related to asthma
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

### Ozone

- **Sauk County**: 0.0
- **Wisconsin Average**: 0.7

### Particulate Matter 2.5

- **Sauk County**: 0.0
- **Wisconsin Average**: 0.1

### Particulate Matter 2.5 Annual Average (µg/m3)

- **Sauk County**: 9.9
- **Wisconsin Average**: 9.4

#### Ozone

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit dhs.wisconsin.gov/epht/criteriapollutants.htm.
WATER QUALITY  SAUK COUNTY

Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

PUBLIC DRINKING WATER

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.

ARSENIC AND NITRATE
MEAN CONCENTRATION LEVELS IN PUBLIC WATER (2011-2013)

- **Arsenic**
  - Average concentration: 0.3 µg/L
  - Statewide average: 1.3 µg/L

- **Nitrate**
  - Average concentration: 2.6 mg/L
  - Statewide average: 1.5 mg/L

**Maximum contaminant level**
- Arsenic: 10 µg/L
- Nitrate: 10 mg/L

**Legend**
- ‣ Above state value
- ■ At or below state value
- ^ Suppressed
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

LOW BIRTH WEIGHT

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
**PRETERM BIRTH**

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit [dhs.wi.gov/epht/premature.htm](http://dhs.wi.gov/epht/premature.htm).

**BIRTH DEFECTS**

A birth defect is a problem that happens while the baby is developing in the mother's body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby's body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at [dhs.wisconsin.gov/epht/birthdefects.htm](http://dhs.wisconsin.gov/epht/birthdefects.htm).
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

- **Heat Stress**: 28.2 rate of ER visits per 100,000 people (Statewide: 16.5)
- **Melanoma**: 7.2 rate of cases per 100,000 people (Statewide: 18.4)
- **Lung Cancer**: 48.5 rate of cases per 100,000 people (Statewide: 62)
- **Asthma**: 287.0 rate of ER visits per 100,000 people (Statewide: 376)

**Heat Stress**

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.
Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.
DATA DETAILS

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$)

**Measures:** Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

Ozone

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heart Attack

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

HEALTH INDICATORS

Asthma

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

Lung Cancer and Melanoma

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
**WATER QUALITY**

**Arsenic**
- **Measure**: Mean concentration of arsenic (µg/L) in public drinking water
- **Source**: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed**: Averaged data from 2011-2013
- **Data details**: Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**
- **Measure**: Mean concentration of nitrate (mg/L) in public drinking water
- **Source**: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed**: Averaged data from 2011-2013
- **Data details**: Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, we aggregated three years of data (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**HOME HAZARDS**

**Lead Poisoning**
- **Measure**: Percent of children tested who had a blood lead level ≥ 5 µg/dL
- **Source**: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed**: 2001-2014, data from 2014 displayed on dashboard
- **Data details**: Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**
- **Measure**: Annual average rate of emergency room visits, age adjusted per 100,000 people
- **Source**: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed**: 2004-2013, data averaged from 2009-2013 displayed on dashboard
- **Data details**: This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825,E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**BIRTH OUTCOMES**

**Low Birth Weight**
- **Measures**: Percentage of babies weighing <2,500 grams at birth among all babies born to county residents
- **Source**: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed**: 2002-2013, data from 2011-2013 are displayed on dashboard
- **Data details**: Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**
- **Measure**: Percentage of babies born at <37 weeks gestation among all babies born to county residents
- **Source**: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed**: 2002-2013, data from 2011-2013 are displayed on dashboard
- **Data details**: Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD
Principal Investigator, Chief Medical Officer
608-266-1253
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD
Senior Epidemiologist
608-267-9752
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA
Evaluator
608-267-3830
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON
IS Systems Development Services Professional
608-266-6696
josephaolson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS
Program Manager
608-267-3811
jennifer.camponesch@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES
Communications and Education Coordinator
608-267-2488
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH
Epidemiologist
608-266-7897
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD
Chief, Health Hazard Evaluation Section
608-266-7480
mark.werner@dhs.wisconsin.gov

SPECIAL THANKS
Iowa Environmental Public Health Tracking Program
Wisconsin Environmental Public Health Tracking Program’s Technical Advisory Group
Jeff Phillips, Bureau of Environmental and Occupational Health, Wisconsin Department of Health Services
Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services
Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
SAWYER COUNTY ENVIRONMENTAL HEALTH PROFILE

WISCONSIN ENVIRONMENTAL PUBLIC HEALTH TRACKING PROGRAM

2015
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital’s community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
# SAWYER COUNTY DASHBOARD | 2015 ENVIRONMENTAL HEALTH PROFILE

## AIR QUALITY

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Sawyer County</th>
<th>Wisconsin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozone</td>
<td>0.0</td>
<td>0.7</td>
</tr>
<tr>
<td>Particulate Matter 2.5</td>
<td>0.0</td>
<td>0.1</td>
</tr>
</tbody>
</table>

## WATER QUALITY

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Sawyer County</th>
<th>Wisconsin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic</td>
<td>0.9</td>
<td>1.3</td>
</tr>
<tr>
<td>Nitrate</td>
<td>0.4</td>
<td>1.5</td>
</tr>
</tbody>
</table>

## HOME HAZARDS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Sawyer County</th>
<th>Wisconsin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon Monoxide (CO)</td>
<td>7.5</td>
<td>8.7</td>
</tr>
<tr>
<td>Childhood Lead Poisoning</td>
<td>0.0%</td>
<td>6.3%</td>
</tr>
</tbody>
</table>

## BIRTH OUTCOMES

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Sawyer County</th>
<th>Wisconsin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Birth Weight</td>
<td>5.2%</td>
<td>7.3%</td>
</tr>
<tr>
<td>Preterm Birth</td>
<td>7.8%</td>
<td>10.3%</td>
</tr>
</tbody>
</table>

## HEALTH INDICATORS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Sawyer County</th>
<th>Wisconsin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat Stress</td>
<td>23.0</td>
<td>16.5</td>
</tr>
<tr>
<td>Melanoma</td>
<td>25.8</td>
<td>18.4</td>
</tr>
<tr>
<td>Lung Cancer</td>
<td>68.3</td>
<td>62.0</td>
</tr>
<tr>
<td>Asthma</td>
<td>677.0</td>
<td>376.0</td>
</tr>
</tbody>
</table>

*This indicator is represented per 10,000 people on the data portal.*
## DASHBOARD DATA DETAILS

Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at [dhs.wi.gov/epht](http://dhs.wi.gov/epht). For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at [dhs.wisconsin.gov/epht/glossary.htm](http://dhs.wisconsin.gov/epht/glossary.htm).

### AIR QUALITY

Particulate Matter 2.5 ($\text{PM}_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2011

### WATER QUALITY

Arsenic and Nitrate: Measured concentrations from public water systems  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Years displayed: Averaged data from 2011-2013

### HOME HAZARDS

Childhood Lead Poisoning: Reported blood lead test results  
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.  
Year displayed: 2014  
Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Due to small numbers, aggregated rates were calculated for this county.  
Years displayed in this profile: Aggregated data from 2004-2013

### BIRTH OUTCOMES

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2011-2013

### HEALTH INDICATORS

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013  
Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers  
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2006-2010  
Asthma: Age-adjusted rate of emergency room visits related to asthma  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

### Ozone

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit dhs.wisconsin.gov/epht/criteriapollutants.htm.
Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

PUBLIC DRINKING WATER

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL. This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother's ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

**LOW BIRTH WEIGHT**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sawyer County</td>
<td>Wisconsin Average</td>
<td>Confidence Interval</td>
<td>Confidence Interval</td>
</tr>
</tbody>
</table>

Above state value
At or below state value
^ Suppressed
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

### Health Indicators

- **Heat Stress**
  - Rate of ER visits per 100,000 people
  - Sawyer County: 23.0
  - Wisconsin Average: 16.5

- **Melanoma**
  - Rate of cases per 100,000 people
  - Sawyer County: 25.8
  - Wisconsin Average: 18.4

- **Lung Cancer**
  - Rate of cases per 100,000 people
  - Sawyer County: 68.3
  - Wisconsin Average: 62

- **Asthma**
  - Rate of ER visits per 100,000 people
  - Sawyer County: 677.0
  - Wisconsin Average: 376

### Heat Stress

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit [bit.ly/cdcheatstress](https://bit.ly/cdcheatstress).

**HEALTH INDICATORS**

**SAWYER COUNTY**

Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.
**MELANOMA AND LUNG CANCER**

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

### MELANOMA
**RATE OF CASES PER 100,000 PEOPLE**

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit [dhs.wisconsin.gov/epht/melanoma.htm](http://dhs.wisconsin.gov/epht/melanoma.htm). To read more about lung cancer, visit [dhs.wisconsin.gov/epht/lung.htm](http://dhs.wisconsin.gov/epht/lung.htm).

### LUNG CANCER
**RATE OF CASES PER 100,000 PEOPLE**

### ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit [dhs.wisconsin.gov/asthma/Index.htm](http://dhs.wisconsin.gov/asthma/Index.htm).
**Data Details**

### Air Quality

**Particulate Matter 2.5 (PM2.5)**

**Measures:** Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard  
**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency's National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

**Ozone**

**Measure:** Number of days above standard set by the US Environmental Protection Agency  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** 2002-2011  
**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

### Health Indicators

**Asthma**

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard  
**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**Lung Cancer and Melanoma**

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people  
**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard  
**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**Heat Stress**

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard  
**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
**DATA DETAILS**

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### WATER QUALITY

#### Arsenic

**Measure:** Mean concentration of arsenic (µg/L) in public drinking water

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** Averaged data from 2011-2013

**Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

#### Nitrate

**Measure:** Mean concentration of nitrate (mg/L) in public drinking water

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** Averaged data from 2011-2013

**Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

### HOME HAZARDS

#### Lead Poisoning

**Measure:** Percent of children tested who had a blood lead level ≥ 5 µg/dL

**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2001-2014, data from 2014 displayed on dashboard

**Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

#### Carbon Monoxide Poisoning

**Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data aggregated from 2004-2013 displayed on the dashboard

**Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. Due to small numbers, aggregated rates were calculated for this county.

### BIRTH OUTCOMES

#### Low Birth Weight

**Measure:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard

**Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

#### Preterm Birth

**Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard

**Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
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SPECIAL THANKS
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Wisconsin Environmental Public Health Tracking Program’s Technical Advisory Group
Jeff Phillips, Bureau of Environmental and Occupational Health, Wisconsin Department of Health Services
Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services
Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

**COMMUNITY HEALTH ASSESSMENTS**
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

**ACCREDITATION**
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

**GRANT PROPOSALS**
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

**EDUCATION AND OUTREACH**
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

**POLICY DEVELOPMENT**
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.
SHAWANO COUNTY
DASHBOARD | 2015 ENVIRONMENTAL HEALTH PROFILE

AIR QUALITY

Ozone
0.0 Annual days above standard
Wisconsin: 0.7

Particulate Matter 2.5
0.0 Annual days above standard
Wisconsin: 0.1

WATER QUALITY

Arsenic
6.2 Average concentration in µg/L
Wisconsin: 1.3

Nitrate
2.3 Average concentration in mg/L
Wisconsin: 1.5

HOME HAZARDS

Carbon Monoxide (CO)
15.3 Rate of ER visits per 100,000 people
Wisconsin: 8.2

Childhood Lead Poisoning
3.6% Percent with blood lead ≥5 µg/L
Wisconsin: 6.3%

BIRTH OUTCOMES

Low Birth Weight
7.4% Percent of births <2500 grams
Wisconsin: 7.3%

Preterm Birth
10.3% Percent of births <37 weeks gestation
Wisconsin: 10.3%

HEALTH INDICATORS

Heat Stress
28.2 Rate of ER visits per 100,000 people
Wisconsin: 16.5

Lung Cancer
57.4 Rate of cases per 100,000 people
Wisconsin: 62.0

Melanoma
20.6 Rate of cases per 100,000 people
Wisconsin: 18.4

Asthma
422.0 Rate of ER visits per 100,000 people*
Wisconsin: 376.0

*This indicator is represented per 10,000 people on the data portal.

Above state value | At or below state value | Data are suppressed | References on next page

WISCONSIN ENVIRONMENTAL PUBLIC HEALTH TRACKING PROGRAM
dhs.wi.gov/epht | dhstracking@wi.gov | 608-267-2488
Wisconsin Department of Health Services | Division of Public Health | Bureau of Environmental and Occupational Health
**DASHBOARD DATA DETAILS**

Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at [dhs.wi.gov/epht](http://dhs.wi.gov/epht). For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at [dhs.wisconsin.gov/epht/glossary.htm](http://dhs.wisconsin.gov/epht/glossary.htm).

### AIR QUALITY

Particulate Matter 2.5 (PM\textsubscript{2.5}) and Ozone: Monitored and modeled estimates of air quality readings
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2011

### WATER QUALITY

Arsenic and Nitrate: Measured concentrations from public water systems
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013

### HOME HAZARDS

Childhood Lead Poisoning: Reported blood lead test results
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.
Year displayed: 2014

Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

### BIRTH OUTCOMES

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2011-2013

### HEALTH INDICATORS

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2006-2010

Asthma: Age-adjusted rate of emergency room visits related to asthma
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM_{2.5})" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

### Air Quality: Shawano County

- **Ozone**: 0.0
  - Annual Days Above Standard
  - Statewide: 0.7

- **Particulate Matter 2.5**: 0.0
  - Annual Days Above Standard
  - Statewide: 0.1

- **Particulate Matter 2.5**: 9.4
  - Annual Average (µg/m³)
  - Statewide: 9.4

#### Ozone

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit [dhs.wisconsin.gov/epht/criteriapollutants.htm](http://dhs.wisconsin.gov/epht/criteriapollutants.htm).
WATER QUALITY
SHAWANO COUNTY

Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

ARSENIC AND NITRATE
MEAN CONCENTRATION LEVELS IN PUBLIC WATER (2011-2013)

- **6.2**
  - ARSENIC
  - AVERAGE CONCENTRATION IN PUBLIC WATER (µg/L)
  - STATEWIDE: 1.3

- **2.3**
  - NITRATE
  - AVERAGE CONCENTRATION IN PUBLIC WATER (mg/L)
  - STATEWIDE: 1.5

PUBLIC DRINKING WATER

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit [dhs.wi.gov/epht](http://dhs.wi.gov/epht).

TAKE A CLOSER LOOK AT THE DATA:
[dhs.wi.gov/epht](http://dhs.wi.gov/epht)
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.

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Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

- **15.3**
  - CARBON MONOXIDE POISONING
  - RATE OF ER VISITS RELATED TO CO PER 100,000
  - STATEWIDE: 8.2

- **3.6%**
  - CHILDHOOD LEAD POISONING
  - PERCENT OF TESTED CHILDREN WITH BLOOD LEAD ≥5 µg/dL
  - STATEWIDE: 6.3%

**CARBON MONOXIDE**

RATE OF ER VISITS PER 100,000 PEOPLE

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit [dhs.wisconsin.gov/air/co.htm](http://dhs.wisconsin.gov/air/co.htm).
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013. Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother's body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby's body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**Heat Stress**

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.

**Melanoma**

Rate of cases per 100,000 people

- **Shawano County**: 20.6
- **Statewide**: 18.4

**Lung Cancer**

Rate of cases per 100,000 people

- **Shawano County**: 57.4
- **Statewide**: 62

**Asthma**

Rate of ER visits per 100,000 people

- **Shawano County**: 422.0
- **Statewide**: 376

**Take a Closer Look at the Data:**

dhs.wi.gov/epht
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.

ASTHMA
RATE OF ER VISITS PER 100,000 PEOPLE
**DATA DETAILS**

**AIR QUALITY**

**Particulate Matter 2.5 (PM$_{2.5}$)**

**Measures:** Annual Average PM$_{2.5}$ ($\mu$g/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency's National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 $\mu$g/m$^3$.

