

# Wisconsin Epidemiological Profile on Alcohol and Other Drug Use, 2014

Wisconsin Department of Health Services

Prepared by the Division of Mental Health and Substance Abuse Services, the University of Wisconsin Population Health Institute, and the Office of Health Informatics, Division of Public Health

Funded by the U.S. Substance Abuse and Mental Health Services Administration (SAMHSA)

September 2014

# Acknowledgements

The Department of Health Services (DHS) would like to thank the following people who contributed their expertise in developing the *Wisconsin Epidemiological Profile on Alcohol and Other Drug Use, 2014*.

**University of Wisconsin**  
Penny Black, M.S., Associate Researcher  
Population Health Institute

Sarah Linnan, Research Specialist  
Population Health Institute

**Wisconsin Department of Health Services**  
Milda Aksamitauskas, M.P.P, Chief, Health  
Analytics Section  
Office of Health Informatics  
Division of Public Health

Anne Ziege, Ph.D., Research Scientist  
Office of Health Informatics  
Division of Public Health

Richard Miller, Research Scientist  
Office of Health Informatics  
Division of Public Health

**Wisconsin Department of Health Services**  
Louis Oppor, Section Chief,  
Substance Abuse Services Section,  
Division of Mental Health and Substance Abuse  
Services

Christine Niemuth, Prevention Coordinator  
Division of Mental Health and Substance Abuse  
Services

Paul Krupski, Prevention Coordinator  
Division of Mental Health and Substance Abuse  
Services

Mary Raina Zwadzich, MSW, Prevention  
Specialist  
Division of Mental Health and Substance Abuse  
Services

**Great Lakes Inter-Tribal Council**  
Jacob Melson, Epidemiologist  
Great Lakes Inter-Tribal Epidemiology Center

*For questions about this document, contact:*

Joyce Allen, Bureau Director  
Division of Mental Health and Substance Abuse Services  
Wisconsin Department of Health Services  
One West Wilson Street, Room 850  
Madison, WI 53703  
*E-mail:* Joyce.Allen@wisconsin.gov  
*Phone:* (608) 266-1351

## Suggested Citation

Wisconsin Department of Health Services, Division of Public Health and Division of Mental Health and Substance Abuse Services. **Wisconsin Epidemiological Profile on Alcohol and Other Drug Use, 2014** (P-45718-14). Prepared by the Division of Mental Health and Substance Abuse Services, the University of Wisconsin Population Health Institute and the Office of Health Informatics, Division of Public Health. September 2014.

**Note:** This report is available online at <http://dhs.wisconsin.gov/stats/aoda.htm>.

# Table of Contents

Acknowledgments .....	2
Table of Contents.....	3
List of Tables and Figures.....	5
Executive Summary .....	8
Introduction .....	12
Wisconsin Overview.....	13
Consequences	
Consequences of Alcohol Consumption .....	14
Alcohol-related Death	
Acute Conditions	
Chronic Conditions	
Alcohol-related Illness and Injury	
Alcohol-related Motor Vehicle Injuries	
Alcohol Abuse or Dependence	
Alcohol-related Hospitalizations	
Alcohol-related Offenses	
Alcohol-related Crime and Arrests	
Alcohol-related Suspensions and Expulsions from School	
Consequences of Other Drug Consumption .....	37
Other Drug-related Death	
Other Drug-related Illness and Injury	
Other Drug Abuse or Dependence	
Neonatal Abstinence Syndrome	
Hepatitis C	
Other Drug-related Hospitalizations	
Other Drug-related Offenses	
Other Drug-related Crime and Arrests	
Other Drug-related Suspensions and Expulsions from School	
Consequences of Alcohol and Other Drug Consumption .....	54
Publicly Funded Treatment	
Alcohol and Other Drug-related Offenses	
Alcohol and Other Drug-related Crime and Arrests	
Consumption	
Alcohol Consumption .....	64
Current Alcohol Use	
Binge Drinking	

Heavy Alcohol Use	
Per Capita Alcohol Consumption	
Underage Drinking	
Age of Initiation	
Alcohol Use by Women of Childbearing Age	
Drinking Before and During Pregnancy	
Other Drug Consumption .....	85
Illicit Drug Consumption	
Marijuana	
Cocaine	
Heroin	
Inhalants	
Methamphetamines	
Non-Medical Use of Prescription Drugs	
Risk Factors	
Community-level Risk Factors for Substance Abuse.....	95
Alcohol Availability	
Other Drug Availability	
Perception of Harm	
Shared Risk Factors (for Substance Abuse and Mental Health Problems) .....	101
Early Life Experiences	
Depression and Suicide	
Conclusion .....	104
Appendix 1: Indicator Definitions .....	106
Appendix 2: Data Sources .....	112

# Tables and Figures

## Tables

### *Consequences of Alcohol Consumption*

Table 1.	Alcohol-related motor vehicle deaths, Wisconsin by county.....	19
Table 2.	Suicide deaths, Wisconsin and the U.S.....	23
Table 3.	Alcohol-related liver cirrhosis deaths, Wisconsin and the U.S.....	23
Table 4.	Alcohol-related motor vehicle injuries, Wisconsin by county.....	25
Table 5.	Prevalence of alcohol abuse and dependence, age 12 and older .....	27
Table 6.	Alcohol-related hospitalizations, Wisconsin .....	28
Table 7.	Alcohol-related hospitalizations, Wisconsin by county .....	29
Table 8.	Operating while intoxicated (OWI) and liquor law arrests, Wisconsin by county .....	33
Table 9.	Alcohol-related suspensions and expulsions, Wisconsin by county.....	36

### *Consequences of Other Drug Consumption*

Table 10.	Drug-related deaths, Wisconsin and the U.S. ....	38
Table 11.	Illicit drug abuse or dependence, Wisconsin by age .....	40
Table 12.	Drug-related hospitalizations, Wisconsin .....	44
Table 13.	Drug-related hospitalizations, Wisconsin by county.....	46
Table 14.	Opioid-related hospitalizations, Wisconsin by county .....	49
Table 15.	Drug law arrests, Wisconsin by county .....	51
Table 16.	Drug-related suspensions and expulsions, Wisconsin by county .....	53

### *Consequences of Alcohol and Other Drug Consumption*

Table 17.	Publicly funded treatment admissions, Wisconsin by primary substance .....	54
Table 18.	Property crimes, Wisconsin by county .....	58
Table 19.	Violent crimes, Wisconsin by county .....	60
Table 20.	Disorderly conduct arrests, Wisconsin by county .....	63

### *Alcohol Consumption*

Table 21.	Current alcohol use, high school students, Wisconsin by race/ethnicity .....	66
Table 22.	Current alcohol use, adults, Wisconsin by age and sex.....	68
Table 23.	Current alcohol use, adults, Wisconsin by race/ethnicity.....	68
Table 24.	Current alcohol use, adults, Wisconsin by county .....	69
Table 25.	Maximum drinks per occasion, Wisconsin by age and sex .....	70
Table 26.	Binge drinking, high school students, Wisconsin by race/ethnicity .....	71
Table 27.	Binge drinking, adults, Wisconsin by age and sex .....	73
Table 28.	Binge drinking, adults, Wisconsin by race/ethnicity .....	73
Table 29.	Binge drinking, adults, Wisconsin by county .....	74
Table 30.	Heavy drinking, adults, Wisconsin by age and sex.....	76
Table 31.	Heavy drinking, adults, Wisconsin by race/ethnicity .....	76
Table 32.	Alcohol use initiation before age 13, high school students, Wisconsin by sex.....	79
Table 33.	Alcohol use initiation before age 13, high school students, Wisconsin by race/ethnicity .....	80

**Other Drug Consumption**

Table 34. Other drug use, age 12 and older, Wisconsin and the U.S. .... 85  
 Table 35. Current marijuana use, high school students, Wisconsin by race/ethnicity ..... 89  
 Table 36. Marijuana use initiation before age 13, high school students, Wisconsin by  
 race/ethnicity ..... 89  
 Table 37. Lifetime heroin use, high school students, Wisconsin by race/ethnicity ..... 91  
 Table 38. Lifetime methamphetamine use, high school students, Wisconsin by  
 race/ethnicity ..... 93

**Risk Factors**

Table 39. Alcohol outlet density, Wisconsin by county ..... 96  
 Table 40. Controlled substances prescriptions, Wisconsin by county ..... 98  
 Table 41. Offered an illegal drug on school property, high school students,  
 Wisconsin by race/ethnicity ..... 100  
 Table 42. Perceived parental disapproval of alcohol use, high school students,  
 Wisconsin by race/ethnicity ..... 100

**Figures**

**Consequences of Alcohol Consumption**

Figure 1. Alcohol-related deaths, Wisconsin by cause ..... 15  
 Figure 2. Alcohol-attributable fall deaths, Wisconsin ..... 16  
 Figure 3. Alcohol -attributable poisoning deaths, Wisconsin ..... 17  
 Figure 4. Alcohol-related motor vehicle deaths, Wisconsin and the U.S. .... 18  
 Figure 5. Recreational vehicle deaths, Wisconsin..... 21  
 Figure 6. Suicide deaths, Wisconsin and the U.S. .... 22  
 Figure 7. Alcohol-related motor vehicle injuries, Wisconsin ..... 24  
 Figure 8. Alcohol abuse and dependence, Wisconsin and the U.S. .... 27  
 Figure 9. Alcohol-related hospital charges, Wisconsin ..... 28  
 Figure 10. Arrests for operating a motor vehicle while intoxicated (OWI),  
 Wisconsin and the U.S ..... 31  
 Figure 11. Liquor law arrests, Wisconsin and the U.S..... 32

**Consequences of Other Drug Consumption**

Figure 12. Drug-related deaths, Wisconsin and the U.S. .... 38  
 Figure 13. Drug-related deaths involving opioids, cocaine and/or benzodiazepines,  
 Wisconsin ..... 39  
 Figure 14. Heroin, methadone and other opioid-related deaths, Wisconsin..... 40  
 Figure 15. Neonatal Abstinence Syndrome cases, Wisconsin..... 41  
 Figure 16. Hepatitis C cases, Wisconsin..... 42  
 Figure 17. New Hepatitis C cases, Wisconsin by age ..... 43  
 Figure 18. Drug-related hospitalization charges, Wisconsin ..... 45  
 Figure 19. Opioid-related hospitalizations, Wisconsin ..... 48  
 Figure 20. Drug law arrests, Wisconsin and the U.S..... 50

**Consequences of Alcohol and Other Drug Consumption**

Figure 21. Alcohol and other drug abuse clients receiving services with public funds,  
 Wisconsin ..... 55  
 Figure 22. Public funds expended for alcohol and other drug abuse treatment, Wisconsin ..... 55  
 Figure 23. Publicly funded treatment for prescription drug abuse, Wisconsin..... 56



Figure 24. Property crime offenses, Wisconsin and the U.S. ....	57
Figure 25. Violent crime offenses, Wisconsin and the U.S. ....	57
Figure 26. Disorderly conduct arrests, Wisconsin and the U.S. ....	62

**Alcohol Consumption**

Figure 27. Alcohol use, high school students, Wisconsin and the U.S. ....	65
Figure 28. Alcohol use, adults, Wisconsin and the U.S. ....	65
Figure 29. Current alcohol use, high school students, Wisconsin and the U.S. ....	66
Figure 30. Current alcohol use, adults, Wisconsin and the U.S. ....	67
Figure 31. Binge drinking, high school students, Wisconsin and the U.S. ....	71
Figure 32. Adult binge drinking prevalence by state: Low, high, and U.S. median. ....	72
Figure 33. Heavy drinking, adults, Wisconsin and the U.S. ....	75
Figure 34. Per capita alcohol consumption, Wisconsin and the U.S. ....	77
Figure 35. Underage drinking, Wisconsin and the U.S. ....	78
Figure 36. Alcohol use initiation before age 13, high school students, Wisconsin and the U.S. ....	79
Figure 37. Current alcohol use, women ages 18-44, Wisconsin and the U.S. ....	81
Figure 38. Binge drinking, women ages 18-44, Wisconsin and the U.S. ....	81
Figure 39. Alcohol consumption, three months before pregnancy, Wisconsin and PRAMS states ....	83
Figure 40. Binge drinking, three months before pregnancy, Wisconsin and PRAMS states ....	83
Figure 41. Alcohol consumption in last three months of pregnancy, Wisconsin and PRAMS states ....	84

**Other Drug Consumption**

Figure 42. Lifetime use of illicit drugs, high school students, Wisconsin and the U.S. ....	86
Figure 43. Use of marijuana, illicit drugs other than marijuana, and pain relievers for non-medical purposes, Wisconsin by age group ....	86
Figure 44. Current marijuana use, high school students, Wisconsin and the U.S. ....	88
Figure 45. Lifetime marijuana use, high school students, Wisconsin and the U.S. ....	88
Figure 46. Lifetime cocaine use, high school students, Wisconsin and the U.S. ....	90
Figure 47. Lifetime heroin use, high school students, Wisconsin and the U.S. ....	91
Figure 48. Lifetime inhalant use, high school students, Wisconsin and the U.S. ....	92
Figure 49. Lifetime methamphetamine use, high school students, Wisconsin and the U.S. ....	93
Figure 50. Use of prescription pain relievers for non-medical purposes, age 12 and older, Wisconsin and the U.S. ....	94

**Risk Factors**

Figure 51. Physical abuse, sexual abuse, or home environment substance abuse before age 18, Wisconsin. ....	101
Figure 52. Publicly funded treatment for anxiety and depression, Wisconsin ....	102
Figure 53. Major depressive episode and serious suicidal thoughts, Wisconsin and the U.S. ....	103
Figure 54. Major depressive episodes and suicidal thoughts, Wisconsin and the U.S. by age. ....	103

# Executive Summary

The Wisconsin Department of Health Services (DHS) remains strongly committed to moving toward need-based funding of services through improved data collection and analysis. One important aspect of prevention services is the ability to track the needs of communities through epidemiological factors. Based on identified needs, resources can be allocated to address the problem using evidence-based programming.

Like its 2012 counterpart, Wisconsin's *Epidemiological Profile on Alcohol and Other Drug Use*, 2014 presents data on the use and abuse of alcohol and other substances in Wisconsin and the resulting consequences. In order to make the Profile more useful in understanding and addressing substance abuse problems in Wisconsin communities, this edition includes data at the county level when available. This 2014 report also includes an expanded "Risk Factors" section, providing data on factors that increase the risk of unsafe alcohol use and/or the illicit use of drugs.

## Key Findings

### Consequences of Alcohol and Other Drug Consumption

Many types of mortality, morbidity, and criminal behavior have been linked to the use of alcohol and other drugs. Given Wisconsin's high rate of alcohol consumption, it is not surprising that the rates at which Wisconsin experiences the consequences associated with alcohol use have also tended to be higher than national rates.

Since at least 2000, rates of alcohol abuse and dependence have been higher in Wisconsin than in the United States as a whole. Wisconsin also has consistently higher arrest rates than the nation overall for operating a motor vehicle while intoxicated and more than three times the national rate of arrests for other liquor law violations. In 2006-2009, the most recent data available, Wisconsin also had the highest rate in the nation of self-reported drinking and driving.

On the positive side, Wisconsin's rate of alcohol-related motor vehicle deaths decreased sharply in 2008, a drop that was sustained through 2012. Unfortunately, Wisconsin's rate of death from alcohol-related liver cirrhosis has risen since 2003 as has the rate of alcohol-related deaths from causes other than liver cirrhosis. One such "other cause" is suicide; nearly one-quarter of suicide deaths are estimated to be alcohol-related. Wisconsin's suicide rate has increased in recent years and remains higher than the national rate.

The number of clients receiving publicly funded services for alcohol and other drug abuse decreased by 23% from 2006 to 2012. Inflation-adjusted public expenditures for those services decreased 25% from 2004 to 2012. The proportion of publicly funded treatment admissions decreased slightly for alcohol and decreased more dramatically for cocaine, while the percentage of these admissions for heroin, other opiates and marijuana increased.

Wisconsin's age-adjusted rate of drug-related deaths increased from 2004 to 2006 and then leveled off, but has been increasing again since 2010. In 2012, the rate was nearly double



that of 2004. The most prevalent category of drug mentioned on death certificates for drug-related deaths in 2012 was “other opioids,” by itself or in combination with other drugs. Benzodiazepines were the second most prevalent category and heroin was third. All three of these categories of drugs have increased as a proportion of mentions in drug-related deaths, while cocaine has declined. The statewide rate of drug-related hospitalizations increased steadily from 2004 to 2012, as did total charges for drug-related hospitalizations. Wisconsin’s rate of arrests for drug law violations, historically well below the national average, has remained relatively steady since 2004 while the national rate has decreased, bringing the Wisconsin rate closer to the national rate.

### **Alcohol Consumption**

Wisconsin’s rates of alcohol use and misuse have been among the highest - if not the highest - in the nation. As of 2012, Wisconsin adults continue to have the highest rate of binge drinking among all U.S. states and territories. As of 2013, Wisconsin’s rate of heavy drinking among adults is still higher than the national rate. The rate of binge drinking among Wisconsin women of childbearing age is currently the highest in the nation.

Alcohol consumption patterns among high school students have been improving. The percentage of Wisconsin high school students who started using alcohol before age 13 has been similar to the national average and decreasing since at least 2003. In 2013, early alcohol initiation was 15%, below the national average and four percentage points below the 2010 prevalence. Wisconsin no longer has the nation’s highest rate of binge drinking among high school students; Wisconsin’s rate was, in fact, below the national rate in 2013.

Data for the years 2003-2012 consistently show Wisconsin women of childbearing age are more likely to drink - and to binge drink - than their national counterparts. These findings are underscored by survey data about women who have recently given birth. Based on Pregnancy Risk Assessment Monitoring System (PRAMS) data, new mothers in Wisconsin are more likely to consume alcohol or binge drink in the three months prior to conception, and also more likely to consume alcohol during the last three months of pregnancy. Overall, underage drinking rates have decreased. However, the decline in underage drinking rates has been more dramatic among males than among females; virtually closing the underage drinking gap between the sexes.

### **Other Drug Consumption**

As a whole, patterns of illicit drug consumption in Wisconsin mirror national trends. While current and lifetime use of marijuana have increased slightly at the national level, both decreased in Wisconsin in 2013.

Both nationally and in Wisconsin, the use of prescription drugs for non-medical purposes continues to be a serious problem, especially among young adults. In 2011-2012, 9% of Wisconsin adults ages 18-25 reported using pain relievers for non-medical purposes in the past year. Among high school students in 2013, 15% reported illicit use of prescription drugs at some point in their lives.

## Risk Factors

Community-level factors that heighten the risk of experiencing alcohol and other drug use problems center on the availability and accessibility of substances of abuse. For example, the number of alcohol outlets in a community in relation to the size of its population affects availability and access to alcohol. Individual factors that increase the risk of adverse experiences before age 18 include substance abuse by household members and/or parents, physical abuse and sexual abuse.<sup>1</sup> Mental health issues such as depression and suicidal thoughts frequently co-occur with substance abuse problems.<sup>2</sup> This report includes data for these risk factors to provide additional context for the consequence and consumption data.

## Conclusion

Areas of progress and continuing need are clearly identified in this report. Several areas of progress are noteworthy. Wisconsin's rate of drinking among high school students has decreased since 2003, as has the proportion of Wisconsin students who initiate alcohol use before age 13. Also decreasing steadily is the percentage of high school students who engage in binge drinking, now below the national rate. For the fourth year in a row, Wisconsin's rate of alcohol-related motor vehicle deaths was similar to the national rate after years of exceeding it. Wisconsin's rate of nonfatal injuries from alcohol-related crashes has also been declining steadily.

Despite these positive changes, Wisconsin continues to have the highest rate of adult binge drinking in the nation and for the last four years, the highest rate of binge drinking among women of childbearing age. In addition, Wisconsin's rate of drug-related deaths nearly doubled from 2004 to 2012, with opioid-related overdoses the most frequent cause.

While the rate of drug-related deaths leveled off for several years, it has increased since 2010 and remains unacceptably high. The drug-related death rate in Wisconsin surpassed mortality from alcohol-related motor vehicle crashes in 2004 and has remained higher ever since. As documented in the 2012 report, *Reducing Wisconsin's Prescription Drug Abuse: A Call to Action*, most of this increase in drug-related deaths is due to the misuse of prescription drugs rather than illicit drugs.<sup>3</sup>

---

<sup>1</sup> O'Connor, C., Finkbeiner, C., and Watson, L. (2012). Adverse Childhood Experiences in Wisconsin: Findings from the 2010 Behavioral Risk Factor Survey. Madison, Wisconsin: Wisconsin Children's Trust Fund and Child Abuse Prevention Fund of Children's Hospital & Health System. <http://wischildrenstrustfund.org/files/WisconsinACEs.pdf>

<sup>2</sup> Wisconsin Department of Health Services. Linking Mental and Physical Health: Results from the Wisconsin Behavioral Risk Factor Survey (P00066). Prepared by the Bureau of Health Information and Policy, Division of Public Health; and the Bureau of Prevention, Treatment and Recovery, Division of Mental Health and Substance Abuse Services. April 2009. Available at <http://www.dhs.wisconsin.gov/stats/brfs.htm>.

<sup>3</sup> Wisconsin State Council on Alcohol and Other Drug Abuse, Controlled Substances Workgroup. *Reducing Wisconsin's Prescription Drug Abuse: A Call to Action*. January 2012. <http://scaoda.state.wi.us/docs/prevandspfsig/FINAL01032012CSWRReport.pdf>

This mixed picture of progress and continuing challenges suggests an ongoing need to address the following priorities:

- Underage drinking (ages 12-20)
- Adult binge drinking (ages 18-34)
- Drinking among pregnant women
- Drinking and driving (especially among people ages 16 to 34)
- Opioid use for non-medical purposes (with a focus on adults ages 20-54).

The economic and health costs of substance abuse in Wisconsin are substantial, as are the related community-level costs of criminal offenses and arrests. Focus on these key areas will be useful in guiding the State's funding decisions concerning which problems to address and which interventions to use.

# Introduction

Prevention research underscores the importance of strategically using data to inform efforts for reducing problems related to substance use and mental, emotional and behavioral health. The Wisconsin Department of Health Services (DHS), Division of Mental Health and Substance Abuse Services (DMHSAS), Bureau of Prevention, Treatment, and Recovery (BPTR) is committed to making data-driven decisions about substance abuse prevention resources and services in Wisconsin. To that end, the State Epidemiological Outcomes Workgroup (SEOW) was established in 2006 to review available data on substance use and behavioral health and to make recommendations for prevention prioritization.

## **Wisconsin State Epidemiological Outcomes Workgroup**

Wisconsin's SEOW comprises epidemiologists, research analysts, and prevention professionals. It receives input from the State Council on Alcohol and Other Drug Abuse (SCAODA), which is made up of prevention and treatment professionals, as well as community representatives. The SEOW developed and maintains the state's substance abuse surveillance system, which is used to make decisions about public policies, prevention priorities, and funding.

## **Wisconsin's Substance Abuse Surveillance System**

Wisconsin's substance abuse surveillance system compiles data from national, state, and local sources. Data regarding substance use- and behavioral health-related consequences, behaviors, and risk factors are maintained in a central database to allow for trend and comparison analyses. Most of the data used is publicly available, and special requests for protected data are made as necessary.

## **Using this Report**

The report summarizes available data on the consequences, consumption, and risk factors of alcohol and other drug use and abuse in Wisconsin. Indicators from a variety of data sources have been compiled to show magnitude, comparisons, prevalence, and trends in mental health and substance use.

The report includes data available through May of 2014. Older and unchanged data are included when more recent data were not available. The data are primarily state-level estimates, with national comparisons where possible. County-level and demographic group-level data are included as available, but should be used with caution due to small numbers; they should not be interpreted as a comprehensive assessment of any sub-state population.

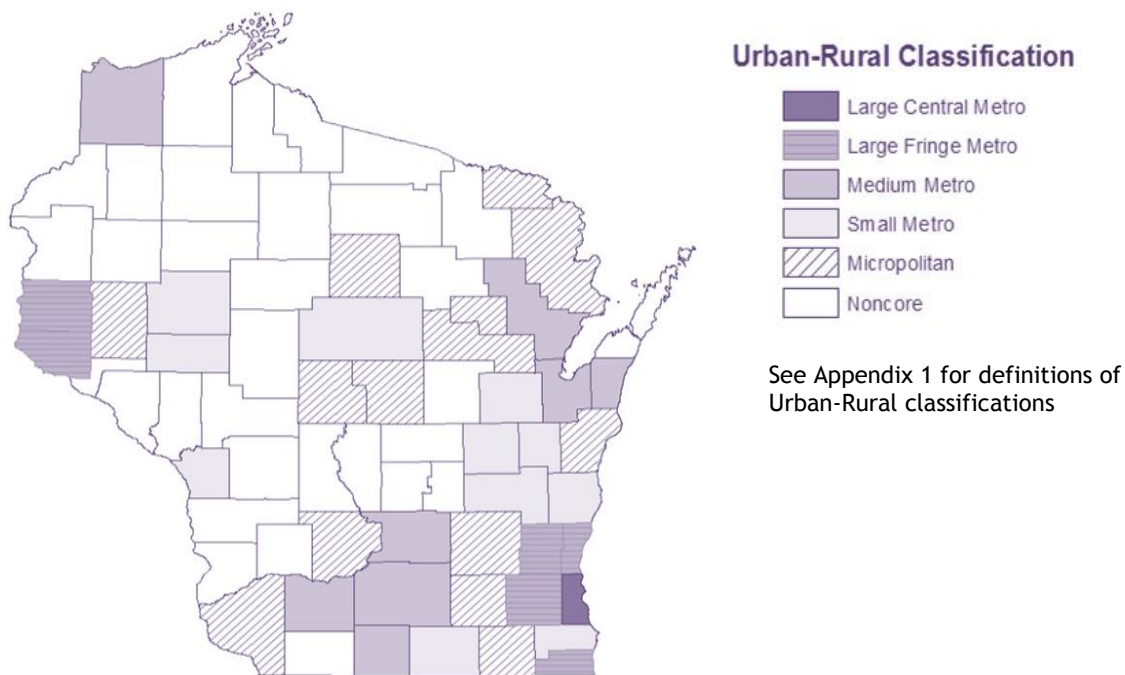
Survey data provide estimates of population-level prevalence for a number of measures in the report. The reliability of survey estimates can vary, and some estimates that would have been desirable were excluded based on failure to meet widely accepted reliability criteria.

The Appendices provide information on indicator definitions, data sources, and sample sizes. While each indicator provides a unique and important perspective on alcohol and drug use in Wisconsin, none should be interpreted individually as providing a full picture of substance abuse.

# Wisconsin Overview

Wisconsin is home to an estimated 5.7 million residents (U.S. Census, 2010). As in the nation as a whole, approximately 50% of Wisconsin's population is between the ages of 18 and 65. Wisconsin has a predominantly White population (88%), which is followed in size by Black or African American (6.5%), Asian (2.5%), two or more races (1.7%), and American Indian and Alaska Native (1.1%). In addition, 6.2% of Wisconsin residents identify as Hispanic or Latino.

The state includes 72 counties; 190 cities, 404 villages, and 1,257 towns; and 11 federally recognized Tribal nations. Wisconsin covers more than 54,000 square miles and includes very urban areas, such as Milwaukee County, with 3,926 people per square mile, and very rural areas, such as Iron County with 7.8 people per square mile (see map below). Madison, in south-central Wisconsin, is the state capital.



Source: Ingram DD, Franco SJ. 2013 NCHS urban-rural classification scheme for counties. National Center for Health Statistics. Vital Health Stat 2(166). 2014. [http://www.cdc.gov/nchs/data/series/sr\\_02/sr02\\_166.pdf](http://www.cdc.gov/nchs/data/series/sr_02/sr02_166.pdf)

Wisconsin is economically diverse, with median annual household income by county ranging from \$37,112 (30% below the national median) to \$75,854 (44% above the national median). Unemployment also varies by county, ranging from 19.5 to 4.1 percent.

It is within the context of these demographic characteristics that substance abuse in Wisconsin must be examined.

# Consequences

## Consequences of Alcohol Consumption

Alcohol is the most frequently consumed substance of abuse in Wisconsin, contributing to consequences that affect drinkers, non-drinkers, and every community in the state. In 2012, alcohol was a factor in at least 1,822 deaths and 2,907 motor vehicle crash injuries in Wisconsin. Treatment for alcohol abuse and dependence continued to be high, and the economic burden resulting from excessive alcohol use totaled \$6.8 billion.<sup>4</sup>

Alcohol-related causes of death and injury can be either 100% attributable to alcohol or attributable in a specified fraction to alcohol (see Alcohol-Related Deaths, below). Crime-related figures are conservative since alcohol is also a factor in a large proportion of property and violent crimes (in addition to homicide, which is included in ‘other alcohol-related causes of death’), but the fractions for crimes attributable to alcohol are not currently quantifiable as they are for diseases and injuries.

## Alcohol-Related Deaths

As noted above, alcohol is a factor in many causes of death to varying degrees. Some causes, such as alcoholic liver cirrhosis and alcohol-related motor vehicle crash deaths, are 100% attributable to alcohol, while fractions for other causes are much smaller. The Alcohol-Related Disease Impact (ARDI) software application specifications from the Centers for Disease Control and Prevention (CDC) identify 54 chronic and acute conditions for which a proportion, or fraction, of deaths is attributable to excessive alcohol use.<sup>5</sup> These proportions were applied to Wisconsin death records in 2012. Of the 48,225 deaths in Wisconsin in 2012, 1,748 were attributable to excessive alcohol use. Of the alcohol-related deaths, 58% were due to acute conditions; 42% were due to chronic conditions.

---

<sup>4</sup> Black P.D., and Paltzer J.T. *The Burden of Excessive Alcohol Use in Wisconsin*. University of Wisconsin Population Health Institute, February 2013.

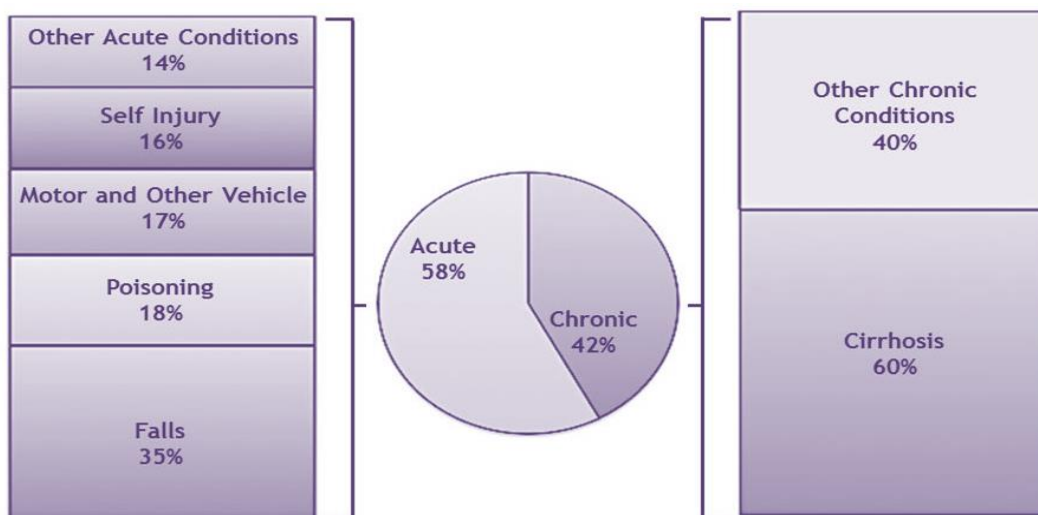
<sup>5</sup>For each of the 54 conditions, ARDI specifies a distinct fraction of cases attributable to alcohol. The number of alcohol-attributable deaths can be estimated by multiplying the number of deaths for each condition by the specified alcohol-attributable fraction and summing over conditions. This method was used to estimate the total number of alcohol-related deaths in Wisconsin, as well as the subset of “other” alcohol-related deaths (other than those from alcoholic liver cirrhosis and motor vehicle crashes).



In Wisconsin in 2012, the majority (58%) of alcohol-attributable deaths were from acute causes, such as motor-vehicle crashes, falls, and poisonings. The remaining 42% of alcohol-related deaths were from chronic conditions such as liver cirrhosis and cancer (Figure 1). Alcohol-attributable acute causes of death in the ‘other’ category include homicide, drowning, firearm injury, hypothermia, aspiration, occupational injury, and child maltreatment. For a complete list of conditions included in the ‘other’ category, please see Appendix 2.

- The state-level rate of ‘other’ alcohol-related deaths per 100,000 population has been gradually trending upward since 2004, and was at 22.2 deaths per 100,000 population in 2012 (not shown).

Figure 1. Alcohol-related deaths, Wisconsin by cause, 2012



Sources: Wisconsin resident death certificates, Division of Public Health, Wisconsin Department of Health Services.

Note: Wisconsin resident deaths from acute and chronic alcohol-related causes in 2012 totaled 1,822.

**Acute Conditions:**

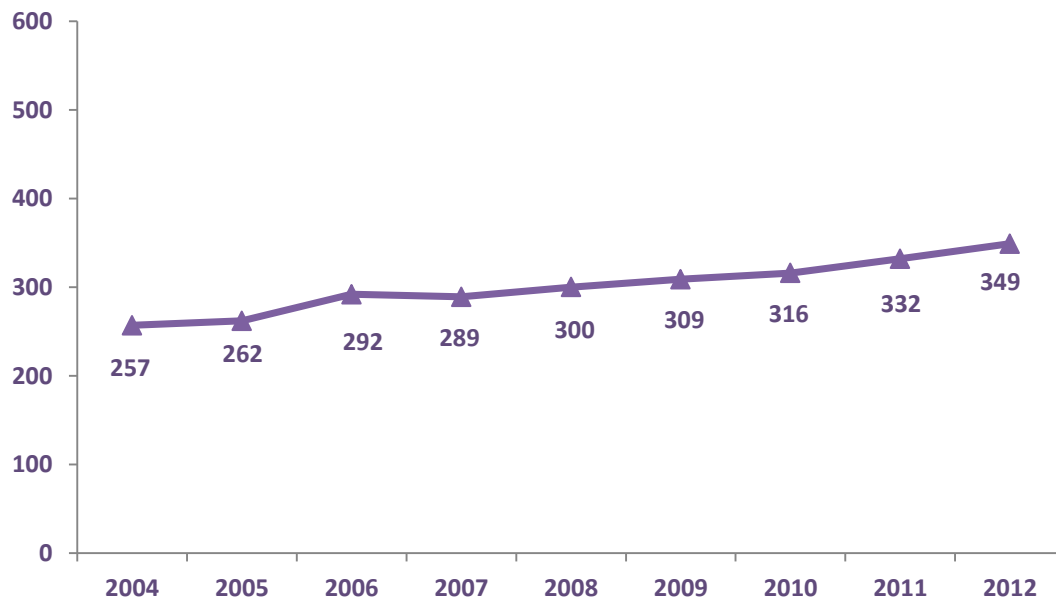
The two largest categories of acute alcohol-related deaths identified by the ARDI application are falls and poisonings.

### Alcohol-Related Fall and Poisoning Deaths

Based on ARDI specifications, the alcohol-attributable fraction of fall deaths is 32% and the attributable fraction of poisoning deaths is 29% (excludes acute alcohol poisoning which is 100% attributable to alcohol). In 2012, 349 deaths from fall-related injuries were attributable to alcohol, exceeding the number of deaths due to alcoholic liver cirrhosis (317). Older adults are particularly at risk for death from falls, including those where alcohol is a factor. Overall, approximately 85% of fall deaths occur in the age group 65 and older; thus it is likely that in 2012, approximately 300 fall deaths attributable to alcohol involved adults in this age group.

Fall deaths are gradually increasing in tandem with the aging of the population (Figure 2). As with younger age groups, older adults in Wisconsin consume alcohol at somewhat higher levels than their age peers in the U.S. as a whole.<sup>6</sup> There is also evidence that binge drinking thresholds should be lower for older adults based on changes in metabolism, increased potential for drug interactions, and more numerous medical problems that occur with advancing age.<sup>7</sup> Thus, fall deaths and injuries related to alcohol are likely to increase in the state as the population continues to age.

