

**PUBLIC HEALTH PROFILES
WISCONSIN
2009**



October 2011

**Population Health Information Section
Office of Health Informatics
Division of Public Health
Wisconsin Department of Health Services**

Suggested citation:

Wisconsin Department of Health Services, Division of Public Health, Office of Health Informatics, Population Health Information Section. *Public Health Profiles, Wisconsin 2009* (P-45358-09). October 2011.

TABLE OF CONTENTS

Foreword.....	v
Introduction.....	1
About the Data	2
Sources and Limitations	2
Population	2
Rates	2
Poverty Estimates.....	2
Employment Statistics	2
Long-Term Care	3
Local Health Department Statistics.....	4
Licensed Establishments.....	4
WIC	5
Cancer Incidence.....	5
Natality.....	6
Morbidity	7
Immunizations.....	7
Mortality	7
Motor Vehicle Crashes	8
Hospitalizations	9
Formulas for Natalty and Mortality Rates	11
Categories of Underlying Cause of Death.....	12
First-Listed Diagnoses Associated with Hospitalizations	13
Diagnoses Defining Preventable Hospitalizations	14
Statewide Profile	15

County Profiles.....	21
Division of Public Health Regions	311
Perinatal Regions	333

Foreword

Public Health Profiles, Wisconsin 2009, presents selected data on population characteristics, natality, mortality, morbidity, local health departments, long-term care and hospitalizations in Wisconsin for calendar year 2009. The data were selected to profile important aspects of public health for the state as a whole, each of the 72 counties, the five Division of Public Health regions, and the seven perinatal regions. Local public health professionals and others seeking general information about the health of Wisconsin's population use these data.

The Division of Public Health, Wisconsin Department of Health Services, provided funds for developing and disseminating this report. This report was produced by Yiwu Zhang, in the Population Health Information Section, under the overall direction of Oskar Anderson, Director, Office of Health Informatics. Audrey Nohel verified the data. Patricia Nametz edited the report.

Most of the statistics came from data systems maintained in the Division of Public Health. In the Vital Records Section, Joyce Knapton provided mortality data and Laura Ninneman provided natality and infant mortality information. Karl Pearson of the Population Health Information Section provided 2009 population estimates. Mary Foote of the Health Care Information Section provided cancer incidence data for 2008 (the latest available). The Population Health Information Section prepared hospitalization data from inpatient discharge files, with data collected by the Wisconsin Hospital Association Information Center.

Jennifer Ullsvik of the Southern Regional Office compiled Local Health Department Survey data collected online via the Health Alert Network (HAN). The Bureau of Communicable Diseases and Emergency Response provided morbidity data and immunization data. The Bureau of Community Health Promotion, Special Supplemental Nutrition Program for Women, Infants and Children (WIC), provided WIC participant data. The Bureau of Environmental and Occupational Health provided licensed establishment data.

Nursing home data were provided by the Division of Quality Assurance. Community Options Program data and Medical Assistance Waiver data were provided by the Bureau of Long-Term Support, Division of Long-Term Care. Data for eligible and waiting clients were also provided by this bureau. Family Care data were derived from the Wisconsin Managed Care database. All of these entities are in the Department of Health Services.

Employment data were provided by the Bureau of Workforce Information, Division of Workforce Solutions, Department of Workforce Development.

Motor vehicle crash data are maintained by the Department of Transportation (DOT), Division of Motor Vehicles, Traffic Accident Section. Figures were compiled from that source by the Bureau of Transportation Safety in DOT's Division of State Patrol.

Comments, suggestions and requests for information may be addressed to:

Population Health Information Section
Division of Public Health
P.O. Box 2659
Madison, WI 53701-2659
E-mail: DHSHealthstats@wisconsin.gov

Introduction

This report profiles the 2009 Wisconsin population at the statewide and local levels. It presents a broad range of descriptive data including information about the natality, mortality, morbidity, local public health and hospitalization experience of each county in the state. The report emphasizes maternal and child health data on a county level and permits comparisons between local and regional or statewide indicators of health. These data are useful in program planning, development and evaluation by local health departments; local, regional, and state policymakers; and other interested parties.

