Wisconsin Epidemiological Profile on Alcohol and Other Drug Use, 2010

Wisconsin Department of Health Services

Prepared by the Population Health Information Section, Division of Public Health, in consultation with the Division of Mental Health and Substance Abuse Services and the University of Wisconsin Population Health Institute

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

November 2010

Wisconsin Epidemiological Profile on Alcohol and Other Drug Use, 2010

Wisconsin Department of Health Services

- **Division of Mental Health and Substance Abuse Services**
- **Division of Public Health**

Prepared by the Population Health Information Section, Division of Public Health, in consultation with the Division of Mental Health and Substance Abuse Services and the University of Wisconsin Population Health Institute

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

November 2010

Acknowledgements

The Department of Health Services (DHS) would like to thank the following people who contributed their expertise in identifying data sources, selecting indicators, and developing this report. Their willingness to share resources helped facilitate the development of the *Wisconsin Epidemiological Profile on Alcohol and Other Drug Use, 2010*. Those who provided guidance and expertise include:

Technical Advisors

Amanda Jovaag, M.S.
Epidemiologist
Population Health Institute
University of Wisconsin-Madison

John Bowser
Graduate Student
Population Health Institute
University of Wisconsin-Madison

Robin Lecoanet, J.D.
Evaluation Director
Population Health Institute
University of Wisconsin-Madison

D. Paul Moberg, Ph.D.
Research Professor
Population Health Institute
University of Wisconsin-Madison

Penny Black, M.S.
Graduate Student
Population Health Institute
University of Wisconsin-Madison

Christine Niemuth
Research Specialist
Population Health Institute
University of Wisconsin-Madison

Sarah Linnan
Research Specialist
Population Health Institute
University of Wisconsin-Madison

Wisconsin Department of Health Services

Louis Oppor
Prevention Specialist
Division of Mental Health and Substance Abuse Services

Chris Hill-Sampson
Section Chief
Division of Public Health

Patricia L. Nametz
Public Health Educator
Division of Public Health

Anne Ziege, Ph.D.
Research Analyst
Division of Public Health

Kathryn Thomas
Strategic Prevention Framework State Incentive Grant Coordinator
Division of Mental Health and Substance Abuse Services

This report was prepared in the Population Health Information Section, Division of Public Health, Wisconsin Department of Health Services, under a Memorandum of Understanding with the Division of Mental Health and Substance Abuse Services.

Amanda Jovaag of the University of Wisconsin Population Health Institute compiled data from the Wisconsin Office of Justice Assistance, the National Survey on Drug Use and Health, and

other sources external to the Division of Public Health; she also made many of the initial decisions about data selection in 2008. In the Population Health Information Section of the Division of Public Health, Anne Ziege analyzed data from the Behavioral Risk Factor Survey and the Youth Risk Behavior Survey; she also reviewed data from all sources to assure its quality. Richard Miller provided mortality and hospitalization data based on specifications from Amanda Jovaag. Patricia Nametz wrote the narrative and edited the report. Chris Hill-Sampson negotiated MOU development and supervised report planning and preparation. Patricia Guhleman, Director of the Office of Policy and Practice Alignment in the Division of Public Health, provided overall direction.

In the Division of Mental Health and Substance Abuse Services, Louis Oppor negotiated MOU development and provided oversight for developing the report as part of the Strategic Prevention Framework State Incentive Grant (SPF SIG) project.

Contact Information

For questions about this document contact:

Joyce Allen
SPF SIG Project 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, 2010** (P-45718-10). Prepared by the Population Health Information Section, Division of Public Health, in consultation with DMHSAS and the University of Wisconsin Population Health Institute. November 2010.

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

Executive Summary

The Wisconsin Department of Health Services 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 2008 counterpart, Wisconsin's *2010 Epidemiological Profile on Alcohol and Other Drug Use* presents data on the use and abuse of alcohol and other substances in Wisconsin and the resulting consequences. This edition of the Profile again includes data at the county level, to make it more useful in understanding and addressing substance abuse problems in Wisconsin communities.

Key Findings

Consequences of Alcohol and Other Drug Consumption

Many types of mortality, morbidity, and dangerous 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 also tend to be higher than the national average.

Since at least 2000, rates of alcohol dependence, alcohol abuse, and alcohol-related motor vehicle fatalities have been higher in Wisconsin than in the United States as a whole. (Wisconsin's motor vehicle fatality rate fell just below the U.S. rate for the first time in 2008.) Wisconsin has one-and-a-half times the national rate of arrests for operating a motor vehicle while intoxicated and more than three times the national rate of arrests for other liquor law violations. In 2004-2006 (combined years of data), Wisconsin also had the highest rate in the nation of self-reported drinking and driving; more recent data are not available.

Wisconsin's rate of alcohol-related motor vehicle deaths has decreased annually beginning in 2006, with a sharp drop in 2008. Wisconsin's rate of death from alcohol-related liver cirrhosis was below the national average prior to 2004, but the two rates have converged in recent years. Wisconsin's rate of other alcohol-related deaths (other than liver cirrhosis and motor vehicle) has increased since 2000.

The number of clients receiving publicly funded services for alcohol and other drug abuse decreased sharply from 2006 to 2008, returning to the level seen in 2000. Inflation-adjusted public expenditures for those services decreased 15% from 2006 to 2008 and 11% overall from 2000 to 2008.

Wisconsin's age-adjusted rate of drug-related deaths increased from 2000 to 2006, then leveled off in 2007 and fell in 2008, but was still double the 2000 rate. The statewide rate of

drug-related hospitalizations increased steadily from 2002 to 2008. Wisconsin's rate of arrests for drug law violations remains lower than the national average and has decreased somewhat over the past five years.

Alcohol Consumption

Wisconsin's rates of alcohol use and misuse are among the highest – if not the highest – in the nation. As of 2008, Wisconsin adults continue to have the highest rates of alcohol consumption, binge drinking and heavy drinking among all U.S. states and territories, and Wisconsin rates of underage drinking (ages 12-20) exceed national levels.

Alcohol consumption patterns among high school students provide somewhat better news. In recent years, the percent of Wisconsin high school students who started using alcohol before age 13 has been similar to the national average and decreasing, and Wisconsin no longer has the nation's highest rate of binge drinking among high school students. Binge drinking among young adults (ages 18-24) has also declined in Wisconsin since 2000.

Data for the years 2001-2008 consistently show that Wisconsin women of childbearing age are more likely to drink – and to binge drink – than their national counterparts. This has important implications for unplanned pregnancy and infant health.

Other Drug Consumption

The use of drugs other than alcohol also remains a problem in Wisconsin. As a whole, consumption patterns of illicit drugs in Wisconsin mirror national trends. Since 2001, both lifetime and current use of marijuana in the United States and Wisconsin have decreased.

Both nationally and in Wisconsin, the misuse of prescription drugs for non-medical purposes has emerged as a problem, especially among young adults. In 2007-2008, 15% of Wisconsin adults ages 18-25 reported using pain relievers for non-medical purposes.

Conclusion

Areas of progress and of continuing need are clearly identified in this report. For the first time since 1999, Wisconsin's rate of drinking among high school students fell below the national average in 2009. Combined with a steadily increasing age of initiation, and falling rates of underage binge drinking, Wisconsin appears to be improving in terms of youth alcohol use. Also, for the first time in many years, Wisconsin's rate of alcohol-related motor vehicle deaths has fallen below the national rate.

Despite this welcome evidence that underage drinking and alcohol-related motor vehicle fatalities have dropped, it is important we continue to monitor these trends to ensure continued progress. Thus two continuing priorities are:

- Underage drinking (ages 12-20)
- Alcohol-related motor vehicle fatalities and injuries (especially among people ages 16-34).

In less welcome news, Wisconsin continues to have the highest rate of adult binge drinking in the nation. In addition, drug-related deaths have doubled since 2008. Thus, new priorities are:

- Adult binge drinking (ages 18-34)
- Drug-related deaths (with a focus on unintentional opioid-related overdoses and deaths among people ages 20-54).

The Wisconsin rate of drug-related deaths increased from 2000 to 2007, and while there was a decline in 2008 it remained twice the 2000 rate. The rate of drug-related deaths surpassed mortality from alcohol-related motor vehicle crashes in 2004 and has been higher ever since. Most of this increase appears to be due to misuse of prescription drugs rather than illicit drugs. The State Council on Alcohol and Other Drug Abuse has formed a Controlled Substances Workgroup that will be exploring this issue in depth and will release a report in 2011 with recommendations for improvement.

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

Table of Contents

Tables and Figures

Tables

Figures

Consequences of Alcohol Consumption

Consequences of Illicit Drug Consumption

Consequences Associated with More Than One Substance

Alcohol Consumption

Other Drug Consumption

Introduction

This report summarizes current data on the consequences and use of alcohol and other drugs in Wisconsin. The Executive Summary is followed by a narrative with charts and tables detailing key trends for Wisconsin in the consequences of alcohol and other drug use and in patterns of consumption. The Appendices provide information on indicator definitions, data sources, and sample sizes.

Data in this report primarily reflect trends at a statewide level. Where available, information by county has also been included.

In the sections on the consequences of alcohol and other drug use, this report includes data on both arrests and reported offenses. Both kinds of data have advantages and disadvantages. Reported offenses are not influenced by the laws and enforcement practices of a particular locality. Nevertheless, arrests provide a measure of the socioeconomic toll of these crimes. Data on reported offenses are only available for "index" crimes: burglary, theft, arson, motor vehicle theft, homicide, rape, robbery, and aggravated assault. Arrest data are available for a wider range of crimes.

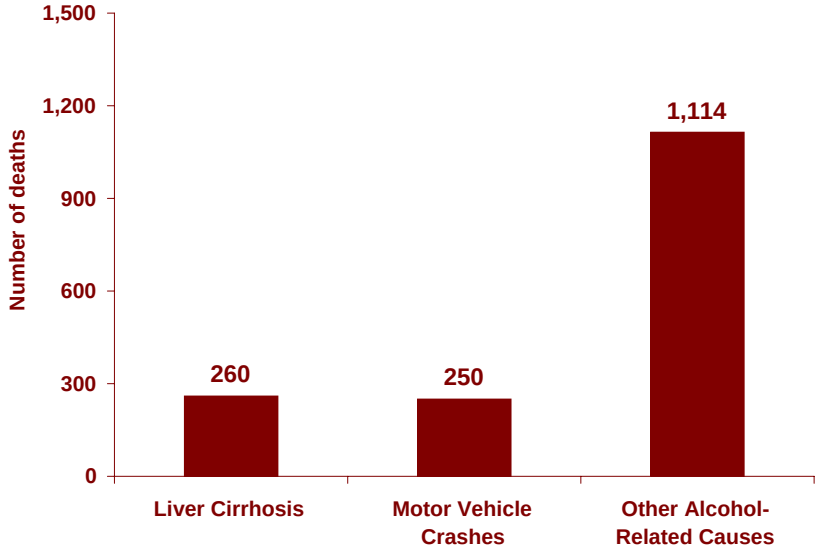
Narrative and Results

Consequences of Alcohol Consumption

In Wisconsin in 2008, at least 1,624 people died, 4,319 were injured, and 94,000 were arrested as a direct result of alcohol use and misuse. Given Wisconsin's high rate of alcohol consumption, it is not surprising that the consequences associated with alcohol use also tend to be higher than the national average. Rates of alcohol dependence and alcohol abuse continue to be higher in Wisconsin than in the United States. Rates of alcohol-related motor vehicle fatalities have also been higher in Wisconsin than the nation for many years. For the first time in recent history, Wisconsin's rate of alcohol-related motor vehicle deaths dipped just below the U.S. rate in 2008.

Wisconsin has one-and-a-half times the national rate of arrests for operating a motor vehicle while intoxicated and more than three times the national rate of arrests for other liquor law violations. Wisconsin has generally experienced a lower rate of alcohol-related liver cirrhosis than the national average, although in recent years rates have been similar.

Figure 1. Number of alcohol-related deaths, Wisconsin, 2008



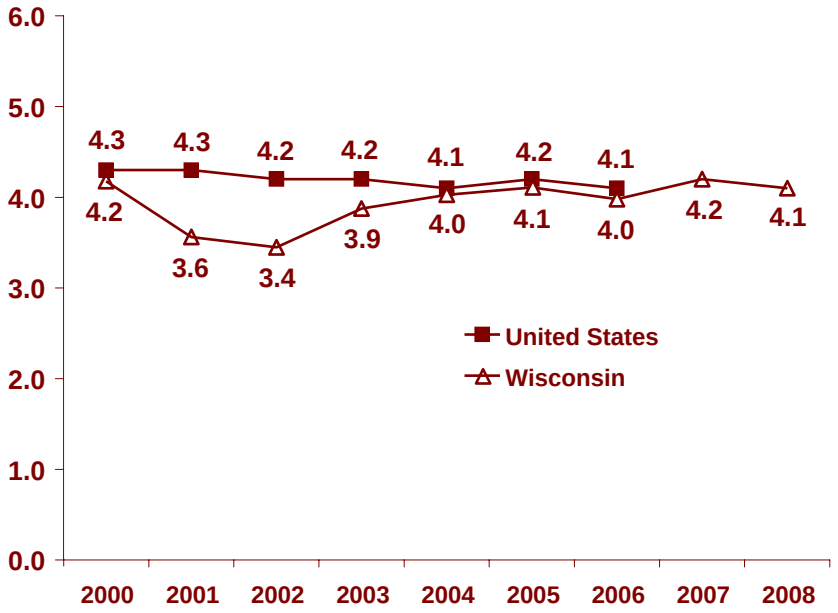
Sources: Wisconsin resident death certificates, Division of Public Health, Wisconsin Department of Health Services; deaths from motor vehicle crashes are from the Fatality Analysis Reporting System, National Highway Traffic Safety Administration, U.S. Department of Transportation. See "Other Alcohol-Related Mortality" section, page 20, for a description of the "Other Alcohol-Related Causes" category of deaths.