Figure 2. Alcohol-attributable fall deaths (all age groups), Wisconsin, 2004-2012



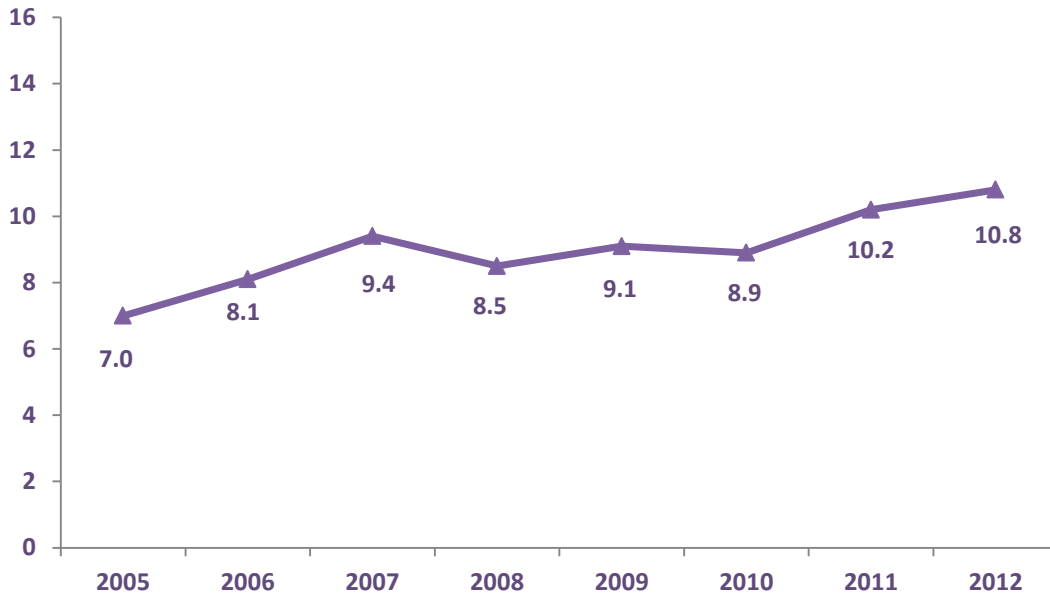
Source: Wisconsin resident death certificates, Division of Public Health, Wisconsin Department of Health Services.

<sup>6</sup> Behavioral Risk Factor Surveillance System (CDC) trends over time indicate that Wisconsin adults are more likely to consume alcohol excessively across all age groups compared to adults in other states and the nation as a whole.

<sup>7</sup> Merrick, E.L. et al., (2300). Unhealthy drinking patterns in older adults: Prevalence and associated characteristics. *Journal of the American Geriatrics Society*. 56(2): 214-233.

The rate of poisoning deaths has also increased. The rate for poisonings attributable to alcohol went from 7 per 100,000 population in 2005 to almost 11 per 100,000 population in 2012 (Figure 3).

**Figure 3. Alcohol-attributable poisoning deaths (all age groups) rate per 100,000 population, Wisconsin, 2004-2012**



Source: Wisconsin resident death certificates, Division of Public Health, Wisconsin Department of Health Services  
Note: excludes alcohol poisonings which are 100% attributable to alcohol.

## Alcohol-Related Motor and Recreational Vehicle Deaths

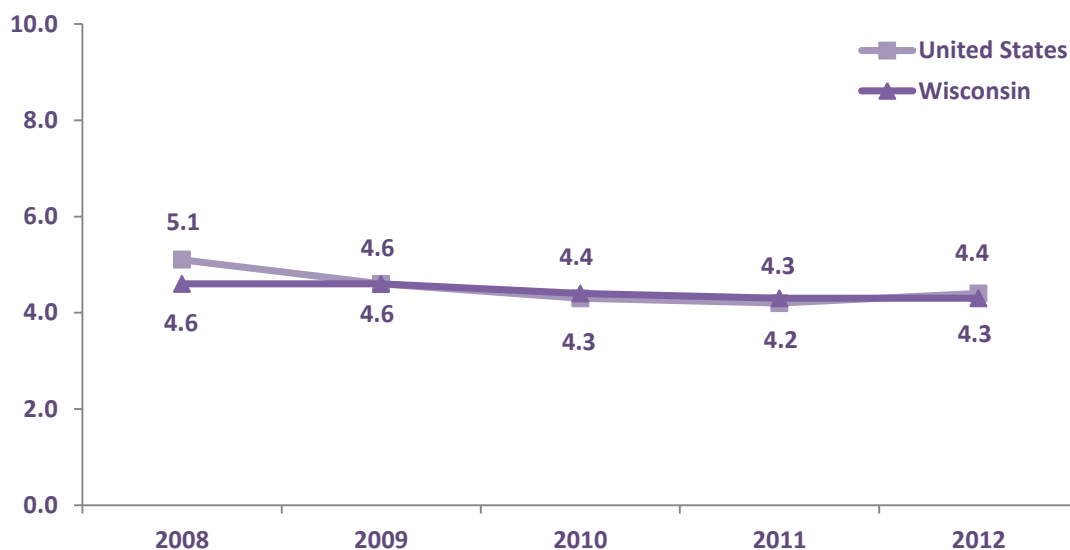
### Motor Vehicle Deaths

For the purpose of this section, “alcohol-related” means a Blood Alcohol Content (BAC) of .01 or more.

Wisconsin and national rates of alcohol-related motor vehicle deaths have remained relatively consistent over the past five years (Figure 4).

- Of the 372 drivers who were killed in motor vehicle crashes and tested for alcohol consumption in 2012, 125 (34%) had a BAC of .08 or above<sup>8</sup> (Wisconsin Department of Transportation (DOT)).
- Of the 615 motor vehicle deaths in 2012, 39% were alcohol-related. Of those alcohol-related deaths, 87% involved individuals with a BAC above the .08 legal limit (Fatality Analysis Reporting System (FARS)).

Figure 4. Alcohol-related motor vehicle deaths, rate per 100,000 population, Wisconsin and the United States, 2008-2012



Source: Fatality Analysis Reporting System, National Highway Traffic Safety Administration, U.S. Department of Transportation.

<sup>8</sup> In Wisconsin, a BAC of .08 became the minimum prohibited blood alcohol concentration while operating a motor vehicle, all-terrain vehicle, snowmobile or boat in September 2003.

Table 1. Alcohol-related motor vehicle deaths, rate per 100,000 population, Wisconsin by county, 2008-2012

County	Death Rate per 100,000				
	2008	2009	2010	2011	2012
Adams	28	0	19	10	19
Ashland	6	0	6	6	6
Barron	6	6	4	0	4
Bayfield	6	0	20	13	13
Brown	4	5	4	4	4
Buffalo	0	14	22	0	22
Burnett	0	12	0	0	0
Calumet	9	9	6	2	6
Chippewa	6	5	5	6	5
Clark	3	3	6	3	6
Columbia	2	5	4	9	4
Crawford	23	6	6	6	6
Dane	4	4	2	2	2
Dodge	7	9	3	3	3
Door	10	0	0	4	0
Douglas	2	0	2	7	2
Dunn	7	5	7	0	7
Eau Claire	3	1	2	3	2
Florence	0	0	23	0	23
Fond du Lac	0	1	1	5	1
Forest	19	0	11	22	11
Grant	6	4	6	6	4
Green	3	8	3	8	3
Green Lake	0	0	5	10	5
Iowa	4	8	8	8	8
Iron	0	0	17	0	17
Jackson	25	5	0	5	0
Jefferson	5	6	4	4	4
Juneau	15	7	4	15	4
Kenosha	9	5	4	3	4
Kewaunee	5	5	5	10	5
La Crosse	0	3	2	3	2
Lafayette	18	31	12	24	12
Langlade	5	5	5	5	5
Lincoln	3	0	7	3	7
Manitowoc	2	2	7	5	7
Marathon	2	5	2	4	2

Table 1. Alcohol-related motor vehicle deaths, rate per 100,000 population, Wisconsin by county, 2008-2012 (continued)

County	Death Rate per 100,000				
	2008	2009	2010	2011	2012
Marinette	7	32	12	14	14
Marquette	0	0	13	6	13
Menominee	0	0	0	0	0
Milwaukee	2	2	3	2	3
Monroe	5	9	2	4	4
Oconto	8	10	19	8	5
Oneida	0	3	6	3	3
Outagamie	1	3	3	2	2
Ozaukee	3	3	1	1	8
Pepin	0	0	0	0	0
Pierce	7	10	15	10	17
Polk	13	15	5	11	11
Portage	4	1	11	1	10
Price	0	19	0	0	0
Racine	6	3	1	4	1
Richland	11	11	17	11	6
Rock	7	3	5	6	6
Rusk	7	7	0	7	0
St. Croix	5	6	1	6	2
Sauk	7	7	8	0	3
Sawyer	17	17	6	6	6
Shawano	12	12	2	14	5
Sheboygan	3	5	1	3	2
Taylor	10	0	10	5	5
Trempealeau	18	4	7	3	0
Vernon	3	0	7	7	23
Vilas	9	9	5	9	5
Walworth	1	3	3	7	5
Washburn	6	0	0	0	6
Washington	2	3	8	2	5
Waukesha	1	4	1	2	3
Waupaca	6	4	8	11	4
Waushara	12	0	4	16	12
Winnebago	3	2	4	5	2
Wood	0	1	1	3	0
<b>Wisconsin</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>4</b>

Source: Wisconsin Traffic Crash Facts: Alcohol, Wisconsin Department of Transportation. Population data for county rate calculations are from the U.S. Census.



*Alcohol-Related Recreational Vehicle Deaths*

On average, 50% of recreational vehicle deaths in Wisconsin are alcohol-related. Recreational vehicles include boats, snowmobiles, and all-terrain vehicles (ATVs) (Figure 5).

Snowmobile accidents have the highest percentage of alcohol-related fatalities compared to other recreational vehicles. During the 2012-2013 season, 70% of snowmobile deaths were alcohol-related, down from 76% during the 2010-2011 season.

**Figure 5. Recreational vehicle deaths, alcohol-related and total number, Wisconsin, 2008-2012**



Source: Snowmobile Safety and Enhancement Reports, All-Terrain Vehicle Enforcement and Safety Reports, and Wisconsin Boating Program Reports, Wisconsin Department of Natural Resources.

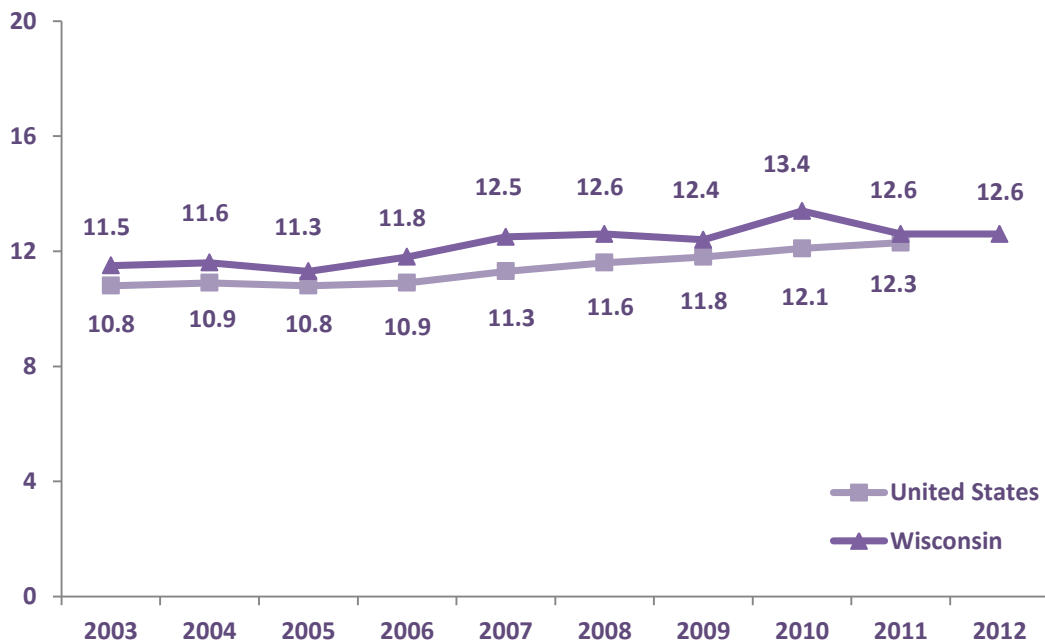
### Alcohol-Related Suicide Deaths

The fraction of suicides attributable to alcohol (i.e., where alcohol is a factor) is 23%. Suicides are increasing in Wisconsin as they are in the U.S. as a whole. Wisconsin’s rate of suicide remains slightly higher than the national rate as of 2011, the most recent year for which comparison data are available.

From 2003 to 2012, the mortality rate from suicide increased in Wisconsin, from 11.5 to 12.6 per 100,000 population (Figure 6). Suicide is more prevalent among younger age groups. The suicide rates presented in Figure 6 are age-adjusted for purposes of comparison between Wisconsin and the U.S. in order to remove the effects of differences in age distributions between the two populations.

There were 734 suicides in Wisconsin in 2012, of which 169 were attributable to alcohol. During the years 2004-2011, the suicide mortality rate was higher in Wisconsin than in the United States as a whole (Table 2). National figures are not yet available for 2012.

**Figure 6. Suicide deaths, age-adjusted rate per 100,000 population, Wisconsin and United States, 2003-2012**



Source: Wisconsin resident death certificates, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services.

Table 2. Suicide deaths, age-adjusted rate per 100,000 population and total number, Wisconsin and the United States, 2004-2012

		2004	2005	2006	2007	2008	2009	2010	2011	2012
<b>United States</b>	<i>Rate/100,000</i>	10.9	10.8	10.9	11.3	11.6	11.8	12.1	12.3	
	<i>Total number</i>	32,636	32,559	33,200	34,529	35,969	36,837	38,307	39,442	
<b>Wisconsin</b>	<i>Rate/100,000</i>	11.6	11.3	11.8	12.5	12.6	12.4	13.4	12.6	12.6
	<i>Total number</i>	656	639	668	724	737	724	792	736	734

Source: Wisconsin resident death certificates, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services; United States death certificate data compiled by the Centers for Disease Control and Prevention: <http://wonder.cdc.gov/mortSQL.html>.

## Chronic Conditions:

### *Alcohol-Related Liver Cirrhosis Deaths*

Death due to alcohol-related liver cirrhosis is a direct consequence of alcohol abuse over an extended period of time. Wisconsin’s age-adjusted rate of alcohol cirrhosis mortality has been slightly below rates for the nation as a whole for a number of years. It rose slightly over the past few years, reaching 4.9 per 100,000 population in 2012 (317 deaths). National comparison data is not available for 2012 (Table 3).

Table 3. Alcohol-related liver cirrhosis deaths, age-adjusted rate per 100,000 population and total number, Wisconsin and the United States, 2008-2012

		2008	2009	2010	2011	2012
<b>United States</b>	<i>Rate/100,000</i>	4.5	4.6	4.7	4.8	
	<i>Total number</i>	14,864	15,183	15,990	16,749	
<b>Wisconsin</b>	<i>Rate/100,000</i>	4.1	4.2	4.5	4.4	4.9
	<i>Total number</i>	260	265	288	291	317

Source: Wisconsin resident death certificates, Division of Public Health, Wisconsin Department of Health Services; United States death certificate data compiled by the Centers for Disease Control and Prevention: <http://wonder.cdc.gov/mortSQL.html>.

## Alcohol-related Illness and Injury

### Alcohol-Related Motor Vehicle Injuries

Total motor vehicle crash injuries and crash injuries related to alcohol are both decreasing. Alcohol-related motor vehicle injuries accounted for 11% of all motor vehicle crash injuries in 2004 but declined to 7% of these injuries in 2012 (Figure 7).

Figure 7. Alcohol-related and total nonfatal motor vehicle injuries, rate per 100,000 population, Wisconsin, 2004-2012



Source: Wisconsin Traffic Crash Facts, Wisconsin Department of Transportation. Population data are from the U.S. Census.

Table 4. Alcohol-related motor vehicle injuries, rate per 100,000 population, Wisconsin by county, 2008-2012

County	Nonfatal Injury Rate per 100,000				
	2008	2009	2010	2011	2012
Adams	176	107	125	53	96
Ashland	83	54	74	12	75
Barron	95	61	70	48	54
Bayfield	88	94	107	80	119
Brown	87	81	86	49	55
Buffalo	120	114	29	103	140
Burnett	102	181	129	90	97
Calumet	72	50	49	24	69
Chippewa	89	58	75	54	59
Clark	98	96	52	52	52
Columbia	105	79	84	90	51
Crawford	115	52	78	48	72
Dane	60	46	43	38	37
Dodge	81	88	62	80	55
Door	88	54	43	75	57
Douglas	66	49	43	32	68
Dunn	117	67	59	50	50
Eau Claire	63	46	37	36	45
Florence	117	157	136	228	68
Fond du Lac	93	60	49	51	49
Forest	87	157	97	76	119
Grant	98	96	90	51	64
Green	74	99	76	70	100
Green Lake	41	72	26	47	58
Iowa	95	71	42	76	38
Iron	44	118	85	34	34
Jackson	222	124	98	58	73
Jefferson	80	81	56	54	43
Juneau	76	102	116	60	71
Kenosha	136	109	84	67	89
Kewaunee	19	76	34	73	48
La Crosse	62	71	60	53	62
Lafayette	146	80	65	101	59
Langlade	117	89	70	60	25
Lincoln	86	30	70	35	24
Manitowoc	84	74	64	53	44
Marathon	87	68	51	57	36

Table 4. Alcohol-related motor vehicle injuries, rate per 100,000 population, Wisconsin by county, 2008-2012 (continued)

County	Nonfatal Injury Rate per 100,000				
	2008	2009	2010	2011	2012
Marinette	106	93	60	55	82
Marquette	65	33	65	13	72
Menominee	86	22	0	0	0
Milwaukee	52	42	46	41	37
Monroe	106	97	67	73	47
Oconto	126	80	85	66	56
Oneida	86	81	72	70	42
Outagamie	56	56	59	40	43
Ozaukee	50	47	46	66	54
Pepin	65	145	27	94	94
Pierce	96	44	66	46	46
Polk	90	108	109	109	109
Portage	85	80	93	44	69
Price	71	58	71	50	93
Racine	94	102	76	68	47
Richland	104	82	55	94	28
Rock	117	85	95	77	70
Rusk	59	72	75	41	55
St. Croix	67	69	46	37	42
Sauk	97	106	92	81	85
Sawyer	153	80	97	102	114
Shawano	144	109	124	124	77
Sheboygan	55	62	43	38	33
Taylor	90	111	73	82	73
Trempealeau	137	113	80	45	65
Vernon	94	71	60	50	60
Vilas	104	163	149	103	51
Walworth	78	63	72	56	54
Washburn	103	40	101	82	76
Washington	93	76	59	61	60
Waukesha	42	56	44	30	32
Waupaca	76	80	113	95	63
Waushara	59	56	106	130	78
Winnebago	59	56	64	46	57
Wood	51	33	40	55	46
<b>Wisconsin</b>	<b>76</b>	<b>67</b>	<b>62</b>	<b>52</b>	<b>51</b>

Source: *Wisconsin Traffic Crash Facts: Alcohol*, Wisconsin Department of Transportation. Population data for county rate calculations are from the U.S. Census

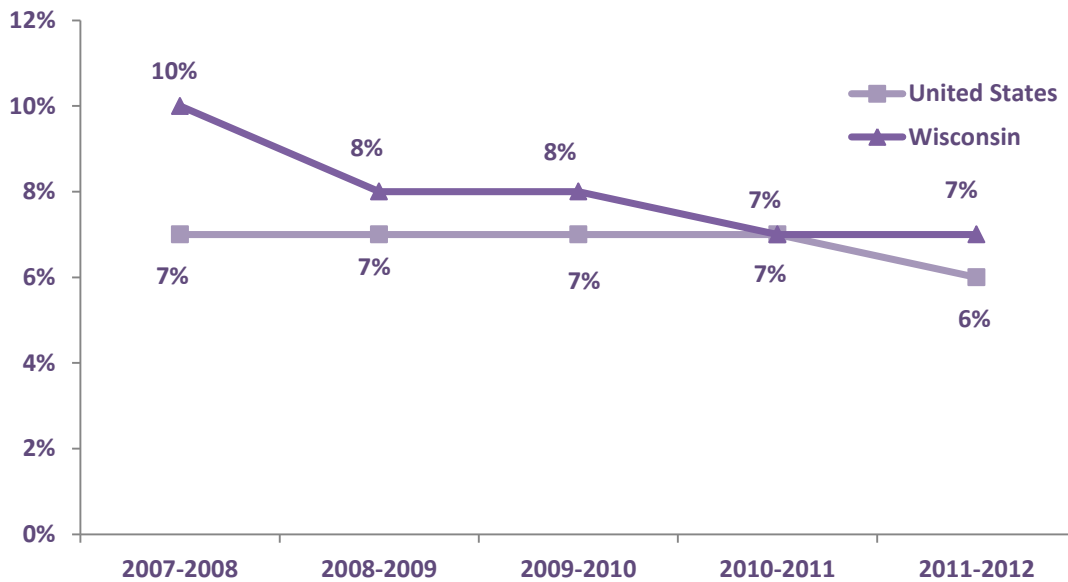


## Alcohol Abuse or Dependence

The Diagnostic and Statistical Manual of Mental Disorder, Fourth Edition (DSM-IV) defines alcohol abuse and dependence based on experiences over a 12-month period. For the DSM-IV definition of abuse and dependence, see Appendix 1.

- The estimated percentage of Wisconsin residents ages 12 and older with alcohol abuse and dependence has decreased from 10% in 2007-2008 to 7% in 2011-2012 (Figure 8).
- Since 2007-2008 Wisconsin young adults ages 18 to 25 have had notably higher rates of alcohol abuse and dependence than other age groups (Table 5).

Figure 8. Alcohol abuse and dependence, age 12 and older, Wisconsin and the United States, 2007-2012



Source: National Survey on Drug Use and Health, Substance Abuse and Mental Health Services Administration, U.S. Department of Health and Human Services.

Table 5. Alcohol abuse and dependence, age 12 and older, Wisconsin by age, 2007-2012

Age	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012
12-17	7%	5%	5%	4%	3%
18-25	22%	20%	17%	15%	15%
26+	7%	6%	6%	6%	6%

Source: National Survey on Drug Use and Health, Substance Abuse and Mental Health Services Administration, U.S. Department of Health and Human Services.

## Alcohol-related Hospitalizations

The number of alcohol-related hospitalizations in Wisconsin increased approximately 8% between 2003 and 2012, from 44,405 to 48,074. The rate of alcohol-related hospitalizations also increased between 2003 and 2008, from 808 to 884 per 100,000 population, before declining to 831 per 100,000 in 2011 (Table 6).

Charges for alcohol-related hospitalizations (adjusted for inflation) likewise increased, from \$823 million in 2003 to more than \$1.2 billion in 2012 (Figure 9). Hospital charges are the total facility charges for the length of stay and are not the same as actual costs paid by any payer; they do not include physician or other ancillary charges.

**Table 6. Alcohol-related hospitalizations, rate per 100,000 population and total number, Wisconsin, 2003-2014**

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Rate/100,000	808	835	848	859	877	884	856	857	831	841
Number	44,405	46,276	47,313	48,178	49,478	50,119	48,625	48,715	47,343	48,074

Source: Wisconsin hospital inpatient discharge database, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services.

**Figure 9. Alcohol-related hospital charges (adjusted to 2012 dollars), in millions, Wisconsin, 2003-2012**



Source: Wisconsin hospital inpatient discharge database, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services.

Note: Charges are not the same as actual costs paid by any payer; see Appendix 1. Charges shown have been adjusted for inflation to 2012 dollars.

Table 7. Alcohol-related hospitalizations, total number and rate per 100,000 population, Wisconsin by county, 2010-2012

County	Number in 2012	Rate per 100,000	
		2010-2011	2011-2012
Adams	98	626	517
Ashland	227	1,526	1,416
Barron	358	763	753
Bayfield	125	931	856
Brown	1,879	816	780
Buffalo	107	644	733
Burnett	75	472	440
Calumet	128	242	250
Chippewa	584	862	909
Clark	276	730	780
Columbia	485	877	849
Crawford	122	679	700
Dane	3,688	759	751
Dodge	637	717	696
Door	197	736	709
Douglas	43	95	88
Dunn	286	638	643
Eau Claire	1,211	1,128	1,170
Florence	5	329	171
Fond du Lac	752	775	736
Forest	97	1,200	1,130
Grant	179	402	374
Green	239	619	629
Green Lake	169	834	828
Iowa	117	581	500
Iron	59	799	946
Jackson	187	932	960
Jefferson	539	589	616
Juneau	215	807	808
Kenosha	1,514	963	928
Kewaunee	149	675	701
La Crosse	1,065	1,020	919
Lafayette	72	469	445
Langlade	172	987	921
Lincoln	269	1,030	955
Manitowoc	613	753	722
Marathon	1,141	965	897

Table 7. Alcohol-related hospitalizations, total number and rate per 100,000 population, Wisconsin by county, 2010-2012 (continued)

County	Number in 2012	Rate per 100,000	
		2010-2011	2011-2012
Marinette	325	918	811
Marquette	165	941	979
Menominee	103	2,157	2,114
Milwaukee	10,904	1,103	1,128
Monroe	310	671	639
Oconto	207	668	597
Oneida	379	973	1,056
Outagamie	1,252	743	708
Ozaukee	653	720	732
Pepin	34	456	450
Pierce	145	358	346
Polk	251	530	523
Portage	543	799	762
Price	119	919	899
Racine	1,925	978	978
Richland	121	707	675
Rock	1,507	822	883
Rusk	104	791	730
St. Croix	520	846	805
Sauk	124	901	812
Sawyer	315	791	761
Shawano	1,023	801	823
Sheboygan	276	308	310
Taylor	106	546	499
Trempealeau	228	815	746
Vernon	172	759	653
Vilas	326	1,711	1,655
Walworth	673	678	660
Washburn	110	798	679
Washington	966	704	718
Waukesha	3,174	791	803
Waupaca	405	807	789
Waushara	188	746	718
Winnebago	1,448	919	876
Wood	891	1,134	1,189
<b>Wisconsin</b>	<b>48,074</b>	<b>844</b>	<b>836</b>

Source: Wisconsin hospital inpatient discharge database, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services.

Note: Hospitalization numbers and rates are based on patient's county of residence.

## Alcohol-Related Offenses

### Alcohol-Related Crime and Arrests

#### *Operating a Motor Vehicle while Intoxicated*

Results from the NSDUH’s “State Estimates of Drunk and Drugged Driving” report released in 2012<sup>9</sup> indicate the prevalence of alcohol-impaired driving in Wisconsin - like binge drinking - is the highest in the nation. Using several combined years of survey data, NSDUH estimated that 24% of Wisconsin residents ages 16 and older drove impaired by alcohol within the previous year, almost twice the national prevalence of 13%.

Given this, it is not surprising that rates of Operating While Intoxicated (OWI) arrests and convictions of repeat OWI offenders are higher in Wisconsin than in the nation as a whole (Figure 10). In 2012, 33,579 people were arrested for OWI in Wisconsin, including 385 who were under 18 years of age. Of the 26,632 drivers convicted of an OWI in 2012, 16,619 were first offense OWI; 9,137 were for second to fourth offense OWI; 818 were fifth to seventh offense OWI; and 58 had had eight or more OWI offenses (Wisconsin Department of Transportation). Of drivers convicted of OWI offenses in 2012, 2,154 were under the age of 21 at the time of the violation.

The median BAC test result for 2012 OWI citations was 0.17%, just over twice the legal limit.

Wisconsin has less stringent penalties than other states for OWI - particularly for the first offense, which is not criminalized unless a person under age 16 is present in the vehicle. Nevertheless, it has 1.3 times the national rate of OWI arrests, and 3.3 times the national rate of other liquor law violations.

**Figure 10. Arrests (adult and juvenile) for operating a motor vehicle while intoxicated (OWI), rate per 100,000 population, Wisconsin and the United States, 2004-2012**



Sources: *Crime and Arrests in Wisconsin*, Wisconsin Office of Justice Assistance; *Crime in the United States*, U.S. Department of Justice, Federal Bureau of Investigation, Criminal Justice Information Services Division.

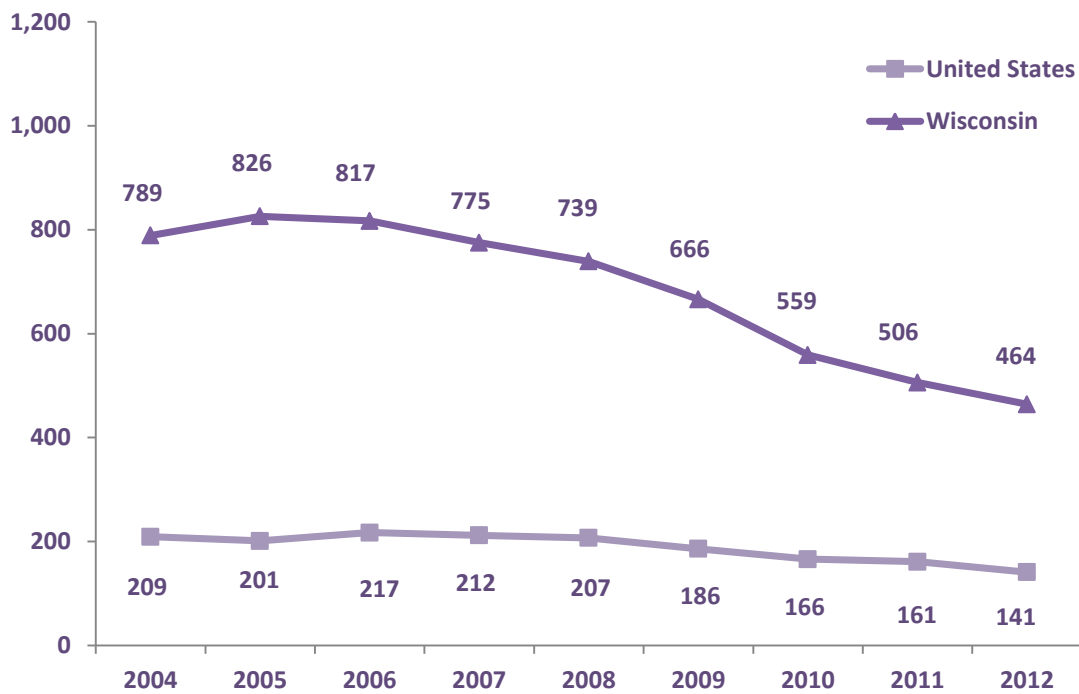
<sup>9</sup>Substance Abuse and Mental Health Services Administration, National Survey on Drug Use and Health. *The NSDUH Report: State Estimates of Drunk and Drugged Driving*. May 31, 2012. <http://www.samhsa.gov/data/2k12/NSDUH109/SR109StateEstDrunkDrugDriving2012.htm>.

### Liquor Law Violations

According to the Wisconsin Office of Justice Assistance (OJA), liquor law violations are “violations of state or local laws or ordinances prohibiting the manufacture, sale, purchase, transportation, possession, or use of alcoholic beverages, not including driving under the influence and drunkenness.”

- Wisconsin’s arrest rate for liquor law violations declined every year from 2005 to 2012. Nevertheless, it remains over three times the national rate (Figure 11).
- In 2012, 19% of all liquor law arrests in Wisconsin were of juveniles.

Figure 11. Liquor law arrests (adult and juvenile), rate per 100,000 population, Wisconsin and the United States, 2004-2012



Sources: *Crime and Arrests in Wisconsin*, Wisconsin Office of Justice Assistance; and *Crime in the United States*, U.S. Department of Justice, Federal Bureau of Investigation, Criminal Justice Information Services Division.

Table 8. Operating a motor vehicle while intoxicated (OWI) and liquor law arrests, rate per 100,000 population, Wisconsin by county, 2011 and 2012

County	OWI Arrests Rate per 100,000		Liquor Law Arrests Rate per 100,000	
	2011	2012	2011	2012
Adams	884	746	115	29
Ashland	404	536	497	536
Barron	494	161	351	83
Bayfield	239	471	0	106
Brown	607	518	601	546
Buffalo	941	1182	0	7
Burnett	407	440	90	78
Calumet	225	265	158	261
Chippewa	532	541	402	396
Clark	625	714	314	497
Columbia	783	751	591	568
Crawford	264	187	523	90
Dane	551	453	632	554
Dodge	514	469	345	213
Door	705	771	359	459
Douglas	500	513	659	597
Dunn	654	376	1,705	1,227
Eau Claire	524	438	1,316	1,224
Florence	753	817	0	23
Fond du Lac	546	494	481	414
Forest	793	511	130	228
Grant	503	558	1,134	1,165
Green	607	586	423	431
Green Lake	393	435	293	660
Iowa	296	396	173	164
Iron	991	579	239	681
Jackson	672	156	83	132
Jefferson	512	466	365	463
Juneau	172	160	63	78
Kenosha	380	417	805	722
Kewaunee	364	267	490	422
La Crosse	470	561	1,302	1,573
Lafayette	267	361	433	557
Langlade	630	344	186	45
Lincoln	345	323	446	240
Manitowoc	519	424	575	568
Marathon	541	494	494	387

Table 8. Operating a motor vehicle while intoxicated (OWI) and liquor law arrests, rate per 100,000 population, Wisconsin by county, 2011 and 2012 (continued)

County	OWI Arrests Rate per 100,000		Liquor Law Arrests Rate per 100,000	
	2011	2012	2011	2012
Marinette	468	379	420	406
Marquette	461	607	0	0
Menominee	3,104	3,286	94	23
Milwaukee	379	453	293	248
Monroe	425	541	507	583
Oconto	332	358	119	265
Oneida	465	568	484	579
Outagamie	580	653	534	515
Ozaukee	370	529	404	509
Pepin	309	188	67	67
Pierce	1,034	559	512	540
Polk	951	745	59	48
Portage	506	447	652	512
Price	528	500	307	157
Racine	320	338	192	166
Richland	283	128	366	145
Rock	577	580	469	392
Rusk	340	397	299	342
St. Croix	389	300	322	347
Sauk	1,023	911	1,234	1,533
Sawyer	1,047	1,214	78	120
Shawano	714	667	669	658
Sheboygan	462	411	308	323
Taylor	633	814	527	455
Trempealeau	418	422	287	62
Vernon	328	316	67	33
Vilas	913	891	536	1059
Walworth	709	810	1,333	1,058
Washburn	572	610	220	529
Washington	446	477	487	374
Waukesha	415	413	186	161
Waupaca	575	616	307	329
Waushara	619	482	338	65
Winnebago	926	633	968	777
Wood	699	545	562	365
<b>Wisconsin</b>	<b>550</b>	<b>529</b>	<b>506</b>	<b>464</b>

 Source: *Arrests in Wisconsin*, 2009 and 2010, Wisconsin Office of Justice Assistance.

Note: Statewide rate calculations include arrests not identified by county.



## Alcohol-Related Suspensions and Expulsions from School

Public school districts in Wisconsin are required to report discipline data about suspensions, expulsions and other removals to the Wisconsin Department of Public Instruction (DPI). According to DPI, suspensions are “absences from the school imposed by the school administration for disciplinary reasons” and expulsions are “sanctions imposed on students by formal school board action which, for purposes of discipline, prohibit students from attending school.”

Rates of public school suspensions and expulsions vary for multiple reasons, including differences in the prevalence of behaviors related to alcohol use and difference in policies or diversion programs related to whether a suspension or expulsion is issued. The data reported in Table 9 includes all grade levels (K-12).