**Ozone**

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency's National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

**Heart Attack**

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**HEALTH INDICATORS**

**Asthma**

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

**Lung Cancer and Melanoma**

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**Heat Stress**

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
DATA DETAILS

WATER QUALITY

**Arsenic**

**Measures:** Mean concentration of arsenic (µg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**

**Measure:** Mean concentration of nitrate (mg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

HOME HAZARDS

**Lead Poisoning**

**Measure:** Percent of children tested who had a blood lead level ≥ 5 µg/dL  
**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2001-2014, data from 2014 displayed on dashboard  
**Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**

**Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard  
**Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

BIRTH OUTCOMES

**Low Birth Weight**

**Measures:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**

**Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENIY ANDERSON, MD  
Principal Investigator, Chief Medical Officer  
608-266-1253  
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD  
Senior Epidemiologist  
608-267-9752  
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA  
Evaluator  
608-267-3830  
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON  
IS Systems Development Services Professional  
608-266-6696  
josepha.olson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS  
Program Manager  
608-267-3811  
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES  
Communications and Education Coordinator  
608-267-2488  
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH  
Epidemiologist  
608-266-7897  
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD  
Chief, Health Hazard Evaluation Section  
608-266-7480  
mark.werner@dhs.wisconsin.gov

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How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
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<td><strong>WATER QUALITY</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Arsenic</strong></td>
<td>Average concentration in µg/L</td>
</tr>
<tr>
<td></td>
<td>Wisconsin: 1.3</td>
</tr>
<tr>
<td><strong>Nitrate</strong></td>
<td>Average concentration in mg/L</td>
</tr>
<tr>
<td></td>
<td>Wisconsin: 1.5</td>
</tr>
<tr>
<td><strong>HOME HAZARDS</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Carbon Monoxide (CO)</strong></td>
<td>Rate of ER visits per 100,000 people</td>
</tr>
<tr>
<td></td>
<td>Wisconsin: 8.2</td>
</tr>
<tr>
<td><strong>Childhood Lead Poisoning</strong></td>
<td>Percent with blood lead ≥5 µg/L</td>
</tr>
<tr>
<td></td>
<td>Wisconsin: 6.3%</td>
</tr>
<tr>
<td><strong>BIRTH OUTCOMES</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Low Birth Weight</strong></td>
<td>Percent of births &lt;2500 grams</td>
</tr>
<tr>
<td></td>
<td>Wisconsin: 7.3%</td>
</tr>
<tr>
<td><strong>Preterm Birth</strong></td>
<td>Percent of births &lt;37 weeks gestation</td>
</tr>
<tr>
<td></td>
<td>Wisconsin: 10.3%</td>
</tr>
<tr>
<td><strong>HEALTH INDICATORS</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Heat Stress</strong></td>
<td>Rate of ER visits per 100,000 people</td>
</tr>
<tr>
<td></td>
<td>Wisconsin: 16.5</td>
</tr>
<tr>
<td><strong>Melanoma</strong></td>
<td>Rate of cases per 100,000 people</td>
</tr>
<tr>
<td></td>
<td>Wisconsin: 18.4</td>
</tr>
<tr>
<td><strong>Lung Cancer</strong></td>
<td>Rate of cases per 100,000 people</td>
</tr>
<tr>
<td></td>
<td>Wisconsin: 62.0</td>
</tr>
<tr>
<td><strong>Asthma</strong></td>
<td>Rate of ER visits per 100,000 people*</td>
</tr>
<tr>
<td></td>
<td>Wisconsin: 376.0</td>
</tr>
</tbody>
</table>

*This indicator is represented per 10,000 people on the data portal.*

Above state value | At or below state value | Data are suppressed | References on next page
DASHBOARD DATA DETAILS

Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2011

WATER QUALITY

Arsenic and Nitrate: Measured concentrations from public water systems
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013

HOME HAZARDS

Childhood Lead Poisoning: Reported blood lead test results
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.
Year displayed: 2014

Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

BIRTH OUTCOMES

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2011-2013

HEALTH INDICATORS

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2006-2010

Asthma: Age-adjusted rate of emergency room visits related to asthma
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

**OZONE**

ANNUAL DAYS ABOVE STANDARD

STATEWIDE: 0.7

**PARTICULATE MATTER 2.5**

ANNUAL DAYS ABOVE STANDARD

STATEWIDE: 0.1

STATEWIDE: 9.4

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit [dhs.wisconsin.gov/epht/criteriapollutants.htm](http://dhs.wisconsin.gov/epht/criteriapollutants.htm).
WATER QUALITY SHEBOYGAN COUNTY

Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

ARSENIC AND NITRATE MEAN CONCENTRATION LEVELS IN PUBLIC WATER (2011-2013)

PUBLIC DRINKING WATER

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.

**CARBON MONOXIDE**

**RATE OF ER VISITS PER 100,000 PEOPLE**

**CHILDHOOD LEAD POISONING**

PERCENT OF TESTED CHILDREN WITH BLOOD LEAD ≥ 5 µg/dL

**STATEWIDE:** 6.3%

**SHEBOYGAN COUNTY**
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

### LOW BIRTH WEIGHT

- **5.2%**
  - Low birth weight
  - Percent births <2,500 grams
  - Statewide: 7.3%

- **9.7%**
  - Preterm birth
  - Percent births <37 weeks gestation
  - Statewide: 10.3%

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
**PRETERM BIRTH**

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit [dhs.wi.gov/epht/premature.htm](http://dhs.wi.gov/epht/premature.htm).

**BIRTH DEFECTS**

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at [dhs.wisconsin.gov/epht/birthdefects.htm](http://dhs.wisconsin.gov/epht/birthdefects.htm).
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.
Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/eph/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/eph/lung.htm.

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.
Particulate Matter 2.5 (PM$_{2.5}$)

**Measures:** Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

Ozone

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2001-2011, data from 2011 are displayed on the dashboard

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heart Attack

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Asthma

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. For use in this profile, it is converted to per 10,000 people.

Lung Cancer and Melanoma

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
DATA DETAILS

WATER QUALITY

### Arsenic

**Measure:** Mean concentration of arsenic (µg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

### Nitrate

**Measure:** Mean concentration of nitrate (mg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

HOME HAZARDS

### Lead Poisoning

**Measure:** Percent of children tested who had a blood lead level ≥ 5 µg/dL  
**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2001-2014, data from 2014 displayed on dashboard  
**Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

### Carbon Monoxide Poisoning

**Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard  
**Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

BIRTH OUTCOMES

### Low Birth Weight

**Measures:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

### Preterm Birth

**Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
WISCONSIN ENVIRONMENTAL PUBLIC HEALTH TRACKING PROGRAM

HENRY ANDERSON, MD
Principal Investigator, Chief Medical Officer
608-266-1253
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD
Senior Epidemiologist
608-267-9752
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA
Evaluator
608-267-3830
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON
IS Systems Development Services Professional
608-266-6696
josephaolson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS
Program Manager
608-267-3811
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES
Communications and Education Coordinator
608-267-2488
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH
Epidemiologist
608-266-7897
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD
Chief, Health Hazard Evaluation Section
608-266-7480
mark.werner@dhs.wisconsin.gov

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Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services
Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
## Air Quality

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<tr>
<th>Indicator</th>
<th>2015 Value</th>
<th>Wisconsin Value</th>
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<td>Ozone: Annual days above standard</td>
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<td>0.7</td>
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<td>Particulate Matter 2.5: Annual days above standard</td>
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## Water Quality

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<th>2015 Value</th>
<th>Wisconsin Value</th>
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<tbody>
<tr>
<td>Arsenic: Average concentration in µg/L</td>
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<td>1.3</td>
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<tr>
<td>Nitrate: Average concentration in mg/L</td>
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## Home Hazards

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<tr>
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<th>Wisconsin Value</th>
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<tr>
<td>Carbon Monoxide (CO): Rate of ER visits per 100,000 people</td>
<td>6.2</td>
<td>8.2</td>
</tr>
<tr>
<td>Childhood Lead Poisoning: Percent with blood lead ≥5 µg/L</td>
<td>0.7%</td>
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## Birth Outcomes

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<tr>
<th>Indicator</th>
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<tr>
<td>Low Birth Weight: Percent of births &lt;2500 grams</td>
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## Health Indicators

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<tr>
<th>Indicator</th>
<th>2015 Value</th>
<th>Wisconsin Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat Stress: Rate of ER visits per 100,000 people</td>
<td>17.0</td>
<td>16.5</td>
</tr>
<tr>
<td>Melanoma: Rate of cases per 100,000 people</td>
<td>11.4</td>
<td>18.4</td>
</tr>
<tr>
<td>Lung Cancer: Rate of cases per 100,000 people</td>
<td>34.9</td>
<td>62.0</td>
</tr>
<tr>
<td>Asthma: Rate of ER visits per 100,000 people*</td>
<td>239.0</td>
<td>376.0</td>
</tr>
</tbody>
</table>

*This indicator is represented per 10,000 people on the data portal.

Above state value  | At or below state value  | Data are suppressed  | References on next page
DASHBOARD DATA DETAILS

Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2011

WATER QUALITY

Arsenic and Nitrate: Measured concentrations from public water systems
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013

HOME HAZARDS

Childhood Lead Poisoning: Reported blood lead test results
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.
Year displayed: 2014
Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

BIRTH OUTCOMES

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2011-2013

HEALTH INDICATORS

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013
Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2006-2010
Asthma: Age-adjusted rate of emergency room visits related to asthma
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit dhs.wisconsin.gov/epht/criteriapollutants.htm.

PARTICULATE MATTER 2.5
ANNUAL AVERAGE
($\mu$g/m$^3$)

HEART ATTACK HOSPITALIZATIONS
Rate per 10,000 people

ASTHMA EMERGENCY ROOM VISITS
Rate per 100,000 people
Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

### Public Drinking Water

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.

**ArSENIC AND NItrATE**

**Mean Concentration Levels in Public Water (2011-2013)**
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

ARSENIC IN PRIVATE WELLS
AVERAGE CONCENTRATION (µg/L)

NITRATE IN PRIVATE WELLS
AVERAGE CONCENTRATION (mg/L)

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit [dhs.wisconsin.gov/air/co.htm](http://dhs.wisconsin.gov/air/co.htm).

**CHILDHOOD LEAD POISONING**

PERCENT OF TESTED CHILDREN WITH BLOOD LEAD ≥5 µg/dL

STATEWIDE: 6.3%

- Above state value
- At or below state value
- Suppressed
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body. There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level.

For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.
Reproduction is complex, and many factors affect a mother's ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

LOW BIRTH WEIGHT

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013. Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/prenat.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

HEAT STRESS
RATE OF ER VISITS
PER 100,000 PEOPLE
STATEWIDE: 16.5

MELANOMA
RATE OF CASES
PER 100,000 PEOPLE
STATEWIDE: 18.4

LUNG CANCER
RATE OF CASES
PER 100,000 PEOPLE
STATEWIDE: 62

ASTHMA
RATE OF ER VISITS
PER 100,000 PEOPLE
STATEWIDE: 376

HEAT STRESS
Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.

ASTHMA
RATE OF ER VISITS PER 100,000 PEOPLE

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.
DATA DETAILS

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$)

**Measures:** Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

Ozone

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2001-2011, data from 2011 are displayed on the dashboard

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heart Attack

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

HEALTH INDICATORS

Asthma

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

Lung Cancer and Melanoma

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. For data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
DATA DETAILS

WATER QUALITY

Arsenic

**Measure:** Mean concentration of arsenic (µg/L) in public drinking water

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** Averaged data from 2011-2013

**Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

Nitrate

**Measure:** Mean concentration of nitrate (mg/L) in public drinking water

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** Averaged data from 2011-2013

**Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

HOME HAZARDS

Lead Poisoning

**Measure:** Percent of children tested who had a blood lead level ≥ 5 µg/dL

**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2001-2014, data from 2014 displayed on dashboard

**Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

Carbon Monoxide Poisoning

**Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard

**Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

BIRTH OUTCOMES

Low Birth Weight

**Measures:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard

**Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

Preterm Birth

**Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard

**Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD  
Principal Investigator, Chief Medical Officer  
608-266-1253  
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD  
Senior Epidemiologist  
608-267-9752  
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA  
Evaluator  
608-267-3830  
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON  
IS Systems Development Services Professional  
608-266-6696  
josephaolson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS  
Program Manager  
608-267-3811  
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES  
Communications and Education Coordinator  
608-267-2488  
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH  
Epidemiologist  
608-266-7897  
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD  
Chief, Health Hazard Evaluation Section  
608-266-7480  
mark.werner@dhs.wisconsin.gov

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Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services  
Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
TAYLOR COUNTY
DASHBOARD | 2015 ENVIRONMENTAL HEALTH PROFILE

**AIR QUALITY**

- **Ozone**
  - Annual days above standard
  - Wisconsin: 0.7

- **Particulate Matter 2.5**
  - Annual days above standard
  - Wisconsin: 0.1

**WATER QUALITY**

- **Arsenic**
  - Average concentration in µg/L
  - Wisconsin: 1.3

- **Nitrate**
  - Average concentration in mg/L
  - Wisconsin: 1.5

**HOME HAZARDS**

- **Carbon Monoxide (CO)**
  - Rate of ER visits per 100,000 people
  - Wisconsin: 8.2

- **Childhood Lead Poisoning**
  - Percent with blood lead ≥ 5 µg/L
  - Wisconsin: 6.3%

**BIRTH OUTCOMES**

- **Low Birth Weight**
  - Percent of births <2500 grams
  - Wisconsin: 7.3%

- **Preterm Birth**
  - Percent of births <37 weeks gestation
  - Wisconsin: 10.3%

**HEALTH INDICATORS**

- **Heat Stress**
  - Rate of ER visits per 100,000 people
  - Wisconsin: 16.5

- **Melanoma**
  - Rate of cases per 100,000 people
  - Wisconsin: 18.4

- **Lung Cancer**
  - Rate of cases per 100,000 people
  - Wisconsin: 62.0

- **Asthma**
  - Rate of ER visits per 100,000 people*
  - Wisconsin: 376.0

*This indicator is represented per 10,000 people on the data portal.

WISCONSIN ENVIRONMENTAL PUBLIC HEALTH TRACKING PROGRAM
dhs.wi.gov/epht | dhstracking@wi.gov | 608-267-2488
Wisconsin Department of Health Services | Division of Public Health | Bureau of Environmental and Occupational Health
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Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM\textsubscript{2.5})" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

### OZONE

- **Annual Days Above Standard**
  - **Taylor County**: 0.0
  - **Wisconsin Average**: 0.7

### PARTICULATE MATTER 2.5

- **Annual Days Above Standard**
  - **Taylor County**: 0.0
  - **Wisconsin Average**: 0.1

- **Annual Average (µg/m\textsuperscript{3})**
  - **Taylor County**: 8.3
  - **Wisconsin Average**: 9.4

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit [dhs.wisconsin.gov/epht/criteriapollutants.htm](http://dhs.wisconsin.gov/epht/criteriapollutants.htm).
Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

**PUBLIC DRINKING WATER**

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit [dhs.wi.gov/epht](http://dhs.wi.gov/epht).

**ARSENIC AND NITRATE**

Mean Concentration Levels in Public Water (2011-2013)

- **Arsenic**
  - **Average Concentration in Public Water (µg/L)**: 1.1
  - **Statewide**: 1.3

- **Nitrate**
  - **Average Concentration in Public Water (mg/L)**: 0.7
  - **Statewide**: 1.5

- **Above state value**
- **At or below state value**
- **Suppressed**

For a closer look at the data, visit [dhs.wi.gov/epht](http://dhs.wi.gov/epht).
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

ARSENIC IN PRIVATE WELLS

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

<table>
<thead>
<tr>
<th>Rate of ER Visits Related to CO per 100,000 People</th>
</tr>
</thead>
<tbody>
<tr>
<td>STATEWIDE: 8.2</td>
</tr>
</tbody>
</table>

**CHILDHOOD LEAD POISONING**

<table>
<thead>
<tr>
<th>Percent of Tested Children with Blood Lead ≥5 µg/dL</th>
</tr>
</thead>
<tbody>
<tr>
<td>STATEWIDE: 6.3%</td>
</tr>
</tbody>
</table>

**CARBON MONOXIDE POISONING**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit [dhs.wisconsin.gov/air/co.htm](http://dhs.wisconsin.gov/air/co.htm).
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**HEAT STRESS**

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.