Alcohol-Related Liver Cirrhosis Deaths

Mortality from alcohol-related liver cirrhosis is a direct consequence of chronic alcohol consumption.

- In 2008, 260 people in Wisconsin died due to alcohol-related liver cirrhosis, for an age-adjusted mortality rate of 4.1 deaths per 100,000 population (Figure 2 and Table 1).
- The rate of mortality due to alcohol-related liver cirrhosis has been generally lower in Wisconsin than nationally. Between 2002 and 2008 the rate in Wisconsin rose from 3.4 to 4.1.

Figure 2. Age-adjusted rate of alcohol-related liver cirrhosis deaths per 100,000 population, Wisconsin and the United States, 2000-2008



Source: Wisconsin resident death certificates, 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 1. Age-adjusted rate and total number of alcohol-related liver cirrhosis deaths, Wisconsin and the United States, 2000-2008

		2000	2001	2002	2003	2004	2005	2006	2007	2008
United States	Rate/100,000	4.3	4.3	4.2	4.2	4.1	4.2	4.1		
	Total number	12,109	12,207	12,121	12,360	12,548	12,928	13,050		
Wisconsin	Rate/100,000	4.2	3.6	3.4	3.9	4.0	4.1	4.0	4.2	4.1
	Total number	225	197	194	221	234	244	239	262	260

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.

Table 2. Alcohol-related liver cirrhosis deaths per 100,000 population, Wisconsin by county, 2000-2008 (combined years)

County	Annual Average Number	Rate	County	Annual Average Number	Rate
Adams	1	7.0	Marinette	2	5.6
Ashland	1	6.6	Marquette	1	6.6
Barron	2	4.1	Menominee	1	28.9
Bayfield	1	9.3	Milwaukee	46	4.9
Brown	11	4.6	Monroe	1	3.1
Buffalo	1	4.0	Oconto	2	5.6
Burnett	1	6.8	Oneida	2	5.6
Calumet	2	3.8	Outagamie	6	3.5
Chippewa	1	2.5	Ozaukee	3	3.5
Clark	<1	1.3	Pepin	<1	1.5
Columbia	2	3.9	Pierce	2	4.6
Crawford	1	3.2	Polk	2	4.3
Dane	19	4.2	Portage	2	2.4
Dodge	3	3.3	Price	<1	2.1
Door	1	3.8	Racine	9	4.7
Douglas	3	6.6	Richland	<1	0.6
Dunn	2	3.7	Rock	7	4.4
Eau Claire	3	2.9	Rusk	1	7.2
Florence	<1	6.5	St. Croix	1	1.5
Fond du Lac	4	4.1	Sauk	3	5.4
Forest	1	11.0	Sawyer	2	9.2
Grant	1	1.5	Shawano	2	4.0
Green	1	3.2	Sheboygan	5	4.4
Green Lake	1	5.8	Taylor	<1	1.1
Iowa	1	2.8	Trempealeau	1	5.2
Iron	<1	4.9	Vernon	1	2.3
Jackson	1	5.6	Vilas	1	5.5
Jefferson	3	3.5	Walworth	5	5.2
Juneau	2	6.9	Washburn	1	4.6
Kenosha	5	3.3	Washington	3	2.7
Kewaunee	<1	2.1	Waukesha	13	3.6
La Crosse	6	5.1	Waupaca	3	5.7
Lafayette	1	3.4	Waushara	1	5.0
Langlade	1	2.6	Winnebago	6	3.9
Lincoln	1	4.1	Wood	2	2.8
Manitowoc	2	2.3			
Marathon	6	4.4	**Wisconsin**	231	4.2

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

Motor Vehicle Injuries and Fatalities

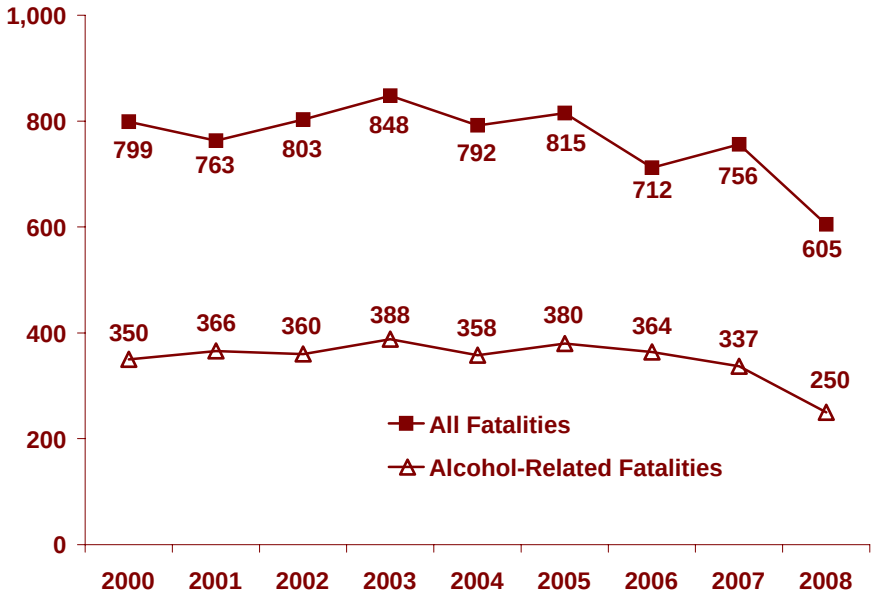
Many motor vehicle injuries and fatalities are a direct consequence of alcohol use and abuse.

- In 2008, 250 people in Wisconsin died in alcohol-related motor vehicle crashes according to the national Fatality Analysis Reporting System. Approximately 41% of all Wisconsin motor vehicle fatalities in 2008 were alcohol-related (Figure 3).

- Wisconsin's mortality rate from alcohol-related motor vehicle crashes has been higher than the United States rate every year since 2000 but fell just below the U.S. rate in 2008 (Figure 4, page 16). In 2008, the alcohol-related motor vehicle mortality rate was 4.2 per 100,000 population in Wisconsin and 4.6 per 100,000 in the United States.

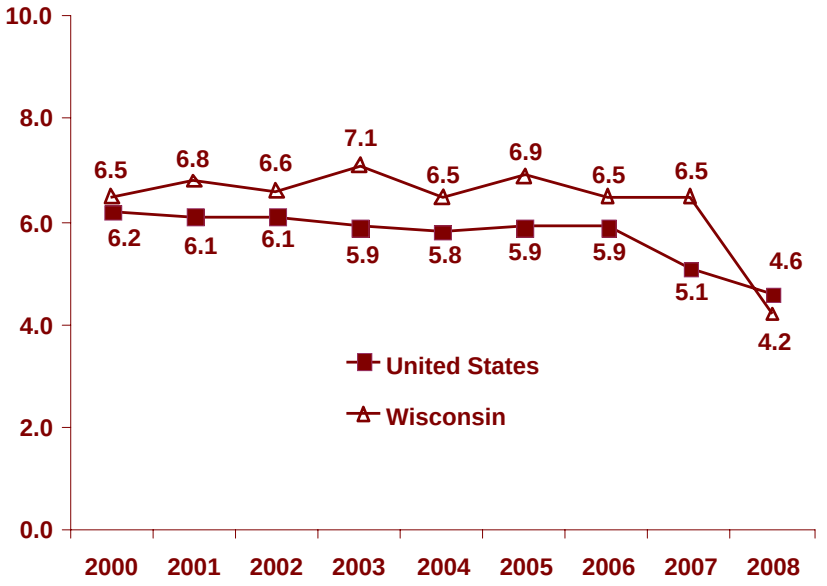
- Between 2000 and 2008, the total number of nonfatal alcohol-related motor vehicle injuries in Wisconsin dropped 37%, from 6,836 to 4,319. The rate of nonfatal injuries in alcohol-related crashes also fell during this period, to a low in 2008 of 76 injuries per 100,000 population (Figure 5, page 16).

Figure 3. Alcohol-related and total motor vehicle fatalities, Wisconsin, 2000-2008



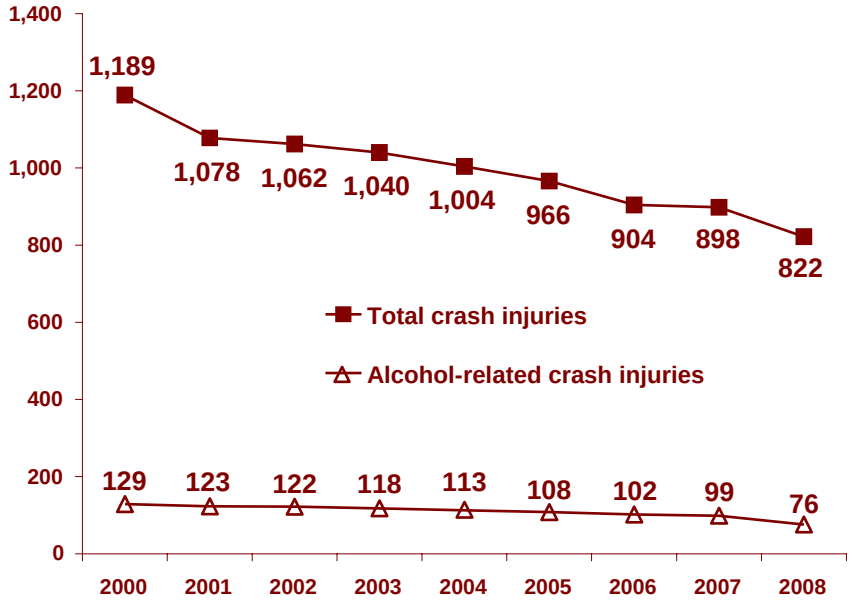
Source: Fatality Analysis Reporting System, National Highway Traffic Safety Administration, U.S. Department of Transportation.

Figure 4. Alcohol-related motor vehicle deaths per 100,000 population, Wisconsin and the United States, 2000-2008



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

Figure 5. Alcohol-related motor vehicle injuries per 100,000 population, Wisconsin, 2000-2008



Source: Numbers of injuries were drawn from final year crash statistics, Wisconsin Department of Transportation. (See http://www.dot.wisconsin.gov/drivers/drivers/traffic/crash/final.htm.) Rates were calculated as the number of nonfatal alcohol-related motor vehicle crash injuries divided by the total population X 100,000.

Table 3. Alcohol-related motor vehicle injury rates and death rates per 100,000 population, Wisconsin by county, 2007 and 2008

	Nonfatal Injury Rate		Death Rate	
County	2007	2008	2007	2008
Adams	131	184	5	29
Ashland	96	86	6	6
Barron	98	99	6	7
Bayfield	146	93	13	7
Brown	102	88	7	4
Buffalo	242	123	14	0
Burnett	78	104	0	0
Calumet	64	75	4	9
Chippewa	157	91	10	7
Clark	82	102	3	3
Columbia	56	107	23	2
Crawford	115	118	29	24
Dane	90	60	5	4
Dodge	116	82	8	7
Door	99	94	10	11
Douglas	98	66	9	2
Dunn	96	121	5	7
Eau Claire	75	64	2	3
Florence	137	126	0	0
Fond du Lac	127	95	9	0
Forest	128	92	10	20
Grant	115	103	10	6
Green	119	76	3	3
Green Lake	120	43	10	0
Iowa	167	98	8	4
Iron	250	48	30	0
Jackson	230	227	10	25
Jefferson	81	81	9	5
Juneau	137	79	4	15
Kenosha	162	136	6	9
Kewaunee	105	20	10	5
La Crosse	76	63	2	0
Lafayette	56	152	12	19
Langlade	80	123	19	5
Lincoln	79	88	7	3
Manitowoc	103	87	5	3
Marathon	95	90	6	2

Table 3. Alcohol-related motor vehicle injury rates and death rates per 100,000 population, Wisconsin by county, 2007 and 2008 (continued)

	Nonfatal Injury Rate		Death Rate	
County	**2007**	**2008**	**2007**	**2008**
Marinette	73	110	16	7
Marquette	190	67	0	0
Menominee	87	87	0	0
Milwaukee	74	51	3	2
Monroe	103	109	2	5
Oconto	130	131	26	8
Oneida	135	91	19	0
Outagamie	99	57	8	1
Ozaukee	53	50	2	4
Pepin	79	68	13	0
Pierce	125	99	15	8
Polk	177	93	7	14
Portage	98	88	6	4
Price	71	76	6	0
Racine	101	95	5	6
Richland	93	105	0	11
Rock	106	118	6	8
Rusk	150	61	13	7
St. Croix	104	67	9	5
Sauk	163	101	15	7
Sawyer	241	158	6	18
Shawano	214	149	7	12
Sheboygan	84	56	4	3
Taylor	101	93	15	10
Trempealeau	135	140	4	18
Vernon	150	97	3	3
Vilas	191	109	4	9
Walworth	129	78	4	1
Washburn	104	108	0	6
Washington	108	94	4	2
Waukesha	64	43	3	1
Waupaca	133	79	15	6
Waushara	80	61	8	12
Winnebago	86	60	6	3
Wood	63	53	5	0
Wisconsin	**99**	**76**	**6**	**4**

Source: *Wisconsin Traffic Crash Facts: Alcohol*, Wisconsin Department of Transportation. (Population data for county rate calculations are from the U.S. Census.) Injury rates include nonfatal injuries only, and are the number of injuries per 100,000 population.