**Table 9. Alcohol-related suspensions and expulsions in public schools, rate per 1,000 students, Wisconsin by county, 2011-2012 school year**

<i>County</i>	<i>Number of Incidents</i>	<i>Rate/1,000 Students</i>	<i>County</i>	<i>Number of Incidents</i>	<i>Rate/1,000 Students</i>
Adams	9	5.2	Marinette	6	1.0
Ashland	1	0.4	Marquette	0	0.0
Barron	0	0.0	Menominee	1	1.2
Bayfield	2	1.3	Milwaukee*	120	0.9
Brown	32	0.7	Monroe	5	0.7
Buffalo	0	0.0	Oconto	6	1.4
Burnett	1	0.4	Oneida	3	0.7
Calumet	0	0.0	Outagamie	26	0.8
Chippewa	9	1.0	Ozaukee	15	1.2
Clark	7	1.4	Pepin	0	0.0
Columbia	7	0.7	Pierce	7	1.0
Crawford	0	0.0	Polk	4	0.5
Dane	75	1.0	Portage	22	2.3
Dodge	6	0.7	Price	0	0.0
Door	5	1.4	Racine*	38	1.2
Douglas	10	1.5	Richland	0	0.0
Dunn	0	0.0	Rock	20	0.7
Eau Claire	16	1.1	Rusk	5	2.4
Florence	0	0.0	Saint Croix	14	1.0
Fond du Lac	10	0.6	Sauk	12	1.0
Forest	3	1.8	Sawyer	1	0.4
Grant	6	0.9	Shawano	1	0.2
Green	2	0.3	Sheboygan	6	0.3
Green Lake	0	0.0	Taylor	4	1.3
Iowa	5	1.4	Trempealeau	0	0.0
Iron	0	0.0	Vernon	1	0.2
Jackson	0	0.0	Vilas	2	0.7
Jefferson	3	0.2	Walworth	8	0.5
Juneau	0	0.0	Washburn	0	0.0
Kenosha	22	0.7	Washington	37	1.8
Kewaunee	0	0.0	Waukesha	74	1.2
La Crosse	17	1.1	Waupaca	12	1.3
Lafayette	1	0.1	Waushara	1	0.4
Langlade	0	0.0	Winnebago	24	1.4
Lincoln	4	0.9	Wood	13	1.1
Manitowoc	2	0.2			
Marathon	23	1.5	<b>Wisconsin</b>	<b>766</b>	<b>0.9</b>

Source: Wisconsin Department of Public Instruction.

\*Milwaukee and Racine county data include charter schools.

Note: Each incident is counted separately regardless of whether repeat infractions are by the same or different students.

## Consequences of Other Drug Consumption

For the purpose of this report, “other drugs” refers to both illicit drugs and prescription drugs used for non-medical purposes. Many data sources do not separate these two categories but when possible, this report includes drug-specific information.

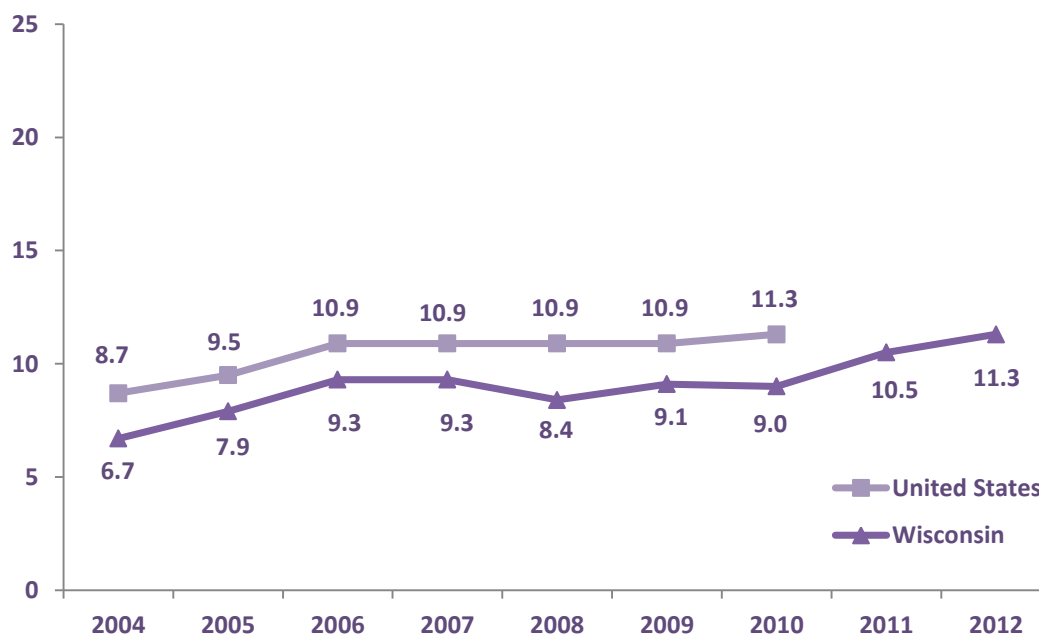
Other drug use leads to many health and societal effects including arrests, abuse, dependence and death. Wisconsin rates of abuse, dependence and deaths due to other drug use are similar to, or lower than, national rates. The rate of arrests for drug law violations is also lower in Wisconsin than nationally.

### Other Drug-related Death

There is evidence of change over time in the pattern and volume of drug-related deaths in Wisconsin. Between 2004 and 2012, the increase in overall drug-related deaths that began in earlier years continued (Figure 12 and Table 10). The rate of drug deaths in Wisconsin remained lower than the national rate through 2010, the most recent year for which U.S. data are available.

- Wisconsin’s age-adjusted rate of drug-related mortality increased from 6.7 deaths per 100,000 population in 2004 to 11.3 deaths per 100,000 in 2012 (Figure 12).
- Wisconsin’s number of drug-related deaths has exceeded 500 in four of the past five years. In 2012, 633 Wisconsin residents died as a direct consequence of illicit drug use (Table 10).

Figure 12. Drug-related deaths, age-adjusted rate per 100,000 population, Wisconsin and the United States, 2004-2012



Source: Wisconsin resident death certificates, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services; rates for the United States are from the Centers for Disease Control and Prevention: <http://wonder.cdc.gov/mortSQL.html>.

Table 10. Drug-related deaths, age-adjusted rate per 100,000 population and total number, Wisconsin and the United States, 2004-2012

		2004	2005	2006	2007	2008	2009	2010	2011	2012
United States	Rate/100,000	8.7	9.5	10.9	10.9	10.9	10.9	11.3		
	Total number	25,670	28,214	32,639	33,258	33,300	33,639	35,059		
Wisconsin	Rate/100,000	6.7	7.9	9.3	9.3	8.4	9.1	9.0	10.5	11.3
	Total number	383	448	526	526	482	525	512	601	633

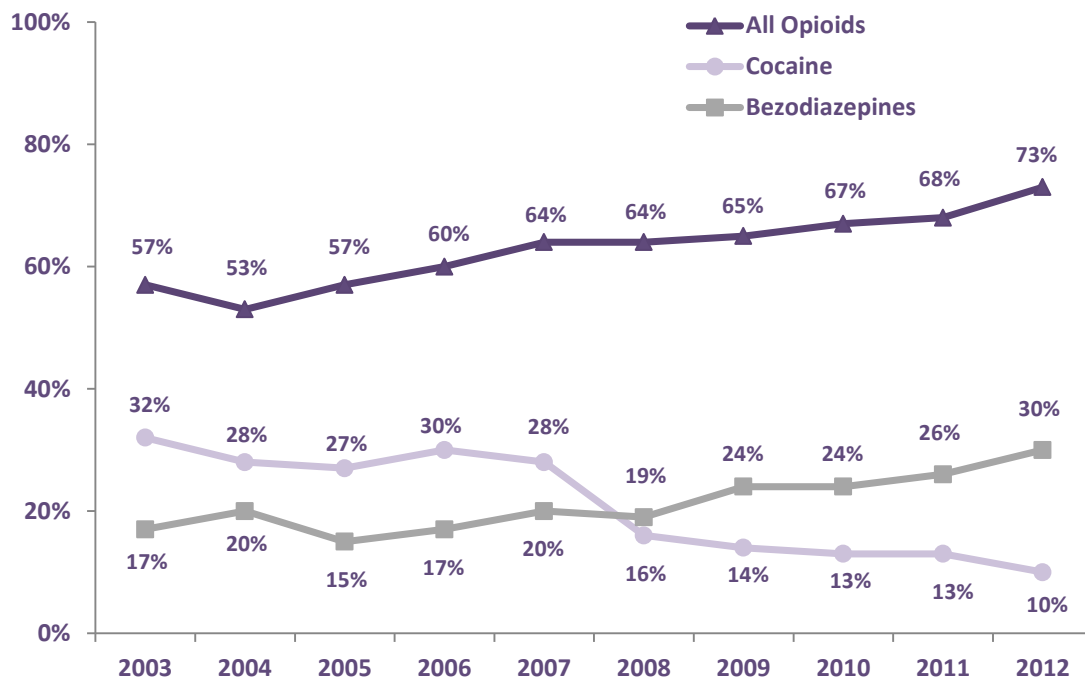
Source: Wisconsin resident death certificates, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services, United States death certificate data compiled by the Centers for Disease Control and Prevention: <http://wonder.cdc.gov/mortSQL.html>.

Heroin and other opioid-related deaths are an increasing problem in Wisconsin, as they are nationally. Annual numbers of heroin and other opioid-related deaths in the state increased steadily from 2003 to 2012. The proportion of drug deaths with a mention of opioids, the largest category, increased by approximately 38% between 2004 and 2012. The proportion with a mention of benzodiazepines doubled between 2005 and 2012, while mentions of cocaine have decreased steadily since 2006 (Figure 13).

Between 2004 and 2012, the proportion of drug deaths where heroin is mentioned increased five-fold, from 5% to 27% (Figure 14).

Overall, what is known about current trends in drugs-of-choice appears to be reflected in the patterns of death reports. The upward trend in mentions of heroin in drug-related deaths may reflect increasing substitution of heroin for prescription drugs among opioid users due to heroin’s lower cost and increasing availability. With no standards for consistency or dosing as with prescription drugs, heroin use carries significant risk of overdose.

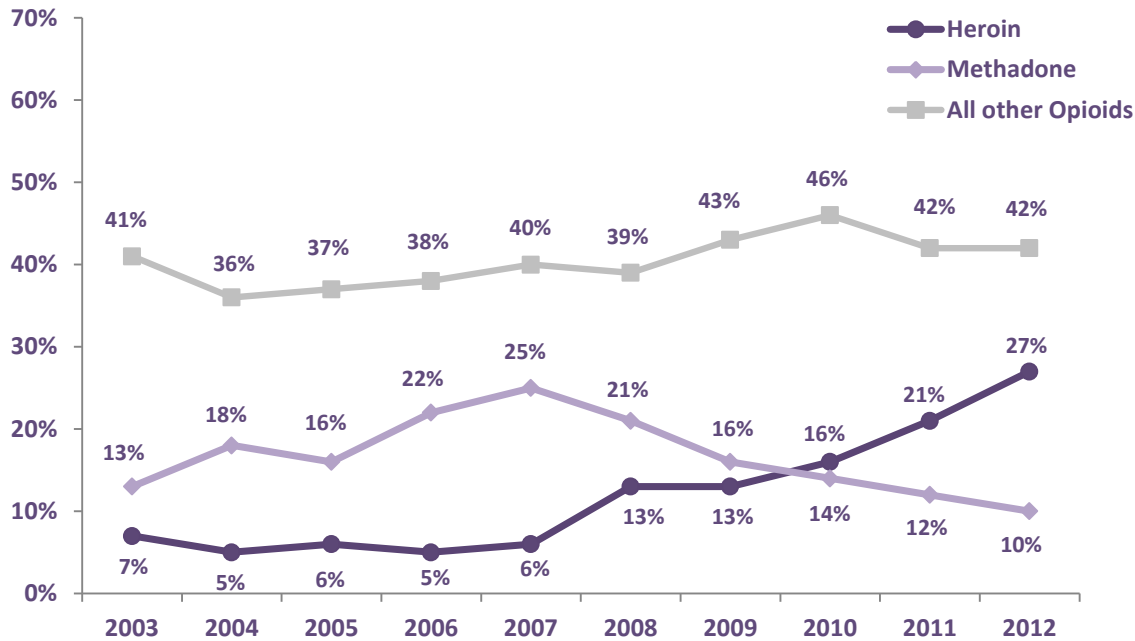
**Figure 13. Drug-related deaths involving opioids, cocaine and/or benzodiazepines, Wisconsin, 2003-2012**



Source: Wisconsin resident death certificates, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services.

Note: Opioids include heroin, methadone and other opioids, including synthetic narcotic pain relievers such as oxycodone and hydrocodone, as well as morphine and its derivatives. Benzodiazepines include central nervous system depressants such as Valium®, Librium®, and Xanax®. More than one drug may be mentioned in the death record.

Figure 14. Heroin, methadone and other opioid-related deaths, Wisconsin, 2003-2012



Source: Wisconsin resident death certificates, Division of Public Health, Wisconsin Department of Health Services.

Notes: Opioid refers to any prescription drug - natural or synthetic - with morphine-like effects. Some opioid deaths involve both heroin and prescription opioids.

## Other Drug-related Illness and Injury

### Other Drug Abuse or Dependence

While rates of illicit drug abuse or dependence for people age 12 and older in Wisconsin and nationally have stayed relatively consistent since 2007 at about 3% of the population, there are differences between age groups. In 2011-2012, Wisconsin residents ages 18-25 were more likely to abuse or be dependent on illicit drugs (6%) than were those ages 12-17 (4%) or over age 26 (1%).

Table 11. Illicit drug abuse or dependence in the past year, age 12 and older, Wisconsin by age, 2007-2012

Age	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012
12-17	4%	4%	5%	4%	4%
18-25	7%	7%	7%	6%	6%
26+	2%	1%	2%	2%	1%

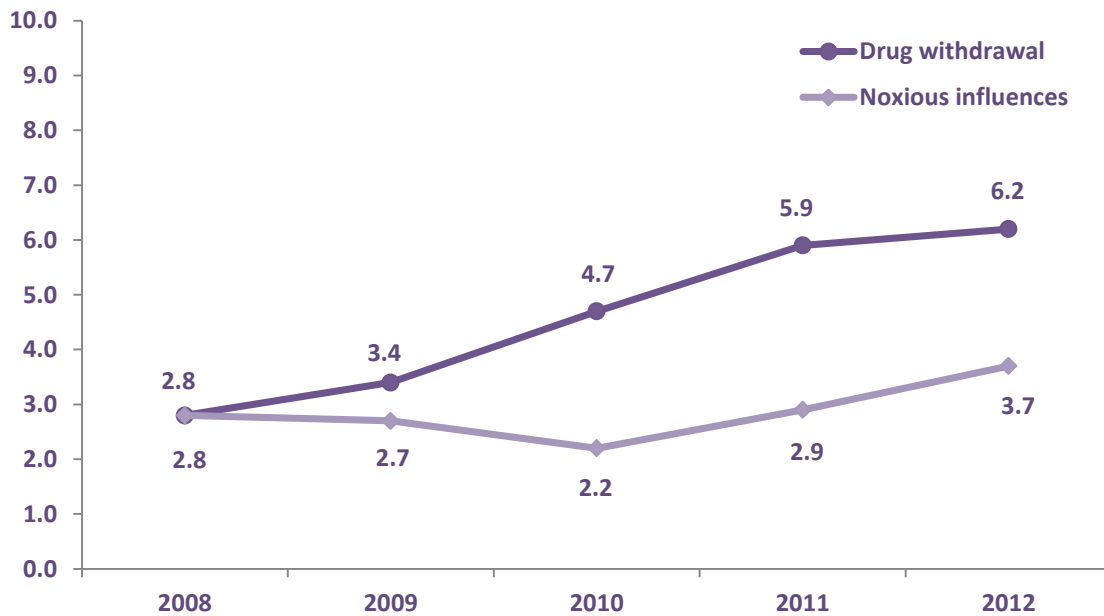
Source: National Survey on Drug Use and Health, Substance Abuse and Mental Health Services Administration, U.S. Department of Health and Human Services.

## Neonatal Abstinence Syndrome (NAS)

Neonatal Abstinence Syndrome (NAS) refers to the effects on a fetus or newborn of maternal drug use, and consists of either drug withdrawal symptoms or “noxious influences”<sup>10</sup> of drugs. Drug withdrawal refers to babies who are born addicted because their mothers are drug-dependent. Noxious influences refer to babies exposed to noxious influences from drugs through the placenta or breast milk but who are not necessarily “addicted.” NAS is increasing in Wisconsin in parallel with rises in prescription drug use and heroin use.

In Wisconsin, the rates of NAS from drug withdrawal has increased more sharply since 2008 than has the NAS rate from noxious influences (Figure 15).

Figure 15. Neonatal Abstinence Syndrome (NAS) cases, rates per 1,000 hospital births, Wisconsin, 2008-2012



Source: Wisconsin inpatient discharge database, Division of Public Health, Wisconsin Department of Health Services.

<sup>10</sup> Noxious influences affecting the fetus or newborn through placenta or breast milk include narcotics, alcohol, cocaine, hallucinogens and unspecified substances.

## Hepatitis C

Many new cases of Hepatitis C, a serious infectious disease that can lead to lasting liver damage, are a direct consequence of injection drug use. The most commonly reported risk factor associated with new Hepatitis C infections in the United States is injection drug use.

Users who inject heroin or other drugs also risk contracting Human Immunodeficiency Virus (HIV) and other infectious diseases. It is estimated that 60% of new Hepatitis C virus infections are a result of injection drug use,<sup>11</sup> and that 65%-90% of long-term injection drug users are infected with Hepatitis C.<sup>12</sup>

- Wisconsin data show that Hepatitis C incidence (newly reported cases) in the state increased 12% from 2006 to 2013 (Figure 16).
- While rates of new Hepatitis C cases are decreasing in adults over age 30, they have been steadily increasing in people younger than 30. The rate of new Hepatitis C cases increased 189% between 2006 and 2013 among people under age 30 (Figure 17).

Figure 16. Reported cases of Hepatitis C, Wisconsin, 2006-2013



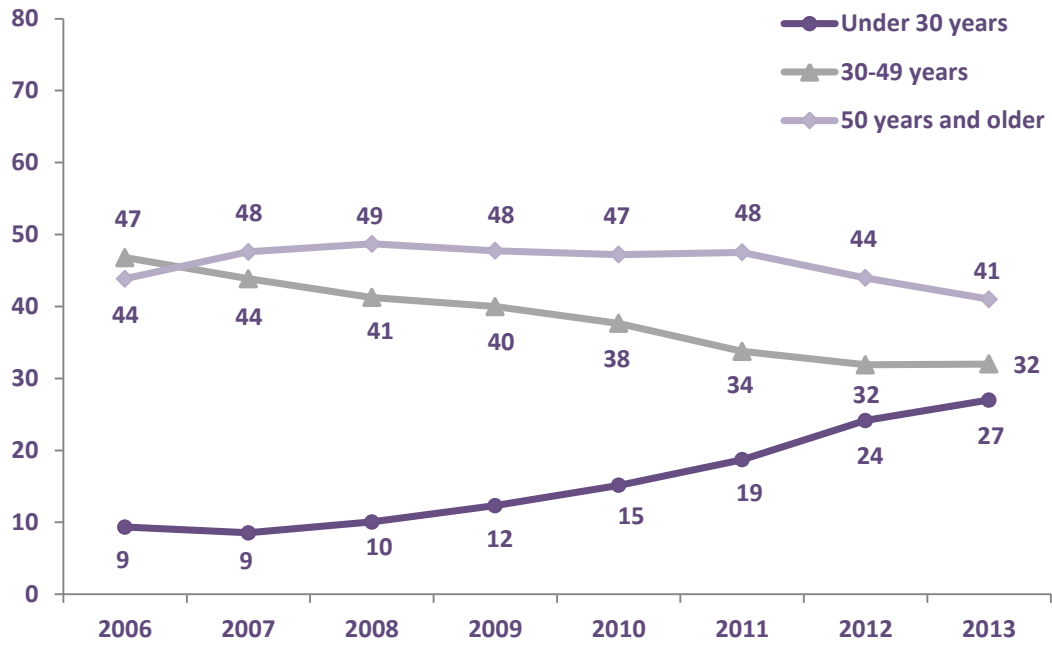
Source: Bureau of Communicable Diseases and Emergency Response, Division of Public Health, Wisconsin Department of Health Services.

<sup>11</sup> Alter M.J. (2009). Hepatitis C virus infection in the United States. *Journal of Hepatology*. 31(suppl. 1): 88-91.

<sup>12</sup> Hagan H., Pouget E.R., Des Jarlais D.C., and Lelutiu-Weinberger C. (2008). Meta-regression of hepatitis C virus infection in relation to time since onset of illicit drug injection: The influence of time and place. *American Journal of Epidemiology*. 168(10):1099-1109.



Figure 17. New cases of Hepatitis C, rate per 100,000 population, Wisconsin by age, 2006-2013



Source: Bureau of Communicable Diseases and Emergency Response, Division of Public Health, Wisconsin Department of Health Services.

## Other Drug-Related Hospitalizations

The number of drug-related hospitalizations in Wisconsin has increased steadily between 2004 and 2012. There were 15,454 Wisconsin hospitalizations defined as drug-related in 2012, an increase of 15% since 2004 (Table 12). Drug-related hospitalizations include such diagnoses as drug psychoses, drug dependence, drug-related polyneuropathy, and accidental and purposeful poisoning by drugs.

- Total charges for drug-related hospitalizations, inflation-adjusted to 2012 dollars, rose each year across 2004-2012, with the exception of 2009 and 2010 when charges were the same in both years (Figure 18).
- Charges for drug-related hospitalizations in Wisconsin totaled \$317 million in 2012, an increase of 48% from \$214 million in 2004 (Figure 18).
- Several counties in southeastern and northeastern Wisconsin had increases of more than 5% in two-year drug hospitalization rates from 2010-2011 to 2011-2012 (Table 13).

**Table 12. Drug-related hospitalizations, rate per 100,000 population and total number, Wisconsin, 2004-2012**

	2004	2005	2006	2007	2008	2009	2010	2011	2012
Rate/100,000	243	246	247	251	260	257	266	267	270
Number	13,454	13,723	13,859	14,178	14,756	14,605	15,135	15,224	15,454

Source: Wisconsin hospital inpatient discharge database, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services.

**Figure 18. Drug-related hospitalization charges, in millions, Wisconsin, 2004-2012 (inflation-adjusted to 2012 dollars)**



Source: Wisconsin hospital inpatient discharge database, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services.

Note: Hospital charges are the total facility charges for the length of stay and are not the same as actual costs paid by any payer; also, they do not include physician or other ancillary charges (see Appendix 1).

Table 13. Drug-related hospitalizations, total number and rate per 100,000 population, Wisconsin by county, 2010-2012

County	Number in 2012	Rate per 100,000	
		2010-2011	2011-2012
Adams	27	175	159
Ashland	119	757	775
Barron	106	226	222
Bayfield	43	356	328
Brown	522	212	205
Buffalo	29	250	243
Burnett	39	191	210
Calumet	33	66	57
Chippewa	212	309	318
Clark	55	160	160
Columbia	178	288	293
Crawford	33	243	213
Dane	1,075	247	227
Dodge	179	224	202
Door	24	133	106
Douglas	26	68	65
Dunn	102	207	221
Eau Claire	411	412	410
Florence	4	102	91
Fond du Lac	262	281	269
Forest	32	319	304
Grant	39	95	88
Green	74	172	175
Green Lake	47	220	223
Iowa	35	160	158
Iron	13	263	264
Jackson	65	320	351
Jefferson	139	148	160
Juneau	61	262	256
Kenosha	454	253	259
Kewaunee	26	151	148
La Crosse	390	331	325
Lafayette	24	113	130
Langlade	55	266	242
Lincoln	63	265	230
Manitowoc	248	211	260
Marathon	295	230	221

Table 13. Drug-related hospitalizations, total number and rate per 100,000 population, Wisconsin by county, 2010-2012 (continued)

County	Number in 2012	Rate per 100,000	
		2010-2011	2011-2012
Marinette	113	232	255
Marquette	40	237	231
Menominee	18	377	341
Milwaukee	4,271	416	440
Monroe	122	267	272
Oconto	65	203	188
Oneida	108	324	310
Outagamie	306	184	175
Ozaukee	231	269	272
Pepin	10	201	181
Pierce	49	119	116
Polk	72	187	172
Portage	203	286	287
Price	29	220	218
Racine	421	247	231
Richland	33	266	231
Rock	438	260	269
Rusk	23	204	174
St. Croix	155	245	249
Sauk	32	268	217
Sawyer	68	227	204
Shawano	327	239	251
Sheboygan	106	115	128
Taylor	18	169	131
Trempealeau	81	222	248
Vernon	50	196	172
Vilas	90	532	504
Walworth	227	169	189
Washburn	43	258	258
Washington	304	213	232
Waukesha	1,098	247	266
Waupaca	103	200	200
Waushara	42	206	188
Winnebago	372	241	226
Wood	247	382	362
<b>Wisconsin</b>	<b>15,454</b>	<b>267</b>	<b>269</b>

Source: Wisconsin hospital inpatient discharge database, Division of Public Health, Wisconsin Department of Health Services.

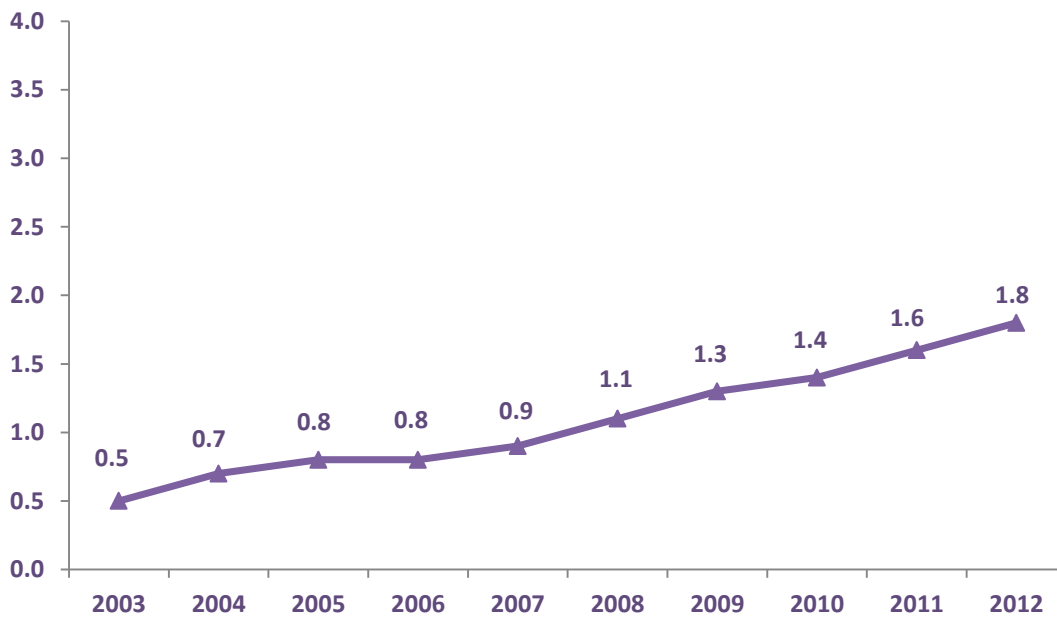
Note: Hospitalization numbers and rates are based on patient's county of residence.

### Opioid-Related Hospitalizations

Rates of hospitalization for prescription drug abuse and dependence among youth and young adults, without regard to payment source, provide a broader look at the problem of prescription drug misuse. The moderate upward trend on this measure at the state level suggests that prescription drug misuse is increasing across the youth and young adult population (Figure 19).

- Fifty-six of Wisconsin’s 72 counties (77%) experienced increases in opioid-related hospitalizations for youth and young adults ages 12-25 between 2008 and 2012 (Table 14).

**Figure 19. Opioid-related hospitalizations per 1,000 population ages 12-25, Wisconsin, 2003-2012**



Source: Wisconsin hospital inpatient discharge database, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services.

Note: These are hospitalizations for opioid dependence or non-dependent abuse, including methadone, codeine and morphine, excluding heroin and opium where possible (see diagnosis codes in Appendix 2).

Table 14. Opioid-related hospitalizations per 1,000 population, ages 12-25, Wisconsin by county, 2008-2012 (moving two-year rates)

County	2008 - 2009	2009- 2010	2010- 2011	2011- 2012	County	2008 - 2009	2009- 2010	2010- 2011	2011- 2012
Adams	0.7	1.3	1.9	1.8	Marinette	1.6	1.5	1.7	2.2
Ashland	3.1	2.2	4.5	5.5	Marquette	1.7	2.0	1.4	2.1
Barron	0.8	0.8	0.7	0.7	Menominee	2.0	1.6	0.6	0.6
Bayfield	1.0	0.9	1.2	1.8	Milwaukee	1.5	1.3	1.6	1.9
Brown	0.8	0.6	0.6	0.7	Monroe	1.2	1.4	2.9	3.4
Buffalo	0.2	0.9	2.5	2.0	Oconto	0.8	0.8	1.4	1.1
Burnett	3.8	3.4	0.7	2.4	Oneida	1.7	1.8	2.0	1.8
Calumet	0.2	0.4	0.5	0.8	Outagamie	0.5	0.5	0.6	0.7
Chippewa	0.7	0.8	1.2	2.1	Ozaukee	2.1	2.6	2.9	2.7
Clark	0.7	0.6	0.5	0.7	Pepin	0.7	0.8	0.4	0.4
Columbia	2.2	2.0	2.7	3.1	Pierce	0.3	0.5	0.5	0.5
Crawford	0.8	1.6	2.0	1.4	Polk	0.8	0.8	0.5	0.6
Dane	0.9	1.0	1.1	1.2	Portage	0.8	1.2	1.6	1.4
Dodge	0.9	1.2	1.1	1.4	Price	0.6	0.7	1.5	1.9
Door	0.4	0.4	0.4	0.3	Racine	1.0	1.4	1.7	1.6
Douglas	1.8	1.6	1.8	2.0	Richland	1.5	2.4	2.3	1.3
Dunn	0.4	0.7	0.9	0.9	Rock	1.5	1.4	1.6	2.0
Eau Claire	1.0	1.5	1.9	2.1	Rusk	1.2	1.0	0.4	0.2
Florence	0.0	0.7	1.7	0.8	St. Croix	1.3	1.5	1.5	2.6
Fond du Lac	0.9	1.1	1.3	1.5	Sauk	2.2	2.0	1.7	1.9
Forest	1.1	2.0	1.9	2.7	Sawyer	0.5	1.3	1.7	1.3
Grant	0.1	0.2	0.4	0.5	Shawano	1.9	2.3	2.4	2.2
Green	0.7	1.4	1.5	1.3	Sheboygan	1.4	1.3	1.5	2.2
Green Lake	0.8	1.2	0.9	0.7	Taylor	0.7	0.7	1.2	0.9
Iowa	1.5	1.3	0.9	1.5	Trempealeau	1.7	2.4	2.1	3.1
Iron	1.1	0.6	1.3	2.7	Vernon	0.6	1.6	2.3	1.8
Jackson	2.3	2.6	4.2	4.7	Vilas	2.9	4.1	5.7	5.9
Jefferson	0.7	0.8	1.4	1.8	Walworth	0.6	0.9	0.7	0.9
Juneau	1.6	2.0	2.3	2.5	Washburn	0.6	1.6	2.4	2.4
Kenosha	1.3	1.1	1.2	1.3	Washington	1.6	2.1	2.5	2.5
Kewaunee	0.0	0.0	0.6	0.8	Waukesha	2.4	2.6	2.8	3.2
La Crosse	0.9	1.3	1.4	1.6	Waupaca	0.9	1.3	1.5	1.4
Lafayette	0.7	0.3	0.5	1.2	Waushara	0.7	1.7	1.9	1.1
Langlade	1.7	2.3	1.6	1.3	Winnebago	0.9	1.2	1.4	1.2
Lincoln	2.4	1.9	2.1	1.4	Wood	2.1	2.8	2.5	2.7
Manitowoc	0.9	1.1	1.0	1.1					
Marathon	0.9	0.9	1.1	1.3	<b>Wisconsin</b>	<b>1.2</b>	<b>1.3</b>	<b>1.5</b>	<b>1.7</b>

Source: Wisconsin hospital inpatient discharge database, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services.

Note: These are hospitalizations for opioid dependence or non-dependent abuse, including methadone, codeine and morphine, excluding heroin and opium where possible (see diagnosis codes in Appendix 2).

## Other Drug-Related Offenses

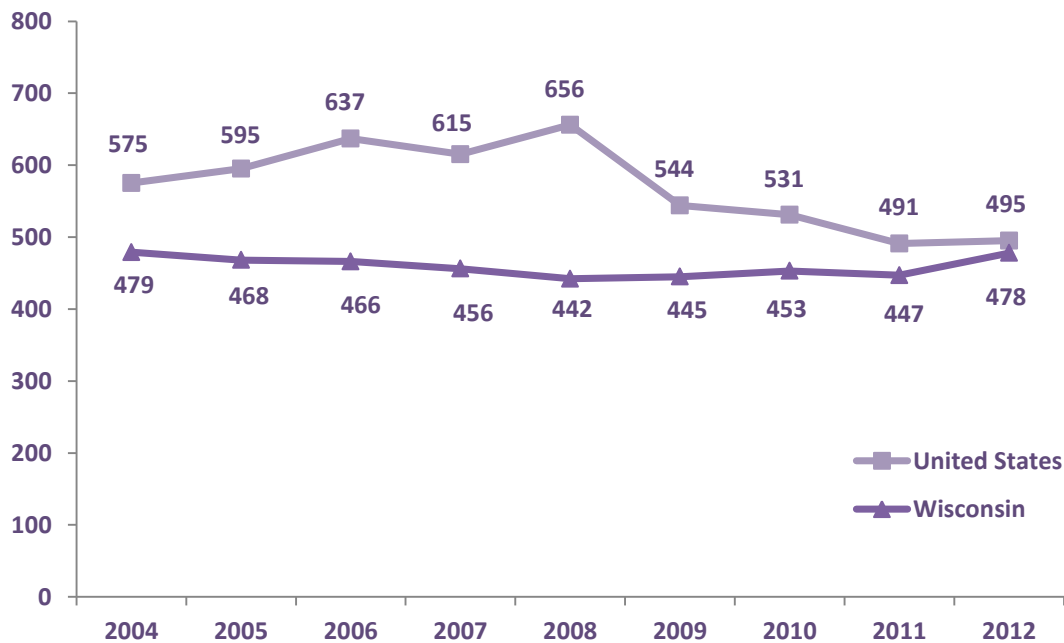
### Other Drug-Related Crime and Arrests

Drug law violations are defined as the violation of laws prohibiting the production, distribution, and/or use of certain controlled substances and the equipment or devices utilized in their preparation and/or use; they include the unlawful cultivation, manufacture, distribution, sale, purchase, use, possession, transportation, or importation of any controlled drug or narcotic substance.

In 2012, there were 27,345 arrests in Wisconsin for drug law violations; 14% of drug law arrests were of juveniles. Arrests for possession made up 83% of all drug law arrests; the remainder were for sales and manufacturing.

Historically, the rate of drug law arrests has been lower in Wisconsin than in the nation as a whole. Since 2008, however, the arrest rate in Wisconsin has remained constant while the national rate declined in 2009, 2010, and 2011. This has brought the Wisconsin and national arrest rates closer together (Figure 20).

**Figure 20. Drug law arrests (adult and juvenile), rate per 100,000 population, Wisconsin and the United States, 2004-2012**



Sources: *Crime and Arrests in Wisconsin*, Wisconsin Office of Justice Assistance; and *Crime in the United States*, U.S. Department of Justice, Federal Bureau of Investigation, Criminal Justice Information Services Division.

Note: These two data sources provide rates per 100,000 population for reported index crimes (property offenses and violent offenses), plus numbers of arrests for index crimes and numbers of crimes/arrests for non-index crimes. Where rates were not directly obtained, rates per 100,000 population were calculated using the standard formula: rate = number / population x 100,000.



Table 15. Drug law arrests, rate per 100,000 population, Wisconsin by county, 2011 and 2012

County	Rate per 100,000		County	Rate per 100,000	
	2011	2012		2011	2012
Adams	293	323	Marinette	319	415
Ashland	503	336	Marquette	208	235
Barron	155	63	Menominee	1575	1267
Bayfield	73	126	Milwaukee	735	741
Brown	400	549	Monroe	289	406
Buffalo	500	436	Oconto	138	223
Burnett	168	227	Oneida	298	481
Calumet	102	144	Outagamie	391	532
Chippewa	317	369	Ozaukee	188	253
Clark	130	110	Pepin	40	134
Columbia	426	733	Pierce	412	364
Crawford	102	126	Polk	152	202
Dane	423	403	Portage	192	206
Dodge	281	292	Price	235	193
Door	234	294	Racine	474	457
Douglas	344	411	Richland	216	134
Dunn	385	282	Rock	469	467
Eau Claire	516	543	Rusk	143	171
Florence	593	454	St. Croix	214	256
Fond du Lac	297	340	Sauk	438	508
Forest	337	684	Sawyer	193	186
Grant	189	161	Shawano	258	292
Green	249	258	Sheboygan	281	355
Green Lake	246	325	Taylor	624	392
Iowa	224	97	Trempealeau	173	209
Iron	256	102	Vernon	201	233
Jackson	414	97	Vilas	499	765
Jefferson	335	408	Walworth	805	960
Juneau	164	157	Washburn	226	352
Kenosha	551	611	Washington	422	408
Kewaunee	243	252	Waukesha	242	263
La Crosse	708	798	Waupaca	234	273
Lafayette	208	154	Waushara	293	278
Langlade	539	581	Winnebago	566	545
Lincoln	387	413	Wood	424	348
Manitowoc	369	319			
Marathon	283	272	<b>Wisconsin</b>	<b>447</b>	<b>478</b>

Source: *Arrests in Wisconsin*, Wisconsin Office of Justice Assistance.