The 2009 Public Health Profiles provide data for measuring some of the indicator metrics and quantifiable targets found in Wisconsin's State Health Plan (<http://dhs.wisconsin.gov/statehealthplan/index.htm>).

Most of the data in the Public Health Profiles represent events or estimates for calendar year 2009. The exceptions are cancer incidence (for which 2008 is the latest data available), WIC participants (state fiscal year), immunization numbers and percents (2009-2010 school year), licensed establishment data (2009-2010 state fiscal year), poverty estimates and median household income (for which 2008 is the latest data available).

Copies of this report and other health statistics can be found on the DHS website, at <http://www.dhs.wisconsin.gov/localdata/pubhlthprofiles.htm>.

Further details and additional data are reported in the following annual publications, accessible at <http://dhs.wisconsin.gov/stats/>.

Wisconsin Births and Infant Deaths

Wisconsin Deaths

Wisconsin Cancer Incidence and Mortality

Also see the WISH data query system, which provides data from multiple databases: <http://dhs.wisconsin.gov/wish/>

About the Data

Sources and Limitations

With some exceptions, county and regional information is derived from resident data. (The exceptions are average wage, motor vehicle crash statistics, part of the nursing home data, local health department data, and licensed establishment data.) This means that all natality, mortality, morbidity, and hospitalization events are based on county of residence regardless of where the event occurred. Maps that show the current boundaries for the Division of Public Health regions and the perinatal regions are available at <http://www.dhs.wisconsin.gov/localdata/pubhlthprofiles.htm> .

Population

The population by age, sex, and race/ethnicity was estimated for July 1, 2009, by the Population Health Information Section. Estimated populations are reported rounded to the nearest ten. The race/ethnicity categories are mutually exclusive (racial categories exclude Hispanics).

Rates

Most rates per population included in this publication were calculated using 2009 population data. A crude rate is the number of events per 1,000 (or 10,000 or 100,000) people. It is termed “crude” because its magnitude may be affected by the population’s age distribution. In contrast, an age-specific or age-standardized rate considers age distribution, and would be preferred over a crude rate for comparisons between populations with different age distributions.

Rates for some events were not calculated. For most measures, numerators of fewer than 20 events (indicated by “.”) were judged too small to calculate rates that are meaningful; such rates would be misleadingly unstable over time because small annual fluctuations in the number of events can create large changes in a rate. Calculation of other rates was not done for other reasons (indicated by “--”); for example, the population base for a fertility rate for females under 15 years old cannot be estimated accurately.

Poverty Estimates and Median Household Income

Estimates of poverty and median household income for 2008 in Wisconsin were downloaded from the U.S. Census Bureau’s Small Area Income and Poverty Estimates (SAIPE) program website. A 90 percent (90%) confidence interval (C.I.±) is printed in a column next to each estimated value; this means that 90 percent of similar surveys would obtain an estimated value within the confidence interval specified.

Employment Statistics

Data on civilian labor force, unemployment rate and average wage were obtained from the Division of Workforce Solutions, Wisconsin Department of Workforce Development.

Definitions:

The civilian labor force includes all persons 16 years of age or over who are either working or looking for work. This statistic does **not** include members of the Armed Forces;

“discouraged workers” who are not either actively seeking employment, about to start a new job, or waiting to be called back from a layoff; or other people (such as students or retired persons) not working or looking for work.

Employed persons are individuals 16 years or older who worked for pay anytime during the week that includes the 12th day of the month, or who worked unpaid for 15 hours or more in a family-owned business, or who were temporarily absent from their jobs due to illness, bad weather, vacation, labor dispute, or personal reasons.

Unemployed persons are individuals 16 years or older who had no employment, were available for work, and either actively seeking employment, about to start a new job, or waiting to be called back from a layoff.