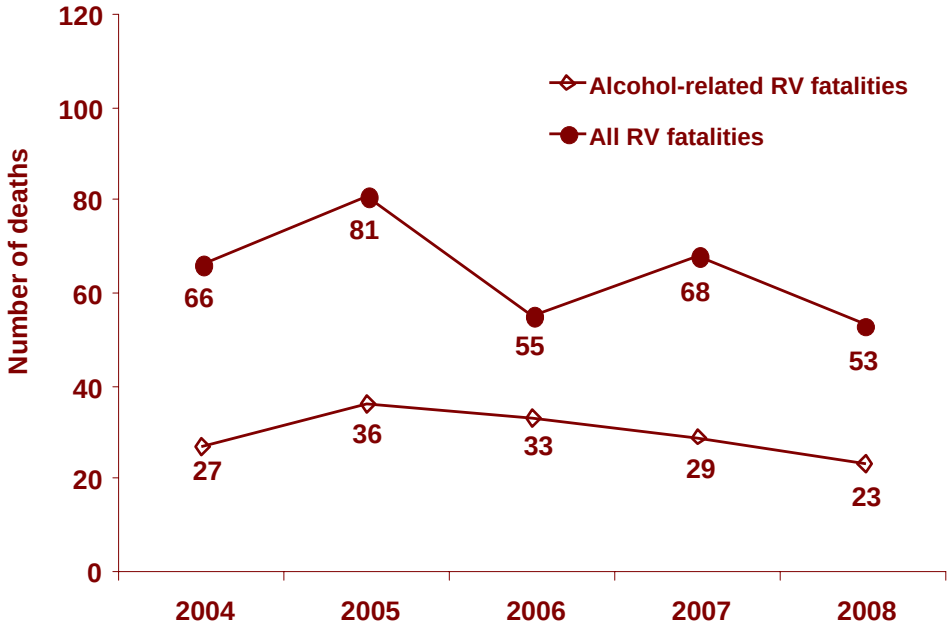
Recreational Vehicle Fatalities

Many recreational vehicle fatalities are a direct consequence of alcohol use and abuse. Recreational vehicles include boats, snowmobiles, and all-terrain vehicles (ATVs).

- In 2008, 23 of the 53 recreational vehicle deaths in Wisconsin were alcohol-related (Figure 6).

- Every year, a substantial percentage of recreational vehicle fatalities in Wisconsin are alcohol-related. In 2008, 43% of these deaths were alcohol-related (down from 60% in 2006 and similar to the proportion in 2004, 2005, and 2007).

Figure 6. Alcohol-related recreational vehicle* fatalities, Wisconsin, 2004-2008



Source: All-Terrain Vehicle Enforcement and Safety Reports, 2004-2008, Wisconsin Department of Natural Resources. Available at http://www.dnr.state.wi.us/org/es/enforcement/reports.htm.

* Note: Recreational vehicles include boats, snowmobiles, and ATVs.

Other Alcohol-Related Mortality

Alcohol use contributes to many different causes of death in varying degrees. For example, it contributes to 100 percent of alcohol-related liver cirrhosis deaths, but a smaller percentage of deaths from stroke. Alcohol-Related Disease Impact (ARDI) software from the Centers for Disease Control and Prevention identifies fractional alcohol-related mortality for a total of 63 chronic and acute conditions.

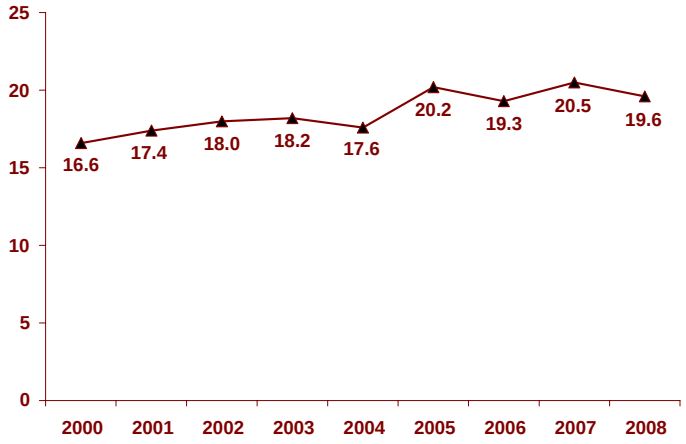
For each of these 63 conditions, ARDI specifies a distinct fraction of cases attributable to alcohol. The number of alcohol-attributable deaths can be estimated by multiplying the number of deaths for each condition by the specified alcohol-attributable fraction and summing over conditions. This method 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).

- Alcohol-related causes other than alcoholic liver cirrhosis and motor vehicle crashes accounted for an estimated 1,114 deaths in Wisconsin in 2008 (see Figure 1, page 12). The most frequent causes of "other" alcohol-related deaths are mental and behavioral disorders due to alcohol, alcohol dependence syndrome, unspecified liver cirrhosis, homicide, non-alcohol poisoning, and suicide.

- The Wisconsin mortality rate from other alcohol-related causes increased from 16.6 deaths per 100,000 in 2000 to 19.6 deaths per 100,000 in 2008 (Figure 7).

- Based on combined data for 2000-2008 at the county level (Table 4, next page), the mortality rate from other alcohol-related causes ranged between 9.4 per 100,000 population in St. Croix County to 29.9 per 100,000 in Milwaukee County.

Figure 7. Other alcohol-related deaths per 100,000 population, Wisconsin, 2000-2008



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

Note: These are alcohol-related deaths other than those due to alcoholic liver cirrhosis and motor vehicle crashes. Deaths included are based on Alcohol-Related Disease Impact (ARDI) software specifications; see Appendix 2, "Mortality" section.

Table 4. Other alcohol-attributable deaths per 100,000 population, Wisconsin by county, 2000-2008 (combined years)

County	Annual Average Number	Rate	County	Annual Average Number	Rate
Adams	4	19.9	Marinette	8	17.2
Ashland	3	19.8	Marquette	4	27.8
Barron	7	14.6	Menominee	1	28.9
Bayfield	4	23.0	Milwaukee	280	29.9
Brown	36	15.3	Monroe	7	16.4
Buffalo	2	15.9	Oconto	6	16.0
Burnett	4	26.5	Oneida	6	14.8
Calumet	5	10.4	Outagamie	21	12.3
Chippewa	11	18.7	Ozaukee	10	11.7
Clark	4	13.0	Pepin	1	14.9
Columbia	10	18.3	Pierce	5	12.6
Crawford	3	19.2	Polk	7	17.0
Dane	63	13.9	Portage	10	14.1
Dodge	13	14.8	Price	3	19.8
Door	6	20.0	Racine	37	19.2
Douglas	10	22.8	Richland	4	20.2
Dunn	5	11.2	Rock	26	16.7
Eau Claire	13	13.9	Rusk	2	15.9
Florence	1	17.3	St. Croix	10	9.4
Fond du Lac	17	17.4	Sauk	5	17.4
Forest	3	27.4	Sawyer	8	26.8
Grant	7	13.1	Shawano	19	18.4
Green	5	14.5	Sheboygan	7	16.9
Green Lake	3	16.7	Taylor	4	19.1
Iowa	3	13.2	Trempealeau	4	15.6
Iron	1	19.5	Vernon	5	16.9
Jackson	3	17.5	Vilas	5	24.7
Jefferson	11	14.2	Walworth	14	14.5
Juneau	6	22.3	Washburn	3	17.9
Kenosha	32	20.2	Washington	19	15.2
Kewaunee	3	15.5	Waukesha	62	16.4
La Crosse	19	16.9	Waupaca	11	20.8
Lafayette	2	15.0	Waushara	4	15.9
Langlade	4	19.0	Winnebago	26	16.1
Lincoln	7	23.2	Wood	11	15.1
Manitowoc	19	22.5			
Marathon	21	16.2	**Wisconsin**	**1,027**	**18.6**

Source: Wisconsin resident death certificates, Division of Public Health, Wisconsin Department of Health Services.
Note: Rate includes all alcohol-related deaths other than alcoholic liver cirrhosis and motor vehicle deaths.

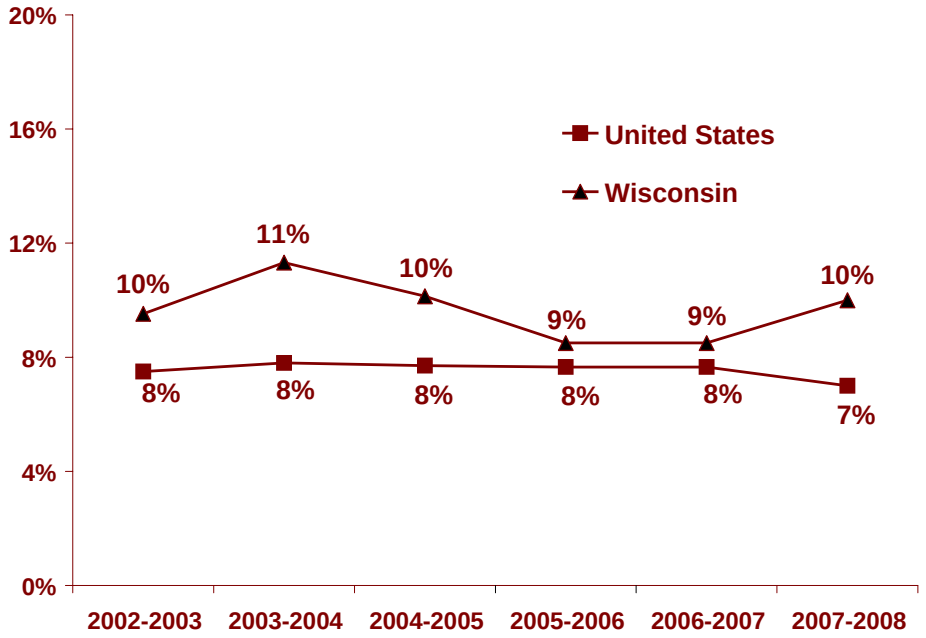
Dependence or Abuse

Dependence and abuse are direct consequences of alcohol misuse.

- From 2002 to 2008, the reported rate of alcohol dependence or abuse ranged between 9% and 11% of the Wisconsin population age 12 and older compared to 8% nationally for most years (Figure 8).

- In Wisconsin, young adults ages 18 to 25 had a notably higher rate of alcohol dependence or abuse than other age groups (Table 5).

Figure 8. Prevalence of alcohol dependence and abuse, age 12 and older, Wisconsin and the United States, 2002-2008



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. Prevalence of alcohol dependence and abuse, age 12 and older by age, Wisconsin, 2002-2008

Age	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008
12-17	7%	9%	8%	6%	7%	7%
18-25	23%	25%	24%	22%	23%	22%
26+	7%	9%	8%	6%	7%	7%

Source: National Survey of 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 12% in recent years, from 44,733 in 2002 to 50,119 in 2008 (Table 6). The rate of these hospitalizations has also increased, from 819 to 884 per 100,000 population.

Charges for alcohol-related hospitalizations have likewise increased, from $595 million in 2002 to more than $1 billion in 2008 (Figure 9). (These amounts are not adjusted for inflation.) 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.

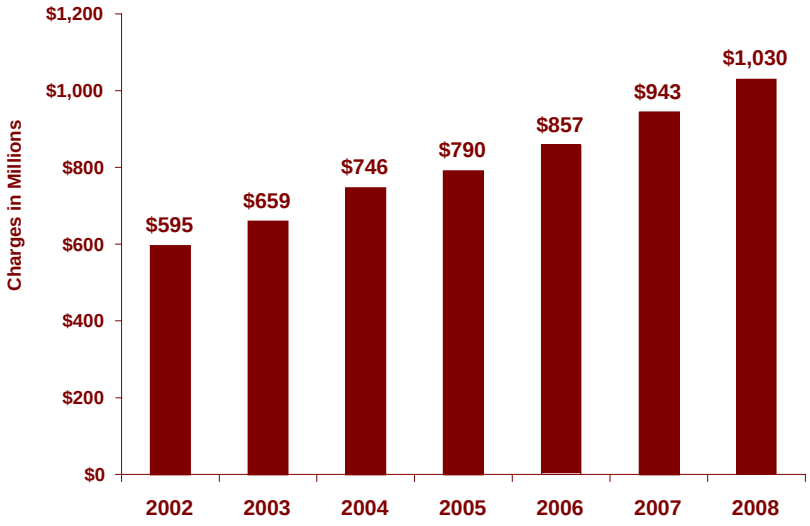
In 2007-2008, the counties with the highest rates of alcohol-related hospitalizations (at least 25% above the state average) were Ashland, Forest, Jackson, La Crosse, Menominee, Milwaukee, Vilas, and Wood (Table 7).