## Other Drug-Related Suspensions and Expulsions from School

Rates of public school suspensions and expulsions vary by county for multiple reasons, including differences in the prevalence of behaviors related to drug activity and differences in policies or diversion programs. A few counties have consistently higher rates of suspensions and expulsions than others, and while spikes can be seen in certain years, there are no consistent upward trends. Data for the 2011-2012 school year are shown in Table 16.

According to the Department of Public Instruction, drug-related means related to use, possession, sale, or solicitation of drugs identified in 21 USC Section 812(c). These offenses do NOT include use, possession, sale, or solicitation of alcohol or tobacco. The data reported includes all grade levels (K-12).

Table 16. Drug-related suspensions and expulsions, per 1,000 students, Wisconsin public schools by county, 2011-2012 school year

<i>County</i>	<i>Number of Incidents</i>	<i>Rate/1,000 Students</i>	<i>County</i>	<i>Number of Incidents</i>	<i>Rate/1,000 Students</i>
Adams	7	4.0	Marinette	24	3.9
Ashland	20	7.6	Marquette	3	1.6
Barron	13	1.7	Menominee	17	21.1
Bayfield	2	1.3	Milwaukee	728	5.2
Brown	160	3.7	Monroe	15	2.1
Buffalo	3	1.4	Oconto	35	7.9
Burnett	4	1.4	Oneida	17	3.9
Calumet	16	4.1	Outagamie	110	3.3
Chippewa	20	2.2	Ozaukee	30	2.3
Clark	14	2.7	Pepin	3	2.6
Columbia	25	2.7	Pierce	4	0.5
Crawford	0	0.0	Polk	34	4.4
Dane	356	4.9	Portage	27	2.8
Dodge	36	4.2	Price	1	0.5
Door	4	1.1	Racine	156	5.1
Douglas	65	10.0	Richland	13	7.5
Dunn	19	3.1	Rock	121	4.4
Eau Claire	36	2.6	Rusk	8	3.9
Florence	0	0.0	Saint Croix	35	2.5
Fond du Lac	44	2.9	Sauk	57	4.8
Forest	11	6.7	Sawyer	14	6.3
Grant	9	1.3	Shawano	13	2.3
Green	13	2.3	Sheboygan	46	2.4
Green Lake	3	0.9	Taylor	1	0.3
Iowa	6	1.7	Trempealeau	9	1.6
Iron	1	1.3	Vernon	4	1.0
Jackson	19	5.9	Vilas	16	5.9
Jefferson	40	3.1	Walworth	73	4.5
Juneau	22	2.3	Washburn	2	0.8
Kenosha	118	3.9	Washington	60	3.0
Kewaunee	3	0.8	Waukesha	171	2.7
La Crosse	64	4.0	Waupaca	31	3.4
Lafayette	4	0.5	Waushara	9	3.2
Langlade	24	7.6	Winnebago	97	5.5
Lincoln	6	1.4	Wood	24	2.0
Manitowoc	30	2.7			
Marathon	73	4.9	<b>Wisconsin</b>	<b>3,298</b>	<b>3.8</b>

Source: Wisconsin Department of Public Instruction.

\*Milwaukee and Racine data include charter schools.

Note: Each incident is counted separately regardless of whether repeat infractions are by the same or different students.

## Consequences of Alcohol and Other Drug Consumption

### Publicly Funded Treatment

Data on the primary substance related to admissions to publicly funded treatment (Table 17) suggest widespread abuse of opioids, including heroin, throughout the state. Admissions for heroin, as one of the top three substances, are currently clustered largely in urban counties and counties in close proximity to urban areas.

- Over the last 10 years, the percentages of treatment admissions for alcohol and cocaine have decreased, the latter substantially, while percentages of admissions for opioids (including heroin) have more than doubled. Admissions for marijuana and “other drugs” have also increased as a percentage of publicly funded treatment admissions for substance abuse (Table 17).
- The number of clients receiving treatment in the publicly funded sector continues a decline that began in 2007. As of 2012, the number who received services was 50,181, down from a high of 64,806 in 2006 (Figure 21).
- Public funds expended for alcohol and other drug abuse treatment in Wisconsin have also declined, from an inflation-adjusted high of \$95 million in 2004 to a low of \$71 million in 2012 (Figure 22).

Table 17. Publicly funded treatment admissions, Wisconsin by primary substance, 2003-2012

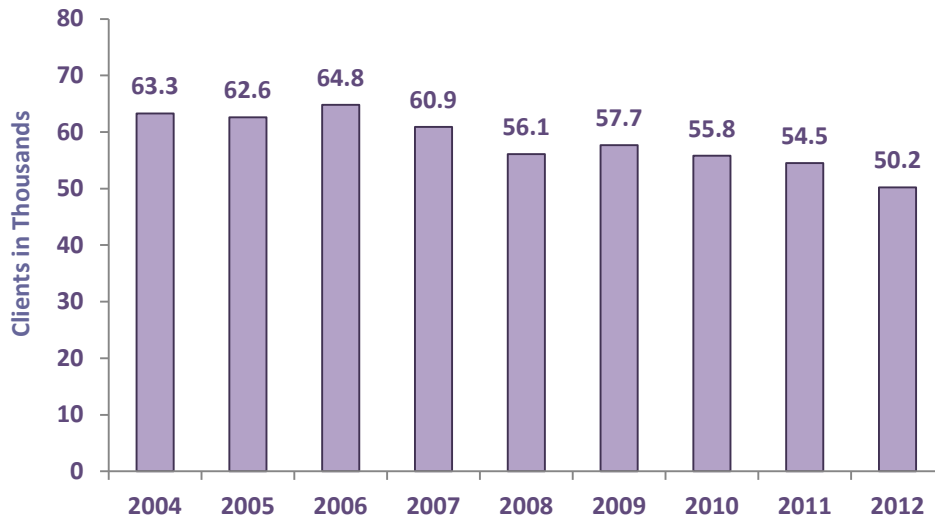
Year	Alcohol*	Heroin	Other Opiates**	Cocaine/ Crack	Marijuana/ Hashish	All Others
2003	72.9%	3.3%	1.7%	11.5%	8.7%	1.9%
2004	74.0%	2.9%	2.3%	9.5%	9.0%	2.3%
2005	69.4%	3.7%	3.0%	11.5%	9.2%	3.2%
2006	68.7%	2.9%	3.1%	12.1%	10.8%	2.4%
2007	70.8%	3.1%	4.1%	7.6%	9.0%	1.6%
2008	74.3%	3.4%	4.1%	7.6%	9.0%	1.6%
2009	72.2%	4.5%	5.2%	6.9%	9.4%	1.8%
2010	71.6%	4.7%	5.6%	6.1%	9.6%	2.4%
2011	69.5%	6.7%	6.2%	5.7%	9.7%	2.2%
2012	68.1%	7.3%	6.8%	5.7%	9.2%	2.9%

Source: Treatment Episode Data Set (TEDS), Substance Abuse and Mental Health Data Archive (SAMHDA), U.S. Department of Health and Human Services.

\*Alcohol alone or with secondary drug

\*\* Opiates and synthetics, excluding methadone

Figure 21. Number of alcohol and other drug abuse clients (in thousands) receiving services with public funds, Wisconsin, 2004-2012



Source: Human Services Reporting System, Division of Mental Health and Substance Abuse Services, Wisconsin Department of Health Services.

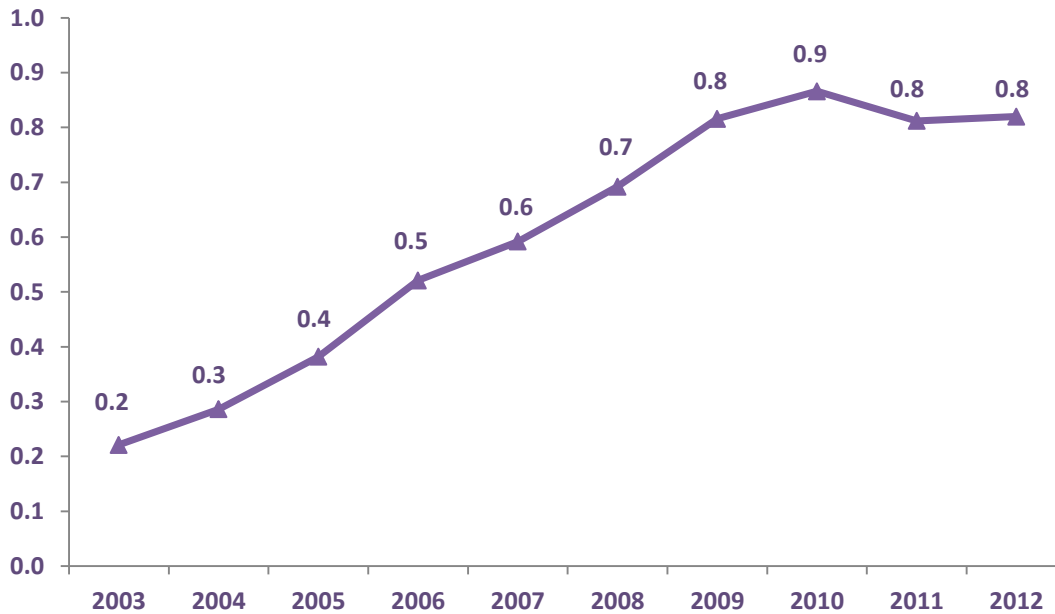
Figure 22. Public funds expended (in millions) for alcohol and other drug abuse treatment, Wisconsin, 2004-2012 (adjusted to 2012 dollars)



Source: Human Services Reporting System, Division of Mental Health and Substance Abuse Services, Wisconsin Department of Health Services.

Youth and young adults ages 12-25 are one of the population groups most affected by prescription drug misuse. A steady increase over time in publicly funded treatment admissions for this type of drug abuse among youth is evident in Figure 23. It is important to note that this does not necessarily mean an increase in drug treatment overall, but is likely related to a gradual shift from abuse of other drugs, such as cocaine, to the abuse of prescription drugs.

**Figure 23. Publicly funded treatment for prescription drug abuse, ages 12-25, service admissions per 1,000 population, Wisconsin, 2003-2012**



Source: Human Services Reporting System, Division of Mental Health and Substance Abuse Services, Wisconsin Department of Health Services.

## Alcohol and Other Drug-related Offenses

### Alcohol and Other Drug-related Crime and Arrests

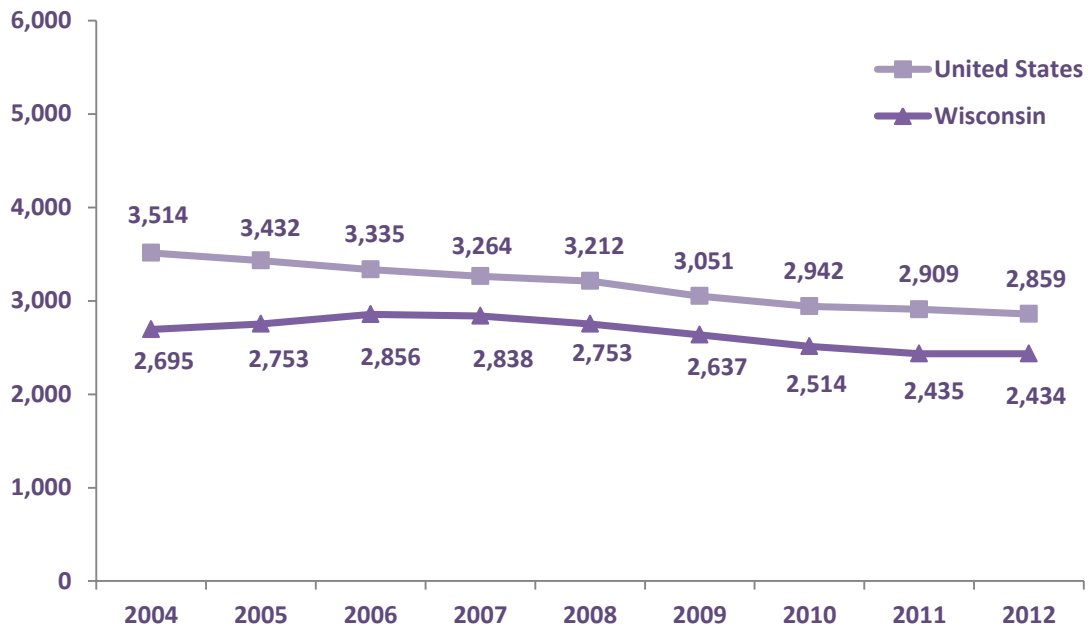
Drug-related property crimes include burglary, larceny, and motor vehicle theft. These crimes are often committed to obtain money to purchase drugs. Drug-attribution rates for property crime range from approximately 7% for motor vehicle theft to 30% for burglary and larceny.

Drinking by perpetrator or victim increases the risk of assaults and assault-related injuries. Approximately 23% of sexual assaults, 30% of physical assaults, and 3% of robberies are attributable to alcohol use.<sup>13</sup>

- Between 2004 and 2012, Wisconsin’s rates of reported property crime and violent crimes were far lower than U.S. rates (Figure 24 and Figure 25).

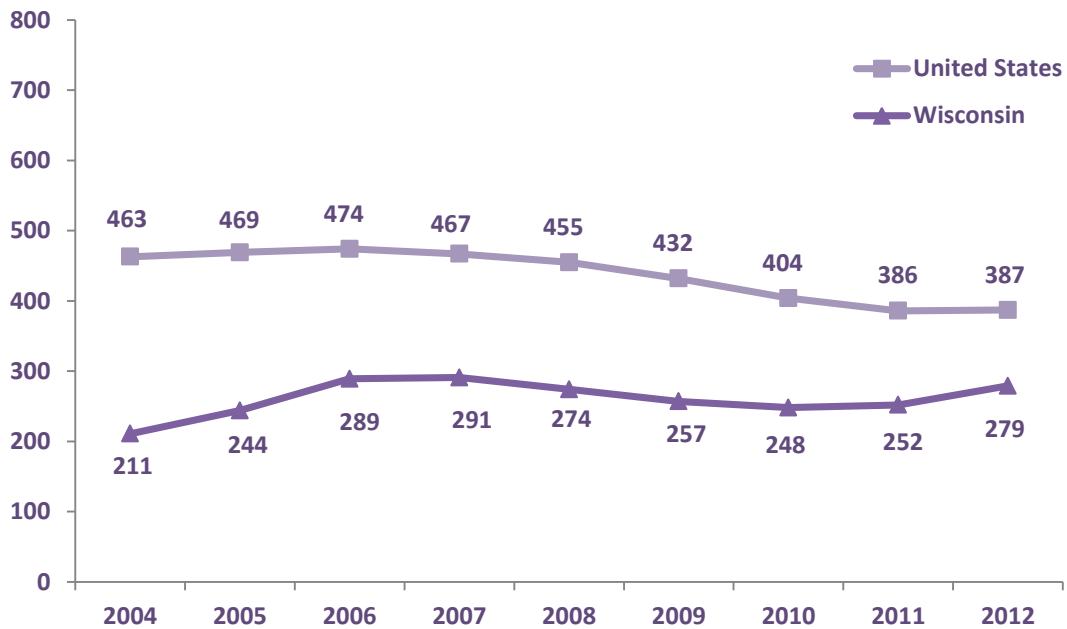
<sup>13</sup> *The Economic Costs of Alcohol and Drug Abuse in the United States, 1992*, National Institute on Drug Abuse, citing analysis by The Lewin Group.

Figure 24. Property crime offenses, rate per 100,000 population, Wisconsin and the United States, 2004-2012



Sources: *Crime and Arrests in Wisconsin*, Wisconsin Office of Justice Assistance; *Crime in the United States*, U.S. Department of Justice, Federal Bureau of Investigation, Criminal Justice Information Services Division.

Figure 25. Violent crime offenses (adult and juvenile), rate per 100,000 population, Wisconsin and the United States, 2004-2012



Sources: *Crime and Arrests in Wisconsin*, Wisconsin Office of Justice Assistance; *Crime in the United States*, U.S. Department of Justice, Federal Bureau of Investigation, Criminal Justice Information Services Division.

Table 18. Property crimes, total number and rate per 100,000 population, Wisconsin by county, 2011 and 2012

<i>County</i>	<i>2011</i>		<i>2012</i>	
	<i>Number</i>	<i>Rate/100,000</i>	<i>Number</i>	<i>Rate/100,000</i>
Adams	604	2,901	578	2,783
Ashland	590	3,667	503	3,134
Barron	605	1,318	458	998
Bayfield	242	1,606	296	1,963
Brown	4,562	1,823	4,854	1,929
Buffalo	30	221	33	244
Burnett	322	2,081	490	3,172
Calumet	349	709	307	621
Chippewa	973	1,551	1008	1,603
Clark	340	979	293	846
Columbia	1,049	1,845	961	1,694
Crawford	200	1,201	204	1,228
Dane	13,689	2,781	13,122	2,640
Dodge	1,138	1,283	1,257	1,418
Door	266	956	326	1,169
Douglas	1,842	4,171	1,673	3,795
Dunn	676	1,541	784	1,784
Eau Claire	2,468	2,483	2,308	2,311
Florence	89	2,031	107	2,429
Fond du Lac	1,585	1,555	1,811	1,777
Forest	257	2,793	211	2,292
Grant	1173	2,286	1000	1,945
Green	679	1,841	682	1,850
Green Lake	288	1,508	335	1,756
Iowa	314	1,326	258	1,086
Iron	121	2,067	78	1,328
Jackson	336	1,637	370	1,803
Jefferson	1,465	1,747	1,592	1,893
Juneau	495	1,849	457	1,705
Kenosha	4,339	2,599	4,366	2,611
Kewaunee	218	1,058	276	1,339
La Crosse	2,880	2,497	3,181	2,743
Lafayette	226	1,340	202	1,197
Langlade	718	3,616	812	4,103
Lincoln	605	2,107	530	1,840
Manitowoc	1,244	1,531	1,566	1,930
Marathon	2,386	1,775	2,236	1,661



Table 18. Property crimes, total number and rate per 100,000 population, Wisconsin by county, 2011 and 2012 (continued)

County	2011		2012	
	Number	Rate/100,000	Number	Rate/100,000
Marinette	897	2,151	1,087	2,609
Marquette	244	1,583	230	1,501
Menominee	154	3,621	176	4,130
Milwaukee	43,615	4,592	43,534	4,576
Monroe	855	1,900	1,130	2,505
Oconto	705	1,871	795	2,107
Oneida	498	1,386	689	1,917
Outagamie	3,624	2,038	3,294	1,843
Ozaukee	912	1,053	907	1,046
Pepin	59	792	86	1,156
Pierce	916	2,233	830	2,027
Polk	639	1,447	541	1,229
Portage	1,244	1,767	1,262	1,785
Price	187	1,334	218	1,556
Racine	5,666	2,901	5,315	2,724
Richland	118	655	78	434
Rock	4,918	3,070	4,795	2,993
Rusk	144	980	145	992
St. Croix	1,233	1,455	1,166	1,370
Sauk	1,854	2,987	1,900	3,054
Sawyer	533	3,208	434	2,608
Shawano	731	1,746	845	2,021
Sheboygan	2,401	2,080	2,462	2,135
Taylor	303	1,465	223	1,081
Trempealeau	290	1,001	298	1,023
Vernon	313	1,047	261	869
Vilas	688	3,206	595	2,776
Walworth	2,086	2,032	1,978	1,927
Washburn	289	1,817	312	1,963
Washington	2,158	1,630	2,274	1,715
Waukesha	4,909	1,257	5,017	1,281
Waupaca	1,184	2,256	1,165	2,228
Waushara	370	1,508	445	1,817
Winnebago	3,236	1,931	3,416	2,032
Wood	1,565	2,096	1,674	2,246
<b>Wisconsin</b>	<b>138,901</b>	<b>2,435</b>	<b>139,102</b>	<b>2,434</b>

 Source: *Crime in Wisconsin*, Wisconsin Office of Justice Assistance (numbers).

Table 19. Violent crimes, total number and rate per 100,000 population, Wisconsin by county, 2011 and 2012

<i>County</i>	<i>2011</i>		<i>2012</i>	
	<i>Number</i>	<i>Rate/100,000</i>	<i>Number</i>	<i>Rate/100,000</i>
Adams	19	91	23	111
Ashland	35	218	53	330
Barron	30	65	26	57
Bayfield	23	153	19	126
Brown	489	195	684	272
Buffalo	3	22	2	15
Burnett	28	181	38	246
Calumet	21	43	26	53
Chippewa	64	102	78	124
Clark	79	228	101	292
Columbia	102	179	85	150
Crawford	6	36	10	60
Dane	1,125	229	1,122	226
Dodge	30	34	52	59
Door	13	47	21	75
Douglas	66	149	95	215
Dunn	48	109	79	180
Eau Claire	182	183	183	183
Florence	7	160	11	250
Fond du Lac	183	180	225	221
Forest	7	76	7	76
Grant	84	164	75	146
Green	42	114	27	73
Green Lake	3	16	11	58
Iowa	36	152	40	168
Iron	26	444	21	358
Jackson	13	63	24	117
Jefferson	161	192	130	155
Juneau	42	157	51	190
Kenosha	320	192	334	200
Kewaunee	9	44	8	39
La Crosse	207	179	199	172
Lafayette	5	30	9	53
Langlade	33	166	31	157
Lincoln	39	136	45	156
Manitowoc	106	130	109	134
Marathon	200	149	163	121

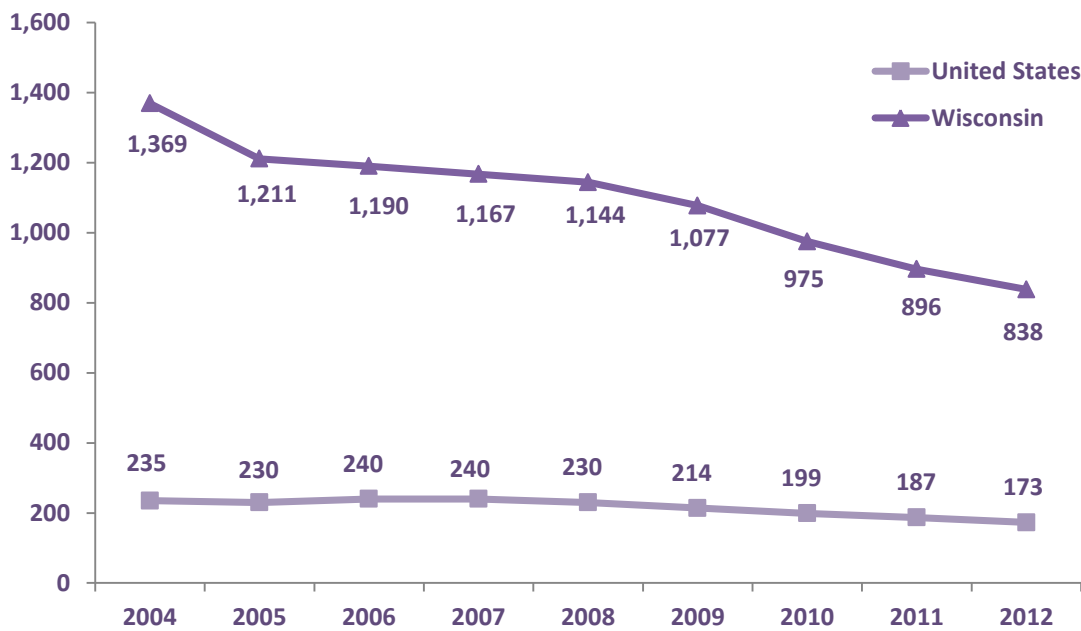
Table 19. Violent crimes, total number and rate per 100,000 population, Wisconsin by county, 2011 and 2012 (continued)

County	2011		2012	
	Number	Rate/100,000	Number	Rate/100,000
Marinette	29	70	22	53
Marquette	7	45	10	65
Menominee	37	870	46	1080
Milwaukee	7,380	777	8,553	899
Monroe	45	100	46	102
Oconto	9	24	8	21
Oneida	27	75	61	170
Outagamie	329	185	342	191
Ozaukee	48	55	47	54
Pepin	4	54	6	81
Pierce	87	212	90	220
Polk	106	240	94	214
Portage	76	108	74	105
Price	18	128	13	93
Racine	454	232	484	248
Richland	8	44	5	28
Rock	393	245	384	240
Rusk	24	163	24	164
St. Croix	41	48	48	56
Sauk	98	158	87	140
Sawyer	48	289	30	180
Shawano	46	110	37	89
Sheboygan	158	137	195	169
Taylor	8	39	7	34
Trempealeau	7	24	20	69
Vernon	15	50	15	50
Vilas	41	191	46	215
Walworth	115	112	123	120
Washburn	12	75	26	164
Washington	142	107	119	90
Waukesha	219	56	254	65
Waupaca	65	124	58	111
Waushara	30	122	27	110
Winnebago	321	192	321	191
Wood	22	29	30	40
<b>Wisconsin</b>	<b>14,355</b>	<b>252</b>	<b>15,969</b>	<b>279</b>

 Source: *Crime in Wisconsin*, Wisconsin Office of Justice Assistance (numbers).

The disorderly conduct arrest rate in Wisconsin has declined since 2004 but remains far higher than the U.S. rate. Wisconsin’s rate of disorderly conduct arrests was nearly five times the national rate in 2012 (Figure 26). This disparity probably reflects a difference in what is included in this category nationally versus in Wisconsin. Specifically, the national rate excludes arrests for “drunkenness,” whereas the Wisconsin rate includes public intoxication or drunkenness in its more general category of “disorderly conduct.” That being said, Wisconsin’s rates are decreasing more sharply than U.S. rates (a 39% vs. 26% decline, respectively, since 2004).

**Figure 26. Disorderly conduct arrests (adult and juvenile), rate per 100,000 population, Wisconsin and the United States, 2004-2012**



Sources: *Crime and Arrests in Wisconsin*, Wisconsin Office of Justice Assistance; *Crime in the United States*, U.S. Department of Justice, Federal Bureau of Investigation, Criminal Justice Information Services Division.

Note: These two sources provide rates per 100,000 population for reported index crimes (property offenses and violent offenses), plus numbers of arrests for index crimes and numbers of crimes/arrests for non-index crimes. Where rates were not directly obtained, rates per 100,000 population were calculated using the standard formula: rate = number / population x 100,000.

Table 20. Disorderly conduct arrests, rate per 100,000 population, Wisconsin by county, 2011 and 2012

County	Rate per 100,000		County	Rate per 100,000	
	2011	2012		2011	2012
Adams	720	621	Marinette	518	648
Ashland	957	1,377	Marquette	370	424
Barron	732	281	Menominee	2,398	3,239
Bayfield	279	405	Milwaukee	1,345	1,186
Brown	644	729	Monroe	1,009	833
Buffalo	397	362	Oconto	746	596
Burnett	284	550	Oneida	512	743
Calumet	233	261	Outagamie	960	893
Chippewa	700	751	Ozaukee	416	515
Clark	614	508	Pepin	403	363
Columbia	1,141	1,081	Pierce	1,075	623
Crawford	216	108	Polk	421	354
Dane	684	632	Portage	692	683
Dodge	710	758	Price	756	749
Door	514	721	Racine	930	745
Douglas	813	751	Richland	516	429
Dunn	891	776	Rock	1,299	1,320
Eau Claire	1,003	968	Rusk	735	855
Florence	388	295	St. Croix	464	445
Fond du Lac	718	741	Sauk	1,058	871
Forest	1,032	1,553	Sawyer	686	541
Grant	778	885	Shawano	781	730
Green	591	624	Sheboygan	1,075	1,280
Green Lake	948	1,033	Taylor	832	669
Iowa	452	476	Trempealeau	687	464
Iron	512	579	Vernon	442	386
Jackson	848	180	Vilas	895	863
Jefferson	1,047	980	Walworth	1,098	1,111
Juneau	452	522	Washburn	773	522
Kenosha	866	916	Washington	1,032	1,041
Kewaunee	679	650	Waukesha	428	393
La Crosse	1,189	1,159	Waupaca	726	819
Lafayette	967	859	Waushara	905	535
Langlade	811	601	Winnebago	1,350	1,055
Lincoln	979	820	Wood	1,210	1,059
Manitowoc	1,066	1,002			
Marathon	727	744	<b>Wisconsin</b>	<b>896</b>	<b>838</b>

 Source: *Arrests in Wisconsin*, 2011 and 2012, Wisconsin Office of Justice Assistance.

# Consumption

## Alcohol Consumption

Alcohol consumption in Wisconsin is consistently higher than in other states and territories and the U.S. as a whole. Binge drinking is an entrenched practice among Wisconsin adults, as evidenced by a long-term trend in Behavioral Risk Factor Surveillance System (BRFSS) estimates that consistently rank Wisconsin highest or second-highest nationally (Figure 32, page 72). Recent changes in BRFSS methodology which included sampling of the cell phone-only population segment and improved data weighting have not altered this pattern.

In 2011, BRFSS added cell phone sampling to its methodology in order to capture the portion of the population that was increasingly missed with traditional landline telephone survey sampling. Results from the National Health Interview Survey, a face-to-face interview survey, had previously indicated that adults in the cell phone-only population segment were more likely to binge drink than those with a landline telephone<sup>14</sup>, and BRFSS data with combined cell phone and landline samples have supported this early finding. In most states, including Wisconsin, BRFSS binge drinking estimates increased by 1%-2%, or more, with the 2011 changes.

BRFSS results for 2012 indicate that, among adults, Wisconsin has the second-highest prevalence of current alcohol consumption, i.e. past 30-day alcohol consumption (64%), and the highest prevalence of binge drinking (25%) among U.S. states and territories.<sup>15</sup> Results from the NSDUH also consistently place Wisconsin in the top one or two states on current alcohol use and binge drinking measures.

As with adults, the prevalence of alcohol use among high school students has been higher in Wisconsin than nationally in the recent past, but this pattern is changing. Data from the Youth Risk Behavior Survey (YRBS) have begun to show a downward trend in current alcohol consumption, binge drinking and early initiation of alcohol among high school students in Wisconsin, suggesting that progress has been made with concerted efforts to reduce youth and underage drinking. Some of these changes mirror national trends.

- From 2001 through 2007, YRBS data indicated that Wisconsin had the highest prevalence of current alcohol use among high school students in the nation. A downward trend began in 2009 and was sustained in 2011, when Wisconsin had the eighth-highest prevalence of current alcohol use. As of 2013, Wisconsin was lower than the U.S. as a whole on all three alcohol consumption measures among high school students: initiation before age 13, current alcohol use, and binge drinking (Figure 27).

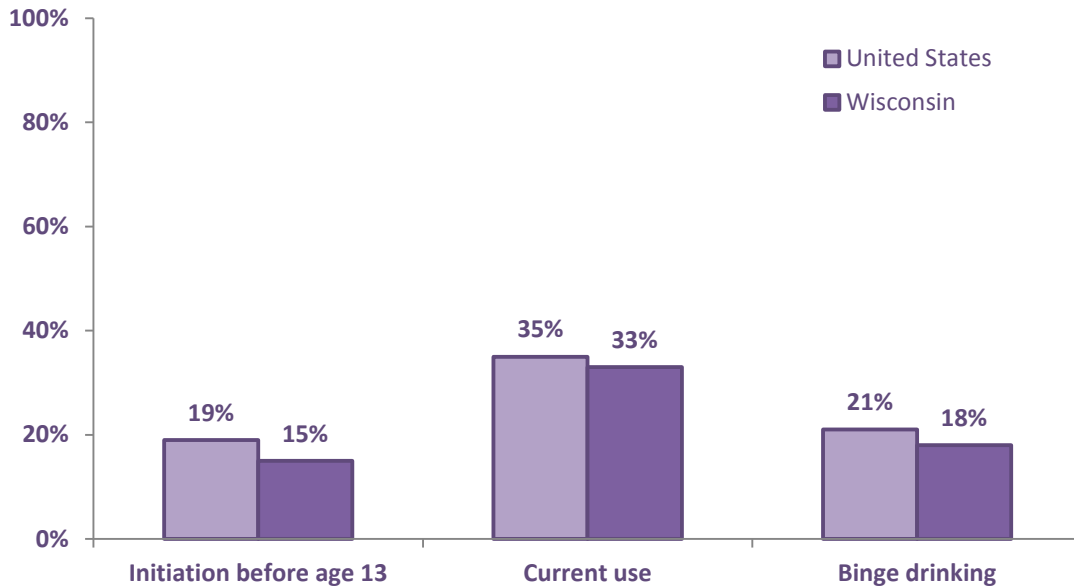
---

<sup>14</sup> Blumberg, S. and Luke, J. (2009). Wireless substitution: Early release of estimates from the National Health Interview Survey, July-December, 2008. (<http://www.cdc.gov/nchs/data/nhis/earlyrelease/wireless200905.htm>).

<sup>15</sup> As of the time of printing, data for all states from the 2013 Behavioral Risk Factor Surveillance System were not yet available and it could not be determined whether Wisconsin again had the highest prevalence of binge drinking.

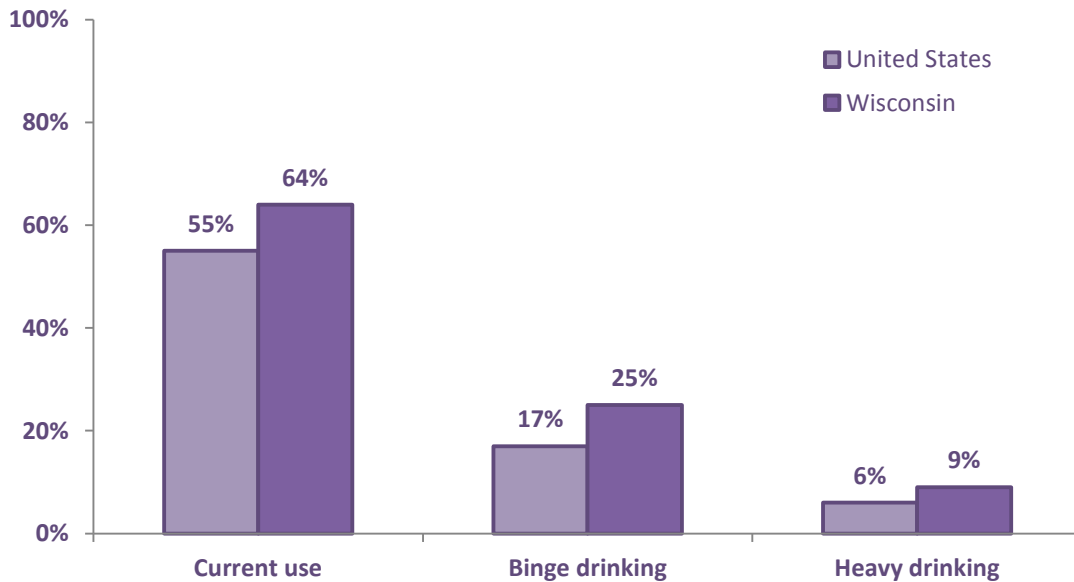
- Wisconsin’s rates of adult alcohol use remained higher than national averages in 2012 for all categories of consumption, including current use, binge drinking and heavy drinking (Figure 28).

Figure 27. Alcohol use among high school students, Wisconsin and the United States, 2013



Source: Youth Risk Behavior Surveillance System, Wisconsin Department of Public Instruction and U.S. Centers for Disease Control and Prevention.