**HEALTH INDICATORS**

Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

- **Heat Stress**
  - Rate of ER Visits per 100,000 People: 10.0
  - Statewide: 16.5

- **Melanoma**
  - Rate of Cases per 100,000 People: 11.6
  - Statewide: 18.4

- **Lung Cancer**
  - Rate of Cases per 100,000 People: 52.4
  - Statewide: 62

- **Asthma**
  - Rate of ER Visits per 100,000 People: 118.0
  - Statewide: 376

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MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.

ASTHMA
RATE OF ER VISITS PER 100,000 PEOPLE
Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations. Data details:

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

### Ozone

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2001-2011, data from 2011 are displayed on the dashboard

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

### Heart Attack

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

### Asthma

**Measure:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. For use in this profile, it is converted to per 10,000 people.

### Lung Cancer and Melanoma

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

### Heat Stress

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
**WATER QUALITY**

**Arsenic**

**Measures:** Mean concentration of arsenic (µg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**

**Measure:** Mean concentration of nitrate (mg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**HOME HAZARDS**

**Lead Poisoning**

**Measure:** Percent of children tested who had a blood lead level ≥ 5 µg/dL  
**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2001-2014, data from 2014 displayed on dashboard  
**Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**

**Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard  
**Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**BIRTH OUTCOMES**

**Low Birth Weight**

**Measures:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**

**Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD
Principal Investigator, Chief Medical Officer
608-266-1253
henry.anderson@dhs.wisconsin.gov

PAUL CREWSWELL, PhD
Senior Epidemiologist
608-267-9752
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA
Evaluator
608-267-3830
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON
IS Systems Development Services Professional
608-266-6696
joseph.olson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS
Program Manager
608-267-3811
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES
Communications and Education Coordinator
608-267-2488
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH
Epidemiologist
608-266-7897
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD
Chief, Health Hazard Evaluation Section
608-266-7480
mark.werner@dhs.wisconsin.gov

SPECIAL THANKS

Iowa Environmental Public Health Tracking Program

Wisconsin Environmental Public Health Tracking Program’s Technical Advisory Group

Jeff Phillips, Bureau of Environmental and Occupational Health, Wisconsin Department of Health Services

Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services

Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
TREMPEALEAU COUNTY ENVIRONMENTAL HEALTH PROFILE 2015

WISCONSIN ENVIRONMENTAL PUBLIC HEALTH TRACKING PROGRAM
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
TREMPEALEAU COUNTY
DASHBOARD  |  2015 ENVIRONMENTAL HEALTH PROFILE

**AIR QUALITY**

### Ozone
- Annual days above standard
- Wisconsin: 0.7
- Trempealeau County: 0.0

### Particulate Matter 2.5
- Annual days above standard
- Wisconsin: 0.1
- Trempealeau County: 0.0

**WATER QUALITY**

### Arsenic
- Average concentration in µg/L
- Wisconsin: 1.3
- Trempealeau County: 0.1

### Nitrate
- Average concentration in mg/L
- Wisconsin: 1.5
- Trempealeau County: 1.9

**HOME HAZARDS**

### Carbon Monoxide (CO)
- Rate of ER visits per 100,000 people
- Wisconsin: 8.2
- Trempealeau County: 18.6

### Childhood Lead Poisoning
- Percent with blood lead ≥5 µg/L
- Wisconsin: 6.3%
- Trempealeau County: 2.7%

**BIRTH OUTCOMES**

### Low Birth Weight
- Percent of births <2500 grams
- Wisconsin: 7.3%
- Trempealeau County: 6.2%

### Preterm Birth
- Percent of births <37 weeks gestation
- Wisconsin: 10.3%
- Trempealeau County: 7.3%

**HEALTH INDICATORS**

### Heat Stress
- Rate of ER visits per 100,000 people
- Wisconsin: 16.5
- Trempealeau County: 22.7

### Melanoma
- Rate of cases per 100,000 people
- Wisconsin: 18.4
- Trempealeau County: 21.0

### Lung Cancer
- Rate of cases per 100,000 people
- Wisconsin: 62.0
- Trempealeau County: 45.8

### Asthma
- Rate of ER visits per 100,000 people*
- Wisconsin: 376.0
- Trempealeau County: 180.0

*This indicator is represented per 10,000 people on the data portal.

References on next page
Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.

**AIR QUALITY**

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2011

**WATER QUALITY**

Arsenic and Nitrate: Measured concentrations from public water systems  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Years displayed: Averaged data from 2011-2013

**HOME HAZARDS**

Childhood Lead Poisoning: Reported blood lead test results  
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.  
Year displayed: 2014  
Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013

**BIRTH OUTCOMES**

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2011-2013

**HEALTH INDICATORS**

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013  
Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers  
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2006-2010  
Asthma: Age-adjusted rate of emergency room visits related to asthma  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

### OZONE

**ANNUAL DAYS ABOVE STANDARD**

<table>
<thead>
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<th>Year</th>
<th>Wisconsin Average</th>
<th>Trempealeau County</th>
</tr>
</thead>
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<td>3.0</td>
</tr>
<tr>
<td>2011</td>
<td>0.5</td>
<td>3.0</td>
</tr>
</tbody>
</table>

**ANNUAL AVERAGE (µg/m3)**

- **Statewide:** 0.1
- **Trempealeau County:** 0.7

**OZONE**
The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.

**PARTICULATE MATTER 2.5**

**ANNUAL DAYS ABOVE STANDARD**

- **Statewide:** 0.7
- **Trempealeau County:** 0.0

**ANNUAL AVERAGE (µg/m3)**

- **Statewide:** 9.4
- **Trempealeau County:** 9.5
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit dhs.wisconsin.gov/epht/criteriapollutants.htm.
Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

### Public Drinking Water

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit [dhs.wi.gov/epht](http://dhs.wi.gov/epht).

### Arsenic and Nitrate

**Mean Concentration Levels in Public Water (2011-2013)**

- **Arsenic**
  - Average Concentration in Public Water (µg/L)
  - **Statewide**: 1.3
  - **Trempealeau County**: 0.1
  - Above state value

- **Nitrate**
  - Average Concentration in Public Water (mg/L)
  - **Statewide**: 1.5
  - **Trempealeau County**: 1.9
  - Above state value

**Take a Closer Look at the Data:**

[dhs.wi.gov/epht](http://dhs.wi.gov/epht)
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

ARSENIC IN PRIVATE WELLS
AVERAGE CONCENTRATION (µg/L)

Nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit [dhs.wisconsin.gov/air/co.htm](http://dhs.wisconsin.gov/air/co.htm).

**HOME HAZARDS TREMPEALEAU COUNTY**

**CARBON MONOXIDE**

**RATE OF ER VISITS PER 100,000 PEOPLE**

- **Trempealeau County:** 18.6
- **Wisconsin Average:** 8.2

**CHILDHOOD LEAD**

**POISONING**

**PERCENT OF TESTED CHILDREN WITH BLOOD LEAD ≥5 µg/dL**

- **Trempealeau County:** 2.7%
- **Wisconsin Average:** 6.3%
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

LOW BIRTH WEIGHT

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

LOW BIRTH WEIGHT
PERCENT OF BIRTHS BELOW 2,500 GRAMS

Trempealeau County


Trempealeau County

6.2%

7.3%

LOW BIRTH WEIGHT

PERCENT BIRTHS
<2,500 GRAMS
STATEWIDE: 7.3%

PRETERM BIRTH

PERCENT BIRTHS
<37 WEEKS GESTATION
STATEWIDE: 10.3%

Above state value
At or below state value
Suppressed
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.
**DATA DETAILS**

**AIR QUALITY**

**Particulate Matter 2.5 (PM$_{2.5}$)**

**Measures:** Annual Average PM$_{2.5}$ ($\mu$g/m$^3$), Percent of days above standard set by the US Environmental Protection Agency  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard  
**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 $\mu$g/m$^3$.

**Ozone**

**Measure:** Number of days above standard set by the US Environmental Protection Agency  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** 2001-2011, data from 2011 are displayed on the dashboard  
**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

**Heart Attack**

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** 2002-2011  
**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**HEALTH INDICATORS**

**Asthma**

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard  
**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

**Lung Cancer and Melanoma**

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people  
**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard  
**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**Heat Stress**

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard  
**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
### WATER QUALITY

**Arsenic**

**Measures:** Mean concentration of arsenic (µg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**

**Measure:** Mean concentration of nitrate (mg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

### HOME HAZARDS

**Lead Poisoning**

**Measure:** Percent of children tested who had a blood lead level ≥5 µg/dL  
**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2001-2014, data from 2014 displayed on dashboard  
**Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**

**Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard  
**Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

### BIRTH OUTCOMES

**Low Birth Weight**

**Measures:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**

**Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD
Principal Investigator, Chief Medical Officer
608-266-1253
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD
Senior Epidemiologist
608-267-9752
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA
Evaluator
608-267-3830
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON
IS Systems Development Services Professional
608-266-6696
josephaolson@dhs.wisconsin.gov

JENNIFY CAMPONESCHI, MS
Program Manager
608-267-3811
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES
Communications and Education Coordinator
608-267-2488
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH
Epidemiologist
608-266-7897
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD
Chief, Health Hazard Evaluation Section
608-266-7480
mark.werner@dhs.wisconsin.gov

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Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
VERNON COUNTY
DASHBOARD | 2015 ENVIRONMENTAL HEALTH PROFILE

AIR QUALITY

Ozone
Annual days above standard
Wisconsin: 0.7

Particulate Matter 2.5
Annual days above standard
Wisconsin: 0.1

WATER QUALITY

Arsenic
Average concentration in µg/L
Wisconsin: 1.3

Nitrate
Average concentration in mg/L
Wisconsin: 1.5

HOME HAZARDS

Carbon Monoxide (CO)
Rate of ER visits per 100,000 people
Wisconsin: 8.7

Childhood Lead Poisoning
Percent with blood lead ≥5 µg/L
Wisconsin: 6.3%

BIRTH OUTCOMES

Low Birth Weight
Percent of births <2500 grams
Wisconsin: 7.3%

Preterm Birth
Percent of births <37 weeks gestation
Wisconsin: 10.3%

HEALTH INDICATORS

Heat Stress
Rate of ER visits per 100,000 people
Wisconsin: 16.5

Melanoma
Rate of cases per 100,000 people
Wisconsin: 18.4

Lung Cancer
Rate of cases per 100,000 people
Wisconsin: 62.0

Asthma
Rate of ER visits per 100,000 people
Wisconsin: 376.0

*This indicator is represented per 10,000 people on the data portal.

Above state value | At or below state value | Data are suppressed | References on next page
Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.

**AIR QUALITY**

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2011

**WATER QUALITY**

Arsenic and Nitrate: Measured concentrations from public water systems  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Years displayed: Averaged data from 2011-2013

**HOME HAZARDS**

Childhood Lead Poisoning: Reported blood lead test results  
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.  
Year displayed: 2014  
Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Due to small numbers, aggregated rates were calculated for this county.  
Years displayed in this profile: Aggregated data from 2004-2013

**BIRTH OUTCOMES**

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2011-2013

**HEALTH INDICATORS**

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013  
Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers  
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2006-2010  
Asthma: Age-adjusted rate of emergency room visits related to asthma  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

**OZONE**

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.

**PARTICULATE MATTER 2.5**

STATEWIDE: 9.4

STATEWIDE: 0.1

STATEWIDE: 0.7

**Vernon County**

**Wisconsin Average**
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit dhs.wisconsin.gov/epht/criteriapollutants.htm.
Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

PUBLIC DRINKING WATER

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.
Reproduction is complex, and many factors affect a mother's ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

LOW BIRTH WEIGHT

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**HEAT STRESS**
RATE OF ER VISITS PER 100,000 PEOPLE
STATEWIDE: 16.5

**MELANOMA**
RATE OF CASES PER 100,000 PEOPLE
STATEWIDE: 18.4

**LUNG CANCER**
RATE OF CASES PER 100,000 PEOPLE
STATEWIDE: 62

**ASTHMA**
RATE OF ER VISITS PER 100,000 PEOPLE
STATEWIDE: 376

**HEAT STRESS**
Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.
DATA DETAILS

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$)

**Measures:** Annual Average PM$_{2.5}$ ($\mu$g/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 $\mu$g/m$^3$.

Ozone

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heart Attack

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

HEALTH INDICATORS

Asthma

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

Lung Cancer and Melanoma

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
WATER QUALITY

**Arsenic**
- **Measure:** Mean concentration of arsenic (µg/L) in public drinking water
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** Averaged data from 2011-2013
- **Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**
- **Measure:** Mean concentration of nitrate (mg/L) in public drinking water
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** Averaged data from 2011-2013
- **Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, we aggregated three years of data (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

HOME HAZARDS

**Lead Poisoning**
- **Measure:** Percent of children tested who had a blood lead level ≥ 5 µg/dL
- **Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2001-2014, data from 2014 displayed on dashboard
- **Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**
- **Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2004-2013, data aggregated from 2004-2013 displayed on the dashboard
- **Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. Due to small numbers, aggregated rates were calculated for this county.

BIRTH OUTCOMES

**Low Birth Weight**
- **Measure:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard
- **Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**
- **Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard
- **Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD  
Principal Investigator, Chief Medical Officer  
608-266-1253  
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD  
Senior Epidemiologist  
608-267-9752  
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA  
Evaluator  
608-267-3830  
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON  
IS Systems Development Services Professional  
608-266-6696  
josephaolson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS  
Program Manager  
608-267-3811  
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES  
Communications and Education Coordinator  
608-267-2488  
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH  
Epidemiologist  
608-266-7897  
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD  
Chief, Health Hazard Evaluation Section  
608-266-7480  
mark.werner@dhs.wisconsin.gov

SPECIAL THANKS
Iowa Environmental Public Health Tracking Program
Wisconsin Environmental Public Health Tracking Program’s Technical Advisory Group
Jeff Phillips, Bureau of Environmental and Occupational Health, Wisconsin Department of Health Services
Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services
Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
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COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
VILAS COUNTY
DASHBOARD | 2015 ENVIRONMENTAL HEALTH PROFILE

AIR QUALITY

Ozone
Annual days above standard
Wisconsin: 0.7

Particulate Matter 2.5
Annual days above standard
Wisconsin: 0.1

WATER QUALITY

Arsenic
Average concentration in µg/L
Wisconsin: 1.3

Nitrate
Average concentration in mg/L
Wisconsin: 1.5

HOME HAZARDS

Carbon Monoxide (CO)
Rate of ER visits per 100,000 people
Wisconsin: 8.2

Childhood Lead Poisoning
Percent with blood lead ≥5 µg/L
Wisconsin: 6.3%

BIRTH OUTCOMES

Low Birth Weight
Percent of births <2500 grams
Wisconsin: 7.3%

Preterm Birth
Percent of births <37 weeks gestation
Wisconsin: 10.3%

HEALTH INDICATORS

Heat Stress
Rate of ER visits per 100,000 people
Wisconsin: 16.5

Melanoma
Rate of cases per 100,000 people
Wisconsin: 18.4

Lung Cancer
Rate of cases per 100,000 people
Wisconsin: 62.0

Asthma
Rate of ER visits per 100,000 people*
Wisconsin: 376.0

*This indicator is represented per 10,000 people on the data portal.

Above state value | At or below state value | Data are suppressed | References on next page

WISCONSIN ENVIRONMENTAL PUBLIC HEALTH TRACKING PROGRAM
dhs.wi.gov/epht | dhstracking@wi.gov | 608-267-2488
Wisconsin Department of Health Services | Division of Public Health | Bureau of Environmental and Occupational Health
Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.