Long-Term Care

Data for the Community Options Program (COP) and Medical Assistance Waiver programs are maintained in the Human Services Reporting System (HSRS), managed by the Division of Long-Term Care (DLTC). In most counties, these programs are administered by a single county agency. For those counties that have more than one agency serving different populations, the data were combined to produce the numbers in the county report. Data from the Oneida Tribe were included with Brown County data. Both the client counts and the costs are taken from the reporting system prior to any year-end contract adjustments with the provider agencies. COP and MA Waiver counts represent unduplicated cases, as reported by DLTC. Waiver costs reported include federal funding.

Clients who are eligible and waiting for the COP/MA waiver programs are phased into care as appropriate.

Community Integration Program-1A (CIP1A) is authorized by Wisconsin Statute s. 46.275. It is a Medicaid-funded (state and federal) program designed to provide community services to persons who are relocated or diverted from the state centers for the developmentally disabled. Participants must be Medicaid eligible. The target group is developmentally disabled persons, of any age, who reside in or would enter a state center for the developmentally disabled without this program.

Community Integration Program-1B (CIP1B) is authorized by Wisconsin Statute s. 46.278. It is a Medicaid-funded (state and federal) program designed to provide long-term care assessments, care plans and community services to persons who are relocated or diverted from ICFs-MR other than a state center for the developmentally disabled. Participants must be Medicaid eligible. The target group is developmentally disabled persons, of any age, who are diverted or relocated from an ICF-MR (not a state center) and certain nursing homes.

Community Options Program-Waiver (COP-W) is authorized by Wisconsin Statute s. 46.27 (11). It is a Medicaid-funded (state and federal) program designed to provide community services as an alternative to nursing home placement. Participants must be Medicaid eligible. The target group is frail elderly and physically disabled adults. COP-W is funded as an allocation to counties, based on the Community Aids formula or as designated by legislative intent. Counties manage these funds by serving eligible people within the total amount of COP-W funding.

Community Integration Program II (CIP2) targets the same group of frail elderly and physically disabled adults. This program is intended to increase the capacity of home-based and

community-based care programs when nursing home resources are lost due to closing of facilities or reducing the number of licensed beds.

The distinction between COP-W and CIP II is purely fiscal, as the program standards and quality assurance requirements are identical.

Children's Long-Term Support Waivers (CLTS) are authorized by Wisconsin Statute in 2001 Wisconsin Act 16, section 9123 (16rs); and 2003 Wisconsin Act 33, section 9124 (8c). This is a Medicaid-funded (county, state and federal) program designed to provide long-term care assessments, care plans and community services to children who meet functional and financial eligibility criteria. Participants must be Medicaid eligible. The target group is children with developmental, mental health, or physical disabilities up to age 22.

Family Care is a Wisconsin program provided under a capitated rate, unlike the actual cost of care for each individual as provided in the COP/MA waiver programs. In the 49 Wisconsin counties with Family Care in 2009, those clients who start to receive Family Care during the year may be counted under both programs if they were served under a Medicaid-funded waiver before starting the Family Care program. From 2008, new funding sources from the Program of All-inclusive Care for the Elderly (PACE) and other partnerships have been included. For years before 2008, only the funding source of Family Care was included.

Nursing home data are drawn from the Division of Quality Assurance (DQA) Staffing Survey, as well as the federal MDS (minimum data set) resident-based data collected from Medicare- and/or Medicaid-certified nursing homes. Data were provided by the DQA. The data do not include the five state-licensed-only nursing homes in Wisconsin.

Local Health Department Statistics

The reported data for local health department staff are based on responses to the Annual Survey of Local Health Departments, conducted by the Southern Regional Office, Wisconsin Division of Public Health. Aggregate information for calendar year 2009 was collected from each local health department, using an online survey on the Health Alert Network (HAN).

Some local health departments serve populations that do not coincide with county boundaries. For example, the City of Appleton is located in three counties. This report apportions staff and funding according to the percent of the health department's population in each county, using population estimates provided by the Wisconsin Department of Administration for January 1, 2009.