Figure 28. Alcohol use among adults, Wisconsin and the United States, 2012

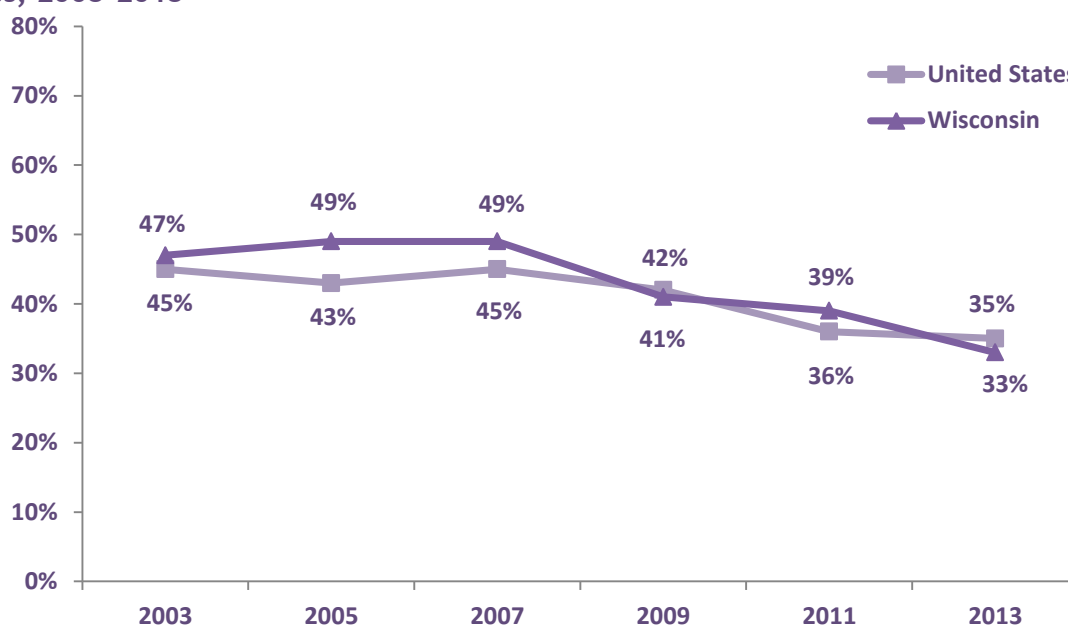


Source: Behavioral Risk Factor Surveillance System, Division of Public Health, Wisconsin Department of Health Services; and U.S. Centers for Disease Control and Prevention.

## Current Alcohol Use

Historically, the prevalence of current alcohol use among high school students and adults in Wisconsin has been high. Current alcohol use (at least one drink in the past 30 days) by high school students in Wisconsin has been dropping in recent years and was reported by 33% of Wisconsin high school students in 2013. This is below the national prevalence for the second time in three years (Figure 29). However, 65% of Wisconsin adults (age 18 and older) reported current alcohol use in 2013 (Figure 30). Current alcohol use remains lowest among African American high school youth compared to youth in other race/ethnicity groups (Table 21).

**Figure 29. Current alcohol use among high school students, Wisconsin and the United States, 2003-2013**



Source: Youth Risk Behavior Surveillance System, Wisconsin Department of Public Instruction and U.S. Centers for Disease Control and Prevention.

**Table 21. Current alcohol use among high school students, Wisconsin by race/ethnicity, 2005-2013**

Race/Ethnicity	2005-2007	2007-2009	2009-2011	2011-2013
White	51%	47%	41%	37%
African American	33%	33%	28%	25%
Hispanic/Latino	43%	42%	37%	34%
Asian/Pacific Islander	39%	32%	37%	34%
American Indian or Alaskan Native	51%	47%	46%*	51%*
Multiracial	53%	52%	45%	39%

Source: Youth Risk Behavior Survey, Wisconsin Department of Public Instruction; U.S. Centers for Disease Control and Prevention.

\* Interpret with caution due to small number of cases.

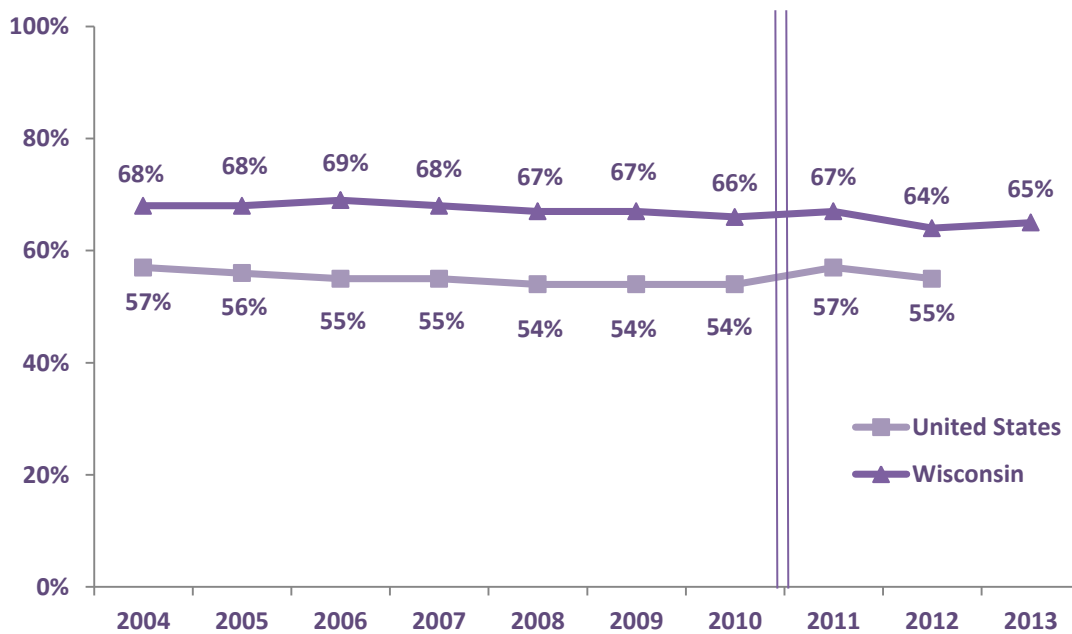


Long-term trends in adult alcohol consumption based on data from the BRFSS are only valid through 2010, due to changes in BRFSS methodology. Beginning with 2011, new trends are being established based on combined landline and cell phone sample data and a new weighting methodology. There are indications that these methodological changes produce slightly higher estimates of adult alcohol consumption and binge drinking, but more years of data are needed to verify the differences.

The prevalence of current alcohol use among Wisconsin adults has dropped only slightly since the early 2000s. Wisconsin’s current alcohol use remains highest, or second highest, in the nation from year to year. Alcohol use is highest among younger adults and males, although women of child-bearing age also consume alcohol at a higher rate than adults in the state overall (Table 22).

According to 2012-2013 data, White adults continue to have the highest rate of current alcohol use, followed by Hispanic adults. African Americans and Asians have the lowest rates of current alcohol use compared to adults in other race/ethnicity groups (Table 23).

**Figure 30. Current alcohol use among adults (age 18 and older), Wisconsin and United States, 2004-2013**



Source: Behavioral Risk Factor Surveillance System, Division of Public Health, Wisconsin Department of Health Services; and U.S. Centers for Disease Control and Prevention.

Notes: Current alcohol use is defined as at least one drink of alcohol in the past 30 days. Double line indicates trend break due to methodological changes.

Table 22. Current alcohol use among adults (age 18 and older), Wisconsin by age and sex, 2003-2012

<i>Year</i>	<i>U.S.</i>	<i>Wisconsin</i>	<i>18-24</i>	<i>25-44</i>	<i>45-64</i>	<i>65+</i>	<i>Males</i>	<i>Females</i>	<i>Females 18-44</i>
2003	59%	71%	71%	75%	73%	61%	76%	67%	70%
2004	57%	68%	67%	73%	69%	57%	74%	62%	66%
2005	56%	68%	62%	74%	71%	56%	74%	62%	65%
2006	55%	69%	65%	76%	71%	54%	75%	63%	66%
2007	55%	68%	70%	75%	68%	56%	75%	62%	68%
2008	54%	67%	56%	74%	69%	56%	71%	63%	68%
2009	54%	67%	61%	74%	68%	53%	74%	60%	64%
2010	54%	66%	53%	73%	68%	55%	70%	62%	68%
2011	57%	67%	68%	70%	70%	56%	70%	64%	67%
2012	55%	64%	65%	68%	66%	53%	69%	60%	63%

Source: Behavioral Risk Factor Survey, Division of Public Health, Wisconsin Department of Health Services.

Note: Double line indicates trend break due to methodological changes.

Table 23. Current alcohol use among adults (age 18 and older), Wisconsin by race/ethnicity, 2002-2013

<i>Year</i>	<i>African American</i>	<i>American Indian</i>	<i>Asian</i>	<i>Hispanic</i>	<i>White</i>
2002-2004	48%	69%	49%	65%	71%
2003-2005	49%	65%	52%	66%	70%
2004-2006	48%	65%	57%	67%	69%
2005-2007	53%	64%	64%	64%	70%
2006-2008	55%	56%	56%	62%	69%
2007-2009	55%	59%	55%	60%	69%
2008-2010	49%	51%	46%	61%	68%
2012-2013	53%	48%	51%	55%	67%

Source: Behavioral Risk Factor Survey, Division of Public Health, Wisconsin Department of Health Services.

Notes: Differences between groups and time periods may not be statistically significant. Double line indicates trend break due to methodological changes.

Table 24. Current alcohol use among adults (age 18 and older), Wisconsin by county, 2005-2010

County	2005-2007	2006-2008	2008-2010	County	2005-2007	2006-2008	2008-2010
Adams	61%	57%	54%	Marinette	73%	67%	53%**
Ashland	71%	60%	59%*	Marquette	62%	60%	58%**
Barron	51%	58%	54%*	Menominee	65%	61%	51%**
Bayfield	59%	65%	69%**	Milwaukee	66%	63%	62%
Brown	71%	73%	68%	Monroe	52%	57%	54%**
Buffalo	67%	66%	60%*	Oconto	67%	70%	71%
Burnett	55%	56%	57%	Oneida	69%	67%	67%
Calumet	74%	74%	75%	Outagamie	73%	68%	77%
Chippewa	58%	70%	63%*	Ozaukee	74%	76%	73%
Clark	51%	48%	54%*	Pepin	61%	71%	63%*
Columbia	67%	68%	65%	Pierce	69%	75%	70%**
Crawford	59%	64%	57%	Polk	71%	67%	67%
Dane	75%	78%	71%	Portage	69%	68%	63%*
Dodge	64%	66%	73%	Price	62%	53%	55%*
Door	73%	74%	71%	Racine	67%	67%	58%
Douglas	67%	72%	63%*	Richland	66%	59%	62%**
Dunn	62%	63%	58%*	Rock	64%	62%	61%
Eau Claire	70%	70%	62%*	Rusk	61%	58%	57%*
Florence	57%	61%	58%*	St. Croix	75%	74%	69%
Fond du Lac	73%	70%	63%	Sauk	65%	67%	61%**
Forest	47%	57%	64%**	Sawyer	60%	70%	62%
Grant	70%	64%	63%	Shawano	64%	59%	56%*
Green	65%	64%	65%	Sheboygan	77%	75%	70%
Green Lake	66%	62%	70%	Taylor	72%	65%	69%
Iowa	63%	69%	68%	Trempealeau	59%	60%	47%
Iron	55%	62%	70%	Vernon	62%	62%	58%
Jackson	58%	59%	72%	Vilas	69%	70%	70%
Jefferson	60%	59%	68%	Walworth	64%	60%	57%
Juneau	62%	55%	57%	Washburn	66%	63%	65%
Kenosha	62%	64%	69%	Washington	71%	71%	75%
Kewaunee	73%	73%	67%**	Waukesha	74%	74%	72%
La Crosse	64%	65%	65%**	Waupaca	60%	66%	63%*
Lafayette	62%	68%	62%*	Waushara	58%	56%	59%*
Langlade	60%	69%	60%	Winnebago	68%	70%	74%
Lincoln	58%	62%	74%	Wood	63%	61%	64%
Manitowoc	69%	68%	65%				
Marathon	69%	71%	67%	<b>Wisconsin</b>	<b>68%</b>	<b>68%</b>	<b>66%</b>

Source: Behavioral Risk Factor Survey, Division of Public Health, Wisconsin Department of Health Services.

\*Confidence interval &gt;10%

\*\*Confidence interval = 10%

## Binge Drinking

Based on differences between men and women in metabolizing alcohol, the CDC defines binge drinking as five or more drinks on one occasion for men and four or more drinks on one occasion for women. The YRBS uses the threshold of five or more drinks for both sexes, and may slightly underestimate binge drinking among high school girls.

Methodological note: In 2011, BRFSS added cell phone sampling to its methodology in order to capture the portion of the population that was increasingly missed with traditional landline telephone survey sampling. Results from the National Health Interview Survey, a face-to-face interview survey, had previously indicated that adults in the cell phone-only population segment were more likely to binge drink than were those with landline telephones,<sup>16</sup> and BRFSS data with combined cell phone and landline samples have supported this early finding. In most states, including Wisconsin, BRFSS binge drinking estimates increased by 1%-2%, or more, with the 2011 changes. As of 2012, Wisconsin's overall adult binge drinking prevalence, at 25%, continued to be the highest in the nation.<sup>17</sup> The prevalence of binge drinking is higher than 25% for young adults and males (Table 27, page 73).

- Binge drinking intensity is reflected in the actual number of drinks consumed in a binge drinking episode. Although the threshold for binge drinking is 4 or 5 drinks (women vs. men), among Wisconsin adult binge drinkers the average maximum number of drinks consumed is far higher than the threshold -- as much as 10 drinks for some groups (Table 25).

**Table 25. Average maximum number of alcoholic drinks on one occasion past 30 days, Wisconsin by age group and sex, 2005-2012 (binge drinkers only)**

Year	18-24	25-34	35-44	45-64	65+	Males	Females	Total
2005-2006	8.9	8.9	7.5	6.6	5.5	8.3	5.9	7.6
2007-2008	10.0	8.7	7.4	6.7	5.2	9.1	6.0	7.9
2009-2010	10.0	8.6	8.0	6.8	5.4	9.0	6.2	8.0
2011-2012	9.0	10.2	8.0	7.6	6.7*	9.9	6.5	8.6

Source: Behavioral Risk Factor Surveillance System, Centers for Disease Control and Prevention; Wisconsin Department of Health Services, Division of Public Health, Office of Health Informatics.

\*Interpret with caution due to confidence interval half-width > 1.5.

Note: The addition of cell phone-only respondents beginning in 2011 may have increased binge drinking estimates. Double line indicates trend break due to methodological changes.

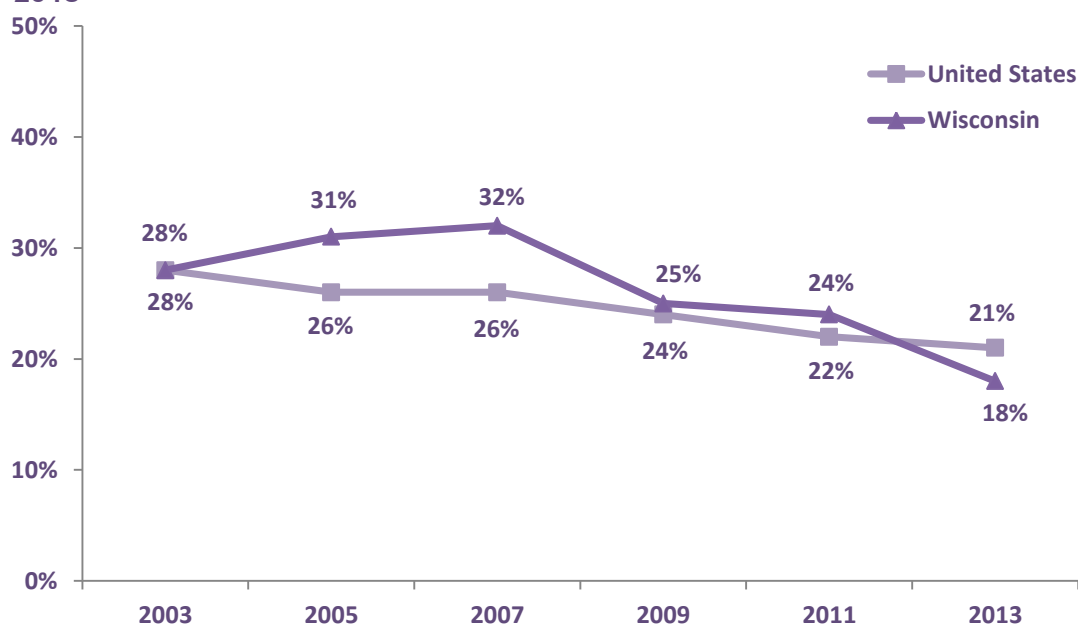
<sup>16</sup> Blumberg, S. and Luke, J. (2009). Wireless substitution: Early release of estimates from the National Health Interview Survey, July-December, 2008. (<http://www.cdc.gov/nchs/data/nhis/earlyrelease/wireless200905.htm>).

<sup>17</sup> As this report was being prepared, data for all states from the 2013 Behavioral Risk Factor Surveillance System were not yet available, so it could not be determined whether Wisconsin again had the highest prevalence of binge drinking.

In 2013, 18% of Wisconsin high school students engaged in binge drinking, a decline from 24% in 2011. This continues a trend across several years of reduced binge drinking among high school youth, with Wisconsin’s rate now lower than the rate for the U.S. as a whole. Binge drinking among high school students in the U.S. is also trending downward, although the drop is less steep than in Wisconsin (Figure 31).

White, multiracial and American Indian youth in Wisconsin report the highest levels of binge drinking; however, the 2011-2013 prevalence for American Indian youth should be interpreted with caution (Table 26).

Figure 31. Binge drinking among high school students, Wisconsin and the United States, 2003-2013



Source: Youth Risk Behavior Surveillance System, Wisconsin Department of Public Instruction and U.S. Centers for Disease Control and Prevention.

Table 26. Binge drinking among high school students, Wisconsin by race/ethnicity, 2003-2012

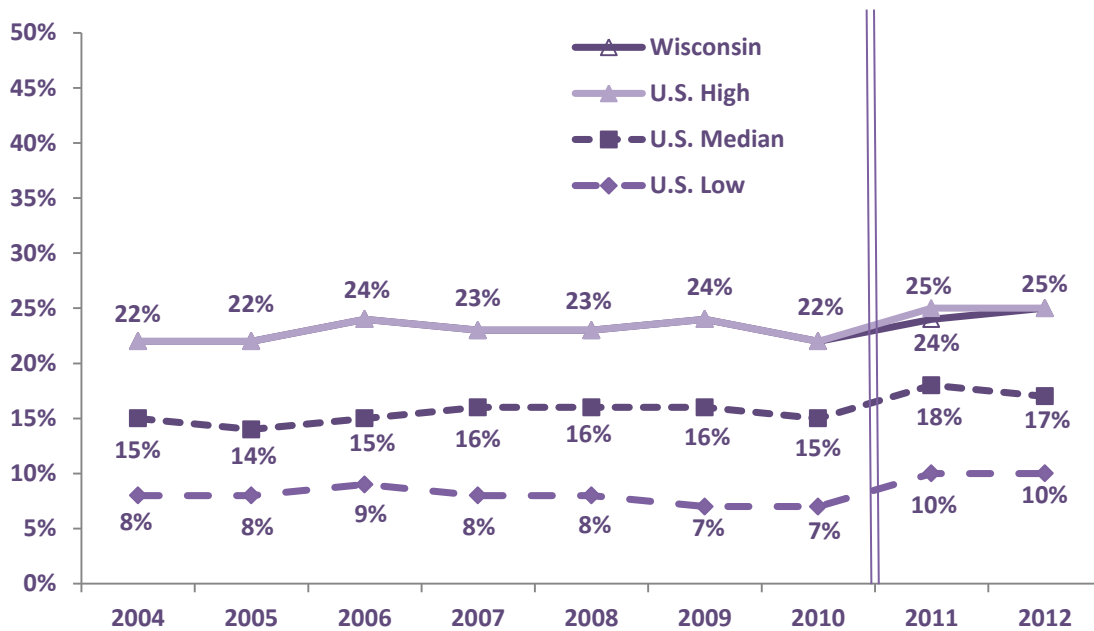
Race/Ethnicity	2003-2005	2005-2007	2007-2009	2009-2011	2011-2013
White	31%	33%	30%	26%	22%
African American	15%	15%	14%	12%	12%
Hispanic/Latino	28%	26%	25%	20%	18%
Asian or Pacific Islander	24%	22%	20%	25%	21%
American Indian or Alaskan Native	42%	41%	35%	30%*	40%*
Multiracial	26%	36%	34%	29%	23%

Source: Youth Risk Behavior Survey, Wisconsin Department of Public Instruction; U.S. Centers for Disease Control and Prevention.

\* Interpret with caution due to confidence interval half-width >10%.

The prevalence of binge drinking among Wisconsin adults (age 18 and older) in 2012 was 25% (Figure 32). As in most previous years, this was the highest state prevalence of binge drinking in the United States.

Figure 32. Adult binge drinking, range of state estimates: low, high, and United States median, 2004-2012



Source: Behavioral Risk Factor Surveillance System, Division of Public Health, Wisconsin Department of Health Services; and U.S. Centers for Disease Control and Prevention.

Notes: The median is the midpoint of the range of estimates for all U.S. states and territories. Double line indicates trend break due to methodological changes.

Young adults and males in Wisconsin have higher rates of binge drinking than older adults and women; however, women of childbearing age (18-44) have a higher rate of binge drinking (29%) than adults overall (25%), (Table 27). Among race/ethnicity groups, Hispanics had the highest binge drinking prevalence for the two-year time period 2012-2013 (Table 28).

**Table 27. Binge drinking among adults (age 18 and older), Wisconsin by age and sex, 2003-2012**

<i>Year</i>	<i>U.S.</i>	<i>Wisconsin</i>	<i>18-24</i>	<i>25-44</i>	<i>45-64</i>	<i>65+</i>	<i>Males</i>	<i>Females</i>	<i>Females 18-44</i>
<b>2003</b>	17%	25%	41%	33%	19%	5%	36%	14%	22%
<b>2004</b>	15%	22%	37%	29%	17%	5%	31%	14%	21%
<b>2005</b>	14%	22%	33%	28%	21%	4%	32%	12%	18%
<b>2006</b>	15%	24%	38%	32%	20%	6%	33%	16%	24%
<b>2007</b>	16%	23%	36%	29%	20%	8%	27%	17%	25%
<b>2008</b>	16%	23%	31%	31%	20%	8%	28%	17%	24%
<b>2009</b>	16%	24%	37%	33%	19%	8%	32%	16%	24%
<b>2010</b>	15%	22%	31%	29%	20%	5%	28%	16%	23%
<b>2011</b>	18%	24%	41%	32%	19%	7%	31%	17%	27%
<b>2012</b>	17%	25%	43%	32%	22%	7%	30%	20%	29%

Source: Behavioral Risk Factor Survey, Division of Public Health, Wisconsin Department of Health Services.

Notes: Differences between groups and years may not be statistically significant. Double line indicates trend break due to methodological changes instituted in 2011.

**Table 28. Binge drinking among adults (age 18 and older), Wisconsin by race/ethnicity, 2004-2013**

<i>Year</i>	<i>African American</i>	<i>American Indian</i>	<i>Asian</i>	<i>Hispanic/ Latino</i>	<i>White</i>
<b>2004-2006</b>	14%	32%	17%	28%	22%
<b>2005-2007</b>	16%	29%	18%	25%	24%
<b>2006-2008</b>	17%	25%	17%	21%	24%
<b>2007-2009</b>	17%	23%	20%	24%	24%
<b>2008-2010</b>	14%	25%	23%	25%	23%
<b>2012-2013</b>	22%	25%*	17%	29%	24%

Source: Behavioral Risk Factor Survey, Division of Public Health, Wisconsin Department of Health Services.

\*Interpret with caution due to confidence interval half-width >10%.

Notes: Data from 2011 are omitted due to large standard errors associated with cell phone cases for several groups. Differences between groups may not be statistically significant. Double line indicates trend break due to methodological changes instituted in 2011.

Table 29. Binge drinking among adults (age 18 and older), Wisconsin by county, three-year pooled estimates, 2005-2010

<i>County</i>	<i>2005-2007</i>	<i>2006-2008</i>	<i>2008-2010</i>	<i>County</i>	<i>2005-2007</i>	<i>2006-2008</i>	<i>2008-2010</i>
Adams	28%	22%	17%	Marinette	25%	25%	12%
Ashland	35%	26%	nr	Marquette	27%	21%	26%*
Barron	17%	26%	17%	Menominee	37%	34%	23%
Bayfield	18%	18%	24%	Milwaukee	22%	21%	20%
Brown	25%	25%	23%	Monroe	25%	26%	21%**
Buffalo	16%	23%	18%	Oconto	32%	33%	20%**
Burnett	16%	17%	21%	Oneida	16%	19%	17%
Calumet	30%	38%	39%	Outagamie	34%	30%	29%
Chippewa	16%	20%	23%*	Ozaukee	17%	17%	16%
Clark	21%	23%	24%*	Pepin	25%	19%	18%
Columbia	33%	29%	23%	Pierce	29%	31%	25%**
Crawford	21%	25%	21%	Polk	22%	26%	16%
Dane	22%	25%	22%	Portage	24%	20%	14%
Dodge	25%	24%	26%	Price	23%	21%	19%**
Door	22%	25%	20%	Racine	23%	25%	20%
Douglas	32%	25%	24%**	Richland	25%	17%	24%*
Dunn	31%	18%	nr	Rock	26%	24%	24%
Eau Claire	35%	30%	24%*	Rusk	13%	16%	16%
Florence	24%	28%	nr	St. Croix	23%	25%	28%
Fond du Lac	25%	22%	22%	Sauk	28%	22%	22%*
Forest	21%	22%	19%	Sawyer	19%	25%	17%
Grant	31%	28%	19%	Shawano	24%	21%	22%
Green	22%	23%	21%	Sheboygan	29%	32%	27%
Green Lake	20%	16%	24%**	Taylor	30%	28%	27%
Iowa	27%	24%	21%	Trempealeau	22%	26%	18%
Iron	20%	29%	33%*	Vernon	26%	28%	15%
Jackson	21%	17%	31%*	Vilas	16%	15%	nr
Jefferson	25%	23%	23%	Walworth	20%	21%	23%**
Juneau	16%	18%	20%**	Washburn	16%	16%	15%
Kenosha	17%	19%	24%	Washington	22%	23%	21%
Kewaunee	35%	32%	31%*	Waukesha	14%	18%	22%
La Crosse	18%	17%	24%	Waupaca	22%	24%	23%*
Lafayette	14%	17%	21%**	Waushara	12%	21%	37%*
Langlade	29%	29%	21%**	Winnebago	23%	24%	24%
Lincoln	24%	23%	22%**	Wood	15%	19%	23%
Manitowoc	36%	27%	23%				
Marathon	24%	22%	20%	<b>Wisconsin</b>	<b>23%</b>	<b>24%</b>	<b>22%</b>

Source: Behavioral Risk Factor Survey, Division of Public Health, Wisconsin Department of Health Services.

\* Confidence interval half-width >10%

\*\* Confidence interval half-width =10%

nr = not reliable: relative standard error >30%

Notes: Apparent changes across time based on these estimates are not necessarily statistically significant and should be interpreted with caution. Data are from landline telephone interviews.



## Heavy Use of Alcohol

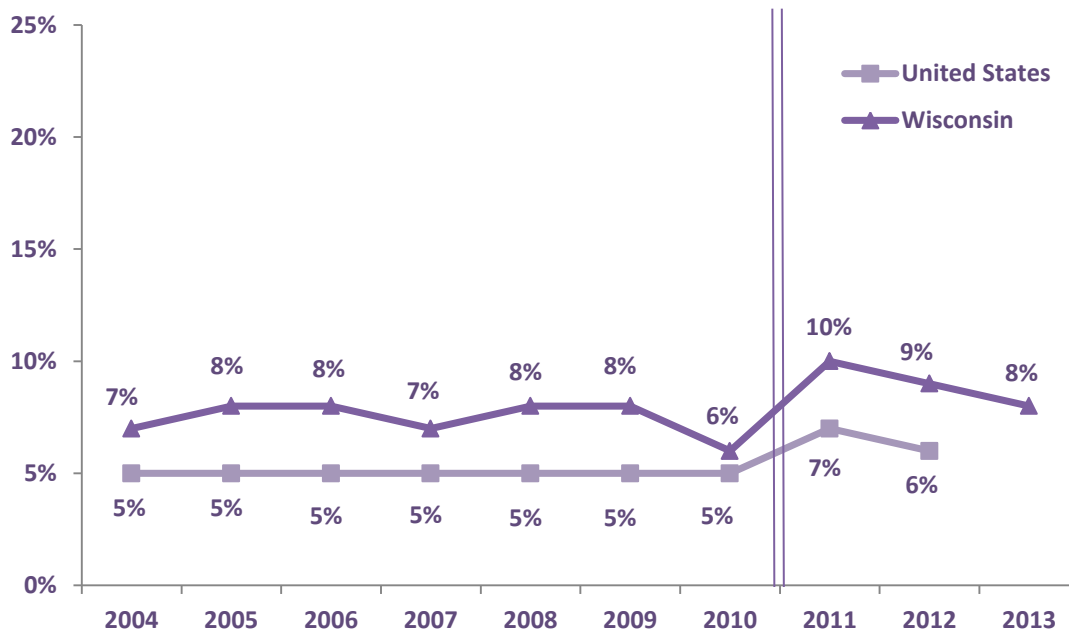
The CDC defines heavy alcohol consumption as an average of more than two drinks per day for men and an average of more than one drink per day for women. As with binge drinking, the difference in definitions by sex is based on the different rates at which men and women metabolize alcohol. Wisconsin's heavy drinking rate has been consistently higher than the national rate since 2004.

The prevalence of heavy use of alcohol among Wisconsin adults (age 18 and older) remained at or near 8% from 2004 to 2009 (Figure 33). In 2011 there was a methodological change in BRFSS data collection which may account for a spike in reported heavy alcohol use in 2011 to 10% (see pgs. 64, 70 and Appendix 2 about methodological changes).

In most years, heavy use of alcohol is highest among young adults ages 18-24 (Table 30). In 2012, 10% of this age group in Wisconsin reported heavy drinking. Although adults aged 65+ are less likely to drink heavily than people in younger age groups, differences by age and sex are far less pronounced than for binge drinking. As Table 30 shows, women are as likely as men to drink heavily, and in fact may be slightly more likely to do so.

- Among race/ethnicity groups, Whites and African Americans are more likely to drink heavily based on combined data from 2012 and 2013 (Table 31). However, estimates of heavy drinking for Asians and American Indians are not available for comparison, as the relative standard errors for these groups are too large (>30%).<sup>18</sup>

Figure 33. Heavy drinking among adults, Wisconsin and the United States, 2004-2013



Source: Behavioral Risk Factor Surveillance System, Division of Public Health, Wisconsin Department of Health Services; and U.S. Centers for Disease Control and Prevention.

Note: Double line indicates trend break due to methodological changes instituted in 2011.

<sup>18</sup> See Appendix 2 for information on the relative standard error, or RSE.

**Table 30. Heavy drinking among adults (age 18 and older), Wisconsin by age and sex, 2003-2012**

<i>Year</i>	<i>U.S.</i>	<i>Wisconsin</i>	<i>18-24</i>	<i>25-44</i>	<i>45-64</i>	<i>65+</i>	<i>Males</i>	<i>Females</i>	<i>Females 18-44</i>
2003	6%	9%	15%	9%	8%	4%	9%	8%	9%
2004	5%	7%	14%	7%	7%	4%	9%	6%	8%
2005	5%	8%	11%	8%	8%	3%	9%	7%	8%
2006	5%	8%	12%	8%	8%	4%	8%	8%	10%
2007	5%	7%	10%	6%	7%	4%	7%	7%	7%
2008	5%	8%	14%	7%	8%	5%	9%	7%	7%
2009	5%	8%	14%	8%	6%	6%	9%	6%	7%
2010	5%	6%	**	7%	8%	3%	7%	6%	6%
2011	7%	10%	11%	13%	9%	5%	11%	8%	10%
2012	6%	9%	10%	9%	9%	6%	8%	9%	10%

Source: Behavioral Risk Factor Survey, Division of Public Health, Wisconsin Department of Health Services.

Note: Double line between 2010 and 2011 indicates a trend break due to BRFSS methodological changes.

**Table 31. Heavy drinking among adults (age 18 and older), Wisconsin by race/ethnicity, 2004-2013**

<i>Year</i>	<i>African American</i>	<i>American Indian</i>	<i>Asian</i>	<i>Hispanic/ Latino</i>	<i>White</i>
2004-2006	5%	7%	3%	11%	8%
2005-2007	7%	5%	2%	9%	7%
2006-2008	7%	10%	4%	8%	7%
2007-2009	6%	11%	**	10%	7%
2008-2010	6%	12%	**	13%	7%
2012-2013	8%	**	**	5%	8%

Source: Behavioral Risk Factor Survey, Division of Public Health, Wisconsin Department of Health Services.

\*\* Estimate not reliable due to relative standard error >30% (see Appendix 2).

Notes: Data from 2011 are omitted due to large standard errors associated with cell phone cases for several groups. Differences between groups may not be statistically significant. Double line indicates trend break due to methodological changes.

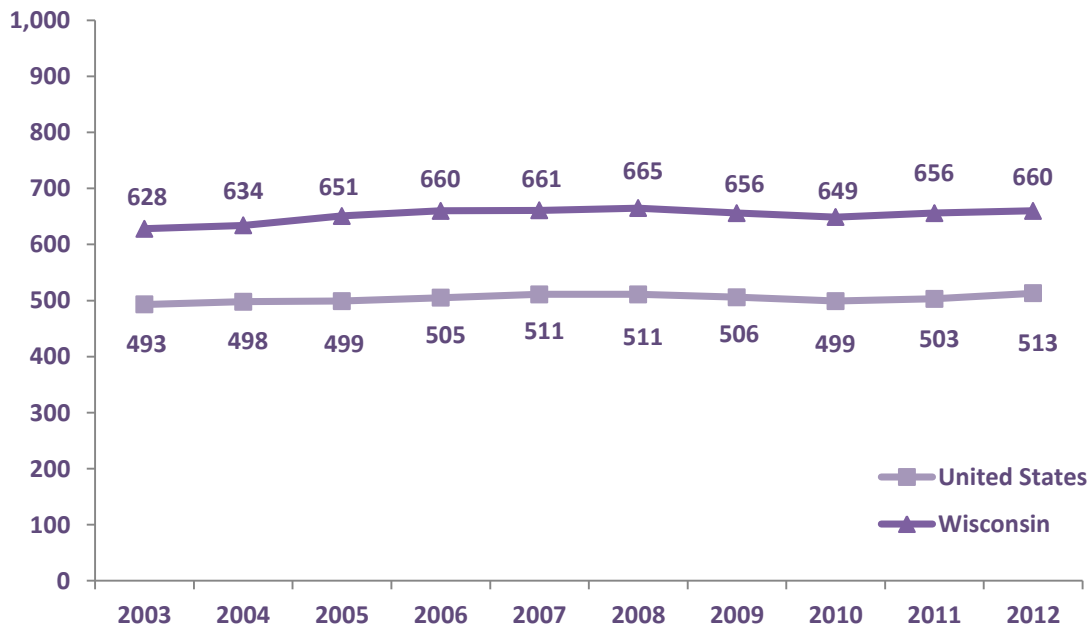
## Per Capita Alcohol Consumption

Per capita consumption is the average amount of alcohol consumed per person, based on the population age 14 and older.



Standard drink serving sizes are 12 ounces of beer, or 5 ounces of wine, or 1.5 ounces of distilled spirits or liquor. In 2012, Wisconsin’s consumption was 660 standard drinks per person (Figure 34), equivalent to 346 servings of beer, 73 servings of wine and 241 servings of liquor, well above the national average.

**Figure 34. Per capita alcohol consumption of standard drinks, age 14 and older, Wisconsin and the United States, 2003-2012**



Source: *Apparent per Capita Alcohol Consumption: National, State and Regional Trends, 1977-2011*. National Institute on Alcohol Abuse and Alcoholism, National Institutes of Health, U.S. Department of Health and Human Services.