Table 6. Number and rate of alcohol-related hospitalizations, 2002-2008

	2002	2003	2004	2005	2006	2007	2008
Rate/100,000	819	808	835	848	859	877	884
Number	44,733	44,405	46,276	47,313	48,178	49,478	50,119

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

Figure 9. Alcohol-related hospital charges, in millions, Wisconsin, 2002-2008



Source: Wisconsin inpatient hospital discharge database, Division of Public Health, Wisconsin Department of Health Services.
Note: Charges are not the same as actual costs paid by any payer; see Technical Notes.

Table 7. Alcohol-related hospitalizations, Wisconsin by county, 2006-2008

County	Number in 2008	Rate per 100,000 Population	
		2006-2007	2007-2008
Adams	135	640	633
Ashland	243	1,377	1,350
Barron	412	885	893
Bayfield	144	860	887
Brown	2,147	826	860
Buffalo	92	597	603
Burnett	86	509	513
Calumet	148	253	278
Chippewa	561	905	919
Clark	317	833	905
Columbia	518	867	891
Crawford	137	732	758
Dane	3.526	710	735
Dodge	622	676	699
Door	234	759	760
Douglas	52	134	95
Dunn	264	634	625
Eau Claire	1,127	1,061	1,097
Florence	9	233	224
Fond du Lac	733	700	719
Forest	146	1,052	1,221
Grant	268	595	534
Greene	227	587	603
Green Lake	137	580	672
Iowa	156	609	594
Iron	41	770	640
Jackson	241	1,017	1,105
Jefferson	591	729	726
Juneau	263	1,002	999
Kenosha	1,586	977	989
Kewaunee	123	575	588
La Crosse	1,287	1,114	1,127
Lafayette	104	554	583
Langlade	182	840	870
Lincoln	283	951	948
Manitowoc	636	770	764
Marathon	1,360	949	1,003
Marinette	398	905	918

Table 7. Alcohol-related hospitalizations, Wisconsin by county, 2006-2008 (continued)

County	Number in 2008	Rate per 100,000 Population 2006-2007	2007-2008
Marquette	156	822	959
Menominee	123	2,596	2,767
Milwaukee	11,089	1,211	1,192
Monroe	339	774	754
Oconto	296	680	735
Oneida	372	1,114	999
Outagamie	1,380	716	766
Ozaukee	593	659	671
Pepin	42	693	623
Pierce	186	449	442
Polk	289	644	671
Portage	594	725	786
Price	117	860	820
Racine	2,109	981	1,045
Richland	155	873	911
Rock	1,300	764	776
Rusk	131	872	847
St. Croix	338	420	425
Sauk	561	888	920
Sawyer	156	1,188	974
Shawano	330	780	786
Sheboygan	964	921	862
Taylor	120	477	561
Trempealeau	272	880	907
Vernon	224	707	766
Vilas	440	1,793	2,028
Walworth	660	774	705
Washburn	137	887	809
Washington	882	741	701
Waukesha	3,081	754	784
Waupaca	475	888	911
Waushara	186	747	765
Winnebago	1,559	849	919
Wood	928	1,189	1,212
Wisconsin	**50,119**	**868**	**880**

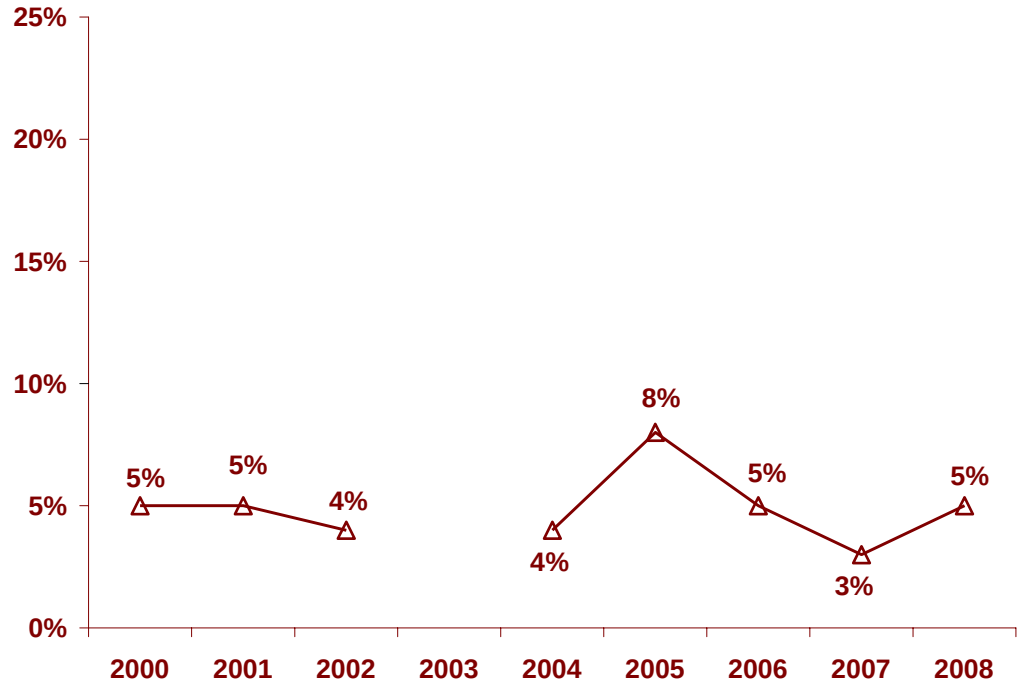
Source: Wisconsin hospital inpatient discharge database, Division of Public Health, Wisconsin Department of Health Services.
Note: Hospitalization numbers and rates are based on patient's county of residence.

Drinking and Driving

- In 2008, an estimated 5% of Wisconsin adults age 18 and older reported drinking and driving in the past month, the same percentage as in 2000 (Figure 10).

- While comparable national data on past-month drinking and driving are not available, data for 2004-2006 on drinking and driving *in the past year* suggested that Wisconsin had the highest rate of drinking and driving in the nation (26% of drivers age 18 and older).[1]

Figure 10. Past-month drinking and driving, Wisconsin, 2000-2008



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

Note: Data are not available for this measure for 2003.

[1] *Wisconsin Epidemiological Profile on Alcohol and Other Drug Use, 2008* (Department of Health Services, July 2008), citing 2004-2006 data from the National Survey of Drug Use and Health. More recent data for past-year drinking and driving are not available.

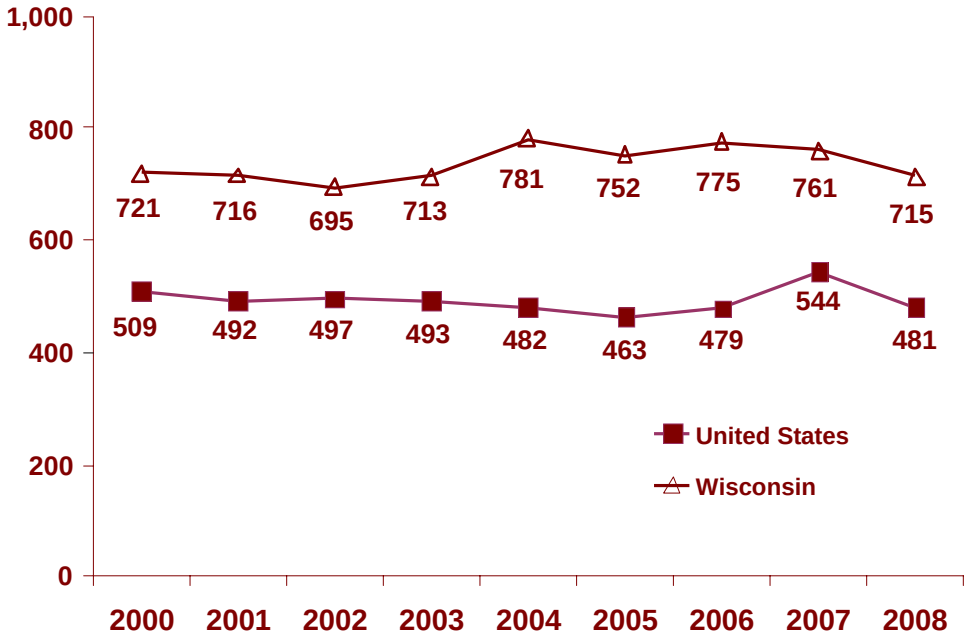
Crime and Arrests

- In 2008, there were 42,317 arrests in Wisconsin for operating a motor vehicle while intoxicated (OWI) and 51,712 arrests for other liquor law violations.

- Arrest rates for operating while intoxicated (OWI) and liquor law violations have been consistently higher in Wisconsin than nationally (Figure 11 and Figure 12).

- Between 2000 and 2008, Wisconsin's rate of arrests for OWI showed no sustained change. The rate rose in 2004 to 781 per 100,000, but by 2008, the rate had declined again to 715 per 100,000 (below the rate for 2000). On July 3, 2003, Wisconsin became the 43rd state to enact legislation lowering the prohibited BAC (Blood/Breath Alcohol Concentration) level for operating while intoxicated to 0.08 percent BAC (from 1.0 percent BAC). The change became effective September 30, 2003.

Figure 11. Rate of arrests (adult and juvenile) for operating while intoxicated (OWI) per 100,000 population, Wisconsin and the United States, 2000-2008



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.

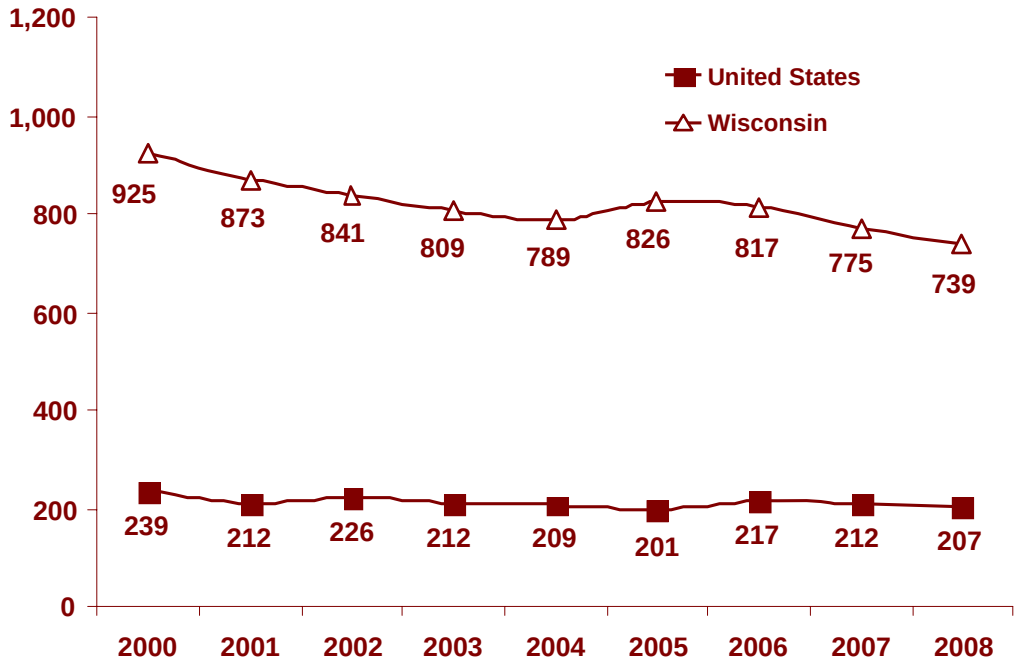
Note: Effective September 30, 2003, Wisconsin defines "operating while intoxicated" as driving while blood alcohol concentration (BAC) is 0.08 percent or higher. Prior to that date, the prohibited BAC was 1.0.

According to the Wisconsin Office of Justice Assistance, 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 nearly every year from 2000 to 2008. Nevertheless, it remains much higher than the national rate.

- From 2000 to 2008, Wisconsin's arrest rate for liquor law violations was more than three times the national rate. In 2008, for example, the Wisconsin rate was 739 arrests per 100,000 population compared to the national rate of 207 arrests per 100,000 (Figure 12).