Staffing classification: "Environmental health professionals" include registered sanitarians and other environmental professionals. "Other professional staffing" includes dietitians, physicians, epidemiologists, laboratory professionals, registered nurses, nurse practitioners, and other public health professionals. "Technical and para-professionals" include computer specialists, diet technicians, interpreters, lab technicians, licensed practical nurses, and other para-professionals.

Licensed Establishments

The Food Safety and Recreational Licensing Section of the Bureau of Environmental and Occupational Health, Division of Public Health, provided the licensed establishment data. The facilities in this report are active establishments licensed and inspected by the Food Safety and

Recreational Licensing Section, or by local health departments under contract with the Division of Public Health. Restaurants are categorized by the complexity or risk of their fare (prepackaged, simple, moderate, complex). Lodging facilities include hotels, motels, tourist rooming houses, and bed and breakfast establishments. Recreational facilities include water attractions, swimming pools, recreational educational camps and campgrounds. Body art establishments include both tattoo and body piercing establishments.

Due to a change in the data reporting system for licensed establishments, data are now available for the state fiscal year. This report includes licensed establishment data for State Fiscal Year 2010.

WIC

The number of participants in the Supplemental Nutrition Program for Women, Infants and Children (WIC) represents an unduplicated count of participants by county. The state and regional values were obtained by summing the county values, which introduced duplication, reflecting those participants who moved to another county during the year.

The number of WIC participants in a county may seem high compared to the number of births. This occurs because once a participant enters the WIC program, that participant's status is not modified as it changes. For example, an infant may be 11 months old in January and change to a new status of "child" in the next month. For purposes of the unduplicated count, this participant is counted as an infant for the fiscal year report.

Starting from 2008, the Profiles include the number of WIC participants who do not speak English and those who do. Totals may differ somewhat from totals for type of participants because the timeframes are slightly different. For 2009 and future WIC data, if a WIC participant lived in more than one county in the year and did not speak English, she is reported in each county of residence. For 2008, a WIC participant who did not speak English was reported only once, regardless of how many counties she resided in during the year. As a result, some county counts of WIC participants who do not speak English will be higher in 2009 than 2008.

Cancer Incidence (New Cases of Cancer)

Cancer incidence data are compiled from reports submitted by Wisconsin hospitals, clinics and physicians to the Wisconsin Cancer Reporting System (WCRS), Health Care Information Section, Division of Public Health, as mandated under Chapter 255.04, Wisconsin Statutes. Hospitals report all cases seen with active cancers. Clinics and physicians report all treated cases and any non-treated case that has not been referred to a Wisconsin hospital. Central cancer registries in 19 other states and several Minnesota hospitals that diagnose and/or treat Wisconsin resident cancer patients report voluntarily to the Wisconsin Cancer Reporting System.

All reports sent to WCRS include patient demographics, tumor-specific characteristics and type of treatment. WCRS reportable cancers include all malignant invasive and noninvasive neoplasms (except basal cell and squamous cell carcinomas that arise in the skin and noninvasive cervical cancers) plus in situ (pre-malignant) bladder cancers and (since January 1, 2004) benign tumors of the brain and central nervous system.

This report presents cancer incidence data for cases diagnosed in 2008 (the latest data available). The incidence rate is per 100,000 unadjusted population; rates for female breast, cervical, and prostate cancers are per 100,000 sex-specific population. Only invasive cancers are included, and

are thus not comparable to any previous publications that included both invasive and noninvasive cancers.

Natality

Natality data are drawn from birth certificates maintained by the Vital Records Section, Division of Public Health. These data include characteristics of the infant and pregnancy (birthweight, delivery method, birth order, trimester of first prenatal care visit, and number of prenatal care visits) and attributes of the mother (age, marital status, education, race/ethnicity, and smoking status).

Natality data include records on all births to state residents, including those that occur outside Wisconsin. Out-of-state records are obtained from the state of occurrence. Thus, county birth data are for all births to county residents regardless of where the births occurred.

Specific definitions:

A **live birth** is the complete expulsion or extraction of an infant from its mother, irrespective of the duration of pregnancy, which after such separation breathes or shows any other evidence of life, such as beating of the heart, pulsation of the umbilical cord or definite movement of voluntary muscles.