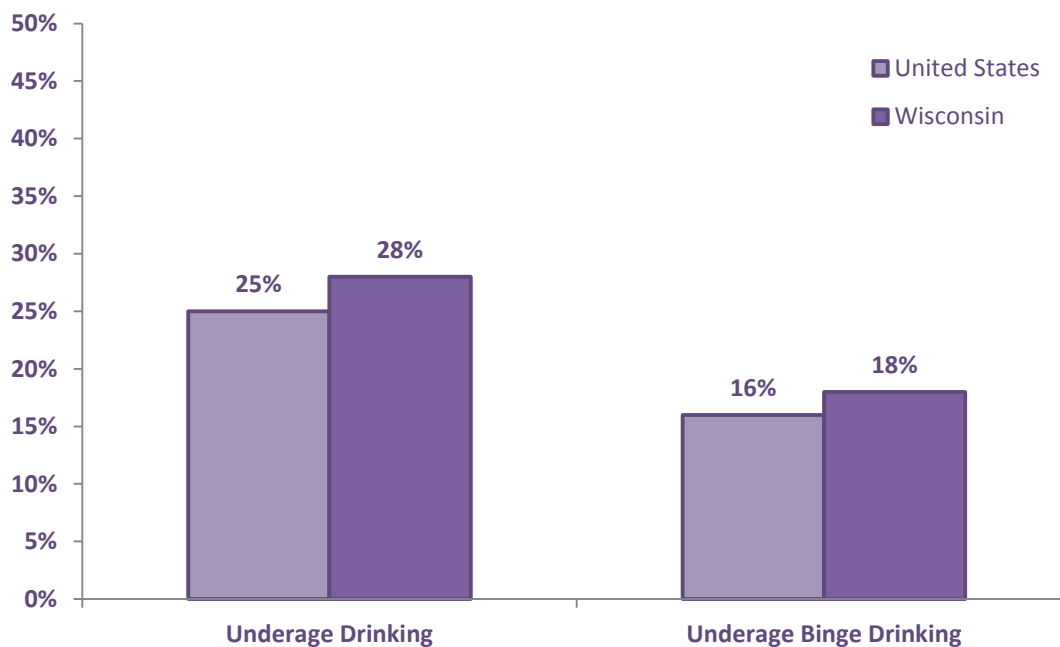
## Underage Drinking

For purposes of clarification, NSDUH data are presented here because they include estimates for young people ages 12-20, which is an appropriate age span for estimating underage drinking. The other major sources of data on alcohol use, the BRFSS and the YRBS, only provide data for adults ages 18 and older and high school students respectively.

While current alcohol use reported by Wisconsin high school students is now below the national prevalence (Figure 27, page 65), underage drinking, defined by the NSDUH as drinking by youth ages 12 to 20, is higher in Wisconsin than the nation as a whole. Wisconsin youth are more likely to report both current drinking (at least one drink in the past month) and binge drinking (defined by NSDUH as five or more drinks on one occasion in the past month).

- In 2011-2012, 28% of Wisconsin youth ages 12-20 reported current alcohol use (Figure 35). This is down from 31% in 2008-2009 (not shown). In addition, 18% of Wisconsin youth ages 12-20 reported binge drinking in the past month. This is down from 22% in 2008-2009 (not shown).

Figure 35. Underage drinking, Wisconsin and the United States, 2011-2012



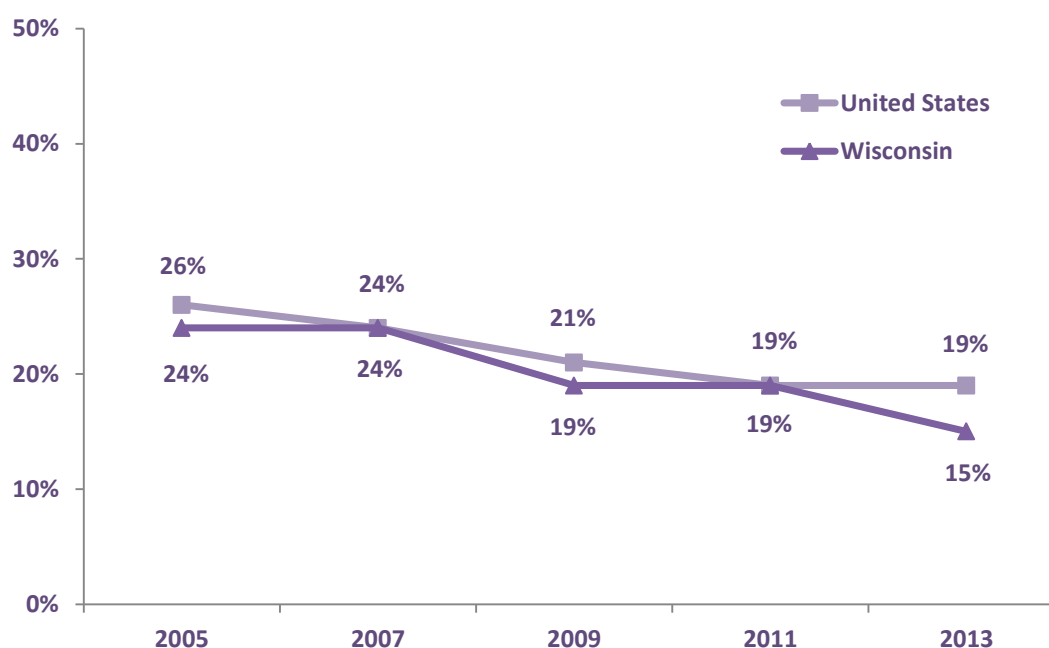
Source: National Survey on Drug Use and Health, Substance Abuse and Mental Health Services Administration (SAMHSA), U.S. Department of Health and Human Services.

## Age of Initiation

The percent of Wisconsin high school students who had initiated alcohol use before age 13 declined between 2005 and 2013, from 24% to 15% (Figure 36). Prevalence of before-age-13 initiation among boys exceeded that among girls in each of those years (Table 32). However, the gap between males and females has virtually closed on this measure.

From 2011 to 2013, Hispanic/Latino, American Indian, and multiracial students were most likely to report initiating alcohol use before age 13 (Table 33).

**Figure 36. Alcohol use initiation before age 13 among high school students, Wisconsin and the United States, 2005-2013**



Source: Youth Risk Behavior Surveillance System, Wisconsin Department of Public Instruction and U.S. Centers for Disease Control and Prevention.

Note: The Youth Risk Behavior Survey asks high school students whether they began using alcohol “other than a few sips” before age 13.

**Table 32. Alcohol use initiation before age 13 among high school students, Wisconsin by sex, 2005-2013**

Sex	2005	2007	2009	2011	2013
Female	19%	20%	17%	16%	14%
Male	28%	27%	22%	21%	15%

Source: Youth Risk Behavior Survey, Wisconsin Department of Public Instruction; U.S. Centers for Disease Control and Prevention.

Table 33. Alcohol use initiation before age 13 among high school students, Wisconsin by race/ethnicity, 2005-2013

Race/Ethnicity	2005-2007	2007-2009	2009-2011	2011-2013
White	23%	20%	17%	15%
African American	26%	28%	23%	18%
Hispanic/Latino	30%	30%	27%	25%
Asian or Pacific Islander	22%	20%	19%	17%
American Indian or Alaskan Native	31%*	17%*	27%*	35%*
Multiracial	31%	28%	29%	23%

Source: Youth Risk Behavior Survey, Wisconsin Department of Public Instruction; U.S. Centers for Disease Control and Prevention.

\* Interpret with caution due to confidence interval half-width >10%.

## Alcohol Use by Women of Childbearing Age

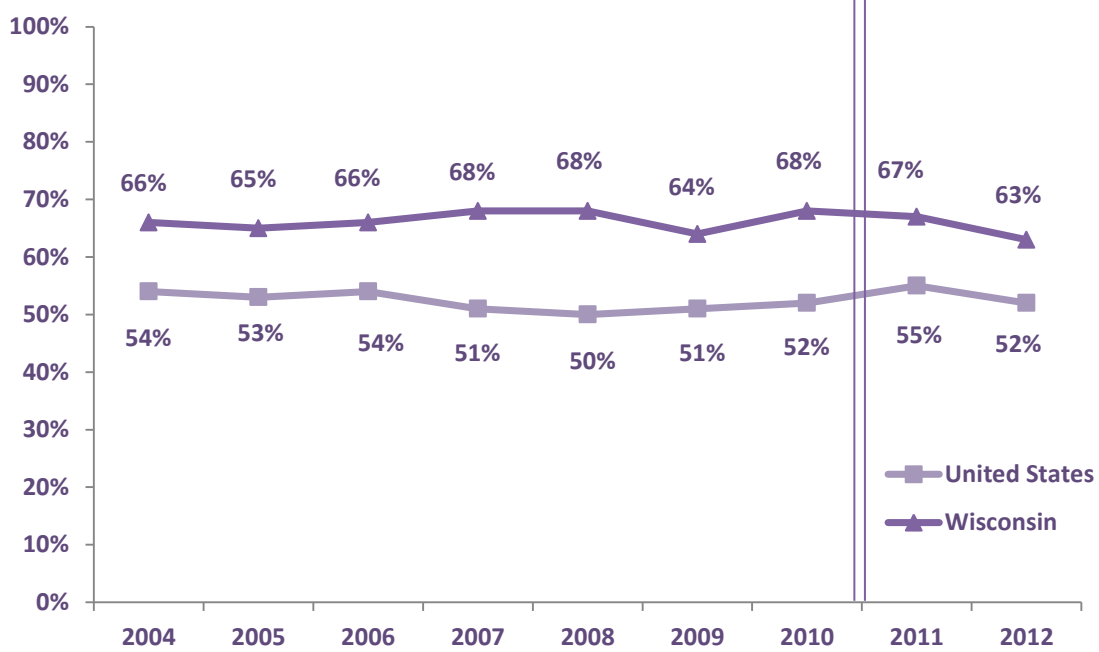
Alcohol misuse is associated with fetal alcohol spectrum disorders (FASDs), miscarriage, motor vehicle crashes, intimate partner violence and other adverse outcomes.<sup>19</sup> An accumulation of evidence indicates that alcohol use during pregnancy can harm the developing fetus.

Recent BRFSS results indicate that current alcohol use among Wisconsin women of childbearing age is still much higher than the national prevalence. In 2012, 63% of Wisconsin women ages 18-44 consumed alcohol in the previous 30-days, compared to a prevalence of 53% in all states and U.S. territories (Figure 37).

Binge drinking among women is defined by the CDC as four or more alcohol drinks on one occasion. Past-month binge drinking, an indicator of excessive alcohol consumption, is also more prevalent among Wisconsin women in this age group compared to women in all states and territories (29% versus 17%, Figure 38). In 2012, Wisconsin women had the highest prevalence of binge drinking among women in the United States.

<sup>19</sup> Centers for Disease Control and Prevention. (2012). *Alcohol use and binge drinking among women of childbearing age - United States, 2006-2010*. 61(28), 534-538.  
[http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6128a4.htm?s\\_cid=mm6128a4\\_e%0D%0A](http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6128a4.htm?s_cid=mm6128a4_e%0D%0A)

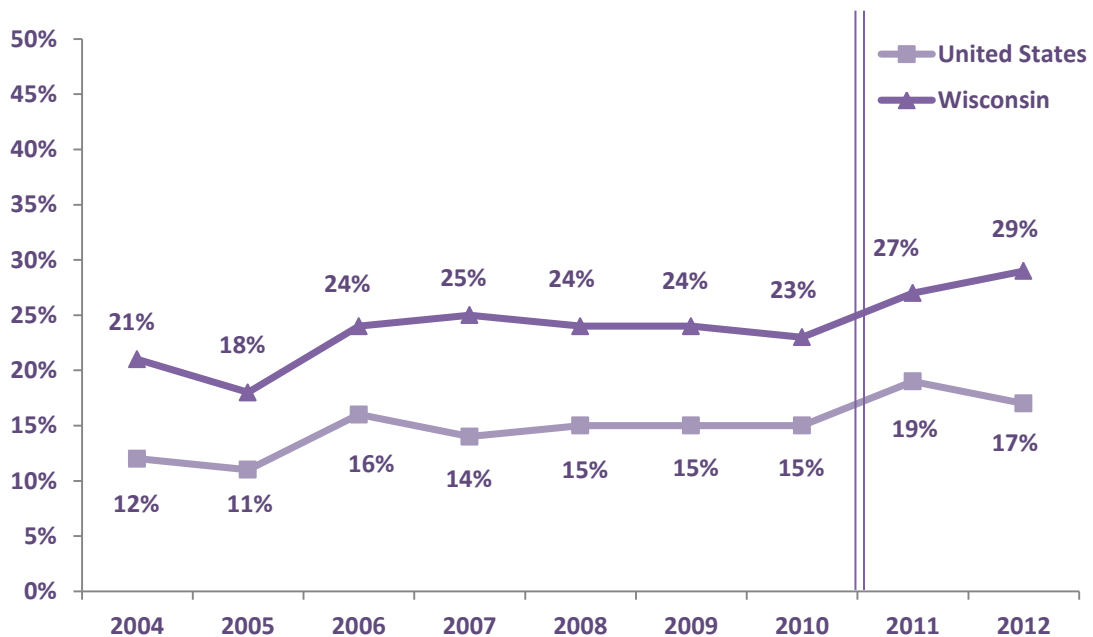
Figure 37. Current alcohol use among women ages 18-44, Wisconsin and the United States, 2004-2012



Source: Behavioral Risk Factor Surveillance System, Division of Public Health, Wisconsin Department of Health Services; and U.S. Centers for Disease Control and Prevention.

Note: Double line indicates trend break due to methodological changes instituted in the 2011 BRFs.

Figure 38. Binge drinking among women ages 18-44, Wisconsin and the United States, 2004-2012



Source: Behavioral Risk Factor Surveillance System, Division of Public Health, Wisconsin Department of Health Services; and U.S. Centers for Disease Control and Prevention.

Note: Double line indicates trend break due to methodological changes instituted in the 2011 BRFs.

## Drinking Before and During Pregnancy

Alcohol use during pregnancy is a leading preventable cause of birth defects and developmental disabilities in children. Alcohol-exposed pregnancies can lead to fetal alcohol syndrome and other fetal alcohol spectrum disorders (FASDs), which result in neurodevelopmental deficits and lifelong disability. FASDs have been associated with alcohol consumption patterns that produce high blood alcohol concentrations, such as binge drinking.<sup>20</sup>

The PRAMS is an ongoing annual survey of new mothers conducted by state health departments and coordinated by the CDC. Wisconsin began participating in PRAMS in 2007. PRAMS contacts women within three months of a birth to ask about health and risk behaviors prior to and during pregnancy. Weighted PRAMS data represent the population of new mothers for the identified year.

Results from this survey of women who have recently given birth indicate that Wisconsin women are more likely to drink both before conception (Figure 39) and during the last three months of pregnancy (Figure 41).

- In 2011, the most recent year for which there is comparable national data, 67% of new mothers in Wisconsin consumed alcohol in the three months before they became pregnant. This is 10 percentage points higher than the median for all states participating in PRAMS (57%) (Figure 39).

In 2010 and 2011, Wisconsin ranked first among PRAMS states in the percentage of new mothers who binge drank in the three months prior to pregnancy (Figure 40).

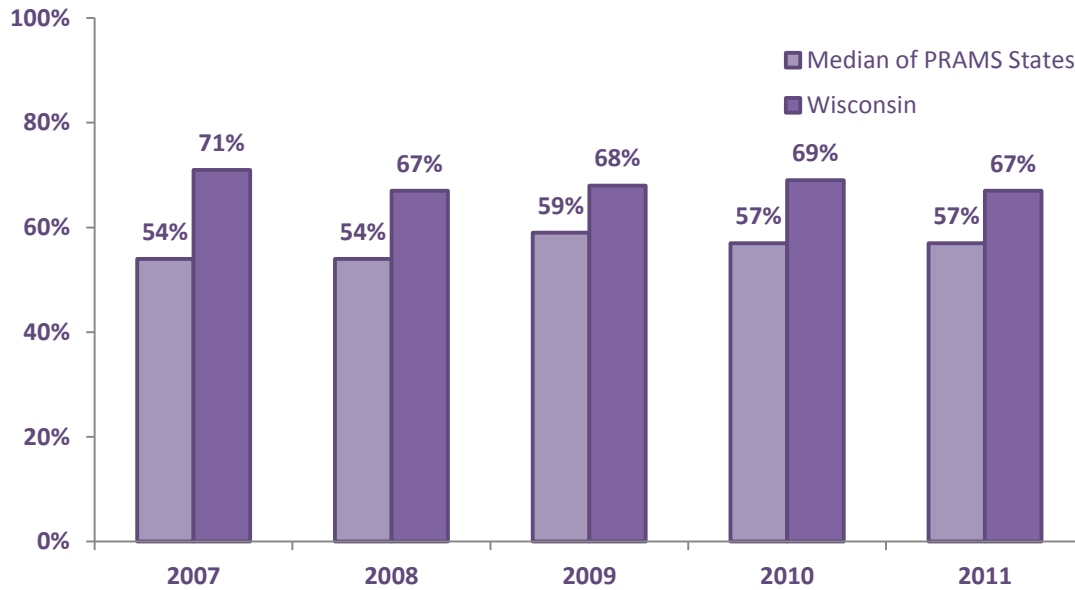
- The proportion of new mothers who drank alcohol during the last three months of pregnancy was much lower than the proportion who drank during the three months before pregnancy. Still, 8% of new mothers in Wisconsin consumed alcohol during the last trimester of their recent pregnancy (Figure 41).

---

<sup>20</sup> Centers for Disease Control and Prevention. (2012). *Alcohol use and binge drinking among women of childbearing age - United States, 2006-2010*. 61(28), 534-538.  
[http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6128a4.htm?s\\_cid=mm6128a4\\_e%0D%0A](http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6128a4.htm?s_cid=mm6128a4_e%0D%0A)

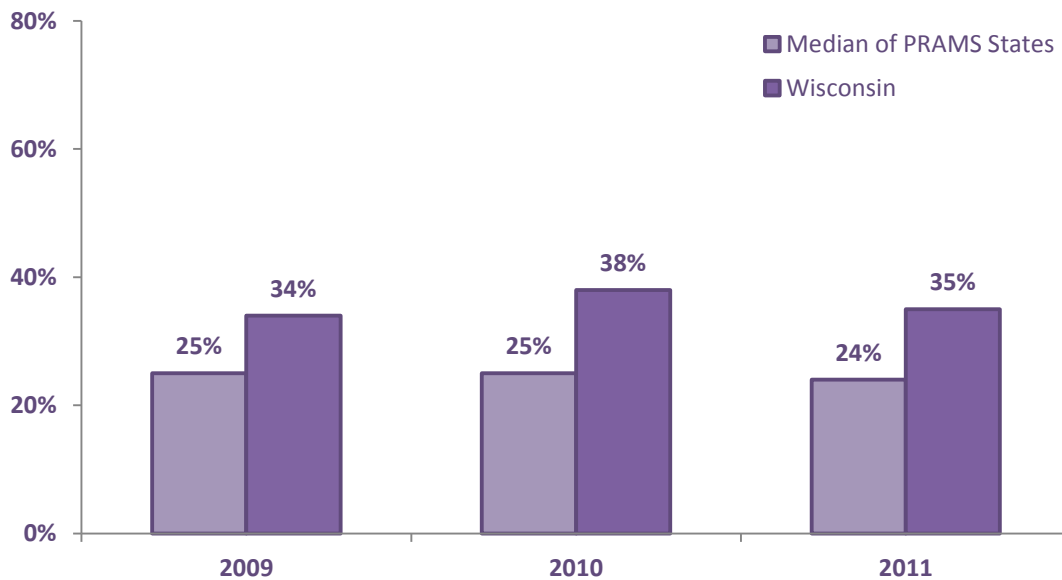


**Figure 39. Alcohol consumption in the three months before pregnancy, Wisconsin and PRAMS states,\* 2007-2011**



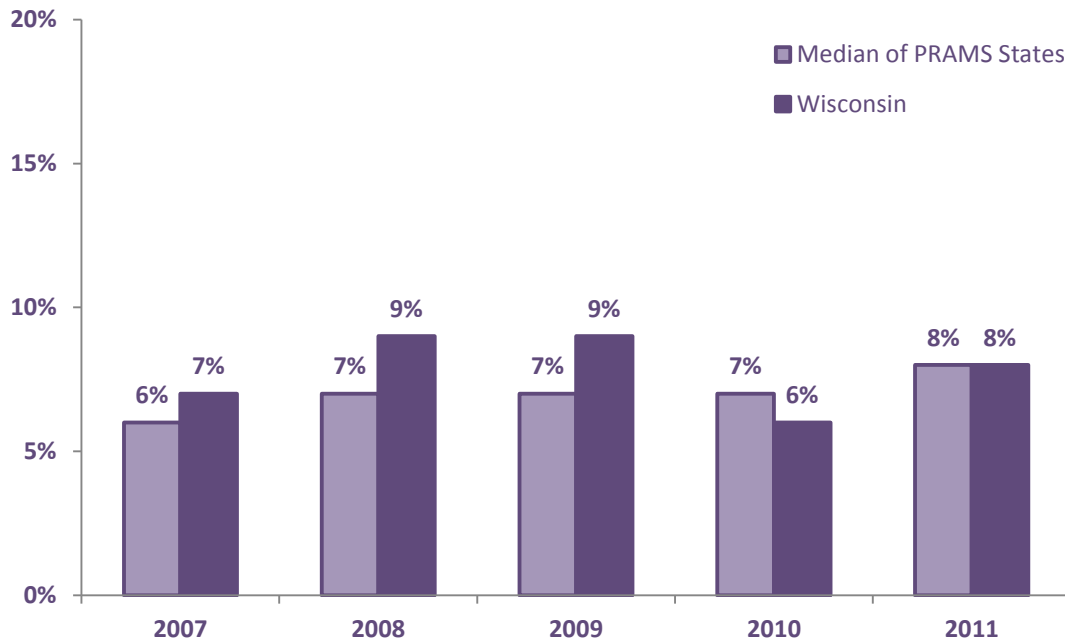
Source: Pregnancy Risk Assessment Monitoring System (PRAMS), Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services; U.S. Centers for Disease Control and Prevention.  
 \* Not every state collects PRAMS data. See Appendix 2 for the number of PRAMS sites in each year.

**Figure 40. Bing drinking (four or more drinks on one occasion) during the three months prior to pregnancy, Wisconsin and PRAMS states,\* 2009-2011**



Source: Pregnancy Risk Assessment Monitoring System (PRAMS), Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services; U.S. Centers for Disease Control and Prevention.  
 \* See Appendix 2 for the number of PRAMS sites in each year.

Figure 41. New mothers who consumed alcohol in the last three months of pregnancy, Wisconsin and PRAMS states,\* 2007-2011



Source: Pregnancy Risk Assessment Monitoring System (PRAMS), Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services; U.S. Centers for Disease Control and Prevention.

\* See Appendix 2 for the number of PRAMS sites in each year.

## Other Drug Consumption

### Illicit Drug Consumption

The use of drugs other than alcohol remains a problem in Wisconsin. Hospitalizations and deaths due to opioids are increasing throughout the state.

Overall, consumption patterns of illicit drugs in Wisconsin mirror national trends (Table 34).

- Based on results from the 2013 YRBS, Wisconsin high school students have lower lifetime use rates than students in the nation as a whole in the use of all four categories of drugs shown (Figure 42).<sup>21</sup> 2013 data show that marijuana continues to be the drug most frequently used by Wisconsin high school students, with misuse of prescription drugs second, followed by inhalants and cocaine (Figure 42).
- Rates of marijuana, other illicit drugs and non-medical use of prescription pain relievers are consistently highest among young adults ages 18-25 (Figure 43).

Table 34. Past year and past month use of other drugs, age 12 and older, Wisconsin and the United States, 2011-2012

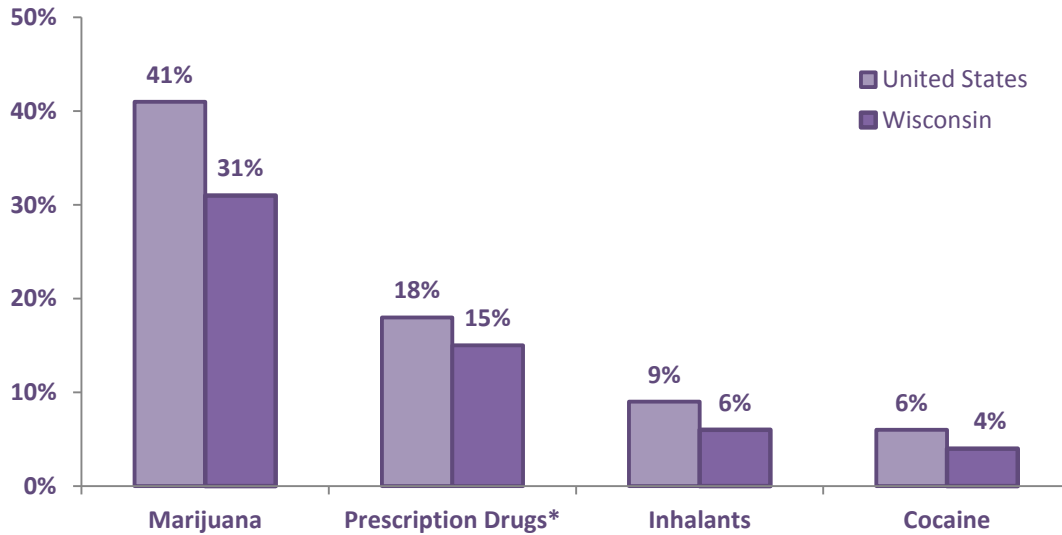
	<i>Past Year</i>		<i>Past Month</i>	
	<i>Wisconsin</i>	<i>United States</i>	<i>Wisconsin</i>	<i>United States</i>
Any illicit drugs	9%	8%	8%	9%
Illicit drugs other than marijuana	--	--	3%	3%
Marijuana	10%	12%	7%	7%
Cocaine	1%	2%	--	--
Non-medical use of pain relievers	4%	5%	--	--

Source: National Survey on Drug Use and Health, Substance Abuse and Mental Health Services Administration, U.S. Department of Health and Human Services.

Note: Dash (--) indicates data not available.

<sup>21</sup> Wisconsin YRBS did not ask about heroin use in 2013.

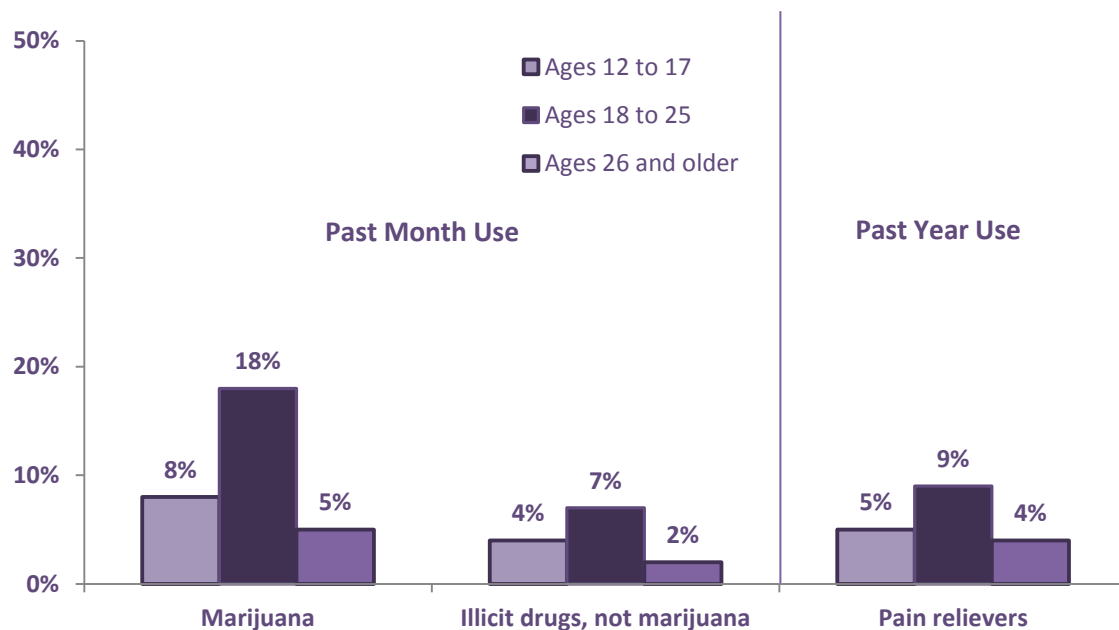
Figure 42. Lifetime use of illicit drugs among high school students, Wisconsin and the United States, 2013



Source: Youth Risk Behavior Surveillance System, Wisconsin Department of Public Instruction and U.S. Centers for Disease Control and Prevention.

\* Use of prescription drugs without a prescription (question wording: "...such as OxyContin, Percocet, Vicodin, Codeine, Adderall, Ritalin or Xanax").

Figure 43. Use of marijuana, illicit drugs other than marijuana, and pain relievers for non-medical purposes age 12 and older, Wisconsin by age group, 2011-2012



Source: National Survey on Drug Use and Health, Substance Abuse and Mental Health Services Administration, U.S. Department of Health and Human Services.

Note: Use of marijuana and use of illicit drugs other than marijuana is use in the past month; use of pain relievers is use in the past year.

## Marijuana

Marijuana use has a wide range of short- and long-term effects. It seriously impairs judgment and motor coordination and, contrary to common belief, marijuana is addictive.<sup>22</sup>

Short-term effects include; sensory distortion, panic, anxiety, poor coordination of movement, lowered reaction time, sleepiness or depression, and increased heartbeat (with risk of heart attack).

Long-term effects include reduced resistance to common illnesses (colds, bronchitis, etc.), suppression of the immune system, growth disorders, increases of abnormally structured cells in the body, reduction of male sex hormones, rapid destruction of lung fibers, lesions (injuries) to the brain which can be permanent, reduced sexual capacity, reduced ability to learn and retain information, apathy, drowsiness, lack of motivation, personality and mood changes and the inability to understand things clearly.<sup>23</sup>

YRBS results indicate current marijuana use - defined as use within the previous 30 days - among Wisconsin high school students has been similar to, or slightly lower than, use among high school students nationally for several years (Figure 44). In 2013, it dropped to 17% in Wisconsin, compared to 23% nationally.

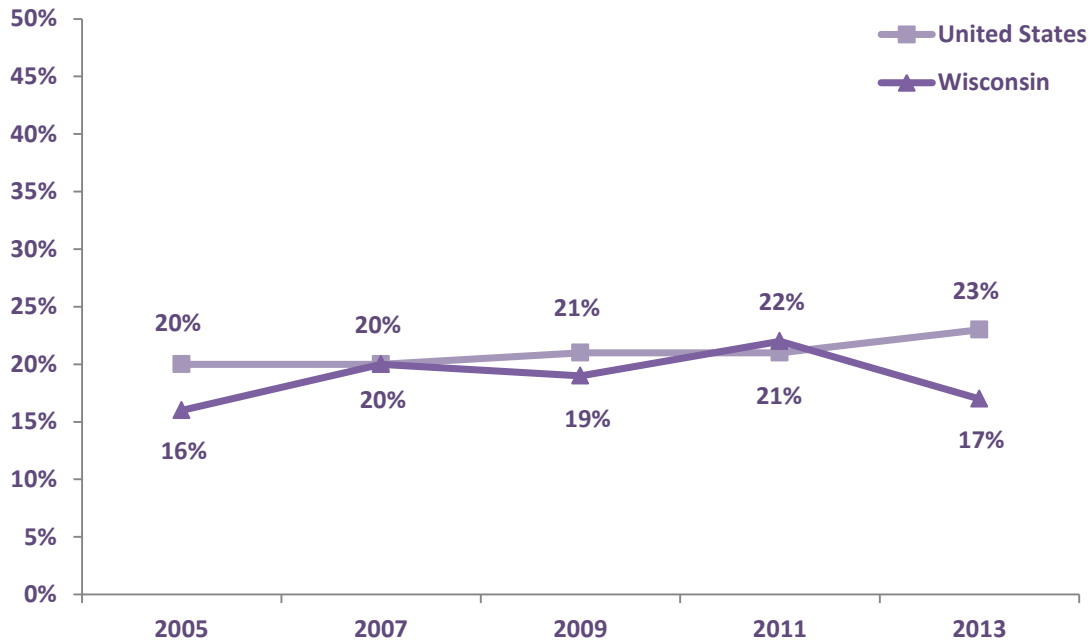
As with current use, lifetime use of marijuana among high school students has dropped slightly in recent years, both in Wisconsin and nationally. The prevalence of lifetime use was similar in the state and nationally from 2005 to 2011 (Figure 45). Wisconsin's prevalence dropped noticeably in 2013, but more data is needed to determine whether this signals a trend.

---

<sup>22</sup> National Institute on Drug Abuse. Drug Facts: Marijuana - accessed from <http://www.drugabuse.gov/publications/drugfacts/marijuana> (updated January 2014).

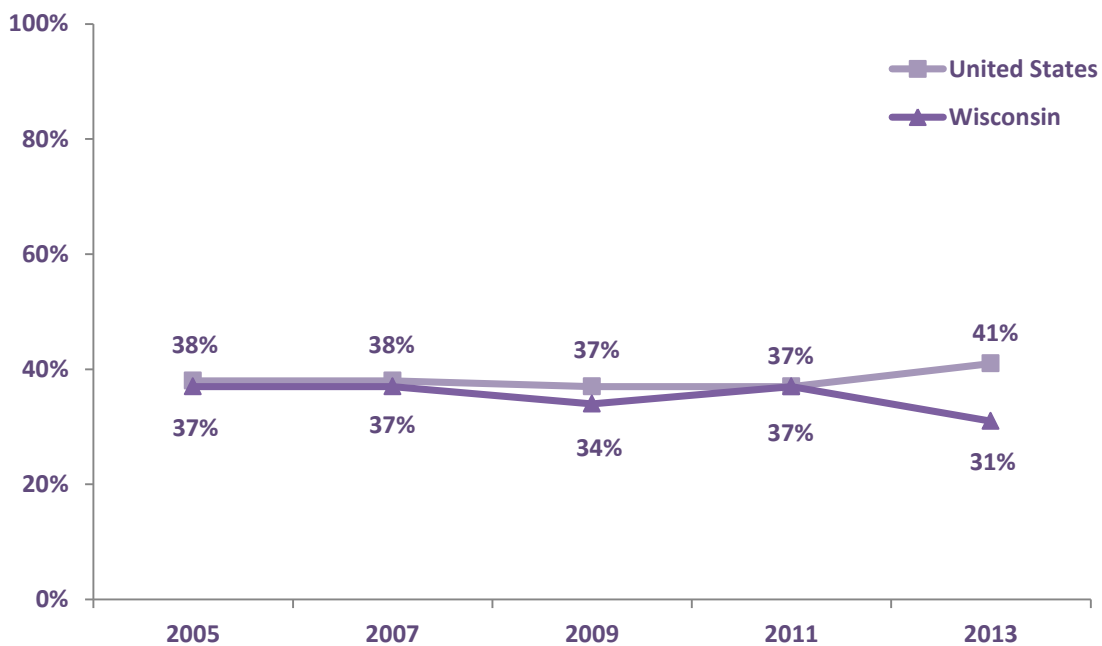
<sup>23</sup> Foundation for a Drug-Free World <http://www.drugfreeworld.org/#/interactive>

Figure 44. Current marijuana use among high school students, Wisconsin and the United States, 2005-2013



Source: Youth Risk Behavior Surveillance System, Wisconsin Department of Public Instruction and U.S. Centers for Disease Control and Prevention.

Figure 45. Lifetime marijuana use among high school students, Wisconsin and the United States, 2005-2013



Source: Youth Risk Behavior Surveillance System, Wisconsin Department of Public Instruction and U.S. Centers for Disease Control and Prevention.

In the years 2011 and 2013 combined, current marijuana use was highest among African American, American Indian and multiracial high school students (Table 35).

- The overall prevalence of marijuana initiation before age 13 among Wisconsin high school students was 6% in 2011-2013 (YRBS, not shown). Early initiation of marijuana use was highest among African American, American Indian and multiracial high school students (Table 36); however, the estimate for American Indian students should be interpreted with caution, as the confidence interval half-width is large.

**Table 35. Current marijuana use among high school students, Wisconsin by race/ethnicity, 2005-2013**

<i>Race/Ethnicity</i>	<i>2005-2007</i>	<i>2007-2009</i>	<i>2009-2011</i>	<i>2011-2013</i>
White	16%	18%	18%	17%
African American	32%	31%	34%	34%
Hispanic/Latino	24%	23%	18%	18%
Asian or Pacific Islander	10%	10%	16%	16%
American Indian or Alaskan Native	26%	37%	32%	39%*
Multiracial	24%	24%	26%	29%

Source: Youth Risk Behavior Survey, Wisconsin Department of Public Instruction and U.S. Centers for Disease Control and Prevention.

\* Interpret with caution due to confidence interval half-width >10%.