**AIR QUALITY**

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2011

**WATER QUALITY**

Arsenic and Nitrate: Measured concentrations from public water systems
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013

**HOME HAZARDS**

Childhood Lead Poisoning: Reported blood lead test results
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.
Year displayed: 2014

Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

**BIRTH OUTCOMES**

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2011-2013

**HEALTH INDICATORS**

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2006-2010

Asthma: Age-adjusted rate of emergency room visits related to asthma
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

### OZONE

**ANNUAL DAYS ABOVE STANDARD**

- **Vilas County:** 0.0
- **Wisconsin Average:** 0.7

### PARTICULATE MATTER 2.5

**ANNUAL DAYS ABOVE STANDARD**

- **Vilas County:** 0.0
- **Wisconsin Average:** 0.1

**ANNUAL AVERAGE (µg/m³)**

- **Vilas County:** 7.3
- **Wisconsin Average:** 9.4

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.

**TAKE A CLOSER LOOK AT THE DATA:**

dhs.wi.gov/epht
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

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**1.6**

**ARSENIC**

AVERAGE CONCENTRATION IN PUBLIC WATER (µg/L)

STATEWIDE: 1.3

**0.7**

**NITRATE**

AVERAGE CONCENTRATION IN PUBLIC WATER (mg/L)

STATEWIDE: 1.5

**PUBLIC DRINKING WATER**

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit [dhs.wi.gov/epht](http://dhs.wi.gov/epht).

**ARSENIC AND NITRATE**

MEAN CONCENTRATION LEVELS IN PUBLIC WATER (2011-2013)

- (10 µg/L)
- (10 mg/L)

Maximum contaminant level

- **Vilas County**
- **Wisconsin Average**

**TAKE A CLOSER LOOK AT THE DATA:**

[dhs.wi.gov/epht](http://dhs.wi.gov/epht)
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

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County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

ARSENIC IN PRIVATE WELLS
AVERAGE CONCENTRATION (µg/L)

NITRATE IN PRIVATE WELLS
AVERAGE CONCENTRATION (mg/L)

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
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Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level. The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.

**CHILDHOOD LEAD POISONING**

PERCENT OF TESTED CHILDREN WITH BLOOD LEAD ≥ 5 µg/dL

STATEWIDE: 6.3%

**CARBON MONOXIDE**

RATE OF ER VISITS PER 100,000 PEOPLE

<table>
<thead>
<tr>
<th>Year</th>
<th>Rate of ER Visits</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004-2008</td>
<td>16.0</td>
</tr>
<tr>
<td>2009-2013</td>
<td>10.0</td>
</tr>
</tbody>
</table>

Vilas County

Wisconsin Average

TAKE A CLOSER LOOK AT THE DATA:
dhs.wi.gov/epht
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥ 10 µg/dL to ≥ 5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

**LOW BIRTH WEIGHT**

PERCENT OF BIRTHS BELOW 2,500 GRAMS

<table>
<thead>
<tr>
<th>Year</th>
<th>Vilas County</th>
<th>Wisconsin Average</th>
<th>Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002-2004</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005-2007</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008-2010</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011-2013</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TAKE A CLOSER LOOK AT THE DATA:**

dhs.wi.gov/epht
**PRETERM BIRTH**

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit [dhs.wi.gov/epht/premature.htm](http://dhs.wi.gov/epht/premature.htm).

**BIRTH DEFECTS**

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at [dhs.wisconsin.gov/epht/birthdefects.htm](http://dhs.wisconsin.gov/epht/birthdefects.htm).
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**HEAT STRESS**
RATE OF ER VISITS PER 100,000 PEOPLE

**MELANOMA**
RATE OF CASES PER 100,000 PEOPLE

**LUNG CANCER**
RATE OF CASES PER 100,000 PEOPLE

**ASTHMA**
RATE OF ER VISITS PER 100,000 PEOPLE

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.

ASTHMA
RATE OF ER VISITS PER 100,000 PEOPLE
**DATA DETAILS**

**AIR QUALITY**

**Particulate Matter 2.5 (PM$_{2.5}$)**
- **Measures:** Annual Average PM$_{2.5}$ ($\mu$g/m$^3$), Percent of days above standard set by the US Environmental Protection Agency
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard
- **Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 $\mu$g/m$^3$.

**Ozone**
- **Measure:** Number of days above standard set by the US Environmental Protection Agency
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** 2001-2011, data from 2011 are displayed on the dashboard
- **Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

**Heart Attack**
- **Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** 2002-2011
- **Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**HEALTH INDICATORS**

**Asthma**
- **Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard
- **Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

**Lung Cancer and Melanoma**
- **Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people
- **Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard
- **Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**Heat Stress**
- **Measure:** Age-adjusted rate of emergency department visits per 100,000 people
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard
- **Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
WATER QUALITY

**Arsenic**

*Measure:* Mean concentration of arsenic (µg/L) in public drinking water  
*Source:* National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
*Years displayed:* Averaged data from 2011-2013  
*Data details:* Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**

*Measure:* Mean concentration of nitrate (mg/L) in public drinking water  
*Source:* National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
*Years displayed:* Averaged data from 2011-2013  
*Data details:* Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

HOME HAZARDS

**Lead Poisoning**

*Measure:* Percent of children tested who had a blood lead level ≥2 µg/dL  
*Source:* Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
*Years displayed:* 2001-2014, data from 2014 displayed on dashboard  
*Data details:* Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**

*Measure:* Annual average rate of emergency room visits, age adjusted per 100,000 people  
*Source:* Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
*Years displayed:* 2004-2013, data averaged from 2009-2013 displayed on dashboard  
*Data details:* This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

BIRTH OUTCOMES

**Low Birth Weight**

*Measures:* Percentage of babies weighing <2,500 grams at birth among all babies born to county residents  
*Source:* Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
*Years displayed:* 2002-2013, data from 2011-2013 are displayed on dashboard  
*Data details:* Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**

*Measure:* Percentage of babies born at <37 weeks gestation among all babies born to county residents  
*Source:* Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
*Years displayed:* 2002-2013, data from 2011-2013 are displayed on dashboard  
*Data details:* Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
WISCONSIN ENVIRONMENTAL PUBLIC HEALTH TRACKING PROGRAM

HENRY ANDERSON, MD
Principal Investigator, Chief Medical Officer
608-266-1253
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD
Senior Epidemiologist
608-267-9752
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA
Evaluator
608-267-3830
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON
IS Systems Development Services Professional
608-266-6696
josepha.olson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS
Program Manager
608-267-3811
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES
Communications and Education Coordinator
608-267-2488
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH
Epidemiologist
608-266-7897
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD
Chief, Health Hazard Evaluation Section
608-266-7480
mark.werner@dhs.wisconsin.gov

SPECIAL THANKS

Iowa Environmental Public Health Tracking Program
Wisconsin Environmental Public Health Tracking Program’s Technical Advisory Group
Jeff Phillips, Bureau of Environmental and Occupational Health, Wisconsin Department of Health Services
Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services
Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: **Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.**

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? **Tell us about it!**

dhstracking@wi.gov
608-267-2488
## AIR QUALITY

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Value</th>
<th>Description</th>
<th>Wisconsin:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozone</td>
<td>0.0</td>
<td>Annual days above standard</td>
<td>0.7</td>
</tr>
<tr>
<td>Particulate Matter 2.5</td>
<td>0.0</td>
<td>Annual days above standard</td>
<td>0.1</td>
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</tbody>
</table>

## WATER QUALITY

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Value</th>
<th>Description</th>
<th>Wisconsin:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic</td>
<td>2.6</td>
<td>Average concentration in µg/L</td>
<td>1.3</td>
</tr>
<tr>
<td>Nitrate</td>
<td>0.6</td>
<td>Average concentration in mg/L</td>
<td>1.5</td>
</tr>
</tbody>
</table>

## HOME HAZARDS

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Value</th>
<th>Description</th>
<th>Wisconsin:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon Monoxide (CO)</td>
<td>5.2</td>
<td>Rate of ER visits per 100,000 people</td>
<td>8.2</td>
</tr>
<tr>
<td>Childhood Lead Poisoning</td>
<td>2.5%</td>
<td>Percent with blood lead ≥5 µg/L</td>
<td>6.3%</td>
</tr>
</tbody>
</table>

## BIRTH OUTCOMES

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Value</th>
<th>Description</th>
<th>Wisconsin:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Birth Weight</td>
<td>6.2%</td>
<td>Percent of births &lt;2500 grams</td>
<td>7.3%</td>
</tr>
<tr>
<td>Preterm Birth</td>
<td>9.4%</td>
<td>Percent of births &lt;37 weeks gestation</td>
<td>10.3%</td>
</tr>
</tbody>
</table>

## HEALTH INDICATORS

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Value</th>
<th>Description</th>
<th>Wisconsin:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat Stress</td>
<td>16.0</td>
<td>Rate of ER visits per 100,000 people</td>
<td>16.5</td>
</tr>
<tr>
<td>Melanoma</td>
<td>22.9</td>
<td>Rate of cases per 100,000 people</td>
<td>18.4</td>
</tr>
<tr>
<td>Lung Cancer</td>
<td>65.3</td>
<td>Rate of cases per 100,000 people</td>
<td>62.0</td>
</tr>
<tr>
<td>Asthma</td>
<td>291.0</td>
<td>Rate of ER visits per 100,000 people*</td>
<td>376.0</td>
</tr>
</tbody>
</table>

*This indicator is represented per 10,000 people on the data portal.

---

Wisconsin Department of Health Services  | Division of Public Health  | Bureau of Environmental and Occupational Health
DASHBOARD DATA DETAILS

Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2011

WATER QUALITY

Arsenic and Nitrate: Measured concentrations from public water systems
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013

HOME HAZARDS

Childhood Lead Poisoning: Reported blood lead test results
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.
Year displayed: 2014

Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

BIRTH OUTCOMES

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2011-2013

HEALTH INDICATORS

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2006-2010

Asthma: Age-adjusted rate of emergency room visits related to asthma
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM\textsubscript{2.5})" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

Air Quality - Walworth County

- **OZONE**
  - Annual Days Above Standard
  - Walworth County: 0.0
  - Wisconsin Average: 0.0
  - Statewide: 0.7

- **PARTICULATE MATTER 2.5**
  - Annual Days Above Standard
  - Walworth County: 10.9
  - Wisconsin Average: 0.0
  - Statewide: 0.1

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit dhs.wisconsin.gov/epht/criteriapollutants.htm.
Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

PUBLIC DRINKING WATER

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.

TAKE A CLOSER LOOK AT THE DATA:

dhs.wi.gov/epht
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

ARSENIC IN PRIVATE WELLS
AVERAGE CONCENTRATION (µg/L)

NITRATE IN PRIVATE WELLS
AVERAGE CONCENTRATION (mg/L)

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

### Carbon Monoxide Poisoning

<table>
<thead>
<tr>
<th>Rate of ER Visits Related to CO per 100,000 People</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>5.2</strong></td>
</tr>
</tbody>
</table>

**Statewide:** 8.2

### Childhood Lead Poisoning

<table>
<thead>
<tr>
<th>Percent of Tested Children with Blood Lead ≥5 µg/dL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2.5%</strong></td>
</tr>
</tbody>
</table>

**Statewide:** 6.3%

### Carbon Monoxide Poisoning

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit [dhs.wisconsin.gov/air/co.htm](http://dhs.wisconsin.gov/air/co.htm).

---

**TAKE A CLOSER LOOK AT THE DATA:**

[dhs.wi.gov/epht](http://dhs.wi.gov/epht)
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

- **6.2%**
  - LOW BIRTH WEIGHT
  - PERCENT BIRTHS <2,500 GRAMS
  - STATEWIDE: 7.3%

- **9.4%**
  - PRETERM BIRTH
  - PERCENT BIRTHS <37 WEEKS GESTATION
  - STATEWIDE: 10.3%

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**Heat Stress**
Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke.

In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit [dhs.wisconsin.gov/epht/melanoma.htm](http://dhs.wisconsin.gov/epht/melanoma.htm). To read more about lung cancer, visit [dhs.wisconsin.gov/epht/lung.htm](http://dhs.wisconsin.gov/epht/lung.htm).

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit [dhs.wisconsin.gov/asthma/Index.htm](http://dhs.wisconsin.gov/asthma/Index.htm).

For more information on melanoma, visit [dhs.wisconsin.gov/epht/melanoma.htm](http://dhs.wisconsin.gov/epht/melanoma.htm). To read more about lung cancer, visit [dhs.wisconsin.gov/epht/lung.htm](http://dhs.wisconsin.gov/epht/lung.htm).
Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations.

Data details: These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

### Ozone

Measure: Number of days above standard set by the US Environmental Protection Agency

Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

Years displayed: 2001-2011, data from 2011 are displayed on the dashboard

Data details: This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

### Heart Attack

Measure: Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

Years displayed: 2002-2011

Data details: These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

### Asthma

Measure: Annual age-adjusted rate of emergency department visits per 100,000 people

Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

Years displayed: 2002-2012, data from 2012 are displayed on the dashboard

Data details: These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

### Lung Cancer and Melanoma

Measure: Age-adjusted rates of cases among persons age 35 and over per 100,000 people

Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

Years displayed: 1996-2010, data from 2006-2010 are displayed on the dashboard

Data details: Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

### Heat Stress

Measure: Age-adjusted rate of emergency department visits per 100,000 people

Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

Years displayed: 2004-2013, data from 2009-2013 are displayed on the dashboard

Data details: These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
**DATA DETAILS**

### WATER QUALITY

**Arsenic**
- **Measure:** Mean concentration of arsenic (µg/L) in public drinking water
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** Averaged data from 2011-2013
- **Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**
- **Measure:** Mean concentration of nitrate (mg/L) in public drinking water
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** Averaged data from 2011-2013
- **Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, we aggregated three years of data (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

### HOME HAZARDS

**Lead Poisoning**
- **Measure:** Percent of children tested who had a blood lead level ≥ 5 µg/dL
- **Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2001-2014, data from 2014 displayed on dashboard
- **Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**
- **Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard
- **Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, or E867. Some counties had multiple carbon monoxide poisoning cases (from different water systems), so the values were first averaged within a given county and then averaged across the years.

### BIRTH OUTCOMES

**Low Birth Weight**
- **Measures:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard
- **Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**
- **Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard
- **Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD
Principal Investigator, Chief Medical Officer
608-266-1253
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD
Senior Epidemiologist
608-267-9752
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA
Evaluator
608-267-3830
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON
IS Systems Development Services Professional
608-266-6696
josepha.olson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS
Program Manager
608-267-3811
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES
Communications and Education Coordinator
608-267-2488
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH
Epidemiologist
608-266-7897
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD
Chief, Health Hazard Evaluation Section
608-266-7480
mark.werner@dhs.wisconsin.gov

SPECIAL THANKS
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Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services
Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital’s community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
### AIR QUALITY

<table>
<thead>
<tr>
<th></th>
<th>Wisconsin:</th>
<th>Wisconsin:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ozone</strong></td>
<td>0.0</td>
<td>0.7</td>
</tr>
<tr>
<td>Annual days above standard</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Particulate Matter 2.5</strong></td>
<td>0.0</td>
<td>0.1</td>
</tr>
<tr>
<td>Annual days above standard</td>
<td></td>
<td></td>
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### WATER QUALITY

<table>
<thead>
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<th></th>
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<tbody>
<tr>
<td><strong>Arsenic</strong></td>
<td>2.1</td>
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<tr>
<td>Average concentration in µg/L</td>
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</tr>
<tr>
<td><strong>Nitrate</strong></td>
<td>1.8</td>
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<tr>
<td>Average concentration in mg/L</td>
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</tr>
</tbody>
</table>

### HOME HAZARDS

<table>
<thead>
<tr>
<th></th>
<th>Wisconsin:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Carbon Monoxide (CO)</strong></td>
<td>32.9</td>
</tr>
<tr>
<td>Rate of ER visits per 100,000 people</td>
<td></td>
</tr>
<tr>
<td><strong>Childhood Lead Poisoning</strong></td>
<td>0.0%</td>
</tr>
<tr>
<td>Percent with blood lead ≥5 µg/L</td>
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</tbody>
</table>

### BIRTH OUTCOMES

<table>
<thead>
<tr>
<th></th>
<th>Wisconsin:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Low Birth Weight</strong></td>
<td>5.7%</td>
</tr>
<tr>
<td>Percent of births &lt;2500 grams</td>
<td></td>
</tr>
<tr>
<td><strong>Preterm Birth</strong></td>
<td>12.1%</td>
</tr>
<tr>
<td>Percent of births &lt;37 weeks gestation</td>
<td></td>
</tr>
</tbody>
</table>

### HEALTH INDICATORS

<table>
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<th>Wisconsin:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Heat Stress</strong></td>
<td>19.3</td>
</tr>
<tr>
<td>Rate of ER visits per 100,000 people</td>
<td></td>
</tr>
<tr>
<td><strong>Melanoma</strong></td>
<td>10.5</td>
</tr>
<tr>
<td>Rate of cases per 100,000 people</td>
<td></td>
</tr>
<tr>
<td><strong>Lung Cancer</strong></td>
<td>62.4</td>
</tr>
<tr>
<td>Rate of cases per 100,000 people</td>
<td></td>
</tr>
<tr>
<td><strong>Asthma</strong></td>
<td>583.0</td>
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<tr>
<td>Rate of ER visits per 100,000 people</td>
<td></td>
</tr>
</tbody>
</table>

*This indicator is represented per 10,000 people on the data portal.*

<table>
<thead>
<tr>
<th>Above state value</th>
<th>At or below state value</th>
<th>Data are suppressed</th>
<th>References on next page</th>
</tr>
</thead>
</table>

### References on next page
### DASHBOARD DATA DETAILS

Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at [dhs.wi.gov/epht](http://dhs.wi.gov/epht). For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at [dhs.wisconsin.gov/epht/glossary.htm](http://dhs.wisconsin.gov/epht/glossary.htm).