The **birthweight** is the infant weight at time of delivery (reported here in grams).

A mother is defined as a **smoker** if she reports smoking cigarettes at any time during the pregnancy.

Mother's **race/ethnicity** is classified by race and Hispanic origin into six mutually exclusive categories: non-Hispanic white; non-Hispanic black or African American; non-Hispanic American Indian; Hispanic/Latino; non-Hispanic Asian; and non-Hispanic other/unknown.

Teen births are births in which the mother was less than 20 years old.

Formulas for rates are defined on Page 11. For example:

The **crude birth rate** is the number of live births per 1,000 people.

The **general fertility rate** is the number of live births per 1,000 women of childbearing age (15-44).

The **age-specific fertility rate** is the number of births to women in an age category per 1,000 women of that age. Many counties have a small number of births in some maternal age groups, and rates would be unreliable (see "Rates," page 2).

The **teen birth rate** is calculated by dividing the number of births to females under 20 years old by the number of females age 15-19, and multiplying the result by 1,000.

Morbidity

Morbidity data are shown for selected reportable diseases. The 2009 numbers of confirmed cases were obtained from the Bureau of Communicable Diseases and Emergency Response, Division of Public Health. Chapter 252, Wisconsin Statutes, and DHS 145, Wis. Admin. Code, require the surveillance and control of certain communicable diseases.

Completeness of reporting varies by disease. The figures for a county or region refer to reported cases among residents of that county or region, regardless of where the disease was contracted. Specific counts for a year are subject to some slight changes over time as medical tests reveal previously unidentified cases or change previous diagnoses.

The symbol “<5” denotes that the number of reported cases is between 1 and 4. The exact number is suppressed to maintain confidentiality.

Immunizations

The percent of children compliant with immunization requirements is based on reports required from all public and private schools and compiled by the Immunization Section, Bureau of Communicable Diseases and Emergency Response, Division of Public Health. The number of non-compliant children does not include those whose parents have filed waivers based on personal conviction, religious or medical grounds.

Mortality

Mortality data are drawn from three sources maintained by the Vital Records Section, Division of Public Health:

- Death certificates;
- Infant death certificates matched with the corresponding birth certificates;
- Fetal death reports (deaths of fetuses of at least 20 weeks of gestation).

Specific definitions:

Cause of death is based on the underlying cause of death, as recorded on death certificates. The categories and ICD-10 codes are listed on page 12.

Fetal deaths are deaths prior to the complete expulsion or extraction from its mother of a product of conception; the fetus shows no signs of life such as beating of the heart, pulsation of the umbilical cord or definite movement of voluntary muscles. Only deaths of fetuses of at least 20 weeks of gestation must be reported in Wisconsin. Fetal death reports do not include induced abortions.

Infant deaths are deaths of a live-born individual less than one year of age.

Neonatal deaths are deaths of a live-born infant less than four weeks (28 days) of age.

Perinatal deaths are neonatal deaths plus all reported fetal deaths of 20 or more weeks of gestation.

Postneonatal deaths are deaths of an infant between four weeks (28 days) and one year of age.

The denominator for the reported death rates varies:

The **crude death rate** is the total number of deaths per 100,000 population.

The crude rate for **causes of death** is the number of deaths from a cause per 100,000 population.

Cancer, female breast, counts only deaths to females. The rate for female breast cancer deaths is the number of deaths to females from breast cancer per 100,000 female population.

The rate for **deaths by age** is the number of deaths in an age group per 100,000 population in that age group.

The **neonatal, postneonatal and infant death rates** are the number of deaths per 1,000 live births.

The **fetal and perinatal death rates** are the number of deaths per 1,000 live births and fetal deaths.

The race-specific and weight-specific **infant death rates** are deaths per 1,000 live births in that race or weight category.

Rates were not calculated when based on fewer than 20 events (indicated by “.”).