**Table 36. Marijuana use before age 13 among high school students, Wisconsin by race/ethnicity, 2003-2011**

<i>Race/Ethnicity</i>	<i>2005-2007</i>	<i>2007-2009</i>	<i>2009-2011</i>	<i>2011-2013</i>
White	10%	5%	4%	4%
African American	23%	14%	13%	15%
Hispanic/Latino	16%	**	6%	8%
Asian or Pacific Islander	6%	6%	9%	8%
American Indian or Alaskan Native	**	17%	23%*	31%*
Multiracial	14%	13%	15%	14%

Source: Youth Risk Behavior Survey, Wisconsin Department of Public Instruction and U.S. Centers for Disease Control and Prevention.

\* Interpret with caution due to confidence interval half-width >10%.

\*\* Estimate not reliable due to relative standard error of 30%.

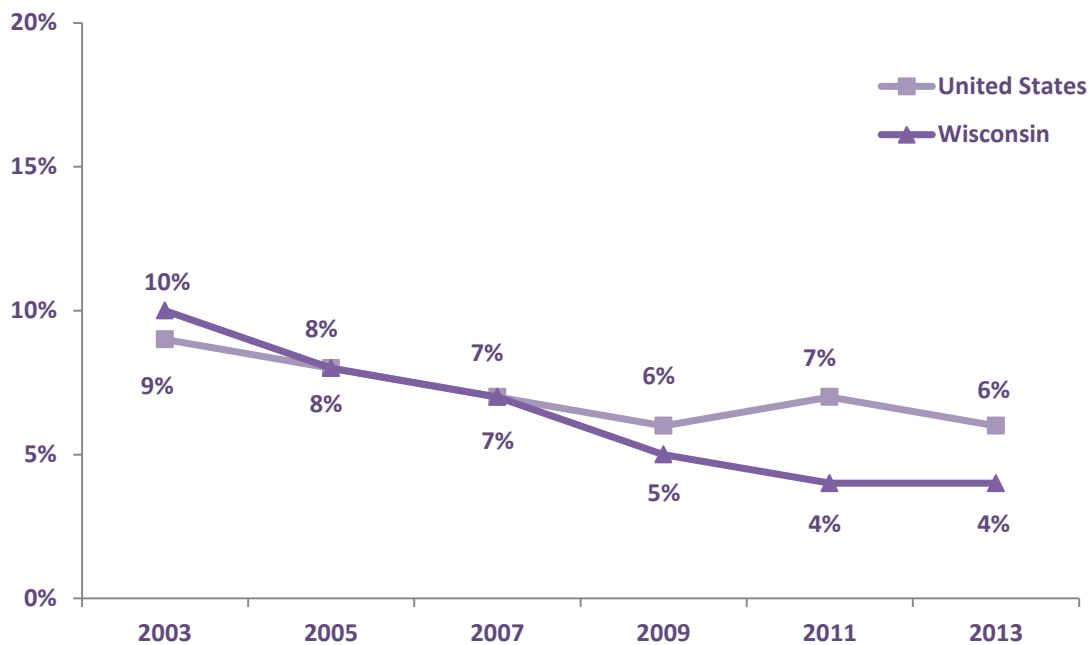
## Cocaine

Cocaine users face the possibilities of arrest, drug dependence, injury and even death. Compared with non-users, cocaine users are more likely to experience a hemorrhagic stroke (sudden bleeding in the brain) at a significantly earlier age, and experience poorer outcomes after treatment.<sup>24</sup>

Lifetime use of cocaine among high school students in Wisconsin dropped steadily from 2003 to 2013, and has been lower than the national prevalence since 2009 (Figure 46).

Due to small sample sizes, estimates by race/ethnicity for lifetime cocaine use are not shown.

**Figure 46. Lifetime cocaine use among high school students, Wisconsin and the United States, 2003-2013**



Source: Youth Risk Behavior Surveillance System, Wisconsin Department of Public Instruction and U.S. Centers for Disease Control and Prevention.

<sup>24</sup> Esse K., Fossati-Bellani M., Traylor A., and Martin-Schild S. (Sept. 2011). Epidemic of illicit drug use, mechanisms of action/ addiction and stroke as a health hazard. *Brain Behavior*. 1(1): 44-54.

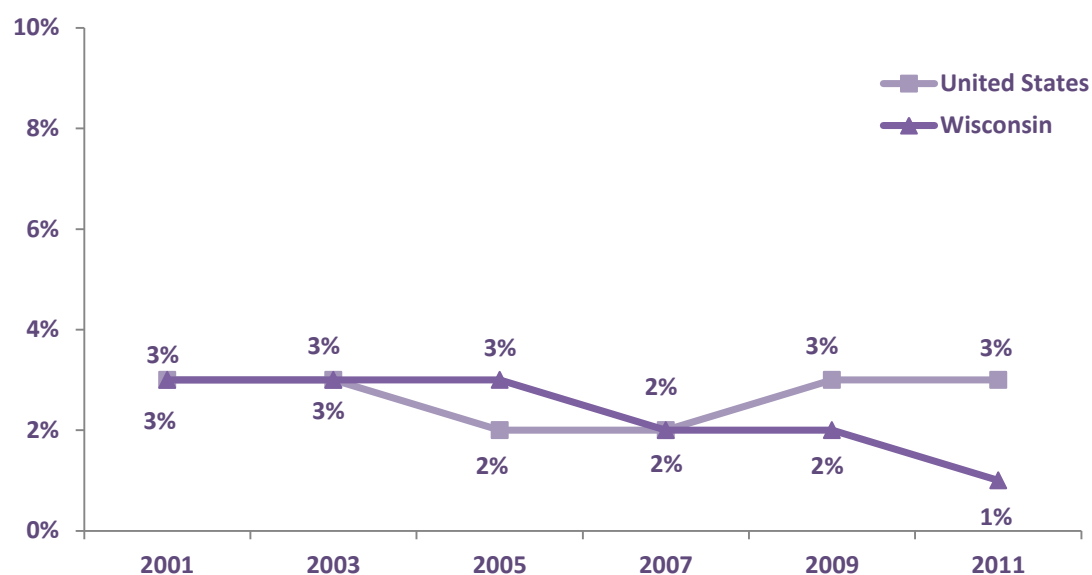


## Heroin

One of the most significant risks a heroin user faces is dependence on the drug. Users who inject heroin also risk contracting HIV, Hepatitis C, and other infectious diseases. Most new Hepatitis C infections in the United States each year are among injection drug users. Data presented include the most recent CDC YRBS for which lifetime use of heroin was asked (2011).

- The prevalence of lifetime heroin use among high school students in Wisconsin declined from 3% in 2001 to 1% in 2011 (Figure 47). New data on heroin use among high school students are not available for 2013.

Figure 47. Lifetime heroin use among high school students, Wisconsin and the United States, 2001-2011



Source: Youth Risk Behavior Surveillance System, Wisconsin Department of Public Instruction and U.S. Centers for Disease Control and Prevention.

Table 37. Lifetime heroin use among high school students, Wisconsin by race/ethnicity, 2001-2011

Race/Ethnicity	2001-2005*	2005-2007	2007-2009	2009-2011
White	2%	2%	1%	1%
African American	4%	3%	3%	5%
Hispanic/Latino	5%	4%	3%	**
Asian or Pacific Islander	10%	6%	3%	**
American Indian or Alaskan Native	**	**	**	**
Multiracial	9%	9%	6%	4%

Source: Youth Risk Behavior Survey, Wisconsin Department of Public Instruction and U.S. Centers for Disease Control and Prevention.

\* Question on heroin use not asked in 2003.

\*\* Estimate not reliable due to relative standard error of 30%.

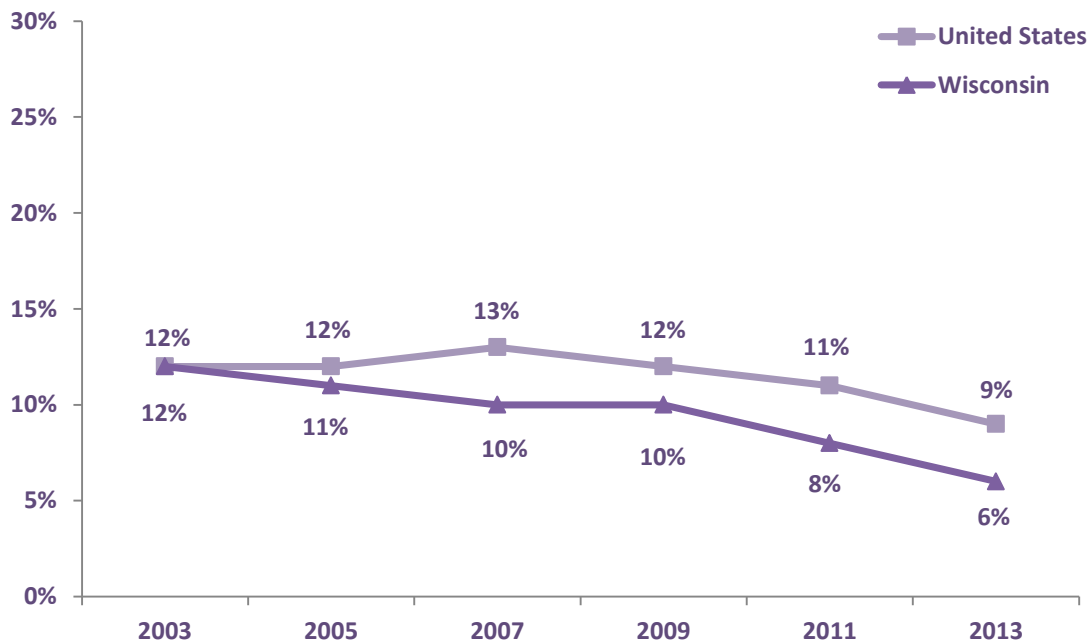
## Inhalants

Prolonged sniffing of the highly concentrated chemicals in solvents or aerosol sprays can induce irregular and rapid heart rhythms and lead to heart failure and death within minutes of a session of prolonged sniffing. This syndrome, known as "sudden sniffing death," can result from a single session of inhalant use. Chronic exposure to inhalants can produce significant, sometimes irreversible, damage to the heart, lungs, liver and kidneys.

In addition to the toxic dangers of inhalants, research has shown that toluene, a solvent in many inhalants, promotes euphoria in the brain the same way as cocaine, amphetamine/methamphetamine, and PCP. This finding emphasizes the addictive nature of inhalants.<sup>25</sup>

- Lifetime use of inhalants among Wisconsin high school youth dropped steadily across the time period 2003 to 2013 (Figure 48), and was 6% in 2013, about half of what it was in 2005.
- Among high school students, lifetime use of inhalants remains higher than lifetime cocaine use both in Wisconsin (6% versus 4%, respectively) and nationally (9% versus 6%, respectively).

**Figure 48. Lifetime inhalant use among high school students, Wisconsin and the United States, 2003-2013**



Source: Youth Risk Behavior Surveillance System, Wisconsin Department of Public Instruction and U.S. Centers for Disease Control and Prevention.

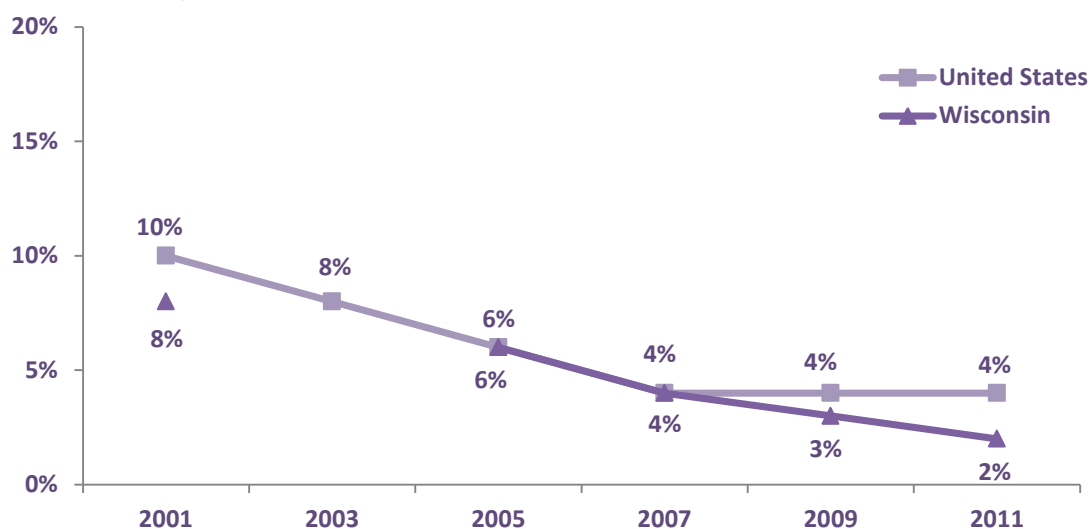
<sup>25</sup> U.S. Substance Abuse and Mental Health Services Administration (SAMHSA), National Clearinghouse for Alcohol and Drug Information, 2005.

## Methamphetamines

As well as being highly addictive, methamphetamine use can lead to neurological damage and psychotic behaviors. Data presented are from the YRBS for years in which the question on lifetime use of methamphetamines was asked.

- Lifetime methamphetamine use among Wisconsin high school students decreased between 2001 and 2011, following a national trend (Figure 49).
- Among high school students in 2009-2011, White students reported the lowest prevalence of lifetime methamphetamine use (2%), while multiracial students reported the highest (7%, Table 38).

Figure 49. Lifetime methamphetamine use among high school students, Wisconsin and the United States, 2001-2011



Source: Youth Risk Behavior Surveillance System, Wisconsin Department of Public Instruction and U.S. Centers for Disease Control and Prevention. (Question on methamphetamine use was not asked in 2003).

Table 38. Lifetime methamphetamine use among high school students, Wisconsin by race/ethnicity, 2001-2011

Race/Ethnicity	2001-2005*	2005-2007	2007-2009	2009-2011
White	6%	5%	3%	2%
African American	3%	3%	4%	5%
Hispanic/Latino	7%	6%	**	**
Asian or Pacific Islander	13%	10%	8%	6%
American Indian or Alaskan Native	**	**	**	**
Multiracial	15%	8%	7%	7%

Source: Youth Risk Behavior Survey, Wisconsin Department of Public Instruction and U.S. Centers for Disease Control and Prevention.

\* Question on methamphetamine use was not asked in 2003.

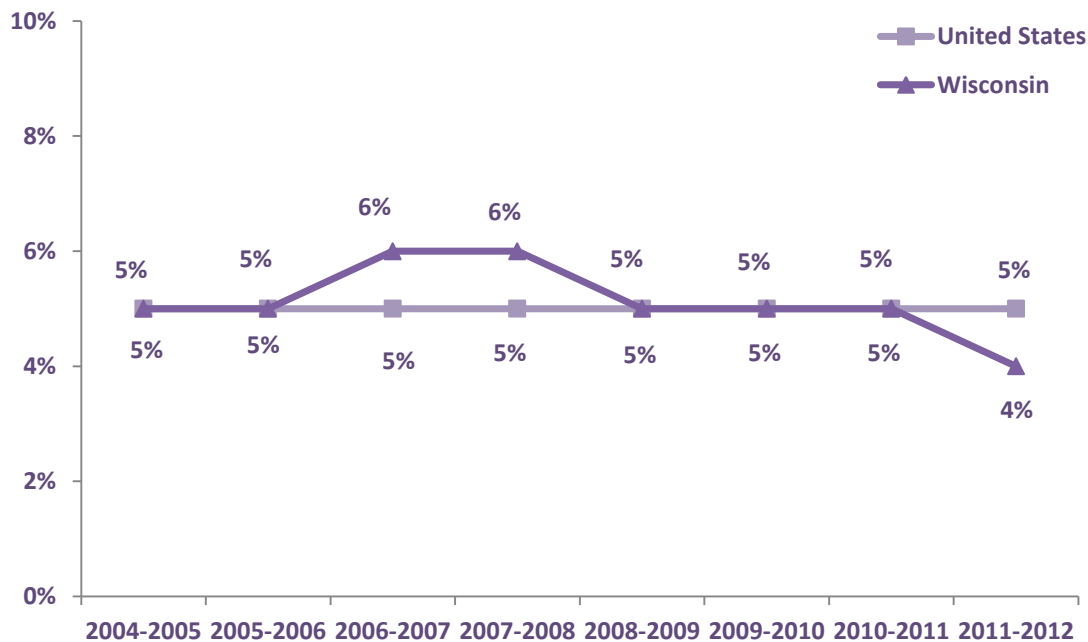
\*\* Estimate not reliable due to relative standard error >30%.

## Non-Medical Use of Prescription Drugs

Non-medical use of prescription drugs continues to be a problem in Wisconsin. Nationally, emergency department visits involving non-medical use of two types of prescription drugs (opioid analgesics and benzodiazepines) more than doubled from 2004 to 2008. Emergency department visits for misused prescription and over-the-counter drugs are now as common as visits for use of illicit drugs.<sup>26</sup> National data show that overdose deaths involving opioid pain relievers now exceed deaths involving heroin and cocaine combined.<sup>27</sup>

- As of 2013, 15% of Wisconsin high school students reported using prescription drugs (“such as OxyContin®, Percocet®, Vicodin®, Adderal®, Ritalin®, or Xanax®”) for non-medical purposes at some point in their lives (Figure 42, page 86).
- During 2011-2012, 4% of Wisconsin residents ages 12 and older reported using pain relievers for non-medicinal purposes in the past year (Figure 50), slightly less than the national average of 5%. The prevalence of past year use was highest among young adults ages 18 to 25 (9%, Figure 43, page 86).

Figure 50. Use of prescription pain relievers for non-medical purposes in the past year, age 12 and older, Wisconsin and the United States, 2004-2012



Source: National Survey on Drug Use and Health, Substance Abuse and Mental Health Services Administration, U.S. Department of Health and Human Services.

<sup>26</sup> Centers for Disease Control and Prevention. 2010. Emergency department visits involving non-medical use of selected prescription drugs—United States, 2004-2008. *Morbidity and Mortality Weekly Report*. June 18, 2010. 59(23); 705-709.

<sup>27</sup> Centers for Disease Control and Prevention. 2011. Vital Signs: Overdoses of prescription opioid pain relievers—United States, 1999-2008. *Morbidity and Mortality Weekly Report*. Nov. 4, 2011. 60(43);1487-1492.

# Risk Factors

Risk factors are characteristics of cultures, communities, relationships, and individuals that precede and are associated with a higher likelihood of problem outcomes.

Community-level factors that heighten the risk of experiencing problems with alcohol and other drug use include availability, accessibility, acceptability, and affordability of substances. Individual factors that increase the risk of alcohol and other drug use include childhood victimization, post-traumatic stress disorder, other effects of trauma and depression.

Risk factors that affect both substance abuse and mental health outcomes are referred to as “shared risk factors.” Some shared risk factors are listed below; see <http://captus.samhsa.gov/access-resources/shared-adult-risk-factors> for more details.

- Shared cultural risk factors include social norms as well as health, economic, educational, and social policies.
- Shared community risk factors stem from settings, such as schools, workplaces, and neighborhoods. Shared community risk factors include acute stressful events in the community, chronic community disorganization and stress, and difficulties in school.
- Shared relationship risk factors include intimate partner violence, lack of social support, physical assault, and rape or sexual assault.
- Shared individual risk factors include housing instability, poor physical health, financial problems and unemployment.<sup>28</sup>

## Community-level Risk Factors for Substance Abuse

### Alcohol Availability

Community-level factors that heighten the risk of experiencing problems with alcohol include the per capita number of alcohol outlets in a community.<sup>29</sup>

Table 39 shows the number of alcohol licenses in relation to the number of people in Wisconsin counties. In 2012-2013, the overall alcohol outlet density in Wisconsin was 1.5 outlets per 500 people.

Differences in alcohol outlet density by county are difficult to interpret. Rural counties may have a higher number of outlets relative to population, but these outlets may be small and serve many fewer people than a single outlet in a large city. Also, county-level rates may mask great variations in density for various locations within a given county.

---

<sup>28</sup> SAMHSA (2013). Shared Adult Risk Factors. <http://captus.samhsa.gov/access-resources/shared-adult-risk-factors>.

<sup>29</sup> Popova S, Giesbrecht N, Bekmuradov D, and Patra J. Hours and days of sale and density of alcohol outlets: impacts on alcohol consumption and damage: a systematic review. *Alcohol and Alcoholism* (2009) 44 (5): 500-516. <http://alcalc.oxfordjournals.org/content/44/5/500.full>

Table 39. Alcohol outlet density: licenses per 500 population, Wisconsin by county, 2012-2013

<i>County</i>	<i>2012 Population</i>	<i>Total Licenses issued</i>	<i>Licenses/500 people</i>	<i># Class A Licenses Issued*</i>	<i># Class B Licenses Issued*</i>
Adams	20,797	96	2.3	27	72
Ashland	16,063	104	3.2	25	79
Barron	45,928	155	1.7	43	119
Bayfield	15,052	147	4.9	33	115
Brown	250,281	642	1.3	183	454
Buffalo	13,649	88	3.2	22	67
Burnett	15,457	100	3.2	29	72
Calumet	49,168	126	1.3	32	102
Chippewa	62,777	234	1.9	56	182
Clark	34,706	144	2.1	34	108
Columbia	56,835	207	1.8	54	156
Crawford	16,638	90	2.7	24	64
Dane	491,555	1,101	1.1	310	808
Dodge	88,692	295	1.7	74	221
Door	27,867	248	4.4	75	175
Douglas	44,191	198	2.2	37	162
Dunn	43,853	110	1.3	34	82
Eau Claire	99,260	234	1.2	64	169
Florence	4,358	45	5.2	9	37
Fond du Lac	101,955	303	1.5	79	225
Forest	9,197	81	4.4	15	65
Grant	51,436	204	2.0	55	149
Green	36,863	107	1.5	25	119
Green Lake	19,106	85	2.2	21	67
Iowa	23,726	101	2.1	29	71
Iron	5,843	103	8.8	12	93
Jackson	20,523	100	2.4	25	80
Jefferson	83,857	269	1.6	85	196
Juneau	26,878	142	2.6	34	109
Kenosha	166,823	352	1.1	95	273
Kewaunee	20,637	99	2.4	20	80
La Crosse	115,577	306	1.3	79	249
Lafayette	16,897	78	2.3	23	55
Langlade	19,880	119	3.0	33	89
Lincoln	28,856	155	2.7	33	124
Manitowoc	81,437	288	1.8	64	225
Marathon	134,524	389	1.4	95	293

Table 39. Alcohol outlet density: licenses per 500 population, Wisconsin by county, 2012-2013 (continued)

<i>County</i>	<i>2012 Population</i>	<i>Total Licenses issued</i>	<i>Licenses/ 500 people</i>	<i># Class A Licenses Issued*</i>	<i># Class B Licenses Issued*</i>
Marinette	41,718	227	2.7	63	163
Marquette	15,394	71	2.3	21	51
Menominee	4,214	13	1.5	8	5
Milwaukee	948,322	2,038	1.1	479	1552
Monroe	45,056	139	1.5	35	104
Oconto	37,829	189	2.5	36	150
Oneida	36,057	258	3.6	54	207
Outagamie	178,150	496	1.4	127	365
Ozaukee	86,635	222	1.3	54	165
Pepin	7,465	47	3.1	16	47
Pierce	41,108	117	1.4	29	89
Polk	44,241	161	1.8	50	110
Portage	70,806	225	1.6	46	179
Price	14,055	108	3.8	24	84
Racine	195,386	464	1.2	144	321
Richland	18,043	55	1.5	16	41
Rock	160,129	304	0.9	71	237
Rusk	14,756	90	3.0	21	69
St. Croix	84,856	189	1.1	74	201
Sauk	61,994	273	2.2	29	159
Sawyer	16,659	189	5.7	44	171
Shawano	41,919	213	2.5	88	279
Sheboygan	115,549	368	1.6	49	141
Taylor	20,697	97	2.3	22	75
Trempealeau	28,986	135	2.3	37	98
Vernon	29,865	95	1.6	28	66
Vilas	21,485	238	5.5	48	177
Walworth	102,530	335	1.6	83	249
Washburn	15,907	104	3.3	27	77
Washington	132,482	309	1.2	71	238
Waukesha	390,914	784	1.0	208	517
Waupaca	52,381	221	2.1	53	171
Waushara	24,506	100	2.0	32	69
Winnebago	167,702	421	1.3	90	331
Wood	74,587	233	1.6	61	174
<b>Wisconsin</b>	<b>5,703,525</b>	<b>17,173</b>	<b>1.5</b>	<b>4,325</b>	<b>12,938</b>

Source: Wisconsin Department of Revenue, reflecting liquor licenses issued and reported to the DOR for the period beginning July 1, 2012 and expiring July 1, 2013.

\* See Appendix 1 for list of license classes included in each category.

Note: Some establishments are issued more than one type of liquor license. The reported total number of licenses per county is the number of establishments issued a license. The numbers reported for A and B licenses are the total for that license type.

## Other Drug Availability

Prescription drug abuse is gaining attention in Wisconsin and nationally due to its increase and the consequences associated with it. Increased prescribing of opioid pain relievers is a factor in the quantity of opioids available for misuse and diversion. The United States makes up only 4.6 % of the world's population, but consumes 80% of its opioids - and 99% of the world's hydrocodone, the opioid that is in Vicodin® (ABC News, April 20, 2011).

The rates of controlled substance prescriptions shown below are not adjusted for population characteristics, such as age, which could affect prescribing patterns.

**Table 40. Controlled substance prescriptions written per 1,000 population and proportion of prescriptions by drug class, Wisconsin by county, January-June 2013**

<i>Prescriber County</i>	<i>Rx per 1,000 Population</i>	<i>Percent Narcotics</i>	<i>Percent Sedatives</i>	<i>Percent Stimulants</i>	<i>Percent Tranquilizers</i>
Adams	193	61%	8%	8%	23%
Ashland	924	51%	11%	17%	21%
Barron	732	59%	10%	11%	20%
Bayfield	364	37%	14%	33%	16%
Brown	956	46%	9%	26%	19%
Buffalo	158	51%	9%	12%	28%
Burnett	246	61%	13%	9%	17%
Calumet	789	36%	11%	27%	26%
Chippewa	522	54%	8%	19%	19%
Clark	209	54%	10%	11%	25%
Columbia	559	56%	9%	12%	23%
Crawford	365	57%	10%	10%	23%
Dane	823	55%	9%	18%	18%
Dodge	480	55%	8%	16%	21%
Door	583	54%	11%	11%	23%
Douglas	311	63%	12%	6%	19%
Dunn	388	50%	12%	16%	21%
Eau Claire	1,101	51%	10%	20%	19%
Florence	38	71%	2%	12%	15%
Fond du Lac	583	54%	10%	16%	20%
Forest	385	51%	12%	17%	20%
Grant	428	46%	8%	21%	25%
Green	521	52%	7%	20%	20%
Green Lake	546	63%	9%	9%	19%
Iowa	425	51%	9%	18%	23%
Iron	241	61%	15%	7%	17%
Jackson	487	56%	11%	12%	20%
Jefferson	350	58%	8%	11%	23%
Juneau	670	60%	10%	11%	19%
Kenosha	580	47%	13%	16%	25%
Kewaunee	307	43%	10%	17%	29%
La Crosse	994	51%	11%	18%	20%



Table 40. Controlled substance prescriptions written per 1,000 population and proportion of prescriptions by drug class, Wisconsin by county, January-June 2013 (continued)

<i>Prescriber County</i>	<i>Rx per 1,000 Population</i>	<i>Percent Narcotics</i>	<i>Percent Sedatives</i>	<i>Percent Stimulants</i>	<i>Percent Tranquilizers</i>
Lafayette	181	61%	5%	12%	22%
Langlade	673	58%	9%	11%	22%
Lincoln	501	55%	11%	16%	18%
Manitowoc	739	51%	8%	18%	23%
Marathon	784	57%	8%	18%	17%
Marinette	720	49%	11%	21%	20%
Marquette	98	66%	5%	2%	27%
Menominee	1,237	72%	8%	11%	10%
Milwaukee	899	64%	9%	10%	17%
Monroe	497	60%	9%	12%	19%
Oconto	462	46%	9%	25%	20%
Oneida	1,329	50%	11%	20%	19%
Outagamie	639	54%	8%	21%	16%
Ozaukee	938	49%	11%	21%	19%
Pepin	335	54%	10%	5%	31%
Pierce	67	56%	12%	15%	17%
Polk	489	60%	10%	15%	15%
Portage	677	42%	13%	30%	16%
Price	480	63%	9%	5%	23%
Racine	763	47%	12%	21%	21%
Richland	464	59%	8%	7%	26%
Rock	648	61%	8%	15%	17%
Rusk	394	63%	9%	14%	13%
Sauk	553	64%	7%	15%	15%
Sawyer	195	62%	11%	7%	20%
Shawano	1,090	50%	10%	20%	20%
Sheboygan	1,915	45%	13%	18%	24%
St. Croix	281	54%	11%	19%	15%
Taylor	343	52%	7%	25%	16%
Trempealeau	240	62%	8%	10%	19%
Vernon	515	53%	11%	11%	25%
Vilas	736	61%	10%	12%	17%
Walworth	383	56%	12%	10%	22%
Washburn	643	61%	9%	12%	19%
Washington	525	52%	11%	16%	20%
Waukesha	841	48%	12%	20%	20%
Waupaca	501	54%	7%	15%	24%
Waushara	364	59%	9%	11%	21%
Winnebago	769	48%	10%	23%	20%
Wood	1,033	48%	8%	25%	19%

Source: Prescription Drug Monitoring Program, Wisconsin Department of Safety and Professional Services.

The school environment, where students function on a daily basis, conveys information about which behaviors are acceptable or unacceptable in society as a whole. Activity related to illegal substances is a major concern in schools, particularly in high schools (see also suspensions and expulsions related to alcohol or drugs pages 36 and 53).

The YRBS asks high school students if they were “offered, sold or given an illegal drug on school property” in the past 12 months. As table 41 indicates, 20% of students overall, and 25% or more of African American, American Indian, Hispanic and multiracial students, were presented with the opportunity to obtain an illegal drug at school during the time period 2011 to 2013 (two separate years combined). This is a slight reduction from previous years.

**Table 41. Offered an illegal drug on school property, high school students, Wisconsin, by race/ethnicity, 2005 -2013**

Race/Ethnicity	2005-2007	2007-2009	2009-2011	2011-2013
White	20%	20%	19%	18%
African American	30%	30%	28%	25%
Hispanic/Latino	38%	36%*	32%	30%
Asian or Pacific Islander	27%	20%	18%	16%
American Indian or Alaskan Native	32%*	26%*	20%*	31%*
Multiracial	27%	27%	31%	28%

Source: Wisconsin Department of Public Instruction.

\*Interpret with caution due to confidence interval half-width > 10%

Notes: Differences between groups may not be statistically significant. Survey question wording: “was offered, sold or given an illegal drug on school property in the past 12 months.”

## Perception of Harm

Parental attitudes about substance use can influence the consumption behavior of adolescents. The belief that others do not approve of alcohol or other drug use can be a deterrent to initiating use.

Table 42 shows Wisconsin YRBS results indicating the proportion of high school students, by race/ethnicity, who perceive that their parents would disapprove of their using alcohol *two or more times per month*. Clear majorities of students from all racial and ethnic backgrounds believe their parents would disapprove of this behavior. White students are less likely to perceive parental disapproval (66%) compared to students in other race/ethnicity groups.

**Table 42. Perceived parental disapproval of alcohol use, high school students, Wisconsin, by race/ethnicity, 2007-2013**

Race/Ethnicity	2007-2009	2009-2011	2011-2013
White	62%	37%	66%
African American	74%	74%	72%
Hispanic/Latino	68%*	68%	74%
Asian or Pacific Islander	68%	75%	72%
American Indian or Alaskan Native	69%*	66%*	73%*
Multiracial	63%	67%	69%

Source: Youth Risk Behavior Survey, Centers for Disease Control and Prevention/Wisconsin Department of Public Instruction.

\*interpret with caution due to confidence interval half-width >10%.

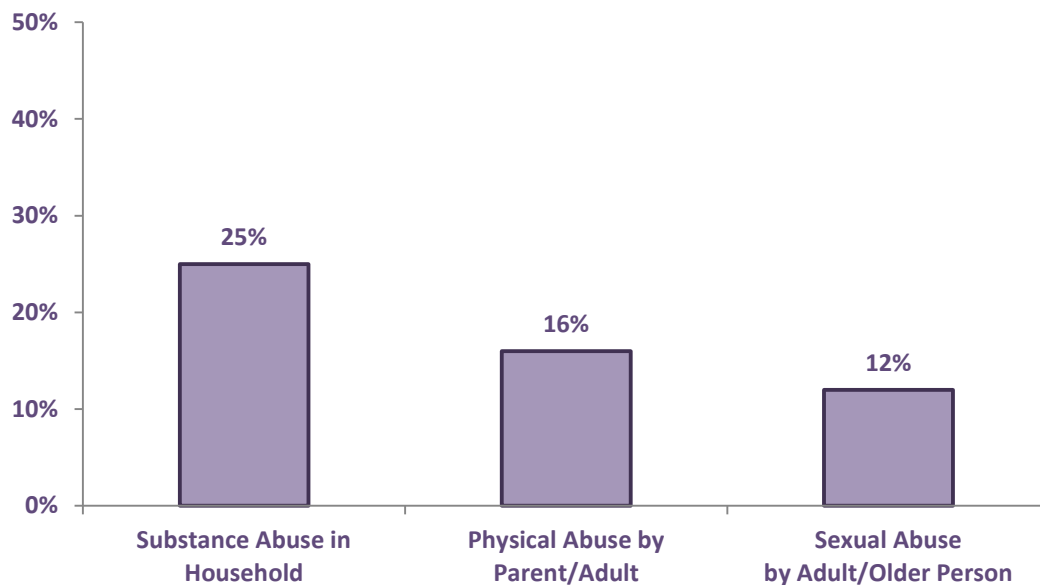
## Shared Risk Factors (for Substance Abuse and Mental Health Problems)

### Early Life Experiences

Certain early-life experiences are known to be associated with a higher risk for both adult mental health problems and substance abuse. These experiences include childhood physical abuse, sexual abuse and substance abuse in the household. The relationship between childhood experiences and adult substance abuse was documented in a recent Wisconsin report.<sup>30</sup>

In 2012, 25% of Wisconsin adults reported they experienced substance abuse in their home environment while growing up, 16% reported being physically abused (“hit, beaten or kicked”) by a parent or another adult “once or more than once,” and 12% reported they had been sexually abused as a child (“ever touched by, or made to touch, an adult or person at least five years older, or forced to have sex by an adult or a person at least five years older”).

**Figure 51. Physical abuse, sexual abuse, or home environment substance abuse before age 18, Wisconsin, 2012**



Source: Behavioral Risk Factor Survey, Division of Public Health, Wisconsin Department of Health Services.

<sup>30</sup> O'Connor C., Finkbiner C., and Watson L. (2012). Adverse Childhood Experiences in Wisconsin: Findings from the 2010 Behavioral Risk Factor Survey. Madison, Wisconsin: Wisconsin Children's Trust Fund and Child Abuse Prevention Fund of Children's Hospital & Health System. <http://wchildrenstrustfund.org/files/WisconsinACEs.pdf>

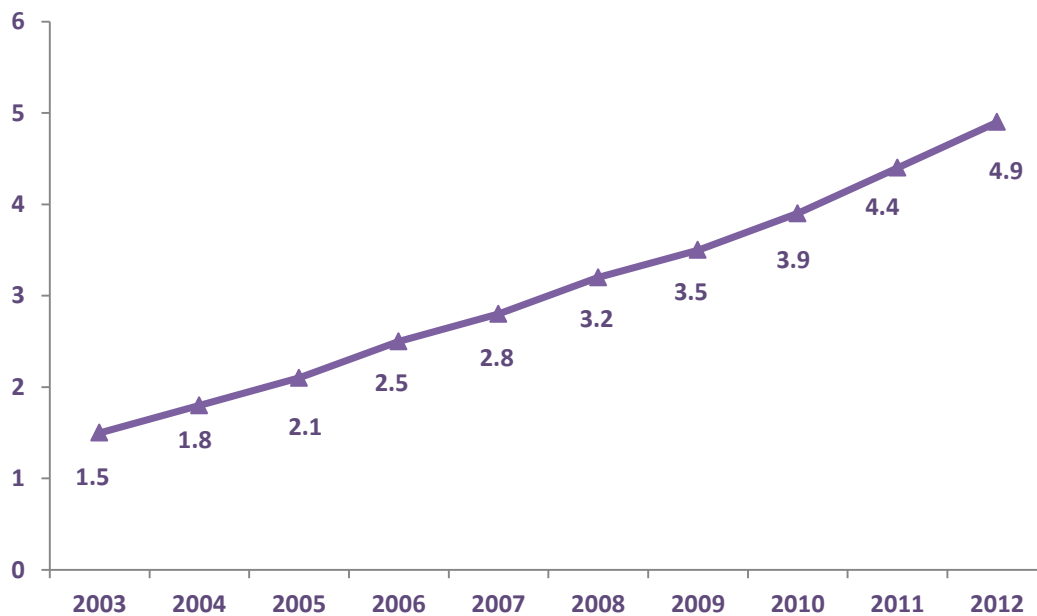
## Depression and Suicide

Substance abuse and mental health problems frequently co-occur,<sup>31</sup> and treatment for mental health problems such as anxiety and depression can include the prescribing of controlled pharmaceuticals. For example, benzodiazepines are frequently prescribed for anxiety disorders, and depression and anxiety frequently co-occur with multiple drugs prescribed to individual patients. This creates conditions for potential abuse and diversion of prescription medications.