#### AIR QUALITY

- **Particulate Matter 2.5 (PM$_{2.5}$) and Ozone:** Monitored and modeled estimates of air quality readings  
  Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
  Year displayed: 2011

#### WATER QUALITY

- **Arsenic and Nitrate:** Measured concentrations from public water systems  
  Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
  Years displayed: Averaged data from 2011-2013

#### HOME HAZARDS

- **Childhood Lead Poisoning:** Reported blood lead test results  
  Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
  Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.  
  Year displayed: 2014

- **Carbon Monoxide (CO) Poisoning:** Age-adjusted rate of emergency room visits related to CO poisoning  
  Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
  Years displayed: Averaged data from 2009-2013

#### BIRTH OUTCOMES

- **Low Birth Weight and Preterm Birth:** Wisconsin birth certificate data  
  Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
  Years displayed: Averaged data from 2011-2013

#### HEALTH INDICATORS

- **Heat Stress:** Age-adjusted rate of emergency room visits related to heat stress  
  Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
  Years displayed: Averaged data from 2009-2013

- **Melanoma and Lung Cancer:** Age-adjusted rate of cases reported by health care providers  
  Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
  Years displayed: Averaged data from 2006-2010

- **Asthma:** Age-adjusted rate of emergency room visits related to asthma  
  Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
  Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

**OZONE**

**ANNUAL DAYS ABOVE STANDARD**

<table>
<thead>
<tr>
<th>Year</th>
<th>Washburn County</th>
<th>Wisconsin Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
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<tr>
<td>2002</td>
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<td>2003</td>
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<td>2004</td>
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<td>2006</td>
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<td>2008</td>
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<td>2011</td>
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**PARTICULATE MATTER 2.5**

**ANNUAL DAYS ABOVE STANDARD**

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<th>Year</th>
<th>Washburn County</th>
<th>Wisconsin Average</th>
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<tbody>
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**PARTICULATE MATTER 2.5**

**ANNUAL AVERAGE (µg/m³)**

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<th>Wisconsin Average</th>
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</tr>
<tr>
<td>2011</td>
<td>7.9</td>
<td>9.4</td>
</tr>
</tbody>
</table>

**OZONE**

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit dhs.wisconsin.gov/epht/criteriapollutants.htm.

PARTICULATE MATTER 2.5
ANNUAL AVERAGE
($\mu$g/m$^3$)

HEART ATTACK
HOSPITALIZATIONS
Rate per 10,000 people

ASTHMA
EMERGENCY ROOM VISITS
Rate per 100,000 people
WATER QUALITY  WASHBURN COUNTY

Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

PUBLIC DRINKING WATER

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.

ARSENIC AND NITRATE
MEAN CONCENTRATION LEVELS IN PUBLIC WATER (2011-2013)

- **2.1** ARSENIC
  - AVERAGE CONCENTRATION IN PUBLIC WATER (µg/L)
  - STATEWIDE: 1.3

- **1.8** NITRATE
  - AVERAGE CONCENTRATION IN PUBLIC WATER (mg/L)
  - STATEWIDE: 1.5

- Above state value
- At or below state value
- Suppressed

Washburn County
Wisconsin Average

TAKE A CLOSER LOOK AT THE DATA:
dhs.wi.gov/epht
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**32.9**

**CARBON MONOXIDE POISONING**

RATE OF ER VISITS RELATED TO CO PER 100,000

STATEWIDE: 8.2

**0.0%**

**CHILDHOOD LEAD POISONING**

PERCENT OF TESTED CHILDREN WITH BLOOD LEAD $\geq$ 5 µg/dL

STATEWIDE: 6.3%

**CARBON MONOXIDE POISONING**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**HEAT STRESS**

- Rate of ER visits per 100,000 people
  - **Washburn County**: 19.3
  - **Wisconsin Average**: 16.5

**MELANOMA**

- Rate of cases per 100,000 people
  - **Washburn County**: 10.5
  - **Wisconsin Average**: 18.4

**LUNG CANCER**

- Rate of cases per 100,000 people
  - **Washburn County**: 62.4
  - **Wisconsin Average**: 62

**ASTHMA**

- Rate of ER visits per 100,000 people
  - **Washburn County**: 583.0
  - **Wisconsin Average**: 376

**HEAT STRESS**

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.

**TAKE A CLOSER LOOK AT THE DATA:**

[dhs.wi.gov/epht]
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.

ASTHMA
RATE OF ER VISITS PER 100,000 PEOPLE

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.
DATA DETAILS

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$)

**Measures:** Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

Ozone

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heart Attack

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

HEALTH INDICATORS

Asthma

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. For use in this profile, it is converted to per 10,000 people.

Lung Cancer and Melanoma

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E909.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
WATER QUALITY

Arsenic
Measure: Mean concentration of arsenic (µg/L) in public drinking water
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013
Data details: Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

Nitrate
Measure: Mean concentration of nitrate (mg/L) in public drinking water
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013
Data details: Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, we aggregated three years of data (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

HOME HAZARDS

Lead Poisoning
Measure: Percent of children tested who had a blood lead level ≥5 µg/dL
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2001-2014, data from 2014 displayed on dashboard
Data details: Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

Carbon Monoxide Poisoning
Measure: Annual average rate of emergency room visits, age adjusted per 100,000 people
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2004-2013, data averaged from 2009-2013 displayed on dashboard
Data details: This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

BIRTH OUTCOMES

Low Birth Weight
Measure: Percentage of babies weighing <2,500 grams at birth among all babies born to county residents
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2002-2013, data from 2011-2013 are displayed on dashboard
Data details: Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

Preterm Birth
Measure: Percentage of babies born at <37 weeks gestation among all babies born to county residents
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2002-2013, data from 2011-2013 are displayed on dashboard
Data details: Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
WISCONSIN ENVIRONMENTAL
PUBLIC HEALTH TRACKING PROGRAM

HENRY ANDERSON, MD
Principal Investigator, Chief Medical Officer
608-266-1253
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD
Senior Epidemiologist
608-267-9752
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA
Evaluator
608-267-3830
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON
IS Systems Development Services Professional
608-266-6696
josephaolson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS
Program Manager
608-267-3811
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES
Communications and Education Coordinator
608-267-2488
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH
Epidemiologist
608-266-7897
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD
Chief, Health Hazard Evaluation Section
608-266-7480
mark.werner@dhs.wisconsin.gov

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Jeff Phillips, Bureau of Environmental and Occupational Health, Wisconsin Department of Health Services
Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services
Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
How have you used your county’s profile?  Tell us about it!

dhstracking@wi.gov
608-267-2488

HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital’s community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile?  Tell us about it!
WASHINGTON COUNTY DASHBOARD | 2015 ENVIRONMENTAL HEALTH PROFILE

AIR QUALITY

Ozone
- Annual days above standard
  - Wisconsin: 0.7

Particulate Matter 2.5
- Annual days above standard
  - Wisconsin: 0.1

HOME HAZARDS

Carbon Monoxide (CO)
- Rate of ER visits per 100,000 people
  - Wisconsin: 8.2

Childhood Lead Poisoning
- Percent with blood lead ≥5 µg/L
  - Wisconsin: 6.3%

HEALTH INDICATORS

Heat Stress
- Rate of ER visits per 100,000 people
  - Wisconsin: 16.5

Melanoma
- Rate of cases per 100,000 people
  - Wisconsin: 18.4

WATER QUALITY

Arsenic
- Average concentration in µg/L
  - Wisconsin: 1.3

Nitrate
- Average concentration in mg/L
  - Wisconsin: 1.5

BIRTH OUTCOMES

Low Birth Weight
- Percent of births <2500 grams
  - Wisconsin: 7.3%

Preterm Birth
- Percent of births <37 weeks gestation
  - Wisconsin: 10.3%

Lung Cancer
- Rate of cases per 100,000 people
  - Wisconsin: 62.0

Asthma
- Rate of ER visits per 100,000 people*
  - Wisconsin: 376.0

*This indicator is represented per 10,000 people on the data portal.

References on next page
### AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2011

### WATER QUALITY

Arsenic and Nitrate: Measured concentrations from public water systems  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Years displayed: Averaged data from 2011-2013

### HOME HAZARDS

Childhood Lead Poisoning: Reported blood lead test results  
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.  
Year displayed: 2014  
Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013

### BIRTH OUTCOMES

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2011-2013

### HEALTH INDICATORS

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress  
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2009-2013  
Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers  
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
Years displayed: Averaged data from 2006-2010  
Asthma: Age-adjusted rate of emergency room visits related to asthma  
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

**OZONE**

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit dhs.wisconsin.gov/epht/criteriapollutants.htm.
WASHINGTON COUNTY

Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

ARSENIC AND NITRATE
MEAN CONCENTRATION LEVELS IN PUBLIC WATER (2011-2013)

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About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.

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Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**6.3**

**CARBON MONOXIDE POISONING**

RATE OF ER VISITS RELATED TO CO PER 100,000

STATEWIDE: 8.2

**1.3%**

**CHILDHOOD LEAD POISONING**

PERCENT OF TESTED CHILDREN WITH BLOOD LEAD ≥5 µg/dL

STATEWIDE: 6.3%

**CARBON MONOXIDE POISONING**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**HEAT STRESS**

- **Rate of ER Visits per 100,000 People**
  - **Washington County:** 10.6
  - **Statewide:** 16.5

**MELANOMA**

- **Rate of Cases per 100,000 People**
  - **Washington County:** 20.5
  - **Statewide:** 18.4

**LUNG CANCER**

- **Rate of Cases per 100,000 People**
  - **Washington County:** 58.3
  - **Statewide:** 62

**ASTHMA**

- **Rate of ER Visits per 100,000 People**
  - **Washington County:** 175.0
  - **Statewide:** 376

**HEAT STRESS**

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.

**TAKING A CLOSER LOOK AT THE DATA:**

dhs.wi.gov/epht

^ Suppressed
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.

ASTHMA
RATE OF ER VISITS PER 100,000 PEOPLE
### Air Quality

**Particulate Matter 2.5 (PM$_{2.5}$)**

**Measures:** Annual Average PM$_{2.5}$ ($\mu$g/m$^3$), Percent of days above standard set by the US Environmental Protection Agency  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard  
**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency's National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 $\mu$g/m$^3$.

**Ozone**

**Measure:** Number of days above standard set by the US Environmental Protection Agency  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard  
**Data details:** This is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

### Health Indicators

**Asthma**

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard  
**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**Lung Cancer and Melanoma**

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people  
**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard  
**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**Heat Stress**

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard  
**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
DATA DETAILS

**WATER QUALITY**

**Arsenic**
- **Measures:** Mean concentration of arsenic (µg/L) in public drinking water
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** Averaged data from 2011-2013
- **Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**
- **Measure:** Mean concentration of nitrate (mg/L) in public drinking water
- **Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed:** Averaged data from 2011-2013
- **Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**HOME HAZARDS**

**Lead Poisoning**
- **Measure:** Percent of children tested who had a blood lead level ≥ 5 µg/dL
- **Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2001-2014, data from 2014 displayed on dashboard
- **Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**
- **Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard
- **Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

**BIRTH OUTCOMES**

**Low Birth Weight**
- **Measures:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard
- **Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**
- **Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents
- **Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard
- **Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD  
Principal Investigator, Chief Medical Officer  
608-266-1253  
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD  
Senior Epidemiologist  
608-267-9752  
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA  
Evaluator  
608-267-3830  
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON  
IS Systems Development Services Professional  
608-266-6696  
josepha.olson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS  
Program Manager  
608-267-3811  
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES  
Communications and Education Coordinator  
608-267-2488  
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH  
Epidemiologist  
608-266-7897  
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD  
Chief, Health Hazard Evaluation Section  
608-266-7480  
mark.werner@dhs.wisconsin.gov

SPECIAL THANKS

Iowa Environmental Public Health Tracking Program  
Wisconsin Environmental Public Health Tracking Program’s Technical Advisory Group  
Jeff Phillips, Bureau of Environmental and Occupational Health, Wisconsin Department of Health Services  
Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services  
Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital’s community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
# Waukesha County Dashboard
## 2015 Environmental Health Profile

### Air Quality
- **Ozone**
  - Annual days above standard
  - Wisconsin: 0.7
  - Wisconsin: 0.7

- **Particulate Matter 2.5**
  - Annual days above standard
  - Wisconsin: 0.1

### Water Quality
- **Arsenic**
  - Average concentration in µg/L
  - Wisconsin: 1.3

- **Nitrate**
  - Average concentration in mg/L
  - Wisconsin: 1.5

### Home Hazards
- **Carbon Monoxide (CO)**
  - Rate of ER visits per 100,000 people
  - Wisconsin: 8.2

- **Childhood Lead Poisoning**
  - Percent with blood lead ≥5 µg/L
  - Wisconsin: 6.3%

### Birth Outcomes
- **Low Birth Weight**
  - Percent of births <2500 grams
  - Wisconsin: 7.3%

- **Preterm Birth**
  - Percent of births <37 weeks gestation
  - Wisconsin: 10.3%

### Health Indicators
- **Heat Stress**
  - Rate of ER visits per 100,000 people
  - Wisconsin: 16.5

- **Melanoma**
  - Rate of cases per 100,000 people
  - Wisconsin: 18.4

- **Lung Cancer**
  - Rate of cases per 100,000 people
  - Wisconsin: 62.0

- **Asthma**
  - Rate of ER visits per 100,000 people
  - Wisconsin: 376.0

*This indicator is represented per 10,000 people on the data portal.*

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**Wisconsin Environmental Public Health Tracking Program**

dhs.wi.gov/epht | dhstracking@wi.gov | 608-267-2488
Wisconsin Department of Health Services | Division of Public Health | Bureau of Environmental and Occupational Health

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\[
\text{Above state value} \quad \text{At or below state value} \quad \text{Data are suppressed} \quad \text{References on next page}
\]
Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.