The selected causes of death were included if they were either:

- One of four selected causes of death (heart disease, cancer, cerebrovascular disease, accidents); or
- A preventable cause of death mentioned in the document *Healthier People in Wisconsin, A Public Health Agenda for the Year 2000*, with at least 500 deaths in Wisconsin in 1991.

The section on **Alcohol and drug abuse as underlying or contributing cause of death** provides a count of deaths with any mention of alcohol, tobacco use, or other drugs on the death certificate. A death with more than one of these causes mentioned is counted for each one. For instance, a death that mentions both alcohol and tobacco will be counted in both categories.

Motor Vehicle Crashes

Motor vehicle crash data are occurrence data from the county in which the crash took place. (Most other data in this publication are based on the county of residence.) County statistics on persons injured and killed therefore do not include county residents who were injured or killed outside the county, and may include persons who are residents of other counties or other states.

Data on injuries and fatalities in motor vehicle crashes were obtained from the WisDOT-DMV Traffic Accident Data Base of the Wisconsin Department of Transportation. These data were reported by state and local law enforcement agencies. Because crash data are from a different

source, the number of “Persons Killed” in motor vehicle crashes will not match the number of deaths from “Accidents, Motor Vehicle” in the profile’s Mortality section.

Specific definitions:

Persons injured were physically harmed or complained of physical harm from injuries received in the crash, but did not die within 30 days of the crash.

Persons killed were all persons who died within 30 days from injuries received in the crash.

Alcohol-related crash is a crash in which either a driver, bicyclist or pedestrian is listed on a police or coroner report as drinking alcohol before the crash.

Crashes with a **citation for OWI** are those in which a law enforcement official has issued a citation for violation of s. 346.63, Wis. Stats., “operating under influence of intoxicant or other drug.”

Hospitalizations

The reported data for hospitalizations were obtained from 2009 hospital inpatient discharge files prepared by the Population Health Information Section, Division of Public Health, from data collected by the Wisconsin Hospital Association Information Center. Information was not available on Wisconsin residents hospitalized out of state. Therefore, caution is advised when analyzing the hospital data for border counties since residents of these counties may receive a significant amount of care from out-of-state facilities. The reported numbers and rates of hospital discharge from border counties are proportionally low.

Diagnostic definitions used for the categories are based upon objectives outlined in the document *Healthier People in Wisconsin, A Public Health Agenda for the Year 2000*, and definitions established by the federal Centers for Disease Control and Prevention and the Missouri Center for Health Statistics. The categories are based on the principal diagnosis. The descriptions and ICD-9-CM diagnostic codes for each category are listed on page 13.

Hospitalizations are measured as inpatient discharges. Hospitalizations for an individual can occur more than once due to multiple admissions and transferring between hospitals. The diagnoses most affected by transfers are malignant neoplasms, mental disorders, cerebrovascular disease, coronary heart disease and injury-related diagnoses.

Average charges for a particular county, diagnostic category and age group were calculated by dividing the total charges by the number of discharges with reported charges in that county, category, and age group. The charge per person was calculated by dividing the total charges by the estimated total population.

The rate of discharge per 1,000 population was calculated by dividing the number of discharges in a particular county, diagnostic category and age group by the total population in that county and age group and multiplying the results by 1,000. One exception, female breast cancer, uses only the female population as the denominator. Rates at the county level were not calculated for diagnoses with fewer than 20 discharges in the age group.

[Technical Note: Length of stay and charge outliers were defined as values below the 1st percentile or above the 99th percentile, i.e., the highest one percent and the lowest one percent. In these cases, the length of stay or charge was set to the 1st or 99th percentile value. Since reporting of charges is optional for lengths of stay over 100 days, the charges for those cases with a missing charge and length of stay over 100 days were also set to the 99th percentile value.]

The list of conditions included in preventable hospitalizations was adapted with some modification from a study by the United Hospital Fund of New York (Ambulatory Care Access Project, principal investigator John Billings). The diagnoses in that study were defined by a medical panel of internists and pediatricians, and included conditions such as asthma, diabetes, bacterial pneumonia and bronchitis where timely and effective ambulatory care can reduce the likelihood of hospitalization by:

- Preventing the onset of an illness or condition;
- Controlling an acute episodic illness or condition; or
- Managing a chronic disease or condition.