Figure 12. Rate of liquor law arrests (adult and juvenile) per 100,000 population, Wisconsin and the United States, 2000-2008



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 while intoxicated (OWI) and liquor law arrests per 100,000 population, Wisconsin by county, 2007 and 2008

	OWI Arrests per 100,000 Population		Liquor Law Arrests per 100,000 Population	
County	2007	2008	2007	2008
Adams	870	921	234	342
Ashland	389	445	718	742
Barron	620	575	607	51
Bayfield	362	351	172	38
Brown	579	757	860	1,096
Buffalo	1,152	707	149	42
Burnett	644	736	66	78
Calumet	323	306	193	221
Chippewa	703	616	424	451
Clark	594	880	383	509
Columbia	1,171	1,028	745	839
Crawford	408	367	449	270
Dane	758	760	1,118	1,212
Dodge	661	645	649	630
Door	1,055	1,112	939	654
Douglas	840	755	890	775
Dunn	711	812	1,957	1,955
Eau Claire	742	815	1,899	1,872
Florence	683	722	0	20
Fond du Lac	763	697	620	619
Forest	1,150	747	639	466
Grant	808	743	1,324	1,125
Green	512	480	437	321
Green Lake	1,000	688	875	672
Iowa	755	882	559	472
Iron	1,281	910	928	969
Jackson	1,053	860	175	89
Jefferson	1,097	816	633	606
Juneau	377	291	181	109
Kenosha	589	535	1,006	928
Kewaunee	618	406	447	321
La Crosse	665	709	2,158	2,075
Lafayette	302	427	1,302	951
Langlade	723	534	104	389
Lincoln	571	760	545	546
Manitowoc	2,029	784	1,486	944
Marathon	725	684	688	618

Table 8. Operating while intoxicated (OWI) and liquor law arrests per 100,000 population, Wisconsin by county, 2007 and 2008 (continued)

	OWI Arrests per 100,000 Population		Liquor Law Arrests per 100,000 Population	
County	**2007**	**2008**	**2007**	**2008**
Marinette	636	426	552	709
Marquette	1,135	1,013	7	0
Menominee	3,033	4,013	238	669
Milwaukee	392	466	531	443
Monroe	856	936	895	1,064
Oconto	407	445	451	355
Oneida	976	1,014	1,000	938
Outagamie	902	719	1,070	879
Ozaukee	591	538	438	536
Pepin	867	549	276	288
Pierce	568	918	1,149	549
Polk	1,122	1,022	144	72
Portage	711	432	1,311	620
Price	682	571	624	417
Racine	508	467	261	366
Richland	829	943	543	505
Rock	857	790	619	694
Rusk	875	504	529	268
St. Croix	459	721	630	424
Sauk	1,393	1,449	1,896	1,184
Sawyer	968	187	355	1,083
Shawano	906	885	1,004	900
Sheboygan	1,330	712	774	1,247
Taylor	424	552	454	432
Trempealeau	702	684	356	451
Vernon	503	488	170	286
Vilas	1,033	795	585	504
Walworth	977	892	1,842	1,569
Washburn	789	675	632	326
Washington	659	637	644	604
Waukesha	761	613	392	362
Waupaca	917	667	574	436
Waushara	574	590	558	317
Winnebago	741	771	895	1,067
Wood	918	960	895	831
Wisconsin	**732**	**715**	**780**	**739**

Source: *Arrests in Wisconsin*, 2007 and 2008, Wisconsin Office of Justice Assistance.
Note: Statewide rate calculations include arrests not identified by county.

Consequences of Illicit Drug Consumption

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

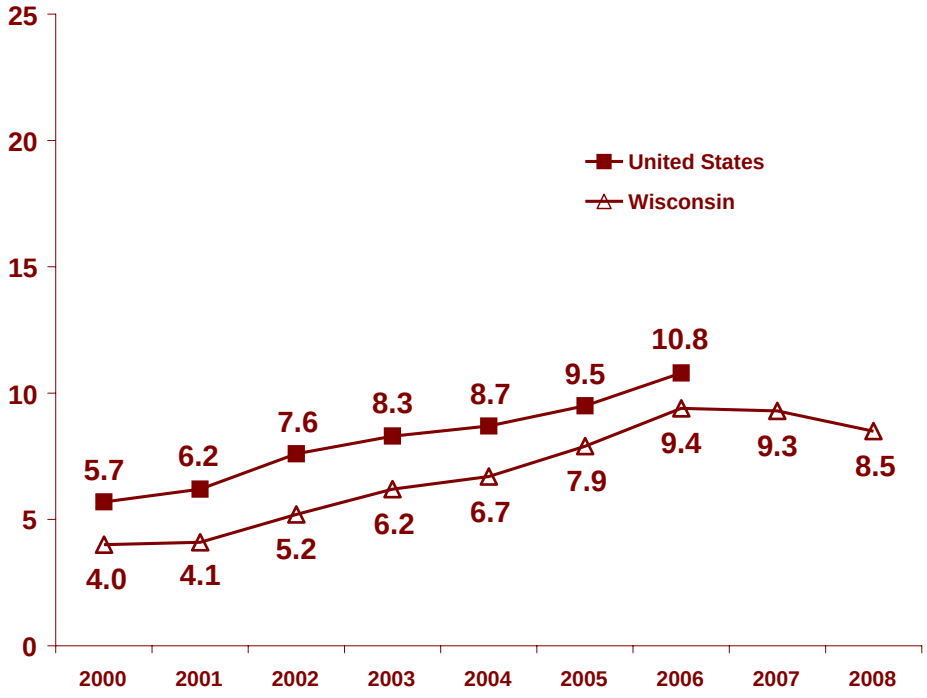
Mortality

Deaths due to drug use are a direct consequence of illicit drug use.

- In 2008, 482 Wisconsin residents died as a direct consequence of illicit drug use (Table 9). This number represented a decline from the previous two years; however, it remains much higher than in the first half of the decade.

- The age-adjusted mortality rate of drug-related deaths has increased in Wisconsin, from 4.0 deaths per 100,000 population in 2000 to 8.5 deaths per 100,000 in 2008 (Figure 13).

Figure 13. Age-adjusted rate of drug-related deaths per 100,000 population, Wisconsin and the United States, 2000-2008



Source: Wisconsin resident death certificates, 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 9. Age-adjusted mortality rate and total number of drug-related deaths, Wisconsin and the United States, 2000-2008

		2000	2001	2002	2003	2004	2005	2006	2007	2008
United States	Rate/100,000	5.7	6.2	7.6	8.3	8.7	9.5	10.8		
	Total number	16,113	17,813	21,797	24,230	25,670	28,214	32,639		
Wisconsin	Rate/100,000	4.0	4.1	5.2	6.2	6.7	7.9	9.4	9.3	8.5
	Total number	213	223	287	344	383	448	526	526	482

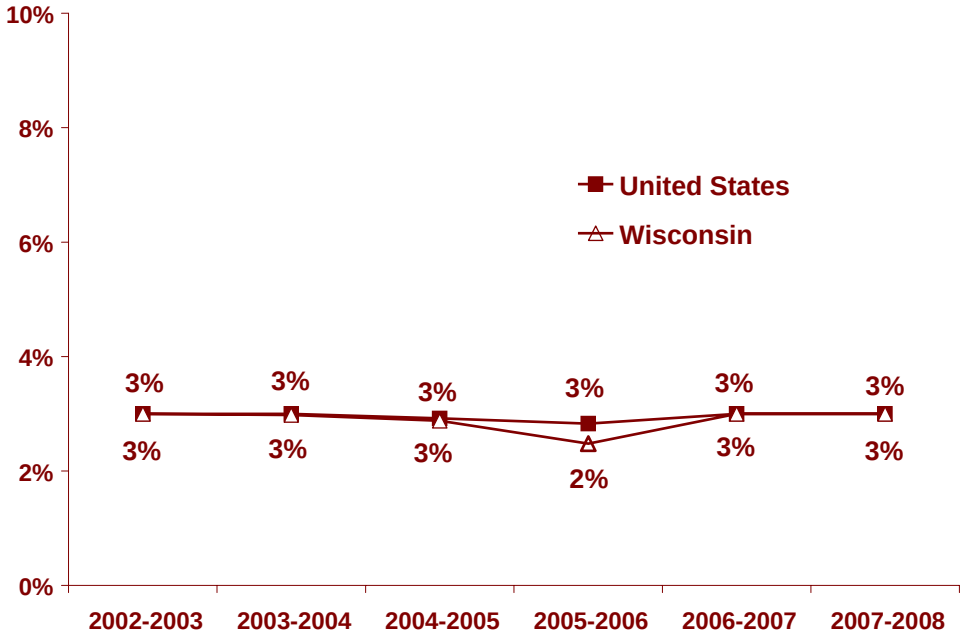
Source: Wisconsin resident death certificates, Division of Public Health, Wisconsin Department of Health Services; United States death certificate data compiled by the Centers for Disease Control and Prevention: http://wonder.cdc.gov/mortSQL.html.

Dependence or Abuse

Dependence and abuse are direct consequences of illicit drug use.

- For most years from 2002 through 2008, the rate of dependence on or abuse of illicit drugs was the same (3%) for Wisconsin and the United States (Figure 14).

Figure 14. Prevalence of drug dependence and abuse, age 12 and older, Wisconsin and the United States, 2002-2008



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

Hospitalizations

- There were 14,756 Wisconsin hospitalizations defined as drug-related in 2008, an increase of 34% since 2002 (Table 10). Drug-related hospitalizations include such diagnoses as drug psychoses, drug dependence, drug-related polyneuropathy, and accidental and purposeful poisoning by drugs.

- Charges for drug-related hospitalizations in Wisconsin totaled $258 million in 2008, an increase of 103% from the $127 million in 2002 (Figure 15). (These amounts are not adjusted for inflation.)

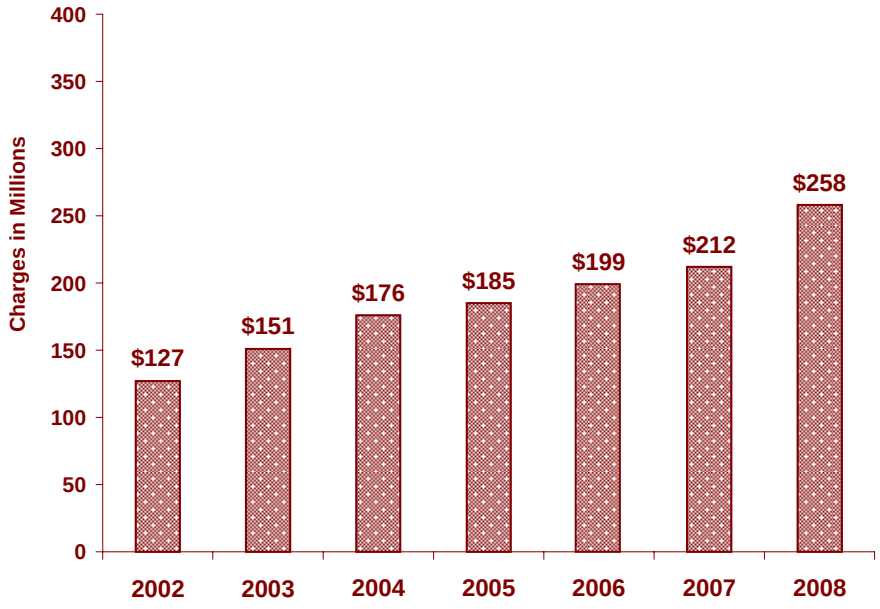
- In 2007-2008, the counties with the highest rates of drug-related hospitalizations (at least 25% above the state average) were Ashland, Bayfield, Lincoln, Menominee, Milwaukee, and Wood (Table 11).

Table 10. Number and rate of drug-related hospitalizations, 2002-2008

	2002	2003	2004	2005	2006	2007	2008
Rate/100,000	201	217	243	246	247	251	260
Number	10,990	11,949	13,454	13,723	13,859	14,178	14,756

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

Figure 15. Hospital charges for drug-related hospitalizations, in millions, Wisconsin, 2002-2008



Source: Wisconsin inpatient hospital discharge database, 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 Technical Notes).

Table 11. Drug-related hospitalizations, Wisconsin by county, 2006-2008

County	Number in 2008	Rate per 100,000 Population	
		2006-2007	2007-2008
Adams	39	220	200
Ashland	101	660	617
Barron	110	193	213
Bayfield	62	331	379
Brown	532	184	202
Buffalo	23	149	142
Burnett	32	166	168
Calumet	28	56	63
Chippewa	149	274	245
Clark	66	174	180
Columbia	169	251	275
Crawford	23	153	149
Dane	1,167	221	233
Dodge	142	159	169
Door	39	134	122
Douglas	15	45	31
Dunn	82	144	171
Eau Claire	304	319	314
Florence	5	117	98
Fond du Lac	195	237	218
Forest	25	354	259
Grant	46	127	109
Green	44	118	118
Green Lake	30	112	132
Iowa	43	179	170
Iron	18	396	309
Jackson	53	260	258
Jefferson	135	172	163
Juneau	83	241	264
Kenosha	461	278	277
Kewaunee	30	95	119
La Crosse	283	243	253
Lafayette	22	123	153
Langlade	63	288	287
Lincoln	103	271	341
Manitowoc	188	190	200
Marathon	338	211	238
Marinette	133	191	243

Table 11. Drug-related hospitalizations, Wisconsin by county, 2006-2008 (continued)

County	Number in 2008	Rate per 100,000 Population	
		2006-2007	2007-2008
Marquette	44	252	281
Menominee	25	346	486
Milwaukee	3,917	425	426
Monroe	108	166	193
Oconto	72	133	152
Oneida	120	307	279
Outagamie	337	156	178
Ozaukee	229	240	251
Pepin	7	172	131
Pierce	69	171	164
Polk	101	243	248
Portage	186	229	245
Price	36	224	235
Racine	536	265	270
Richland	51	222	274
Rock	453	257	258
Rusk	33	205	216
St. Croix	91	103	103
Sauk	133	264	243
Sawyer	53	267	288
Shawano	87	151	201
Sheboygan	285	275	250
Taylor	38	131	186
Trempealeau	37	151	152
Vernon	44	146	142
Vilas	105	453	474
Walworth	157	204	179
Washburn	37	192	207
Washington	219	174	176
Waukesha	984	229	243
Waupaca	116	173	214
Waushara	40	173	193
Winnebago	353	175	197
Wood	272	336	336
Wisconsin	**14,756**	**249**	**256**

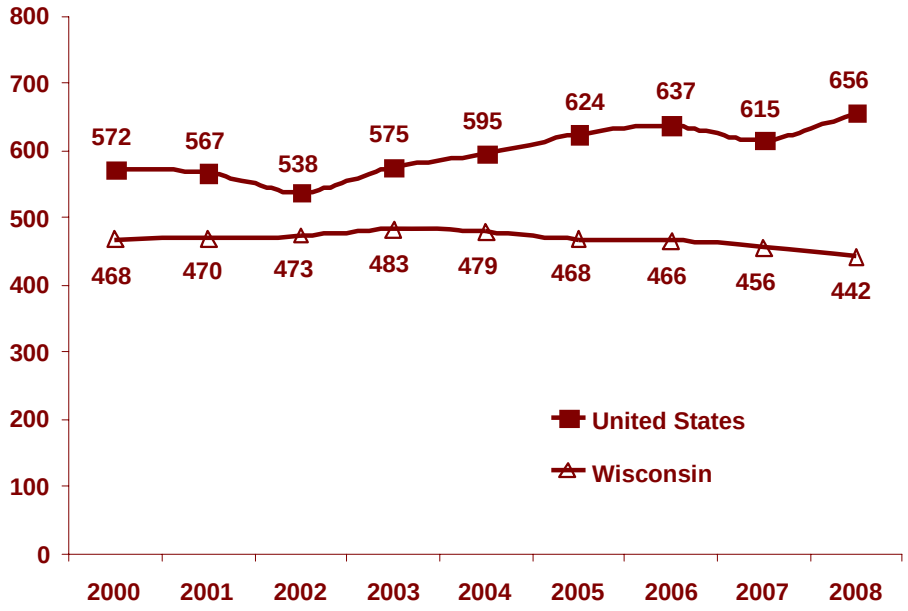
Source: Wisconsin hospital inpatient discharge database, Division of Public Health, Wisconsin Department of Health Services.
Note: Hospitalization numbers and rates are based on patient's county of residence.