**AIR QUALITY**

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2011

**WATER QUALITY**

Arsenic and Nitrate: Measured concentrations from public water systems
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013

**HOME HAZARDS**

Childhood Lead Poisoning: Reported blood lead test results
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.
Year displayed: 2014

Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

**BIRTH OUTCOMES**

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2011-2013

**HEALTH INDICATORS**

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2006-2010

Asthma: Age-adjusted rate of emergency room visits related to asthma
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

### Air Quality - Waukesha County

#### Ozone

- **Waukesha County:** 0.0
- **Wisconsin Average:** 0.7
- **Annual Days Above Standard**

#### Particulate Matter 2.5

- **Waukesha County:** 1.1
- **Wisconsin Average:** 0.1
- **Annual Days Above Standard**

#### Statewide

- **Particulate Matter 2.5:** 11.1
- **Annual Average (µg/m3):** 9.4

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**Ozone**

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit dhs.wisconsin.gov/epht/criteriapollutants.htm.
Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

### PUBLIC DRINKING WATER

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

ARSENIC IN PRIVATE WELLS
AVERAGE CONCENTRATION (µg/L)

NITRATE IN PRIVATE WELLS
AVERAGE CONCENTRATION (mg/L)

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother's ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

LOW BIRTH WEIGHT

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013. Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**HEAT STRESS**
RATE OF ER VISITS PER 100,000 PEOPLE

10.6
STATEWIDE: 16.5

**MELANOMA**
RATE OF CASES PER 100,000 PEOPLE

25.5
STATEWIDE: 18.4

**LUNG CANCER**
RATE OF CASES PER 100,000 PEOPLE

58.4
STATEWIDE: 62

**ASTHMA**
RATE OF ER VISITS PER 100,000 PEOPLE

169.0
STATEWIDE: 376

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.
**HEALTH INDICATORS**

**WAUKESHA COUNTY**

**MELANOMA AND LUNG CANCER**

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

**MELANOMA**

RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit [dhs.wisconsin.gov/epht/melanoma.htm](http://dhs.wisconsin.gov/epht/melanoma.htm). To read more about lung cancer, visit [dhs.wisconsin.gov/epht/lung.htm](http://dhs.wisconsin.gov/epht/lung.htm).

**LUNG CANCER**

RATE OF CASES PER 100,000 PEOPLE

**ASTHMA**

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit [dhs.wisconsin.gov/asthma/Index.htm](http://dhs.wisconsin.gov/asthma/Index.htm)

**ASTHMA**

RATE OF ER VISITS PER 100,000 PEOPLE

For more information on melanoma, visit [dhs.wisconsin.gov/epht/melanoma.htm](http://dhs.wisconsin.gov/epht/melanoma.htm). To read more about lung cancer, visit [dhs.wisconsin.gov/epht/lung.htm](http://dhs.wisconsin.gov/epht/lung.htm).
DATA DETAILS

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$)

**Measures:** Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

Ozone

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2001-2011, data from 2011 are displayed on the dashboard

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heart Attack

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

HEALTH INDICATORS

Asthma

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

Lung Cancer and Melanoma

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
**DATA DETAILS continued**

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### WATER QUALITY

**Arsenic**

**Measures:** Mean concentration of arsenic (µg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

**Nitrate**

**Measure:** Mean concentration of nitrate (mg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

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### HOME HAZARDS

**Lead Poisoning**

**Measure:** Percent of children tested who had a blood lead level ≥ 5 µg/dL  
**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2001-2014, data from 2014 displayed on dashboard  
**Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile included lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

**Carbon Monoxide Poisoning**

**Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard  
**Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

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### BIRTH OUTCOMES

**Low Birth Weight**

**Measures:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

**Preterm Birth**

**Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
SPECIAL THANKS

Iowa Environmental Public Health Tracking Program
Wisconsin Environmental Public Health Tracking Program’s Technical Advisory Group
Jeff Phillips, Bureau of Environmental and Occupational Health, Wisconsin Department of Health Services
Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services
Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
WAUPACA COUNTY
ENVIRONMENTAL
HEALTH PROFILE

2015

WISCONSIN ENVIRONMENTAL
PUBLIC HEALTH TRACKING PROGRAM
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital’s community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
WAUPACA COUNTY
DASHBOARD | 2015 ENVIRONMENTAL HEALTH PROFILE

AIR QUALITY
Ozone
0.0 | Annual days above standard
Wisconsin: 0.7

Particulate Matter 2.5
0.0 | Annual days above standard
Wisconsin: 0.1

HOME HAZARDS
Carbon Monoxide (CO)
10.3 | Rate of ER visits per 100,000 people
Wisconsin: 8.2

Childhood Lead Poisoning
6.4% | Percent with blood lead ≥5 µg/L
Wisconsin: 6.3%

HEALTH INDICATORS
Heat Stress
21.6 | Rate of ER visits per 100,000 people
Wisconsin: 16.5

Melanoma
20.3 | Rate of cases per 100,000 people
Wisconsin: 18.4

WATER QUALITY
Arsenic
3.4 | Average concentration in µg/L
Wisconsin: 1.3

Nitrate
2.5 | Average concentration in mg/L
Wisconsin: 1.5

BIRTH OUTCOMES
Low Birth Weight
7.5% | Percent of births <2500 grams
Wisconsin: 7.3%

Preterm Birth
10.2% | Percent of births <37 weeks gestation
Wisconsin: 10.3%

Lung Cancer
67.7 | Rate of cases per 100,000 people
Wisconsin: 62.0

Asthma
445.0 | Rate of ER visits per 100,000 people*
Wisconsin: 376.0

*This indicator is represented per 10,000 people on the data portal.

Above state value | At or below state value | Data are suppressed | References on next page
**DASHBOARD DATA DETAILS**

Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at [dhs.wi.gov/epht](http://dhs.wi.gov/epht). For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at [dhs.wisconsin.gov/epht/glossary.htm](http://dhs.wisconsin.gov/epht/glossary.htm).

<table>
<thead>
<tr>
<th><strong>AIR QUALITY</strong></th>
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<tbody>
<tr>
<td>Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings</td>
</tr>
<tr>
<td>Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention</td>
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<tr>
<td>Year displayed: 2011</td>
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<tr>
<th><strong>WATER QUALITY</strong></th>
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<tr>
<td>Arsenic and Nitrate: Measured concentrations from public water systems</td>
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<tr>
<td>Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention</td>
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<tr>
<td>Years displayed: Averaged data from 2011-2013</td>
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<tr>
<td>Childhood Lead Poisoning: Reported blood lead test results</td>
</tr>
<tr>
<td>Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services</td>
</tr>
<tr>
<td>Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.</td>
</tr>
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<td>Year displayed: 2014</td>
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<tr>
<td>Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning</td>
</tr>
<tr>
<td>Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services</td>
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<tr>
<td>Low Birth Weight and Preterm Birth: Wisconsin birth certificate data</td>
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<td>Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services</td>
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<td>Years displayed: Averaged data from 2011-2013</td>
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<th><strong>HEALTH INDICATORS</strong></th>
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<tr>
<td>Heat Stress: Age-adjusted rate of emergency room visits related to heat stress</td>
</tr>
<tr>
<td>Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services</td>
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<td>Years displayed: Averaged data from 2009-2013</td>
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<td>Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers</td>
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<tr>
<td>Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services</td>
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<td>Years displayed: Averaged data from 2006-2010</td>
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<tr>
<td>Asthma: Age-adjusted rate of emergency room visits related to asthma</td>
</tr>
<tr>
<td>Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention</td>
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<tr>
<td>Year displayed: 2012</td>
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</tbody>
</table>
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit [dhs.wisconsin.gov/epht/criteriapollutants.htm](http://dhs.wisconsin.gov/epht/criteriapollutants.htm).

![Graphic showing particulate matter 2.5 annual average](chart1)

![Graphic showing heart attack hospitalizations](chart2)

![Graphic showing asthma emergency room visits](chart3)
Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

**PUBLIC DRINKING WATER**

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit [dhs.wi.gov/epht](http://dhs.wi.gov/epht).

**ARSENIC AND NITRATE**

**MEAN CONCENTRATION LEVELS IN PUBLIC WATER (2011-2013)**

- **Arsenic**: Statewide: 1.3
- **Nitrate**: Statewide: 1.5

**Average Concentration in Public Water**

- **Arsenic** (µg/L)
  - **Waupaca County:** 3.4
  - **Wisconsin Average:** 1.3

- **Nitrate** (mg/L)
  - **Waupaca County:** 2.5
  - **Wisconsin Average:** 1.5

[Take a closer look at the data: dhs.wi.gov/epht](http://dhs.wi.gov/epht)
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.

**HOME HAZARDS**

**CARBON MONOXIDE POISONING**

- **Rate of ER Visits Related to CO per 100,000 People**
  - **Waupaca County:** 10.3
  - **Wisconsin Average:** 8.2

**CHILDHOOD LEAD POISONING**

- **Percent of Tested Children with Blood Lead ≥ 5 µg/dL**
  - **Statewide:** 6.3%

**TAKE A CLOSER LOOK AT THE DATA:**

dhs.wi.gov/epht
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
**PRETERM BIRTH**

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit [dhs.wi.gov/epht/prenature.htm](http://dhs.wi.gov/epht/prenature.htm).

**BIRTH DEFECTS**

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at [dhs.wisconsin.gov/epht/birthdefects.htm](http://dhs.wisconsin.gov/epht/birthdefects.htm).
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**Heat Stress**
Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.

ASTHMA
RATE OF ER VISITS PER 100,000 PEOPLE

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.
DATA DETAILS

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$)

**Measures:** Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

Ozone

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2001-2011, data from 2011 are displayed on the dashboard

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heart Attack

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

HEALTH INDICATORS

Asthma

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

Lung Cancer and Melanoma

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
DATA DETAILS  

WATER QUALITY

Arsenic

**Measures:** Mean concentration of arsenic (µg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

Nitrate

**Measure:** Mean concentration of nitrate (mg/L) in public drinking water  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013  
**Data details:** Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, we aggregated three years of data (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

HOME HAZARDS

Lead Poisoning

**Measure:** Percent of children tested who had a blood lead level ≥ 5 µg/dL  
**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2001-2014, data from 2014 displayed on dashboard  
**Data details:** Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

Carbon Monoxide Poisoning

**Measure:** Annual average rate of emergency room visits, age adjusted per 100,000 people  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2004-2013, data averaged from 2009-2013 displayed on dashboard  
**Data details:** This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825 ,E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

BIRTH OUTCOMES

Low Birth Weight

**Measures:** Percentage of babies weighing <2,500 grams at birth among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

Preterm Birth

**Measure:** Percentage of babies born at <37 weeks gestation among all babies born to county residents  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** 2002-2013, data from 2011-2013 are displayed on dashboard  
**Data details:** Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
SPECIAL THANKS

Iowa Environmental Public Health Tracking Program
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Jeff Phillips, Bureau of Environmental and Occupational Health, Wisconsin Department of Health Services
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Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
WAUSHARA COUNTY ENVIRONMENTAL HEALTH PROFILE

2015

WISCONSIN ENVIRONMENTAL PUBLIC HEALTH TRACKING PROGRAM
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital’s community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
WAUSHARA COUNTY
DASHBOARD | 2015 ENVIRONMENTAL HEALTH PROFILE

**AIR QUALITY**

- **Ozone**
  - Annual days above standard
  - Wisconsin: 0.7
- **Particulate Matter 2.5**
  - Annual days above standard
  - Wisconsin: 0.1

**WATER QUALITY**

- **Arsenic**
  - Average concentration in µg/L
  - Wisconsin: 1.3
- **Nitrate**
  - Average concentration in mg/L
  - Wisconsin: 1.5

**HOME HAZARDS**

- **Carbon Monoxide (CO)**
  - Rate of ER visits per 100,000 people
  - Wisconsin: 8.2
- **Childhood Lead Poisoning**
  - Percent with blood lead ≥5 µg/L
  - Wisconsin: 6.3%

**BIRTH OUTCOMES**

- **Low Birth Weight**
  - Percent of births <2500 grams
  - Wisconsin: 7.3%
- **Preterm Birth**
  - Percent of births <37 weeks gestation
  - Wisconsin: 10.3%

**HEALTH INDICATORS**

- **Heat Stress**
  - Rate of ER visits per 100,000 people
  - Wisconsin: 16.5
- **Melanoma**
  - Rate of cases per 100,000 people
  - Wisconsin: 18.4
- **Lung Cancer**
  - Rate of cases per 100,000 people
  - Wisconsin: 62.0
- **Asthma**
  - Rate of ER visits per 100,000 people
  - Wisconsin: 376.0

*This indicator is represented per 10,000 people on the data portal.*

Above state value | At or below state value | Data are suppressed | References on next page
Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.

**AIR QUALITY**

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2011

**WATER QUALITY**

Arsenic and Nitrate: Measured concentrations from public water systems
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013

**HOME HAZARDS**

Childhood Lead Poisoning: Reported blood lead test results
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.
Year displayed: 2014

Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

**BIRTH OUTCOMES**

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2011-2013

**HEALTH INDICATORS**

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2006-2010

Asthma: Age-adjusted rate of emergency room visits related to asthma
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

**OZONE**

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.

**PARTICULATE MATTER 2.5**

The chart to the left provides a year-to-year comparison of the number of days in which particulate matter was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit [dhs.wisconsin.gov/epht/criteriapollutants.htm](http://dhs.wisconsin.gov/epht/criteriapollutants.htm).
Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

**PUBLIC DRINKING WATER**

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit [dhs.wi.gov/epht](http://dhs.wi.gov/epht).

**ARSENIC AND NITRATE**

 MEAN CONCENTRATION LEVELS IN PUBLIC WATER (2011-2013)

- **Arsenic Mean Concentration** (µg/L): 0.9
  - Statewide: 1.3
  - Above state value

- **Nitrate Mean Concentration** (mg/L): 2.6
  - Statewide: 1.5
  - Above state value

**Note:**

- **(10 µg/L)**
- **(10 mg/L)**
- Maximum contaminant level

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**TAKE A CLOSER LOOK AT THE DATA:**

[dhs.wi.gov/epht](http://dhs.wi.gov/epht)
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

ARSENIC IN PRIVATE WELLS
AVERAGE CONCENTRATION (µg/L)

NITRATE IN PRIVATE WELLS
AVERAGE CONCENTRATION (mg/L)

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**10.4**
**CARBON MONOXIDE POISONING**
RATE OF ER VISITS RELATED TO CO PER 100,000 PEOPLE
STATEWIDE: 8.2

**1.1%**
**CHILDHOOD LEAD POISONING**
PERCENT OF TESTED CHILDREN WITH BLOOD LEAD ≥5 µg/dL
STATEWIDE: 6.3%

**CARBON MONOXIDE POISONING**
Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL. This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body. There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

LOW BIRTH WEIGHT

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

TAKE A CLOSER LOOK AT THE DATA:
dhs.wi.gov/epht
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit [dhs.wi.gov/epht/premature.htm](http://dhs.wi.gov/epht/premature.htm).

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at [dhs.wisconsin.gov/epht/birthdefects.htm](http://dhs.wisconsin.gov/epht/birthdefects.htm).
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.

HEALTH INDICATORS
WAUSHARA COUNTY

Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

- **23.6**
  - **Heat Stress**
  - Rate of ER Visits per 100,000 people
  - Statewide: 16.5

- **14.4**
  - **Melanoma**
  - Rate of cases per 100,000 people
  - Statewide: 18.4

- **74.8**
  - **Lung Cancer**
  - Rate of cases per 100,000 people
  - Statewide: 62

- **298.0**
  - **Asthma**
  - Rate of ER Visits per 100,000 people
  - Statewide: 376

**HEAT STRESS**

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.

**TAKE A CLOSER LOOK AT THE DATA:**
dhs.wi.gov/epht
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

LUNG CANCER
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

ASTHMA

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.
Particulate Matter 2.5 (PM$_{2.5}$)

**Measures:** Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

Ozone

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heart Attack

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Asthma

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. For use in this profile, it is converted to per 10,000 people.