The descriptions and ICD-9-CM diagnostic codes for each preventable hospitalization category are listed on page 14.

Formulas for Natality and Mortality Rates

Natality

Crude Birth Rate	= 1,000	x	$\frac{\text{Number of Resident Live Births}}{\text{Total Resident Population}}$
General Fertility Rate	= 1,000	x	$\frac{\text{Number of Resident Live Births}}{\text{Number of Females Ages 15-44}}$
Age-Specific Fertility Rate	= 1,000	x	$\frac{\text{Number of Resident Live Births in Age Category}}{\text{Number of Females in Age Category}}$

Mortality

Crude Death Rate	= 100,000	x	$\frac{\text{Number of Resident Deaths}}{\text{Total Resident Population}}$
Crude Cause-Specific Death Rate	= 100,000	x	$\frac{\text{Number of Resident Deaths from Cause}}{\text{Total Resident Population}}$
Fetal Death Rate	= 1,000	x	$\frac{\text{Number of Resident Fetal Deaths}}{\text{Total Resident Live Births and Fetal Deaths}}$
Neonatal Death Rate	= 1,000	x	$\frac{\text{Number of Resident Neonatal Deaths}}{\text{Total Resident Live Births}}$
Postneonatal Death Rate	= 1,000	x	$\frac{\text{Number of Resident Postneonatal Deaths}}{\text{Total Resident Live Births}}$
Perinatal Death Rate	= 1,000	x	$\frac{\text{Number of Resident Fetal and Neonatal Deaths}}{\text{Total Resident Live Births and Fetal Deaths}}$
Infant Death Rate	= 1,000	x	$\frac{\text{Number of Resident Infant Deaths}}{\text{Total Resident Live Births}}$
Race-Specific Infant Death Rate	= 1,000	x	$\frac{\text{Number of Infant Deaths to Mothers in Race Category}}{\text{Number of Live Births to Mothers in Race Category}}$
Weight-Specific Infant Death Rate	= 1,000	x	$\frac{\text{Number of Infant Deaths in Birthweight Category}}{\text{Number of Live Births in Birthweight Category}}$

Categories of Underlying Cause of Death

Description	ICD-10 CODE
Infectious and Parasitic Diseases	A00-B99
Total Malignant Neoplasms	C00-C97
Trachea, bronchus, lung cancer	C33-C34
Breast cancer	C50
Colorectal cancer	C18-C21
Diabetes	E10-E14
Diseases of the Heart	I00-I09, I11, I13, I20-I51
Ischemic heart disease	I20-I25
Cerebrovascular Disease	I60-I69
Pneumonia and Influenza	J10-J18
Chronic Lower Respiratory Disease	J40-J47
Total Accidents	V01-X59, Y85-Y86
Motor vehicle accidents (crashes)	V02-V04, V09.0-V09.2, V12-V14, V19.0-V19.2, V19.4-V19.6, V20-V79, V80.3-V80.5, V81.0-V81.1, V82.0-V82.1, V83-V86, V87.0-V87.8, V88.0-V88.8, V89.0, V89.2
Intentional self harm (suicide)	U-03, X60-X84, Y87.0

DRUGS LISTED AS UNDERLYING OR CONTRIBUTORY CAUSE OF DEATH

Alcohol	F10-F10.9, G31.2, G62.1, I42.6, K29.2, K70, R78.0, X45, X65, Y15
Tobacco	F17.9
Other Drugs	F11.0-F11.5, F11.7-F11.9, F12.0-F12.5, F12.7-F12.9, F13.0-F13.5, F13.7-F13.9, F14.0-F14.5, F14.7-F14.9, F15.0-F15.5, F15.7-F15.9, F16.0-F16.5, F16.7-F16.9, F17.0, F17.3-F17.5, F17.7-F17.8, F18.0-F18.5, F18.7-F18.9, F19.0-F19.5, F19.7-F19.9, X40-X44, X60-X64, X85, Y10-Y14