Crime and Arrests

The Wisconsin Office of Justice Assistance defines drug law violations 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, sales, purchase, use, possession, transportation, or importation of any controlled drug or narcotic substance.

- There were 25,314 arrests in Wisconsin for drug law violations in 2008, a number little changed since 2000 (24,853 arrests).
- From 2000 to 2008, the rate of drug law arrests was lower in Wisconsin than the national average (Figure 16).
- In contrast to the national pattern, Wisconsin's rate of drug law arrests began showing small annual decreases in 2004. In 2008, the rate of drug law arrests in Wisconsin was 442 per 100,000 population, the lowest rate since 1997 (not shown).

Figure 16. Rate of drug law arrests (adult and juvenile) per 100,000 population, Wisconsin and the United States, 2000-2008



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 12. Arrests for drug law violations per 100,000 population, Wisconsin by county, 2007 and 2008

County	Arrests per 100,000 population		County	Arrests per 100,000 population	
	2007	2008		2007	2008
Adams	229	444	Marinette	268	278
Ashland	329	427	Marquette	348	539
Barron	194	202	Menominee	2,080	1,575
Bayfield	235	144	Milwaukee	712	742
Brown	490	522	Monroe	645	692
Buffalo	505	573	Oconto	236	160
Burnett	289	209	Oneida	404	343
Calumet	40	54	Outagamie	481	380
Chippewa	334	273	Ozaukee	206	270
Clark	170	104	Pepin	158	183
Columbia	458	540	Pierce	279	259
Crawford	46	29	Polk	225	138
Dane	357	366	Portage	467	219
Dodge	328	314	Price	566	295
Door	255	249	Racine	484	426
Douglas	479	343	Richland	423	230
Dunn	382	428	Rock	631	584
Eau Claire	649	540	Rusk	274	249
Florence	176	215	St. Croix	240	247
Fond du Lac	230	254	Sauk	386	397
Forest	835	359	Sawyer	292	289
Grant	139	96	Shawano	728	516
Green	207	206	Sheboygan	452	511
Green Lake	453	226	Taylor	131	110
Iowa	271	402	Trempealeau	239	194
Iron	280	294	Vernon	150	266
Jackson	270	410	Vilas	448	304
Jefferson	495	363	Walworth	929	919
Juneau	92	123	Washburn	145	246
Kenosha	577	600	Washington	559	395
Kewaunee	214	236	Waukesha	349	307
La Crosse	401	561	Waupaca	296	272
Lafayette	247	226	Waushara	120	139
Langlade	628	464	Winnebago	448	437
Lincoln	231	454	Wood	445	544
Manitowoc	310	304			
Marathon	373	248	**Wisconsin**	**456**	**442**

Source: *Arrests in Wisconsin*, 2007 and 2008, Wisconsin Office of Justice Assistance.

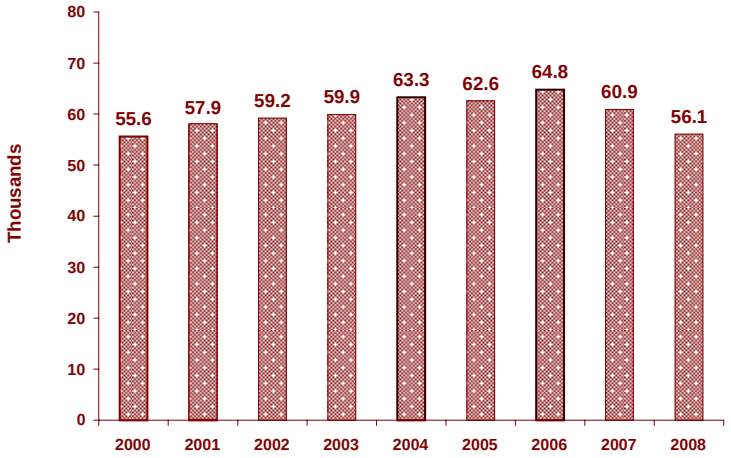
Consequences Associated with More Than One Substance (Alcohol or Other Drugs)

Publicly Funded Treatment

- The number of alcohol and other drug abuse clients receiving publicly funded services in Wisconsin decreased sharply from 2006 to 2008 — from 64,806 to 56,110, a decline of 13% (Figure 17). Numbers of clients in 2000 and 2008 differed little.

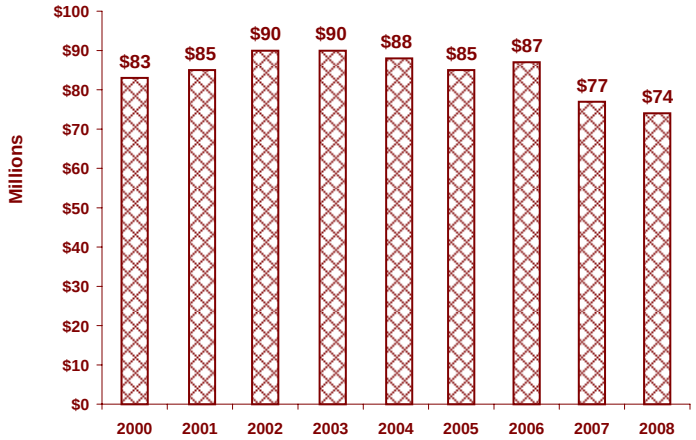
- Public funds expended for alcohol and other drug abuse treatment in Wisconsin also declined recently, from an inflation-adjusted high of $90 million in 2002 and 2003 to a low of $74 million in 2008 (Figure 18). The net decrease from 2000 to 2008 was 11%.

Figure 17. Number of alcohol and other drug abuse clients (in thousands) receiving services with public funds, Wisconsin, 2000-2008



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

Figure 18. Public funds expended (in millions) for alcohol and other drug abuse treatment, Wisconsin, 2000-2008 (adjusted to 2008 dollars)



Source: Human Services Reporting System, Division of Mental Health and Substance Abuse Services, Wisconsin Department of Health Services. Note: Dollar amounts have been adjusted for inflation.

Crime and Arrests

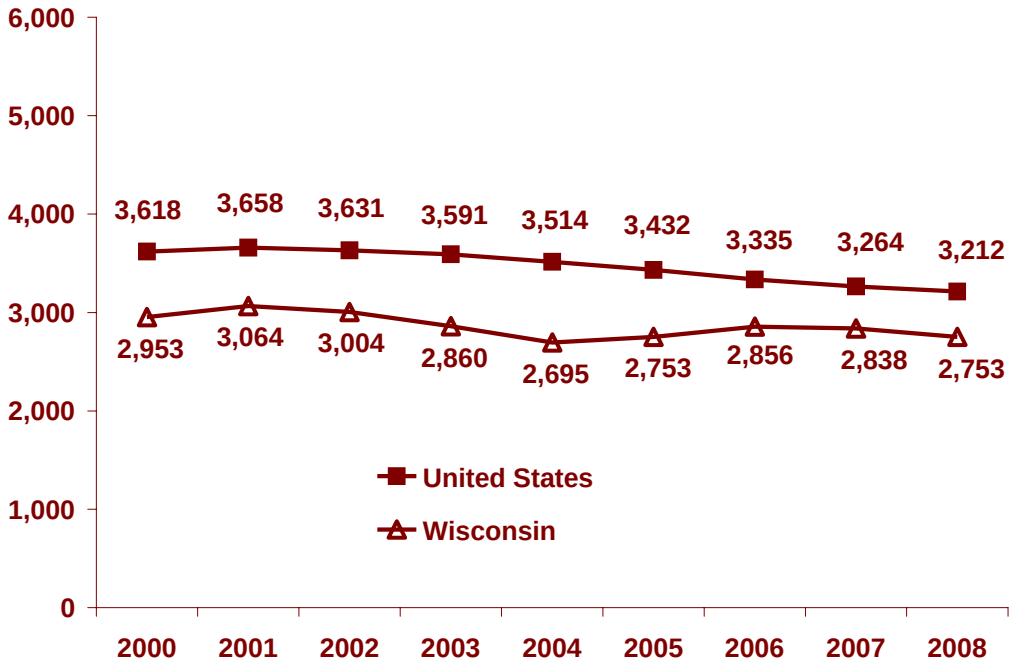
Drug-related property crimes include burglary, larceny, and motor vehicle theft, often committed to obtain money to purchase drugs. Drug-attribution rates for property crime range from approximately 7% for motor vehicle theft to 30% for burglary and larceny.

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.[2]

- Between 2000 and 2008, Wisconsin's rates of reported property crimes and violent crimes were far lower than U.S. rates (Figure 19 and Figure 20).

- In 2000, 2,953 property crimes were reported per 100,000 Wisconsin residents; by 2008, this rate had fallen to 2,753.

Figure 19. Rate of reported property crime offenses per 100,000 population, Wisconsin and the United States, 2000-2008

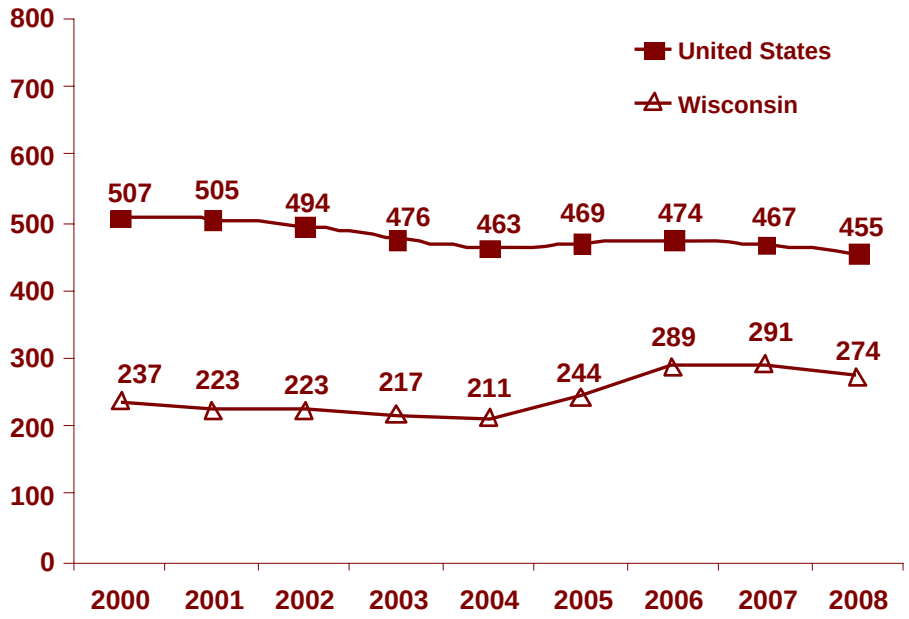


Sources: *Crime and Arrests in Wisconsin*, Wisconsin Office of Justice Assistance; *Crime in the United States*, U.S. Department of Justice, Federal Bureau of Investigation, Criminal Justice Information Services Division.

[2] *The Economic Costs of Alcohol and Drug Abuse in the United States, 1992*, National Institute on Drug Abuse, citing analysis by The Lewin Group. See: http://www.nida.nih.gov/EconomicCosts/Table6_8.html.

- Wisconsin's rate of violent crimes reported per 100,000 decreased from 237 in 2000 to 211 in 2004, but then increased to a high of 291 in 2007 (Figure 20). The rate decreased in 2008 to 274 per 100,000.