Lung Cancer and Melanoma

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
DATA DETAILS continued

WATER QUALITY

Arsenic
Measures: Mean concentration of arsenic (µg/L) in public drinking water
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013
Data details: Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

Nitrate
Measure: Mean concentration of nitrate (mg/L) in public drinking water
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013
Data details: Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

HOME HAZARDS

Lead Poisoning
Measure: Percent of children tested who had a blood lead level ≥ 5 µg/dL
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2001-2014, data from 2014 displayed on dashboard
Data details: Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

Carbon Monoxide Poisoning
Measure: Annual average rate of emergency room visits, age adjusted per 100,000 people
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2004-2013, data averaged from 2009-2013 displayed on dashboard
Data details: This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825 ,E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

BIRTH OUTCOMES

Low Birth Weight
Measures: Percentage of babies weighing <2,500 grams at birth among all babies born to county residents
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2002-2013, data from 2011-2013 are displayed on dashboard
Data details: Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

Preterm Birth
Measure: Percentage of babies born at <37 weeks gestation among all babies born to county residents
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2002-2013, data from 2011-2013 are displayed on dashboard
Data details: Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD  
Principal Investigator, Chief Medical Officer  
608-266-1253  
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD  
Senior Epidemiologist  
608-267-9752  
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA  
Evaluator  
608-267-3830  
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON  
IS Systems Development Services Professional  
608-266-6696  
josephaolson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS  
Program Manager  
608-267-3811  
jennifer.camponeschi@dhs.wisconsin.gov

CHRISTY VOGT, MPH, CHES  
Communications and Education Coordinator  
608-267-2488  
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH  
Epidemiologist  
608-266-7897  
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD  
Chief, Health Hazard Evaluation Section  
608-266-7480  
mark.werner@dhs.wisconsin.gov

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WINNEBAGO COUNTY
ENVIRONMENTAL HEALTH PROFILE

2015

WISCONSIN ENVIRONMENTAL PUBLIC HEALTH TRACKING PROGRAM
COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
WINNEBAGO COUNTY DASHBOARD | 2015 ENVIRONMENTAL HEALTH PROFILE

### AIR QUALITY

**Ozone**
- Annual days above standard
- Wisconsin: 0.7

**Particulate Matter 2.5**
- Annual days above standard
- Wisconsin: 0.1

### WATER QUALITY

**Arsenic**
- Average concentration in µg/L
- Wisconsin: 1.3

**Nitrate**
- Average concentration in mg/L
- Wisconsin: 1.5

### HOME HAZARDS

**Carbon Monoxide (CO)**
- Rate of ER visits per 100,000 people
- Wisconsin: 8.2

**Childhood Lead Poisoning**
- Percent with blood lead ≥5 µg/L
- Wisconsin: 6.3%

### BIRTH OUTCOMES

**Low Birth Weight**
- Percent of births <2500 grams
- Wisconsin: 7.3%

**Preterm Birth**
- Percent of births <37 weeks gestation
- Wisconsin: 10.3%

### HEALTH INDICATORS

**Heat Stress**
- Rate of ER visits per 100,000 people
- Wisconsin: 16.5

**Melanoma**
- Rate of cases per 100,000 people
- Wisconsin: 18.4

**Lung Cancer**
- Rate of cases per 100,000 people
- Wisconsin: 62.0

**Asthma**
- Rate of ER visits per 100,000 people
- Wisconsin: 376.0

*This indicator is represented per 10,000 people on the data portal.

Above state value | At or below state value | Data are suppressed | References on next page
DASHBOARD DATA DETAILS

Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at dhs.wi.gov/epht. For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at dhs.wisconsin.gov/epht/glossary.htm.

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2011

WATER QUALITY

Arsenic and Nitrate: Measured concentrations from public water systems
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013

HOME HAZARDS

Childhood Lead Poisoning: Reported blood lead test results
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Note: The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.
Year displayed: 2014

Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

BIRTH OUTCOMES

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2011-2013

HEALTH INDICATORS

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2009-2013

Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers
Source: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: Averaged data from 2006-2010

Asthma: Age-adjusted rate of emergency room visits related to asthma
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Year displayed: 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM\textsubscript{2.5})" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 (PM$_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of PM$_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit dhs.wisconsin.gov/epht/criteriapollutants.htm.

**PARTICULATE MATTER 2.5 ANNUAL AVERAGE**

(µg/m³)

**HEART ATTACK HOSPITALIZATIONS**

Rate per 10,000 people

**ASTHMA EMERGENCY ROOM VISITS**

Rate per 100,000 people
Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

**PUBLIC DRINKING WATER**

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit [dhs.wi.gov/epht](http://dhs.wi.gov/epht).
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**
Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.

CENSUS TRACT-LEVEL COUNTS OF CHILDHOOD LEAD POISONING (2009-2011)
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hypospadias, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

- **HEAT STRESS**
  - Rate of ER visits per 100,000 people
  - **Winnebago County:** 16.3
  - **Statewide:** 16.5
  - Above state value

- **MELANOMA**
  - Rate of cases per 100,000 people
  - **Winnebago County:** 22.6
  - **Statewide:** 18.4
  - At or below state value

- **LUNG CANCER**
  - Rate of cases per 100,000 people
  - **Winnebago County:** 72.0
  - **Statewide:** 62
  - Above state value

- **ASTHMA**
  - Rate of ER visits per 100,000 people
  - **Winnebago County:** 236.0
  - **Statewide:** 376
  - At or below state value

**HEAT STRESS**

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.
MELANOMA AND LUNG CANCER

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

MELANOMA
RATE OF CASES PER 100,000 PEOPLE

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

ASTHMA
RATE OF ER VISITS PER 100,000 PEOPLE

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm
Data Details

Air Quality

Particulate Matter 2.5 (PM$_{2.5}$)
- **Measures**: Annual Average PM$_{2.5}$ ($\mu$g/m$^3$), Percent of days above standard set by the US Environmental Protection Agency
- **Source**: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed**: 2002-2011, data from 2011 are displayed on the dashboard
- **Data details**: These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency's National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 $\mu$g/m$^3$.

Ozone
- **Measure**: Number of days above standard set by the US Environmental Protection Agency
- **Source**: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed**: 2002-2011
- **Data details**: This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heart Attack
- **Measure**: Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people
- **Source**: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed**: 2002-2011
- **Data details**: These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Health Indicators

Asthma
- **Measures**: Annual age-adjusted rate of emergency department visits per 100,000 people
- **Source**: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
- **Years displayed**: 2002-2012, data from 2012 are displayed on the dashboard
- **Data details**: These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

Lung Cancer and Melanoma
- **Measure**: Age-adjusted rates of cases among persons age 35 and over per 100,000 people
- **Source**: Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed**: 1996-2010, data from 2006-2010 are displayed on the dashboard
- **Data details**: Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress
- **Measure**: Age-adjusted rate of emergency department visits per 100,000 people
- **Source**: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
- **Years displayed**: 2004-2013, data from 2009-2013 are displayed on the dashboard
- **Data details**: These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E909.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
DATA DETAILS continued

WATER QUALITY

Arsenic
Measure: Mean concentration of arsenic (µg/L) in public drinking water
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013
Data details: Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

Nitrate
Measure: Mean concentration of nitrate (mg/L) in public drinking water
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013
Data details: Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

HOME HAZARDS

Lead Poisoning
Measure: Percent of children tested who had a blood lead level ≥ 5 µg/dL
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2001-2014, data from 2014 displayed on dashboard
Data details: Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

Carbon Monoxide Poisoning
Measure: Annual average rate of emergency room visits, age adjusted per 100,000 people
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2004-2013, data averaged from 2009-2013 displayed on dashboard
Data details: This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

BIRTH OUTCOMES

Low Birth Weight
Measure: Percentage of babies weighing <2,500 grams at birth among all babies born to county residents
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2002-2013, data from 2011-2013 are displayed on dashboard
Data details: Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

Preterm Birth
Measure: Percentage of babies born at <37 weeks gestation among all babies born to county residents
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2002-2013, data from 2011-2013 are displayed on dashboard
Data details: Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.
HENRY ANDERSON, MD
Principal Investigator, Chief Medical Officer
608-266-1253
henry.anderson@dhs.wisconsin.gov

PAUL CRESWELL, PhD
Senior Epidemiologist
608-267-9752
paul.creswell@dhs.wisconsin.gov

DAWN BERNEY, MPA
Evaluator
608-267-3830
dawn.berney@dhs.wisconsin.gov

JOSEPH OLSON
IS Systems Development Services Professional
608-266-6696
josephaolson@dhs.wisconsin.gov

JENNY CAMPONESCHI, MS
Program Manager
608-267-3811
jennifer.camponeschi@dhs.wisconsin.gov

CHISTY VOGT, MPH, CHES
Communications and Education Coordinator
608-267-2488
christy.vogt@dhs.wisconsin.gov

MEGAN CHRISTENSON, MS, MPH
Epidemiologist
608-266-7897
megan.christenson@dhs.wisconsin.gov

MARK WERNER, PhD
Chief, Health Hazard Evaluation Section
608-266-7480
mark.werner@dhs.wisconsin.gov

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Sarah Mattes, Tobacco Prevention and Control Program, Wisconsin Department of Health Services
Kevin Masarik, Center for Watershed Science and Education, University of Wisconsin-Extension
HOW TO USE THIS PROFILE

Below you will find our suggestions for how to use this profile. This profile contains many data points unique to environmental health. As you explore the information on the following pages, consider how it might be put to good use in your community. We are here to help you along the way. If you have questions about how to integrate these data into your work, let us know!

COMMUNITY HEALTH ASSESSMENTS
Data from the profiles can be used in your health department or hospital's community health assessments to help meet state and federal requirements.

ACCREDITATION
The profiles can be used to address the Public Health Accreditation Board’s accreditation standards. For instance, Standard 1.3: Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public’s health.

GRANT PROPOSALS
Data in this profile can help you and your team develop a rationale for funding requests. These data can help justify existing programs and show where there is still work to be done.

EDUCATION AND OUTREACH
When creating programs and outreach materials for your community, these data can help you build your case and show the extent of a problem. Communities have used their profile data to target education efforts to areas with the most need.

POLICY DEVELOPMENT
This profile contains measures that can be used to justify the need for a policy. If a policy is put in place, these data can be used as baseline measures with which to monitor changes over time.

How have you used your county’s profile? Tell us about it!

dhstracking@wi.gov
608-267-2488
### AIR QUALITY

<table>
<thead>
<tr>
<th>Metric</th>
<th>Wisconsin</th>
<th>Wood County</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozone</td>
<td>0.7</td>
<td>0.0</td>
</tr>
<tr>
<td>Particulate Matter 2.5</td>
<td>0.1</td>
<td>0.0</td>
</tr>
</tbody>
</table>

### WATER QUALITY

<table>
<thead>
<tr>
<th>Metric</th>
<th>Wisconsin</th>
<th>Wood County</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic</td>
<td>1.3</td>
<td>7.0</td>
</tr>
<tr>
<td>Nitrate</td>
<td>1.5</td>
<td>1.0</td>
</tr>
</tbody>
</table>

### HOME HAZARDS

<table>
<thead>
<tr>
<th>Metric</th>
<th>Wisconsin</th>
<th>Wood County</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon Monoxide (CO)</td>
<td>8.2</td>
<td>8.7</td>
</tr>
<tr>
<td>Childhood Lead Poisoning</td>
<td>6.3%</td>
<td>1.1%</td>
</tr>
</tbody>
</table>

### BIRTH OUTCOMES

<table>
<thead>
<tr>
<th>Metric</th>
<th>Wisconsin</th>
<th>Wood County</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Birth Weight</td>
<td>7.3%</td>
<td>6.5%</td>
</tr>
<tr>
<td>Preterm Birth</td>
<td>10.3%</td>
<td>9.6%</td>
</tr>
</tbody>
</table>

### HEALTH INDICATORS

<table>
<thead>
<tr>
<th>Metric</th>
<th>Wisconsin</th>
<th>Wood County</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat Stress</td>
<td>16.5</td>
<td>26.2</td>
</tr>
<tr>
<td>Melanoma</td>
<td>376.0</td>
<td>18.3</td>
</tr>
<tr>
<td>Lung Cancer</td>
<td>62.0</td>
<td>58.2</td>
</tr>
<tr>
<td>Asthma</td>
<td>376.0</td>
<td>218.0</td>
</tr>
</tbody>
</table>
**DASHBOARD DATA DETAILS**

Below are the abbreviated references for the data presented in the dashboard. Note that some measures have more years of data available on the Wisconsin Tracking portal, available at [dhs.wi.gov/epht](http://dhs.wi.gov/epht). For additional details on the data, see page 15. For more information about age-adjustment and other terms referenced in this profile, visit the Wisconsin Tracking Program "Glossary of Terms," available at [dhs.wisconsin.gov/epht/glossary.htm](http://dhs.wisconsin.gov/epht/glossary.htm).

### AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$) and Ozone: Monitored and modeled estimates of air quality readings  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Year displayed:** 2011

### WATER QUALITY

Arsenic and Nitrate: Measured concentrations from public water systems  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Years displayed:** Averaged data from 2011-2013

### HOME HAZARDS

Childhood Lead Poisoning: Reported blood lead test results  
**Source:** Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services  
**Note:** The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected and the data are now deduplicated. This version also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.  
**Year displayed:** 2014  
Carbon Monoxide (CO) Poisoning: Age-adjusted rate of emergency room visits related to CO poisoning  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** Averaged data from 2009-2013

### BIRTH OUTCOMES

Low Birth Weight and Preterm Birth: Wisconsin birth certificate data  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** Averaged data from 2011-2013

### HEALTH INDICATORS

Heat Stress: Age-adjusted rate of emergency room visits related to heat stress  
**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** Averaged data from 2009-2013  
Melanoma and Lung Cancer: Age-adjusted rate of cases reported by health care providers  
**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services  
**Years displayed:** Averaged data from 2006-2010  
Asthma: Age-adjusted rate of emergency room visits related to asthma  
**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention  
**Year displayed:** 2012
Air pollution means substances are in the air that should not be there – or should be there in smaller amounts. Two important pollutants to consider for the health of a community are fine particulate matter and ozone. Particulate matter describes microscopic particles that settle in our lungs after being inhaled. The "2.5" in "particulate matter 2.5 (PM$_{2.5}$)" refers to the size of the particles, which are smaller than the width of a human hair. Ozone is created as a result of emissions from vehicles and industrial facilities. Both particulate matter and ozone can trigger health problems, especially in people with breathing conditions like asthma. Levels of these contaminants are measured by monitoring stations set up around the state.

**OZONE**

**ANNUAL DAYS ABOVE STANDARD**

**STATEWIDE:** 0.7

**OZONE**

**ANNUAL AVERAGE (µg/m³)**

**STATEWIDE:** 0.1

**PARTICULATE MATTER 2.5**

**ANNUAL DAYS ABOVE STANDARD**

**STATEWIDE:** 0.0

**PARTICULATE MATTER 2.5**

**ANNUAL AVERAGE (µg/m³)**

**STATEWIDE:** 9.4

The chart to the left provides a year-to-year comparison of the number of days in which ozone was above the standard set by the US Environmental Protection Agency. The fewer days above the standard, the better.
PARTICULATE MATTER 2.5

Particulate matter 2.5 ($\text{PM}_{2.5}$) is so tiny that it can settle in a person’s lungs or bloodstream after being inhaled. These particles are more common near busy roads and in areas with dusty industries. PM has been linked to heart attacks and asthma attacks. Below are three charts showing how the annual average of $\text{PM}_{2.5}$, heart attack rates, and asthma emergency room visits have fluctuated over the 2002-2011 time period. In most Wisconsin counties, there has been a downward trend in all three measures over time.

For more information on ozone and particulate matter, please visit dhs.wisconsin.gov/epht/criteriapollutants.htm.
WATER QUALITY  WOOD COUNTY

Water that is piped into your home, school, or workplace comes from either a public water system or a private well. Two important water contaminants to consider for the health of a community are arsenic and nitrate. Potential health effects of drinking water with high levels of arsenic include skin damage, circulatory system problems, and cancers (such as bladder and lung cancer). Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects. Infants who consume drinking water with high nitrate levels are at risk of shortness of breath and blue baby syndrome.

\[
\begin{align*}
\text{ARSENIC} & \quad \text{NITRATE} \\
\text{STATEWIDE: 1.3} & \quad \text{STATEWIDE: 1.5} \\
\end{align*}
\]

\[
\begin{align*}
\text{ARSENIC} & \quad \text{NITRATE} \\
\text{STATEWIDE: 1.3} & \quad \text{STATEWIDE: 1.5} \\
\end{align*}
\]

PUBLIC DRINKING WATER

About two-thirds of Wisconsin residents obtain water from public water systems. Data presented on this page are collected from public water systems.

Levels of contaminants in public water systems are monitored and regulated by the Wisconsin Department of Natural Resources. All counties reported arsenic and nitrate mean concentrations below the maximum contaminant levels established by the US Environmental Protection Agency.