First-Listed Diagnoses Associated With Hospitalizations

Description	ICD-9-CM CODE
Malignant neoplasms	140.0-208.9, 230.0-234.9
Lung cancer	162.0-162.9
Female breast cancer	174.0-174.9
Colorectal cancer	153.0-154.8
Diabetes	250.0-250.9
Alcohol-related	
Alcohol psychoses	291.0-291.9
Alcohol dependence syndrome	303.0-303.03
Alcohol abuse	305.00-305.03
Alcoholic polyneuropathy	357.5
Alcoholic cardiomyopathy	425.5
Alcoholic gastritis	535.3
Chronic liver disease and cirrhosis	571.0-571.3
Excessive blood level of alcohol	790.3
Drug-related	
Drug psychoses	292.0-292.9
Drug dependency	304.00-304.93
Non-dependent abuse of drugs	305.10-305.93
Psychiatric (excluding those related to alcohol or drugs)	290.0-319
Coronary heart disease	
Ischemic heart disease	410.0-414.9
Unspecified cardiovascular disease	429.2
Cerebrovascular disease	430-438
Pneumonia and Influenza	480.0-487.8
Other chronic obstructive pulmonary disease	490-492, 494-496
Asthma	493
Osteoporosis	733.00-733.09
All Injuries	800-999
Hip fracture	820.00-820.9
Poisonings	960.0-989.9

Diagnoses Defining Preventable Hospitalizations (Principal Diagnosis only except where noted)

Description	ICD-9-CM CODE
Congenital syphilis	090.0-090.9 (includes secondary diagnosis for newborns)
Immunization - preventable conditions	033.0-033.9, 390, 391.0-391.9, 037, 045.00-045.93, (320.0 - age 1-5)
Grand mal status and other epileptic convulsions	345.0-345.9
Convulsions	780.3 (age >5)
Severe ear, nose and throat infections	382.0-382.9, 462, 463, 465.0-465.9, 472.1 (except with a procedure of 20.01)
Pulmonary tuberculosis	011.00-011.96
Other tuberculosis	012.00-018.96
Chronic obstructive pulmonary disease	491.0-492.8, 494, 496, (466.0 with secondary diagnosis of 491.0-492.8, 494, 496)
Bacterial pneumonia	481, 482.2, 482.3, 482.9, 483, 485, 486 (except when there is a secondary diagnosis of 282.6 or patient is less than two months old)
Asthma	493.00-493.91
Congestive heart failure	428.0-428.9, 402.01, 402.11, 402.91, 518.4 (except with a procedure of 36.01-36.02, 36.05, 36.1, 37.5, 37.7)
Hypertension	401.0, 401.9, 402.00, 402.1, 402.90 (except with a procedure 36.01-36.02, 36.05, 36.1, 37.5, 37.7)
Angina	411.1, 411.8, 413.0-413.9 (except with any procedure 01.01-86.99)
Cellulitis	681.00-683, 686.0-686.9 (except with any procedure 01.01-86.99 <i>unless</i> only listed procedure is 86.0)
Skin grafts with cellulitis	DRG 263 and 264 (except if admitted from an SNF)
Diabetes A	250.10-250.31
Diabetes B	250.80-250.91
Diabetes C	250.00-250.01
Hypoglycemia	251.2
Gastroenteritis	558.9
Kidney/urinary infection	590.0-590.9, 599.0, 599.9
Dehydration – volume depletion	276.5
Iron deficiency anemia	280.1, 280.8, 280.9 (age 0-5 only; either principal or secondary diagnosis)
Nutritional deficiencies	260-262, 268.0, 268.1 (either principal or secondary diagnosis)
Failure to thrive	783.4 (age <1)
Pelvic inflammatory disease	614.0-614.9 (except with a procedure 68.3-68.8)
Dental conditions	521.0-523.9, 525.0-525.9, 528.0-528.9
Cancer of the cervix	180.0-180.9