Figure 20. Rate of reported violent crime offenses (adult and juvenile) per 100,000 population, Wisconsin and United States, 2000-2008



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 13. Reported property crimes, Wisconsin by county, 2007 and 2008

	2007		2008	
County	Number	Rate	Number	Rate
Adams	109	510	626	2,897
Ashland	425	2,544	541	3,212
Barron	782	1,665	715	1,506
Bayfield	267	1,698	411	2,576
Brown	5,720	2,341	5,927	2,415
Buffalo	105	747	104	736
Burnett	537	3,231	366	2,190
Calumet	437	959	330	588
Chippewa	1,106	1,804	1,121	1,814
Clark	432	1,264	536	1,551
Columbia	1,351	2,426	1,248	2,224
Crawford	154	886	174	999
Dane	14,629	3,098	14,367	3,010
Dodge	1,133	1,274	1,240	1,387
Door	376	1,280	376	1,267
Douglas	1,755	3,985	1,763	3,983
Dunn	725	1,690	790	1,817
Eau Claire	2,474	2,527	2,327	2,350
Florence	116	2,263	117	2,282
Fond du Lac	1,839	1,827	1,796	1,772
Forest	267	2,624	175	1,698
Grant	613	1,217	671	1,316
Green	625	1,728	747	2,048
Green Lake	383	1,995	314	1,612
Iowa	362	1,510	307	1,271
Iron	113	1,665	124	1,820
Jackson	437	2,182	380	1,879
Jefferson	1,834	2,277	1,584	1,950
Juneau	488	1,805	418	1,518
Kenosha	4,855	2,995	4,390	2,670
Kewaunee	258	1,227	272	1,285
La Crosse	2,889	2,580	3,056	2,698
Lafayette	199	1,228	192	1,170
Langlade	873	4,124	825	3,866
Lincoln	750	2,476	598	1,968
Manitowoc	1,397	1,674	1,133	1,354
Marathon	2,340	1,759	2,371	1,756

Table 13. Reported property crimes, Wisconsin by county, 2007 and 2008 (continued)

County	2007		2008	
	Number	Rate	Number	Rate
Marinette	992	2,254	1,051	2,379
Marquette	118	774	190	1,234
Menominee	234	5,069	222	4,790
Milwaukee	52,023	5,521	50,490	5,390
Monroe	974	2,229	955	2,153
Oconto	815	2,114	688	1,770
Oneida	863	2,276	877	2,298
Outagamie	5,290	3,039	5,424	3,089
Ozaukee	956	1,106	938	1,081
Pepin	36	473	46	601
Pierce	898	2,239	912	2,246
Polk	570	1,259	607	1,329
Portage	1,568	2,254	908	1,294
Price	174	1,120	174	1,117
Racine	6,343	3,244	6,186	3,133
Richland	249	1,367	254	1,393
Rock	5,493	3,436	5,488	3,418
Rusk	260	1,698	319	2,089
St. Croix	1,527	1,910	1,529	1,892
Sauk	2,047	3,407	1,831	3,019
Sawyer	521	2,984	493	2,796
Shawano	1,170	2,784	808	1,913
Sheboygan	3,501	3,009	3,182	2,729
Taylor	346	1,747	363	1,822
Trempealeau	297	1,058	326	1,149
Vernon	278	945	319	1,074
Vilas	673	2,984	661	2,872
Walworth	2,715	2,690	2,519	2,479
Washburn	332	1,925	347	1,984
Washington	2,291	1,771	2,426	1,856
Waukesha	6,027	1,581	6,128	1,602
Waupaca	1,039	1,949	1,153	2,150
Waushara	398	1,586	315	1,248
Winnebago	4,202	2,561	4,001	2,428
Wood	1,694	2,231	1,578	2,074
Wisconsin	**160,069**	**2,837**	**156,140**	**2,753**

Source: *Crime in Wisconsin*, 2007 and 2008, Wisconsin Office of Justice Assistance (numbers).
Note: Rates are per 100,000 population.

Table 14. Reported violent crimes, Wisconsin by county, 2007 and 2008

	2007		2008	
County	Number	Rate	Number	Rate
Adams	11	51	31	143
Ashland	36	216	33	196
Barron	30	64	28	59
Bayfield	37	235	28	176
Brown	687	281	577	235
Buffalo	1	7	4	28
Burnett	15	90	15	90
Calumet	15	33	17	37
Chippewa	47	77	55	89
Clark	16	47	20	58
Columbia	107	192	102	182
Crawford	5	29	22	126
Dane	1,175	249	1,239	260
Dodge	67	75	84	51
Door	19	65	15	51
Douglas	75	170	93	210
Dunn	66	154	86	198
Eau Claire	110	112	105	106
Florence	7	137	6	117
Fond du Lac	217	216	206	203
Forest	26	256	8	78
Grant	71	141	73	143
Green	34	94	35	96
Green Lake	12	63	6	31
Iowa	18	75	19	79
Iron	16	236	17	250
Jackson	21	105	12	59
Jefferson	168	209	142	175
Juneau	64	237	57	207
Kenosha	415	256	400	245
Kewaunee	13	62	9	43
La Crosse	207	185	252	223
Lafayette	11	68	8	49
Langlade	16	76	29	136
Lincoln	29	96	49	161
Manitowoc	151	181	108	129
Marathon	244	183	352	261

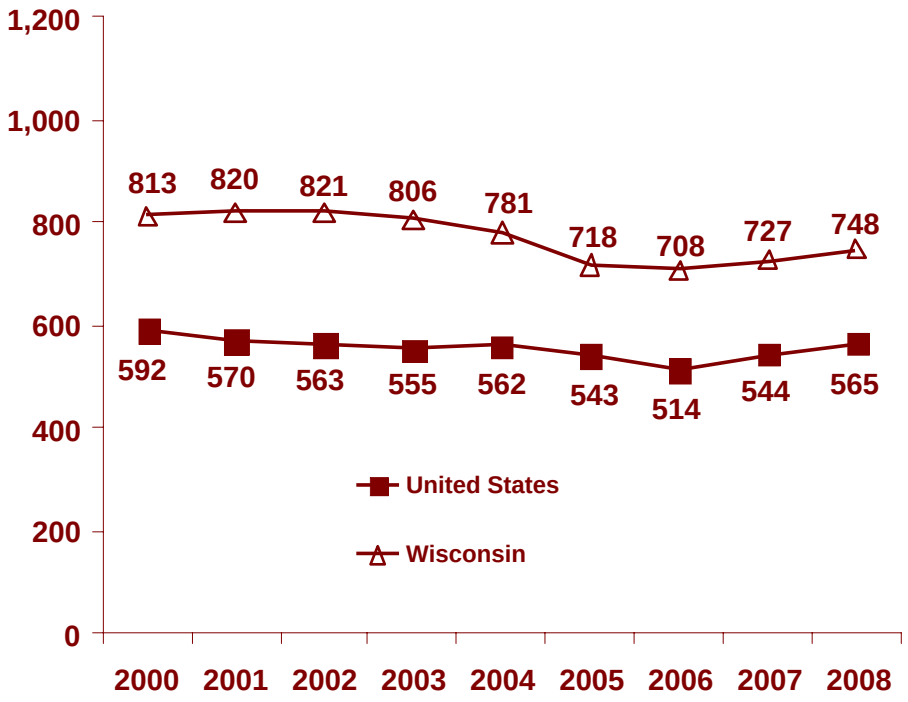
Table 14. Reported violent crimes, Wisconsin by county, 2007 and 2008 (continued)

County	2007		2008	
	Number	Rate	Number	Rate
Marinette	32	73	21	48
Marquette	17	112	16	104
Menominee	65	1,408	46	992
Milwaukee	8,825	937	8,097	864
Monroe	74	169	43	97
Oconto	8	21	12	31
Oneida	37	98	26	68
Outagamie	212	122	243	138
Ozaukee	60	69	45	52
Pepin	8	105	4	52
Pierce	55	137	59	145
Polk	102	225	93	204
Portage	91	131	22	31
Price	30	193	44	283
Racine	582	298	716	363
Richland	34	187	21	115
Rock	370	231	396	247
Rusk	2	13	10	66
St. Croix	56	70	43	53
Sauk	97	162	85	140
Sawyer	43	246	30	170
Shawano	31	74	29	69
Sheboygan	144	124	118	101
Taylor	15	76	22	110
Trempealeau	13	46	13	46
Vernon	16	54	23	78
Vilas	38	169	21	91
Walworth	106	105	119	117
Washburn	22	128	11	63
Washington	89	69	118	90
Waukesha	283	74	236	62
Waupaca	55	103	66	123
Waushara	13	52	7	28
Winnebago	380	232	321	195
Wood	37	49	26	34
Wisconsin	**16,301**	**289**	**15,544**	**274**

Source: *Crime in Wisconsin*, 2007 and 2008, Wisconsin Office of Justice Assistance (numbers).
Note: Rates are per 100,000 population.

- Interestingly, arrest rates for property crimes are far higher in Wisconsin than in the United States, considering that the rates of reported offenses are far lower (see Figure 19). Property crime arrest rates in Wisconsin increased in 2007 and 2008 (Figure 21).

Figure 21. Rate of property crime arrests (adult and juvenile) per 100,000 population, Wisconsin and the United States, 2000-2008

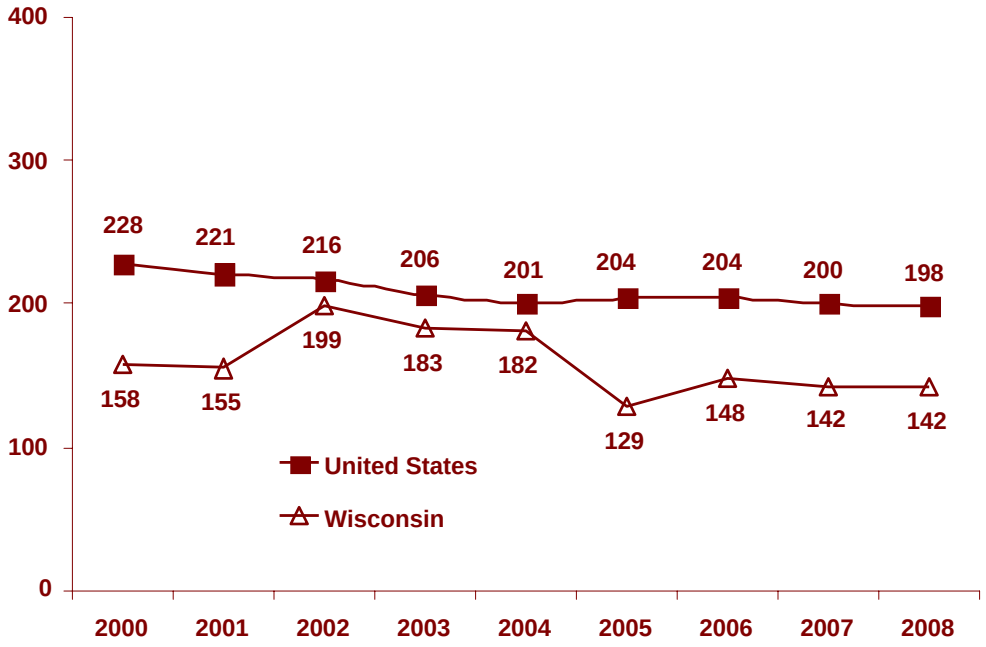


Sources: *Crime and Arrests in Wisconsin*, Wisconsin Office of Justice Assistance; *Crime in the United States*, U.S. Department of Justice, Federal Bureau of Investigation, Criminal Justice Information Services Division.

- Wisconsin data on violent crime arrest rates show an increase in 2002 that is largely attributable to a change in reporting in Milwaukee County (Office of Justice Assistance, *Crime and Arrests in Wisconsin 2002* report).

- Wisconsin's arrest rate for violent crime remains lower than the United States rate (Figure 22).

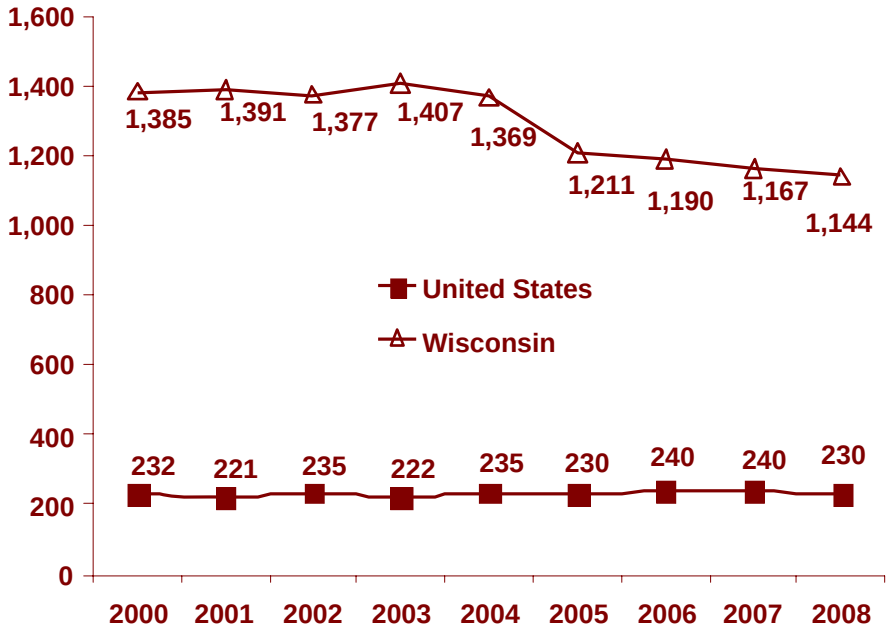
Figure 22. Rate of violent crime arrests (adult and juvenile) per 100,000 population, Wisconsin and the United States, 2000-2008



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.

- Wisconsin's rate of disorderly conduct arrests was five times the national rate in 2008 (Figure 23). The disorderly conduct arrest rate has declined in Wisconsin since 2003 but remains far higher than the U.S. rate.

Figure 23. Rate of disorderly conduct arrests (adult and juvenile) per 100,000 population, Wisconsin and the United States, 2000-2008



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.