For more information and to explore data about other drinking water contaminants in Wisconsin, visit dhs.wi.gov/epht.
PRIVATE DRINKING WATER

About one-third of Wisconsin residents obtain water from private wells. Private water wells are those that are owned by individuals. Private well owners are responsible for monitoring and testing their wells. Regulations are in place to guide the creation of new wells, but requirements are limited once a well is in place. As a result, not all private wells are regularly monitored for contamination.

The Wisconsin Environmental Public Health Tracking Program worked to improve access to private well data by partnering with the University of Wisconsin-Stevens Point’s Center for Watershed Science to support a mapping tool. This tool provides private well data for multiple contaminants at county, township, and section levels. The well data were voluntarily submitted by homeowners and represent data from the past 25 years. The data do not include water quality information for all known private wells.

County-specific measures for arsenic and nitrate in private wells are displayed below. Seven counties have reported average concentrations of arsenic above the 10 µg/L maximum contaminant level. For nitrate, all counties are below the 10 mg/L maximum contaminant level. To explore data for the other water contaminants, visit bit.ly/wellwaterviewer.

The arsenic data displayed include results of 15,230 samples collected from 1988-2014. The nitrate data displayed include results of 113,465 samples collected from 1972-2014. The number of samples collected varies from year to year; accordingly, some years are better represented than others. Note that the level of precision between the arsenic and nitrate values is different in the map legends; this is related to the level of detection capabilities of the laboratory equipment.
Lead and carbon monoxide (CO) poisoning are two home hazards monitored by the Wisconsin Environmental Public Health Tracking Program. Carbon monoxide poisoning prevents oxygen from getting to the body, which can damage tissue and even cause death. In children, lead poisoning slows growth and development, particularly in the brain. Lead poisoning is also associated with increased incarceration and poor academic outcomes.

**CARBON MONOXIDE POISONING**

Carbon monoxide (CO) is a toxic, colorless, and odorless gas. CO is created whenever fuel or other materials are burned. Wisconsin state law requires that all homes have a carbon monoxide detector on every level.

The chart to the left presents age-adjusted rates of emergency room visits for CO poisoning. For more information on carbon monoxide poisoning, please visit dhs.wisconsin.gov/air/co.htm.

**Carbont Lake Yields**

---

**CARBON MONOXIDE**

**RATE OF ER VISITS PER 100,000 PEOPLE**

<table>
<thead>
<tr>
<th>Year</th>
<th>Wood County</th>
<th>Wisconsin Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004-2008</td>
<td>8.4</td>
<td>8.2</td>
</tr>
<tr>
<td>2009-2013</td>
<td>7.6</td>
<td>7.8</td>
</tr>
</tbody>
</table>

---

**CHILDHOOD LEAD POISONING**

PERCENT OF TESTED CHILDREN WITH BLOOD LEAD ≥5 µg/dL

<table>
<thead>
<tr>
<th>Year</th>
<th>Above state value</th>
<th>At or below state value</th>
<th>Suppressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004-2008</td>
<td>8.7%</td>
<td>1.1%</td>
<td></td>
</tr>
<tr>
<td>2009-2013</td>
<td>6.3%</td>
<td>1.1%</td>
<td></td>
</tr>
</tbody>
</table>
CHILDHOOD LEAD POISONING

Wisconsin statute defines lead poisoning in a child as a blood lead level of 10 or more µg/dL (Wis. Stat. § 254.11[9]). However, in 2012, the Centers for Disease Control and Prevention recommended the lead poisoning reference value be lowered to greater than or equal to 5 µg/dL.

This decision was made due to the overwhelming evidence that blood lead levels below 10 µg/dL can cause damage to the brain and other parts of the body.

There is no safe level of lead in the human body. Even very low levels of exposure can cause adverse health effects.

The percentage of children tested with a blood lead level greater than or equal to 5 µg/dL has declined over the past 14 years in most Wisconsin counties. This decline is due in part to prevention and outreach efforts that have happened throughout the state. Together we have made great progress, but there is still work to be done to eliminate lead poisoning for all children.

The change in reference value for lead poisoning from ≥10 µg/dL to ≥5 µg/dL had a substantial impact on the number of Wisconsin children recognized as being affected by lead poisoning. The maps below illustrate that change. The map on the left shows the number of children who were considered lead poisoned at the previous level. The map on the right shows the number of children who are considered lead poisoned at the new level. For more information on preventing and remediating lead exposure, please visit the Wisconsin Lead Program website, dhs.wi.gov/lead.
Reproduction is complex, and many factors affect a mother’s ability to conceive, carry a baby to term, and deliver a baby without complications. Environmental factors such as air pollution and exposure to contaminated drinking water can increase the likelihood of low birth weight and preterm births. Low birth weight has also been linked to exposure during pregnancy to lead, solvents, pesticides, and polycyclic aromatic hydrocarbons (a group of over 100 contaminants produced by burning fuels like coal).

**LOW BIRTH WEIGHT**

- 6.5%
  - PERCENT BIRTHS <2,500 GRAMS
  - STATEWIDE: 7.3%

- 9.6%
  - PRETERM BIRTH
  - PERCENT BIRTHS <37 WEEKS GESTATION
  - STATEWIDE: 10.3%

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

**LOW BIRTH WEIGHT**

- PERCENT OF BIRTHS BELOW 2,500 GRAMS

<table>
<thead>
<tr>
<th>Year</th>
<th>Wood County</th>
<th>Wisconsin Average</th>
<th>Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002-2004</td>
<td>6.0%</td>
<td>6.5%</td>
<td>5.0% - 7.0%</td>
</tr>
<tr>
<td>2005-2007</td>
<td>6.5%</td>
<td>6.5%</td>
<td>5.5% - 7.5%</td>
</tr>
<tr>
<td>2008-2010</td>
<td>7.0%</td>
<td>7.0%</td>
<td>6.0% - 8.0%</td>
</tr>
<tr>
<td>2011-2013</td>
<td>7.0%</td>
<td>7.0%</td>
<td>6.0% - 8.0%</td>
</tr>
</tbody>
</table>

**LOW BIRTH WEIGHT**

Low birth weight – being born with a weight under 2,500 grams – can occur as a result of slow fetal growth over a full-term pregnancy, being born preterm, or both. The figure to the left provides a comparison between the county-level percentage of low birth weight babies and the percentage of low birth weight babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the left. They are denoted with dotted gray lines. These confidence intervals indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.
PRETERM BIRTH

A baby is considered to be preterm if he or she is born before completing 37 weeks of gestation. Many women who have preterm birth have no known risk factors. Women have the best chance of preventing preterm birth by being healthy before and during pregnancy and receiving high-quality prenatal care. Environmental factors can also play a role, as research has shown a relationship between exposure to air pollution, lead, solvents, and tobacco smoke during pregnancy and a higher risk of preterm birth.

The figure to the right provides a comparison between the percentage of preterm babies at the county level and the percentage of preterm babies in Wisconsin from 2002-2013.

Confidence intervals based on the county rate have been added to the chart to the right. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on preterm births, visit dhs.wi.gov/epht/premature.htm.

BIRTH DEFECTS

A birth defect is a problem that happens while the baby is developing in the mother’s body. Most birth defects happen during the first three months of pregnancy. A birth defect may affect how a baby’s body looks, works, or both.

Many birth defects are known to be related to environmental factors. Birth defects such as spina bifida, cleft lip/palate, gastroschisis, hydronephrosis, Down syndrome, and heart defects have all been linked to living near hazardous waste sites. Some birth defects have also been linked to disinfection by-products in drinking water. Some studies have also found evidence of a link between exposure to high nitrate levels in drinking water early in pregnancy and certain birth defects.

The causes of most birth defects remain unknown. With the data collected through the National Environmental Public Health Tracking Program, researchers will be better equipped to study the relationship between birth defects and the environment.

The Wisconsin Environmental Public Health Tracking Program obtains data on 10 types of birth defects from the Birth Defect Prevention and Surveillance Program at the Wisconsin Department of Health Services. The Birth Defects Registry is a passive surveillance system for which reporting by health care providers is optional. Much of this data is available on our web portal, which can be found at dhs.wisconsin.gov/epht/birthdefects.htm.
Heat stress, melanoma, lung cancer, and asthma are four of the many health indicators collected by the Wisconsin Environmental Public Health Tracking Program. Each of these indicators is strongly linked to one or more environmental factors.

**HEAT STRESS**

Rate of ER visits per 100,000 people

- **26.2**
  - Above state value
  - Wood County

**MELANOMA**

Rate of cases per 100,000 people

- **18.3**
  - At or below state value
  - Wisconsin Average

**LUNG CANCER**

Rate of cases per 100,000 people

- **58.2**
  - Suppressed
  - Wood County

**ASTHMA**

Rate of ER visits per 100,000 people

- **218.0**
  - Above state value
  - Wisconsin Average

**HEAT STRESS**

Heat stress encompasses a range of conditions including heat rash, heat syncope, heat cramps, and heat exhaustion. Any individual can develop heat stress when involved in intense physical activity or when exposed to high environmental temperatures.

In this profile, heat stress is measured by emergency room visits related to heat. For more information on heat stress, visit bit.ly/cdcheatstress.

**TAKE A CLOSER LOOK AT THE DATA:**

dhs.wi.gov/epht
Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other body tissues. There are more than 100 different types of cancer. Melanoma is a cancer of the skin pigment cells and is the most dangerous type of skin cancer. Lung cancer forms in the tissues of the lung, usually in the cells lining the air passages, and is the leading cause of cancer deaths in the United States.

Both melanoma and lung cancer are strongly linked to environmental causes. Melanoma is linked to ultraviolet (UV) radiation exposure, and lung cancer is related to radon and environmental tobacco smoke. In this profile, melanoma and lung cancer data are presented as age-adjusted rates of new cases per 100,000 people.

The rate of melanoma in Wisconsin is increasing over time, and nearly all Wisconsin counties are following the same upward trend. The rate of lung cancer has held relatively steady in Wisconsin, with more variability by county. Confidence intervals based on the county rate have been added to the charts above. They are denoted with dotted gray lines, which indicate the precision of the estimated values. The closer the dotted lines are to the county line, the better (or more precise) the estimate.

For more information on melanoma, visit dhs.wisconsin.gov/epht/melanoma.htm. To read more about lung cancer, visit dhs.wisconsin.gov/epht/lung.htm.

Asthma is a disease that affects breathing and may restrict the ability to get oxygen to the lungs. Symptoms of asthma often occur because a person is exposed to a trigger such as outdoor air pollution.

In this profile, asthma is measured by the rate of asthma-related emergency room visits per 100,000 people. The overall rate of asthma emergency room visits in Wisconsin has declined slightly since 2002. Rates at the county level are more variable. For more information about asthma, visit dhs.wisconsin.gov/asthma/Index.htm.
DATA DETAILS

AIR QUALITY

Particulate Matter 2.5 (PM$_{2.5}$)

**Measures:** Annual Average PM$_{2.5}$ (µg/m$^3$), Percent of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011, data from 2011 are displayed on the dashboard

**Data details:** These measures include monitored and modeled estimates of PM$_{2.5}$ levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist. The data downloaded from the national portal for percent of days above standard were multiplied by 365 to get number of days above US Environmental Protection Agency standard. The US Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) for a 24-hour average PM$_{2.5}$ concentration is 35 µg/m$^3$.

Ozone

**Measure:** Number of days above standard set by the US Environmental Protection Agency

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** This measure is the number of days with maximum eight-hour average ozone concentration over the Environmental Protection Agency’s National Ambient Air Quality Standard (NAAQS) of 0.075 ppm. This measure includes monitored and modeled estimates of ozone levels. Modeled estimates are used to fill in gaps for days when monitoring does not occur or in counties where monitors do not exist.

Heart Attack

**Measure:** Age-adjusted rate of hospitalizations among persons age 35 and over per 10,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2011

**Data details:** These data are collected from inpatient hospital records. This measure includes cases with an ICD-9 code of 410.0-410.92. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six hospitalizations per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

HEALTH INDICATORS

Asthma

**Measures:** Annual age-adjusted rate of emergency department visits per 100,000 people

**Source:** National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention

**Years displayed:** 2002-2012, data from 2012 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 493. The National Environmental Public Health Tracking Network suppresses data for counties with fewer than six visits per 100,000 to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population. On the National Environmental Public Health Tracking portal, this measure is calculated per 10,000 people. For use in this profile, it is converted to per 100,000 people.

Lung Cancer and Melanoma

**Measure:** Age-adjusted rates of cases among persons age 35 and over per 100,000 people

**Source:** Wisconsin Cancer Reporting System, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 1996-2010, data from 2006-2010 are displayed on the dashboard

**Data details:** Rates are calculated from counts of cancer cases reported to the Wisconsin Cancer Reporting System by health care providers in Wisconsin. Data for counties with fewer than six cases are suppressed to protect confidentiality. However, counties with zero cases are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

Heat Stress

**Measure:** Age-adjusted rate of emergency department visits per 100,000 people

**Source:** Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services

**Years displayed:** 2004-2013, data from 2009-2013 are displayed on the dashboard

**Data details:** These data are collected from emergency room visit records. This measure includes cases with an ICD-9 code of 992.0-992.9, or cause of injury code E900.0 or E900.9. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.
WATER QUALITY

ArSENIC

Measures: Mean concentration of arsenic (µg/L) in public drinking water
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013
Data details: Arsenic concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple arsenic mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

NITRATE

Measure: Mean concentration of nitrate (mg/L) in public drinking water
Source: National Environmental Public Health Tracking Network, Centers for Disease Control and Prevention
Years displayed: Averaged data from 2011-2013
Data details: Nitrate concentrations in drinking water are based on samples taken from public community water systems. Because many counties did not have any samples for a given year, three years of data were aggregated (2011-2013). Some counties had multiple nitrate mean values (from different water systems), so the values were first averaged within a given county and then averaged across the years.

HOME HAZARDS

LeAD POISONING

Measure: Percent of children tested who had a blood lead level ≥5 µg/dL
Source: Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Environmental and Occupational Health, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2001-2014, data from 2014 displayed on dashboard
Data details: Wisconsin blood lead testing data from children less than six years of age are reported to the Wisconsin Childhood Lead Poisoning Prevention Program. Data are de-duplicated such that they contain the most recent confirmatory (venous) test following an elevated screening (capillary) test. If no confirmatory test for the individual is available, the most recent screening test result is used. The first version of this profile contained lead data from 2013. These data reflected duplicated cases, which might inflate rates in some counties. This issue has been corrected. This version of the profile also includes 2014 data, as they were available during the second printing. Please update any saved copies with this version.

CARBON MONOXIDE POISONING

Measure: Annual average rate of emergency room visits, age adjusted per 100,000 people
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2004-2013, data averaged from 2009-2013 displayed on dashboard
Data details: This measure includes carbon monoxide poisonings that were unintentional (fire- or non-fire-related) and of unknown intent. These data are collected from emergency room visit records. The measure includes cases with an ICD-9 code of 986 or cause of injury code E868.2, E868.3, E868.8, E868.9, E982.0, E982.1, E818, E825, E838, E844, E867, E868, or E890-E899. Data for counties with fewer than five visits are suppressed to protect confidentiality. However, data from counties with zero visits are not suppressed. Direct age-adjustment is conducted using the 2000 US standard population.

BIRTH OUTCOMES

LOW BIRTH WEIGHT

Measures: Percentage of babies weighing <2,500 grams at birth among all babies born to county residents
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2002-2013, data from 2011-2013 are displayed on dashboard
Data details: Data are from Wisconsin resident birth certificates. Birth weight in grams is reported by the hospital or attending clinical staff.

PRETERM BIRTH

Measure: Percentage of babies born at <37 weeks gestation among all babies born to county residents
Source: Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services
Years displayed: 2002-2013, data from 2011-2013 are displayed on dashboard
Data details: Data are from Wisconsin resident birth certificates. The last menstrual period a mother had prior to confirmed pregnancy is used to determine weeks of gestation. If data from this source are not available, the attending clinician’s estimated weeks of gestation is used.