As Figure 52 shows, publicly funded treatment for anxiety and depression among 12-25 year-olds - presumably reflecting an increase in diagnoses - has been increasing upward since at least 2003.

- In 2011-2012, an estimated 7% of Wisconsin adults reported experiencing a “major depressive episode” in the past year, and 4% reported having serious suicidal thoughts in the past year (Figure 53). These are the same percentages seen nationally; however, there are slight differences between age groups in Wisconsin versus the nation (Figure 54).

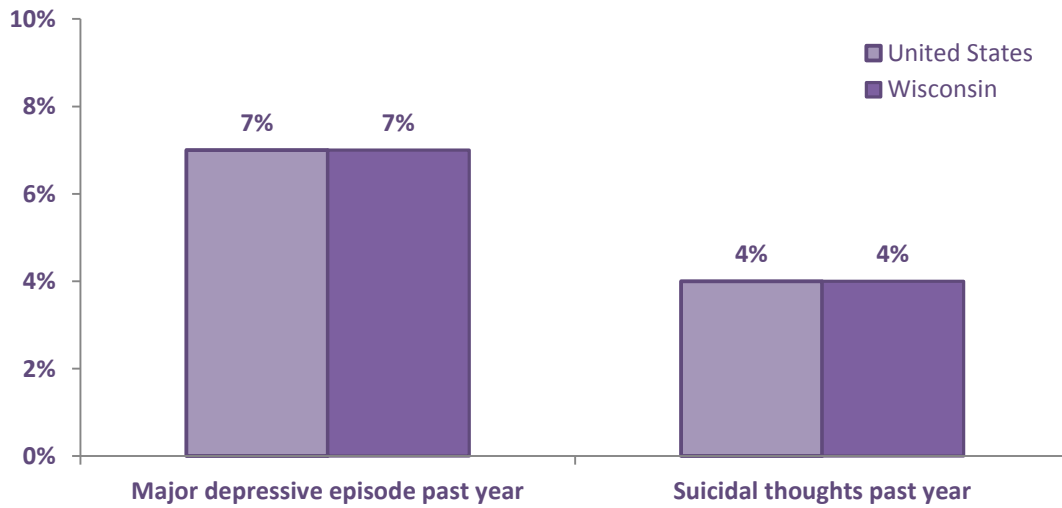
**Figure 52. Publicly funded treatment for anxiety and depression: ages 12-25, number treated per 1,000 population, Wisconsin, 2003-2012**



Source: Human Services Reporting System, Division of Mental Health and Substance Abuse Services, Wisconsin Department of Health Services.

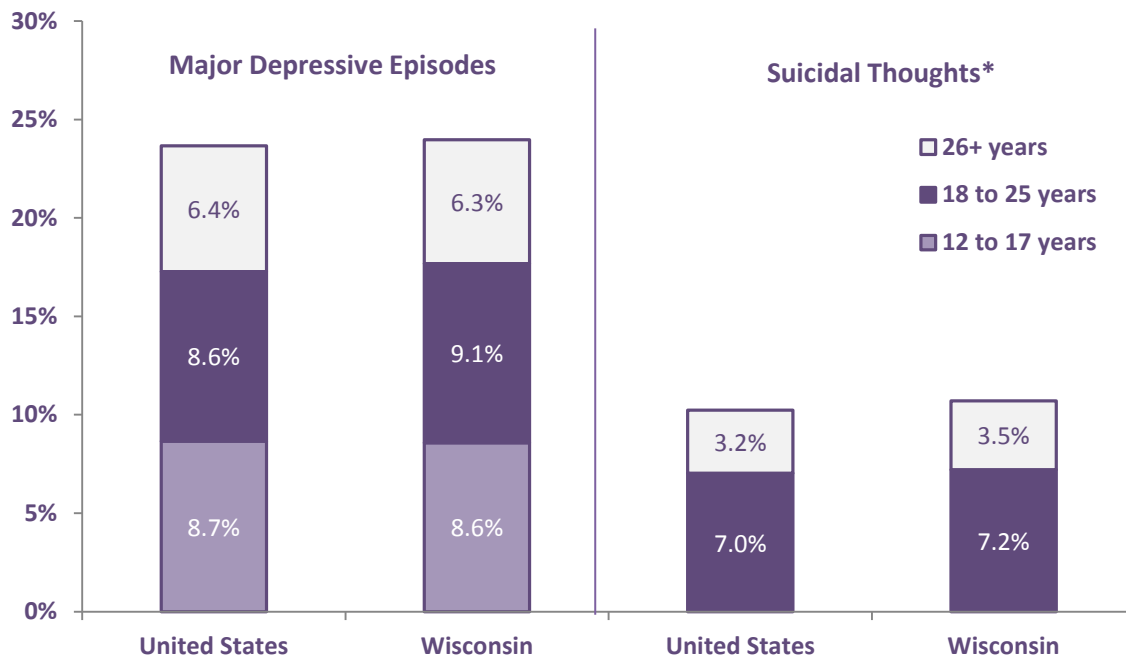
<sup>31</sup> Wisconsin Department of Health Services. *Linking Mental and Physical Health: Results from the Wisconsin Behavioral Risk Factor Survey (P00066)*. Prepared by the Bureau of Health Information and Policy, Division of Public Health; and the Bureau of Prevention, Treatment and Recovery, Division of Mental Health and Substance Abuse Services. April 2009. Available at <http://www.dhs.wisconsin.gov/stats/brfs.htm>.

Figure 53. Major depressive episode and serious suicidal thoughts in the past year, age 18 and older, Wisconsin and the United States, 2011-2012



Source: National Survey on Drug Use and Health, Substance Abuse and Mental Health Services Administration, U.S. Department of Health and Human Services.

Figure 54. Major depressive episode and serious suicidal thoughts in the past year, Wisconsin and the United States by age, 2011-2012



Source: National Survey on Drug Use and Health, Substance Abuse and Mental Health Services Administration, U.S. Department of Health and Human Services.

\*Data not available for the population under age 18.

# Conclusion

The social, economic and health costs of substance abuse in Wisconsin continue to be high. The latest available data show that Wisconsin has 1.3 times the national rate of arrests for OWI and more than three times the national rate of arrests for liquor law violations. However, since 2009 Wisconsin's rate of alcohol-related motor vehicle deaths has been similar to the national rate.

These high rates of alcohol-related consequences are not surprising given Wisconsin's high rate of alcohol consumption. Wisconsin has the highest rate of adult binge drinking in the nation. Wisconsin continues to have the nation's highest rate of reported drinking and driving, and per capita alcohol consumption in Wisconsin is 1.3 times higher than the national rate.

Wisconsin has recently made progress in reducing alcohol consumption among youth. The rate of drinking among Wisconsin high school students declined from 2001 to 2012. Combined with a steadily falling rate of early alcohol initiation, and falling rates of underage binge drinking, Wisconsin continues to show improvement in youth alcohol use.

In another welcome change, alcohol-related motor vehicle deaths have decreased. The four most recent years show Wisconsin's rate of alcohol-related motor vehicle fatalities has been similar to the national rate after years of exceeding it.

Wisconsin rates of drug-related deaths and drug law arrests continue to be lower than national rates. However, the rate of drug-related deaths in Wisconsin increased steadily from 2008 to 2012. The 2012 rate of drug-related deaths was nearly twice what it was at the beginning of the decade.

An important aspect of prevention services is the ability to track the needs of communities through epidemiological factors. Resources can then be allocated to address the problem using evidence-based programming. As part of Wisconsin's data-driven approach to prevention funding, this Profile (and earlier editions) have identified key consequences of alcohol and other drug abuse in the state. The priorities defined in this series of Profiles are being used to assist local organizations and governments to address those specific problems.

In response to the growing problem of misuse and abuse of pharmaceutical drugs, both nationally and in Wisconsin, the State Council on Alcohol and Other Drug Abuse (SCAODA) established a Controlled Substances Workgroup to examine the issue. In January 2012 the Workgroup issued the report, *Reducing Wisconsin's Prescription Drug Abuse: A Call to Action*, documenting Wisconsin's prevalence of and recommendations to reduce and prevent the abuse and misuse of pharmaceutical drugs. The report identifies prescription drugs most often abused in Wisconsin, including drugs of abuse with significant consequences. It also examines the role of community coalitions, substance abuse prevention and treatment providers, law enforcement and the judicial system, the medical community, schools, and legislative and state agencies in preventing this abuse. SCAODA has followed up this report with two more: *911 Good Samaritan Recommendation* (August, 2013) and *Wisconsin's Heroin Epidemic: Strategies and Solutions* (July, 2014). All of these reports can be found on the SCAODA website at: <http://www.scaoda.state.wi.us/AdHocCommitteeReports.htm>

Based on the latest available data presented in this report, addressing the following five priorities remains critical for Wisconsin communities:

- Underage drinking (ages 12-20)
- Adult binge drinking (ages 18-34)
- Drinking among pregnant women
- Drinking and driving (especially among people ages 16 to 34)
- Opioid use for non-medical purposes (with a focus on people ages 20-54).

The *2014 Wisconsin Epidemiological Profile on Alcohol and Other Drug Use* focuses on key problem areas at both the state and local levels to guide Wisconsin's funding decisions for the greatest potential impact.

## APPENDIX 1

### Indicator Definitions

#### Wisconsin Overview - Measure of Urban and Rural Counties

The 2013 National Center for Health Statistics (NCHS) Urban-Rural Classification Scheme for Counties is a county-level scheme with six levels: four metropolitan (large central metro, large fringe metro, medium metro, and small metro) and two non-metropolitan (micropolitan and noncore). Counties are assigned to one of these six levels based on: 1) their status under the February 2013 Office of Management and Budget's delineation of metropolitan statistical areas (MSA) and micropolitan statistical areas, 2) the population size of MSAs, and 3) the location of principal city populations within the largest MSAs (1 million or more population). From the most urban to the most rural, the six levels of the 2013 NCHS scheme are defined according to the following classification rules:

##### Metropolitan categories

- Large central metro - Counties in MSAs of 1 million or more population that: 1) contain the entire population of the largest principal city of the MSA, or 2) have their entire population contained in the largest principal city of the MSA, or 3) contain at least 250,000 inhabitants of any principal city of the MSA.
- Large fringe metro - Counties in MSAs of 1 million or more population that did not qualify as large central metro counties.
- Medium metro - Counties in MSAs of populations of 250,000 to 999,999.
- Small metro - Counties in MSAs of populations less than 250,000.

##### Nonmetropolitan categories

- Micropolitan - Counties in micropolitan statistical areas.
- Noncore - Nonmetropolitan counties that did not qualify as micropolitan.

#### Measures of Consequences

##### *Mortality*

- Number of deaths - Numbers of cause-specific deaths were derived from Wisconsin and United States death certificate data. See Appendix 2 ("Mortality data" section) for details about the data source and methods.
- Age-adjusted mortality rate - Age-adjusted rates per 100,000 population were calculated using the direct method based on the year 2000 U.S. standard population.

##### *Motor Vehicle Deaths and Injuries*

Alcohol-related motor vehicle crashes are those in which at least one driver, pedestrian or bicyclist was drinking before the crash.

- Alcohol-related motor vehicle deaths - Deaths resulting from alcohol-related crashes that occur within 30 days of the crash. Includes drivers, passengers, pedestrians and bicyclists.



Note: Alcohol-related motor vehicle death data in this report come from two sources: the Fatality Analysis Reporting System (national and state-level deaths) and the *Traffic Crash Facts* report produced by the Wisconsin Department of Transportation (county-specific deaths). For more information about how the two sources compile total numbers of deaths, see Appendix 2, “Other Data Sources for this Report.”

- Alcohol-related motor vehicle injuries - Nonfatal injuries resulting from motor vehicle crashes where alcohol was determined to be a factor, including injuries to drivers, passengers, pedestrians and bicyclists.

### ***Abuse or Dependence***

- Alcohol and Drug Abuse - Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) definition of abuse is one or more of the following in the same 12-month period:
  - 1) Recurring use resulting in failure to fulfill important role obligations, 2) recurrent use in situations in which it is physically hazardous, 3) recurrent substance-related legal problems, and 4) continued substance use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of the substance. In addition, symptoms have never met criteria for dependence.
- Alcohol or Drug Dependence - DSM-IV definition of dependence is three or more of the following in the same 12-month period:
  - 1) Tolerance, 2) withdrawal, 3) substance often taken in larger amounts or over a longer period than intended, 4) persistent desire or unsuccessful efforts to cut down or control substance use, 5) a great deal of time spent in activities necessary to obtain the substance, use it, or recover from its effects, 6) important social, occupational, or recreational activities given up or reduced because of substance use, 7) use continued despite knowledge of having a persistent physical or psychological problem that is likely to have been caused or exacerbated by the substance.

For information about the incorporation of DSM-IV definitions of substance abuse and dependence into National Survey on Drug Use and Health measures, go to: <http://www.oas.samhsa.gov/Dependence/appendixc.htm>

### ***Hospitalizations***

- Numbers of hospitalizations - The number of hospitalizations (hospital inpatient discharges) related to alcohol and the number related to use of other drugs. See Appendix 3, “Wisconsin inpatient hospitalization data” section, for details about the data source and methods.
- Hospitalization rate - The rate of alcohol-related hospitalizations per 100,000 population, and the rate of other drug-related hospitalizations per 100,000 population.

- Hospital charges - Total hospital charges for alcohol-related hospitalizations, and total hospital charges for drug-related hospitalizations. Hospital charges are the total facility charges for the entire length of stay. Charges are not the same as the actual costs paid by any particular payer, which depend on negotiated discounts and other arrangements, and do not include physicians' and other professional fees. Hospital charges in this report have been adjusted for inflation to 2012 dollars.

### ***Crime and Arrests***

- Wisconsin and county - Crimes and arrests reported by Wisconsin law enforcement agencies using the Wisconsin Uniform Crime Reporting System to the Federal Bureau of Investigation (FBI) and the Wisconsin Office of Justice Assistance (OJA) Statistical Analysis Center. Crime rates per 100,000 population are defined and calculated as the number of crimes divided by population, multiplied by 100,000. These two sources provide rates per 100,000 population for reported index crimes (property offenses and violent offenses), plus numbers of arrests for index crimes and numbers of crimes/arrests for non-index crimes.
- United States - Crimes and arrests reported to the FBI by law enforcement agencies using the Uniform Crime Reporting System.

### ***School Suspensions and Expulsions***

Drug-related and alcohol-related suspension and expulsions from school are reported by school districts to the Individual Student Enrollment System. The number of incidents was obtained for each school district from its Wisconsin School District Performance Report. Incidents per 1,000 students are defined and calculated as the number of incidents divided by the count of enrolled student on the fall count date (third Friday of September), obtained from Wisconsin Information System for Education Data Dashboard (WISEdash), multiplied by 1,000. Although some school districts cross county lines, districts were reported within the county listed in WISEdash.

### ***Publicly Funded Treatment***

The number of alcohol and other drug abuse clients in Wisconsin receiving publicly funded services and the total public funds expended for alcohol and other drug abuse treatment in the state were obtained from the Human Services Reporting System, Division of Mental Health and Substance Abuse Services, Wisconsin Department of Health Services. No comparable United States data on public funds expenditures were available.

The reported total public funds expended were adjusted for inflation to 2012 dollars (the most recent year of data) using the U.S. Bureau of Labor Statistics Consumer Price Index Inflation Calculator (<http://www.bls.gov>). The CPI inflation calculator uses the average Consumer Price Index for a given calendar year. Data represent changes in prices of all goods and services purchased for consumption by urban households. For the current year, the latest monthly index value is used.

## Measures of Consumption: Alcohol

### *Age of Initiation*

YRBS: The percentage of students who used alcohol ("more than a few sips") before age 13.

### *Current Alcohol Use*

YRBS: At least one drink of alcohol on one or more of the past 30 days.

BRFS: At least one drink of alcohol in the past 30 days.

### *Binge Drinking*

YRBS: Five or more drinks of alcohol in a row on one or more of the past 30 days.

BRFS: Five or more drinks on one occasion, one or more times in the past 30 days (both sexes, through 2005). As of 2006, the threshold for women was changed to four drinks on one occasion in the past 30 days.

### *Heavy Use of Alcohol*

BRFS: More than two drinks per day for men and more than one drink per day for women.

### *Per Capita Consumption of Alcohol*

The National Institute on Alcohol Abuse and Alcoholism (NIAAA) reports data on per capita gallons of ethanol (pure alcohol) sold in a state, based on the population age 14 and older. Ethanol conversion coefficients (ECC) - the proportion of pure alcohol for each beverage type (beer, wine and liquor) - and standard drink serving sizes were used to convert gallons of ethanol into the number of standard drinks.

1 gallon = 128 ounces

$$\frac{(\text{reported gallons} * 128)}{(\text{standard drink size} * \text{EEC})} = \text{Number of standard drinks by type of alcohol.}$$

EEC

Beer: 0.045

Wine: 0.129

Spirits: 0.411

Standard drink size

Beer: 12 ounces

Wine: 5 ounces

Spirits: 1.5 ounces

Details about the methodology used to determine gallons of ethanol consumed per capita and EEC can be found at:

<http://pubs.niaaa.nih.gov/publications/surveillance98/CONS12.htm>

### ***Underage Drinking***

National Survey on Drug Use and Health (NSDUH): Drinking among youth 12-20 years of age, with current drinking defined as alcohol use in the past month, and binge drinking as five or more drinks on at least one day in the past month.

## **Measures of Consumption: Other Drugs**

### ***Age of Initiation (Marijuana)***

YRBS: The percentage of high school students who tried marijuana for the first time before age 13.

### ***Current Use of Other Drugs***

- **Current use of marijuana**
  - NSDUH: Smoked marijuana in the last month.
  - YRBS: Used marijuana one or more times during the past 30 days.
- **Current use of illicit drugs other than marijuana**
  - YRBS: Used any illicit drugs other than marijuana in the past 30 days.
  - NSDUH: Used any illicit drugs other than marijuana in the past month.
- **Current use of pain relievers for non-medical purposes**
  - YRBS: Used pain relievers for non-medical purposes in the past 30 days.

### ***Lifetime Use of Illicit Drugs***

- **Lifetime use of marijuana, YRBS:** Ever used marijuana, one or more times.
- **Lifetime use of cocaine, YRBS:** Ever used any form of cocaine, one or more times.
- **Lifetime use of inhalants, YRBS:** Ever “sniffed glue, breathed the contents of aerosol spray cans, or inhaled any paints or sprays to get high,” one or more times.
- **Lifetime use of heroin, YRBS:** Ever used heroin, one or more times.
- **Lifetime use of methamphetamines, YRBS:** Ever used methamphetamines, one or more times.

### ***Past Year Use of Prescription Drugs for Non-medical Purposes***

- NSDUH: Used pain relievers for non-medical purposes in the past year.

## Measures of Risk Factors:

### *Alcohol Outlet Density*

- Class A liquor licenses include all Class "A" beer (off-sale), Class A liquor (off-sale) and Class A beer/Class A liquor (includes wine) off-sale only.
- Class B liquor licenses include all Class "B" beer only (on/off-sale), Class "B" Liquor only (winery), and Class " " beer and "Class B" liquor

## APPENDIX 2

### Data Sources

This report includes data from a variety of data sources. Descriptions of types and sources of data are provided below.

#### Survey Data: Sample Sizes and Error

The sample sizes in Table A1 below are for the whole state. Sample numbers for specific segments of the population, such as race/ethnicity groups, are smaller - in some instances much smaller - which reduces the precision and reliability of estimates.<sup>32</sup> In this report, the relative standard errors (RSE) of estimates were used to determine their reliability, and thus to determine whether or not the estimates should be reported. Where RSE was greater than 30%, estimates were not reported.<sup>33</sup>

As indicators of reliability, sample size and RSE are typically consistent with each other; where they differ, we used RSE as the deciding factor. For estimates where RSE was within the acceptable range but the 95% confidence interval half-width was greater than 10%, a caution was added about data interpretation.

Table A1 shows Wisconsin statewide sample sizes for the BRFs, the YRBS, the NSDUH, and the PRAMS. Details of each survey follow the table.

**Table A1. Survey data included in this report: Wisconsin sample sizes**

Survey	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
BRFS	4,356	4,054	4,503	4,900	8,532	7,435	7,075	4,553	4,781	5,302	5,299	6,589
YRBS		2,121		2,389		2,094		2,434		3,043		2,843
NSDUH**	887	887	917	915	915	968	883	943				
PRAMS						1,874	1,878	1,863	1,778	2,761		

\* BRFs county estimates in the report are based on three-year aggregations of data (2005-2007, 2006-2008 and 2008-2010) and are weighted to represent county populations.

\*\* NSDUH estimates in the report are based on two-year aggregations of data. See page 114 for NSDUH description of data.

<sup>32</sup> As an example, the 2013 Youth Risk Behavior Survey sample numbers for American Indian and Hispanic high school students are 37 and 69, respectively. Although the YRBS estimates by race/ethnicity used in the report are for two survey years combined, the total American Indian sample size for 2011 and 2013 is only 58.

<sup>33</sup> Relative standard error is the standard error of an estimate divided by the estimate itself, multiplied by 100. A relative standard error of 30% is the cut-off used by most federal health surveys for publishing estimates.

## Methodological Information about the Surveys

### Behavioral Risk Factor Survey (BRFS)

[www.cdc.gov/brfss](http://www.cdc.gov/brfss) and [dhs.wisconsin.gov/stats/BRFS.htm](http://dhs.wisconsin.gov/stats/BRFS.htm)

The Wisconsin Behavioral Risk Factor Survey is a representative, statewide telephone survey of adults age 18 and older. The Wisconsin BRFS is part of the national Behavioral Risk Factor Surveillance System (BRFSS), a collaboration between the U.S. Centers for Disease Control and Prevention (CDC) and health departments in all states and U.S. territories. BRFSS is state-based and does not have a separate national sample. National BRFSS estimates are the medians (midpoints) of the distributions of state-level estimates. CDC weights BRFSS data by state to account for non-response and sample design, and to adjust for the demographic characteristics of state populations. Wisconsin county-specific BRFS estimates in this report were calculated using a three-year aggregated data file reweighted to represent each county's population.

BRFSS now samples both landline and cell telephone numbers in all states and territories. Estimates using combined landline and cell phone BRFSS data from 2011 and forward should not be directly compared to estimates from earlier years, due to both the addition of cell phone sampling and the implementation of a new weighting methodology. Trends begun before 2011 are assumed to be broken as of that year.

BRFSS landline sampling and respondent selection excludes adults living in institutions or other group quarters. Cell phone interview protocol includes verification of the age of the informant/respondent (to include only adults ages 18+), and verification of type of residence. College students living in dormitories are eligible for the cell phone interview, although very few actually appear in the sample. BRFSS results are representative of the adult population with either a landline or cell telephone, or both, and who reside in non-institutional settings. The CDC weights each state's landline and cell phone data as one (combined) state-level data file.

### Youth Risk Behavior Survey (YRBS)

[http://sspw.dpi.wi.gov/sspw\\_yrbsindx](http://sspw.dpi.wi.gov/sspw_yrbsindx)

The Youth Risk Behavior Surveillance System, of which the Wisconsin's YRBS is a part, is a school-based survey conducted among students in grades 9-12 in public high schools. The YRBS has both national and state samples. The state and national samples are separate, and in some cases, schools may be selected as part of both samples. The YRBS is conducted in odd-numbered years. The Wisconsin Department of Public Instruction (DPI) oversees the administration of the Wisconsin YRBS.

Sampling for state YRBS follows a two-stage cluster design. Schools are selected as clusters using probability proportional to size, and classes are randomly selected within schools from among required subjects or time periods.

Sampling for the national YRBS is a three-stage procedure, with counties and groups of counties as the first stage.

## National Survey on Drug Use and Health (NSDUH)

[nsduhweb.rti.org/](http://nsduhweb.rti.org/)

The National Survey on Drug Use and Health (formerly the National Household Survey on Drug Abuse) is a scientific, annual survey of the U.S. population age 12 and older, sponsored by the U.S. Substance Abuse and Mental Health Services Administration (SAMHSA) in the U.S. Department of Health and Human Services. The universe of NSDUH respondents includes persons living in households, non-institutionalized group quarters (including shelters, rooming houses, college dormitories, migrant workers' camps and halfway houses), and civilians living on military bases. Interviews are conducted face-to-face at the respondent's residence.

The NSDUH uses small area estimation (SAE) to produce estimates for most states, including Wisconsin, as its state-level sample sizes are too small to produce direct estimates. The NSDUH state-level estimates of drunk and drugged driving are an exception and are direct estimates using four years of survey data.

Additional information about NSDUH methodology can be found at <http://www.oas.samhsa.gov/nhsda/methods.cfm#2k6>.

## Pregnancy Risk Assessment Monitoring System (PRAMS)

PRAMS is a system of state-level surveys of women who have recently given birth, coordinated by the CDC. The number of states/sites participating in PRAMS varies slightly from year to year, but generally is between 28 and 30.

- In 2007, 29 states but 31 sites (New York state and New York City were two sites and South Dakota had a tribal site).
- In 2008, 29 states (New York excluding New York City).
- In 2009, 29 states.
- In 2010, 27 states but 28 sites (New York state and New York City were two sites).
- In 2011, 23 states but 24 sites (New York state and New York City were two sites).

PRAMS uses a multi-wave mailed survey, sent to monthly random samples of new mothers, with telephone follow-up to non-responders. PRAMS asks new mothers about their experiences, risk behaviors and health before, during and shortly after pregnancy. Some PRAMS questions are mandated by CDC and are common to all participating states, while other questions are selected by states in keeping with their own priorities and available local funding. Wisconsin PRAMS uses both English and Spanish mailed materials and conducts telephone interviews in both languages.

The Wisconsin PRAMS Program is located in the Division of Public Health, Office of Health Informatics, Wisconsin Department of Health Services. More information is available at <http://www.cdc.gov/prams/> and <http://www.dhs.wisconsin.gov/births/prams/>.



## Other Data Sources for this Report

### Mortality Data

Data on deaths of Wisconsin residents from alcoholic liver cirrhosis, alcohol-related causes *other than* cirrhosis and motor vehicle crashes, and drug-related causes were obtained by the Office of Health Informatics, Division of Public Health from Wisconsin resident death certificate files. U.S. data was obtained from CDC Wonder (<http://wonder.cdc.gov/mortSQL.html>), Centers for Disease Control and Prevention.

Data on alcohol-related crash deaths were obtained from the Fatality Analysis Reporting System (see below).

Data on deaths from recreational vehicle crashes are from the Wisconsin Department of Natural Resources (<http://dnr.wi.gov/>).

### Estimating other alcohol-related mortality:

ICD-10 is the 10th revision of the International Classification of Diseases and Related Health Problems, the standard set of codes used to identify causes of death recorded on death and health records. <http://www.who.int/classifications/icd/en/>

The numbers of alcohol-related deaths from causes other than alcoholic liver cirrhosis and motor vehicle crashes were estimated from the Wisconsin mortality file using Alcohol-Related Disease Impact (ARDI) specifications from the National Center for Chronic Disease Prevention and Health Promotion (see <http://apps.nccd.cdc.gov/ARDI/HomePage.aspx>). These specifications define 54 conditions or groups of conditions and associate each with a distinct fraction of cases attributable to alcohol. Staff from the Division of Public Health, Office of Health Informatics, used the ARDI specifications to identify deaths from these conditions with the ICD-10 codes specifying underlying causes of death. Alcohol-attributable deaths for specific causes were estimated by multiplying the number for each condition by the associated alcohol-attributable fraction. Total “other” alcohol-attributable deaths were estimated by summing over the conditions.

- A table showing the alcohol-related conditions, their ICD-10 codes, and the alcohol-attributable mortality fraction for each is available by request from the Division of Public Health, Office of Health Informatics, WI Department of Health Services ([DHShealthstats@wisconsin.gov](mailto:DHShealthstats@wisconsin.gov)).

### Deaths from opioids (including heroin)

Wisconsin opioid-related deaths were defined using the following ICD-10 codes:

#### ***Heroin-related deaths:***

Underlying cause of death equal to: X40-44, X60-64, X85 or Y10-14; AND contributing cause of death equal to: T40.1 (Poisoning by narcotics and psychodysleptics - Heroin).

***Opiate-related deaths:***

Underlying cause of death equal to: X40-44, X60-64, X85 or Y10-Y14; AND contributing cause of death equal to: T40.2 (Poisoning by narcotics and psychodysleptics - Other opioids), T40.3 (Poisoning by narcotics and psychodysleptics - Methadone), or T40.4 (Poisoning by narcotics and psychodysleptics - Other synthetic narcotics).

**Fatality Analysis Reporting System (FARS)**

Mortality data on traffic crashes in Wisconsin and the United States is from the FARS, a comprehensive, national traffic fatality data system produced in conjunction with the National Highway Traffic Safety Administration (NHTSA). FARS incorporates data from multiple sources to arrive at the total number of deaths, by state, attributable to motor vehicle crashes, for both overall crashes and crashes where alcohol was a factor. FARS draws on the following sources of data:

- Police accident reports (PARS)
- State vehicle registration files
- State driver licensing files
- State highway department data
- Vital statistics
- Death certificates
- Coroner/medical examiner reports
- Hospital medical records
- Emergency medical service reports

For additional information about FARS, see: <http://www.nhtsa.gov/FARS>

**Wisconsin Inpatient Hospitalization Data**

Data on inpatient discharges are reported quarterly by all non-federal Wisconsin hospitals, as required by Wisconsin statute and rule. These data are extensively edited and corrected.

***Estimating alcohol-related hospitalizations:***

ICD-9 is the 9th revision of the International Classification of Diseases system defined by the World Health Organization (WHO). The clinical modification (CM) of ICD-9, or ICD-9-CM, for use in hospitalization diagnosis coding, is defined by the U.S. Centers for Medicaid Services and updated annually. <http://www.cdc.gov/nchs/icd/icd9cm.htm>

As was done for alcohol-related mortality, the numbers of alcohol-related hospitalizations were estimated from Wisconsin inpatient hospitalization data using Alcohol-Related Disease Impact (ARDI) specifications from the National Center for Chronic Disease Prevention and Health Promotion. (See <http://apps.nccd.cdc.gov/ARDI/HomePage.aspx>). These specifications define 54 conditions or groups of conditions and associate each with a distinct fraction of cases attributable to alcohol. Staff from the Office of Health Informatics used the ARDI specifications to identify hospitalizations for these conditions with the ICD-9-CM codes specifying the principal diagnosis and the first eight other reported diagnoses. Total alcohol-attributable hospitalizations were then estimated by multiplying the number for each condition by the associated alcohol-attributable fraction and summing over conditions.

- A table showing the alcohol-related conditions, their ICD-9-CM codes, and the alcohol-attributable fraction for each is available by request from the Health Analytics Section of the Office of Health Informatics ([DHShealthstats@wisconsin.gov](mailto:DHShealthstats@wisconsin.gov)).

***Drug-related hospitalizations:***

Drug-related hospitalizations were defined using the following ICD-9-CM codes:

<b><i>ICD-9-CM Code</i></b>	<b><i>Description</i></b>
292	Drug psychoses
304	Drug dependence
357.6	Polyneuropathy due to drugs
E850-E858	Accidental poisoning by drugs, medicinal substances, and biologicals
E980.0-E980.5	Poisoning by drugs and medicinal substances, unknown whether accidentally or purposefully inflicted

A person may have more than one stay in any given time period. Wisconsin residents hospitalized in another state are not included.

In the Office of Health Informatics, hospital data system records for all Wisconsin residents hospitalized as inpatients in a Wisconsin hospital and discharged in the years shown in the tables were examined for the presence of the defined drug-related conditions in the ICD-9-CM principal diagnosis code or any of the first eight other diagnoses reported.

***Neonatal abstinence syndrome (NAS) was defined using the following ICD-9-CM codes:***

<b><i>ICD-9-CM Code</i></b>	<b><i>Description</i></b>
779.5	Drug withdrawal
760.7	Noxious influences affecting fetus or newborn through placenta or breast milk

**Population Estimates, Statewide and by County**

The Wisconsin Department of Health Services, Office of Health informatics, produces mid-year population estimates for the counties and state of Wisconsin by age groups, sex, race and ethnicity for non-Census years. These estimates are used to calculate population-based health statistics, including the rates in this report except those obtained directly from national sources. The population data used to calculate the rates in this report are available from the Wisconsin Interactive Statistics on Health (WISH) population module:

[http://dhs.wisconsin.gov/wish/main/wis\\_pop/wis\\_pop\\_home.htm](http://dhs.wisconsin.gov/wish/main/wis_pop/wis_pop_home.htm)

***Crimes and Arrests in Wisconsin***

<https://wilenet.org/html/justice-programs/programs/justice-stats/library.htm>

Prepared annually by the Wisconsin Department of Justice (formerly the Office of Justice Assistance), *Crime in Wisconsin* and *Arrests in Wisconsin* (formerly a single report titled *Crime and Arrests in Wisconsin*) provide numbers of crimes and arrests among adults and juveniles at the state and county levels. Crimes are reported by local law enforcement agencies using the Uniform Crime Reporting System.

The DOJ emphasizes sub-county-level crime rates, and in some instances shifts crime and population data from one county to another to provide more accurate information about city-level crime. For example, the city of Appleton includes areas in three counties, Calumet, Winnebago and Outagamie, and DOJ shifts crime and population data for the portions of Appleton lying in Calumet and Winnebago counties to Outagamie County in order to produce one Appleton city rate. Calumet County is particularly affected by this practice, although all three counties are affected to some degree, and caution should be exercised in interpreting their rates.

***Crime in the United States (CIUS)***

<http://www.fbi.gov/ucr/ucr.htm>

Produced annually by the Federal Bureau of Investigation, U.S. Department of Justice, CIUS provides national and (some) state-level data on crimes and arrests. Data are transmitted to the FBI by state and local law enforcement agencies using the Uniform Crime Reporting System.

***School District Populations by County, Wisconsin***

Wisconsin Information System for Education Data Dashboard (WISEdash)

<http://wisedash.dpi.wi.gov/Dashboard/portalHome.jsp>

The Department of Public Instruction (DPI) publishes data that it collects each year from all Wisconsin public schools based on federal and state requirements via a data portal called the Wisconsin Information System for Education Data Dashboard (WISEdash). While some school districts cross county lines, districts were reported within the county listed in WISEdash. Student enrollment by district was also obtained through WISEdash based on the fall count date (third Friday of September).

**Wisconsin District and School Performance Reports**

<https://apps2.dpi.wi.gov/sdpr/spr.action>

Each year, DPI also provides public performance reports for all public schools and districts in Wisconsin covering topics such as achievement test results, attendance, high school completion, participation, staffing, finance, and discipline. Data about disciplinary removals and the incidents leading to those removals are reported to the Individual Student Enrollment System (ISES). Specific data regarding drug-related and alcohol-related suspensions are made available by school year and district through the annual performance reports.

***Wisconsin Traffic Crash Facts***

<http://www.dot.wisconsin.gov/safety/motorist/crashfacts/>

*Wisconsin Traffic Crash Facts* is produced annually by the Wisconsin Department of Transportation and includes a separate sub-report on the role of alcohol in motor vehicle crash injuries and deaths. Injury and fatality data in the report are based on information provided to the state Division of Motor Vehicles in reports submitted by police officers on the scene of crashes.



Wisconsin Epidemiological Profile on Alcohol  
and Other Drug Use, 2014

Wisconsin Department of Health Services  
P-45718-14 (09/2014)

---