Notes: 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 15. Disorderly conduct arrests per 100,000 population, Wisconsin by county, 2007 and 2008

County	Arrests per 100,000 population		County	Arrests per 100,000 population	
	2007	2008		2007	2008
Adams	486	648	Marinette	593	670
Ashland	1,263	1,009	Marquette	446	455
Barron	913	796	Menominee	2,686	2,050
Bayfield	375	357	Milwaukee	1,580	1,627
Brown	1,004	998	Monroe	2,322	2,208
Buffalo	412	389	Oconto	978	831
Burnett	572	365	Oneida	1,139	1,119
Calumet	373	314	Outagamie	1,325	1,093
Chippewa	644	668	Ozaukee	661	560
Clark	574	524	Pepin	342	562
Columbia	1,327	1,121	Pierce	992	1,059
Crawford	242	235	Polk	570	451
Dane	1,309	1,319	Portage	947	523
Dodge	934	1,050	Price	579	1,002
Door	579	316	Racine	937	1,261
Douglas	990	854	Richland	862	921
Dunn	981	902	Rock	1,653	1,535
Eau Claire	1,488	1,504	Rusk	914	1,264
Florence	215	293	St. Croix	937	747
Fond du Lac	914	914	Sauk	1,523	1,220
Forest	1,445	1,203	Sawyer	521	607
Grant	1,409	1,394	Shawano	1,432	1,470
Green	559	587	Sheboygan	2,215	2,180
Green Lake	995	1,093	Taylor	878	1,064
Iowa	910	766	Trempealeau	1,030	818
Iron	899	881	Vernon	442	485
Jackson	1,053	885	Vilas	399	469
Jefferson	1,199	1,306	Walworth	1,475	1,576
Juneau	840	679	Washburn	841	904
Kenosha	1,003	1,075	Washington	1,273	1,267
Kewaunee	599	444	Waukesha	605	571
La Crosse	1,451	1,384	Waupaca	1,146	997
Lafayette	951	1,073	Waushara	773	673
Langlade	657	675	Winnebago	1,207	1,296
Lincoln	1,225	905	Wood	1,335	1,279
Manitowoc	1,621	1,225			
Marathon	918	933	**Wisconsin**	1,173	1,145

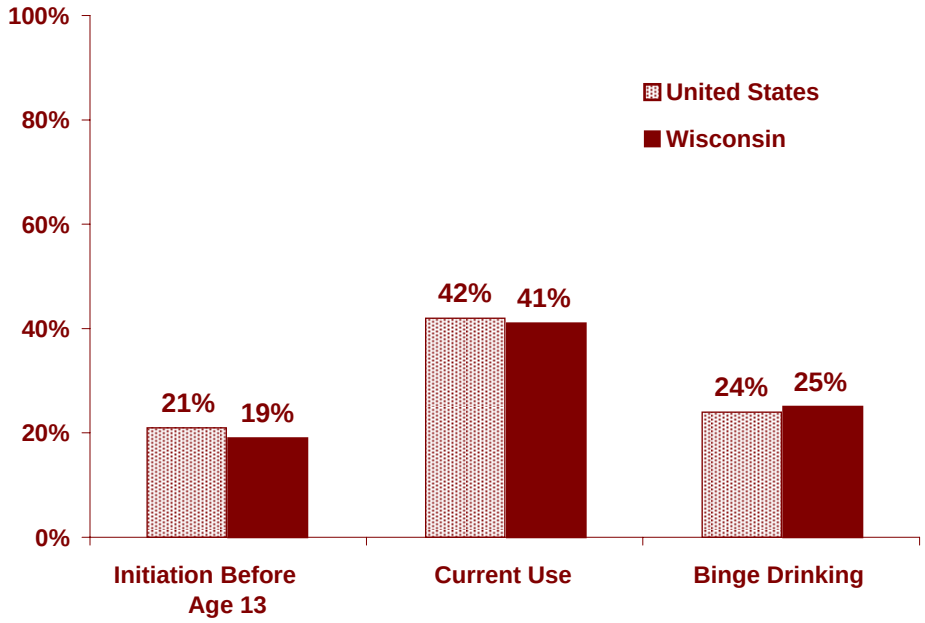
Source: *Arrests in Wisconsin*, 2007 and 2008, Wisconsin Office of Justice Assistance.

Alcohol Consumption

For many years, Wisconsin has arguably had the highest prevalence of alcohol use and over-consumption in the U.S., across all age groups and both sexes.[3] In recent years, the state has had some success in reducing alcohol consumption among youth. For example, the percent of high school students who started using alcohol before age 13 has been similar to the national average and decreasing, and Wisconsin no longer has the highest rate of binge drinking among high school students. However, Wisconsin's rates of current use, heavy use and binge use of alcohol among adults remain the highest in the country.

In 2009, Wisconsin high school students reported the 11th highest rate of current alcohol use (41%) among all reporting states. This was an improvement over 2007, when Wisconsin ranked the highest in the U.S. for this measure (49%). Wisconsin high school students had the eighth highest rate of binge drinking in 2008 (25%), also an improvement from 2007, when they ranked third (32%).

Figure 24. Alcohol use among high school students, Wisconsin and the United States, 2009

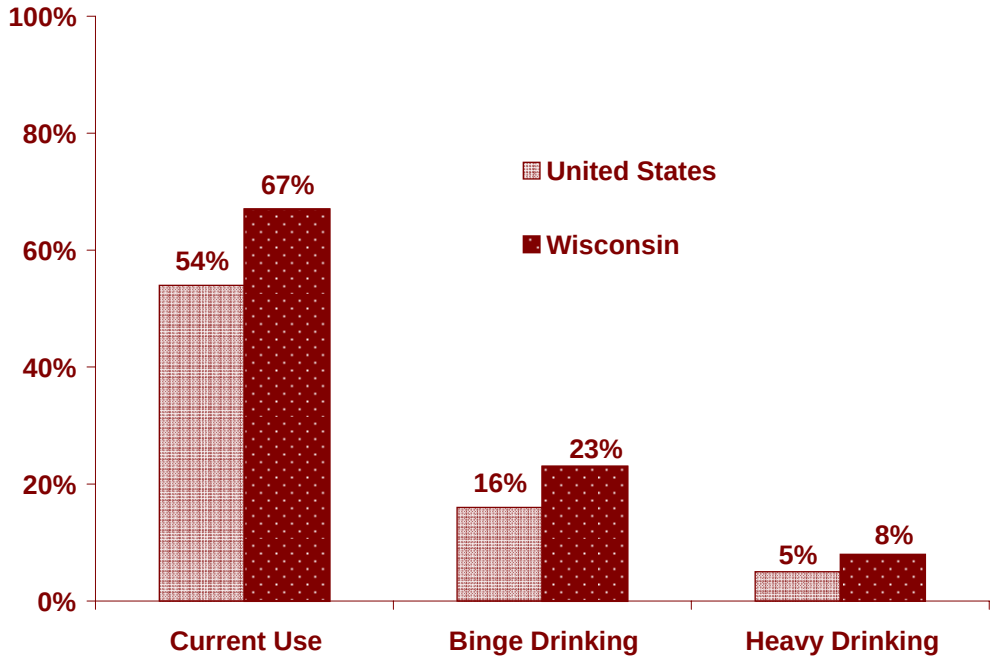


Source: Youth Risk Behavior Survey, Wisconsin Department of Public Instruction; U.S. Centers for Disease Control and Prevention.

[3] Behavioral Risk Factor Surveillance System, Prevalence and Trends Data, Centers for Disease Control and Prevention. http://apps.nccd.cdc.gov/brfss/

Among adults in 2008, Wisconsin reported the highest rates of binge drinking (23%), current alcohol use (67%), and heavy drinking (8%) in the country. Per capita consumption was also among the highest in the nation (3.0 gallons per person in 2007). Compared to the United States as a whole, Wisconsin continues to have higher rates of underage drinking (ages 12-20), underage binge drinking, and drinking among women of childbearing age.

Figure 25. Alcohol use among adults, Wisconsin and the United States, 2008



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

Current Alcohol Use

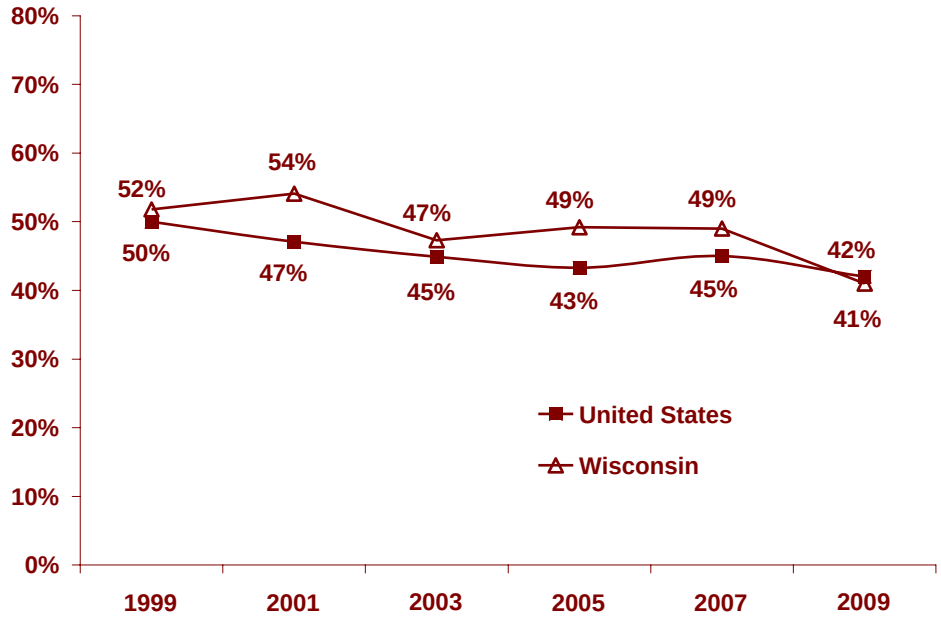
- The prevalence of current alcohol use among high school students and adults in Wisconsin has been consistently high. Current alcohol use (at least one drink in the past 30 days) was reported by 41% of Wisconsin high school students in 2009 and 67% of Wisconsin adults (age 18 and older) in 2008 (Figures 26 and 27).

- Although still high, rates of current alcohol use have declined among both high school students and adults in Wisconsin since 2000. Among students, current alcohol use declined from 52% in 1999 to 41% in 2009.

- The 2009 prevalence of current alcohol use among Wisconsin high school students (41%) was down from 49% in 2007, and about the same as the U.S. rate (42%).

- In 2007-2009, African American and Asian/Pacific Islander students were least likely to report current drinking (Table 16).

Figure 26. Current alcohol use among high school students, Wisconsin and the United States, 1999-2009



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

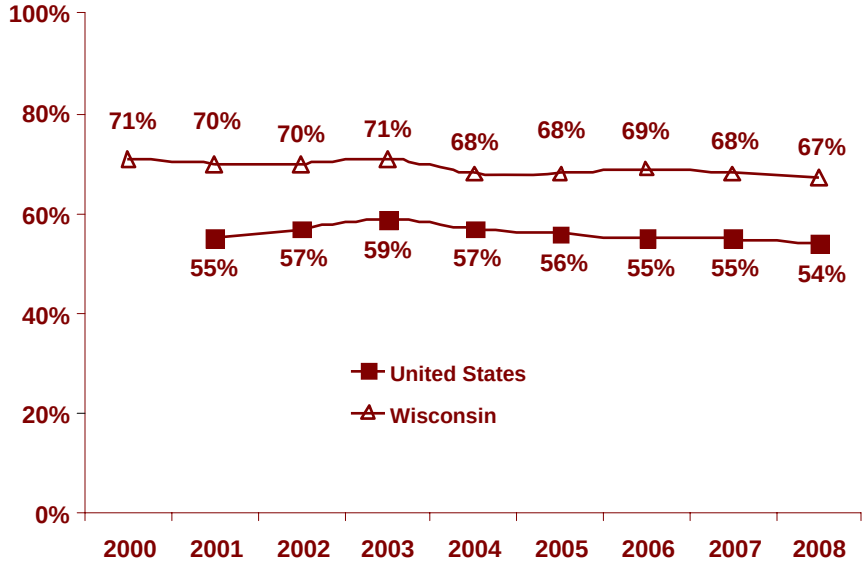
Table 16. Current alcohol use, high school students by race/ethnicity, Wisconsin, 2001-2009

Race/Ethnicity	2001-2003	2003-2005	2005-2007	2007-2009
White	53%	50%	51%	47%
African American	28%	30%	33%	33%
Hispanic/Latino	50%	45%	43%	42%
Asian/Pacific Islander	41%	42%	39%	32%
American Indian or Alaskan Native	69%	55%	51%	47%
Multiracial	43%	44%	53%	52%

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

- Among Wisconsin adults, current alcohol use declined from 71% in 2000 to 67% in 2008 (Figure 27).
- Adults aged 25 to 44 reported the highest prevalence of current alcohol use among the age groups measured (Table 17).
- Among Wisconsin adults by race/ethnicity, whites reported the highest prevalence of current alcohol use in 2006-2008 (69%), followed by Hispanics (62%), Asians and American Indians (56%), and African Americans (55%) (Table 18).

Figure 27. Current alcohol use among adults (age 18+), Wisconsin and United States, 2000-2008



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

Note: Current alcohol use is defined as at least one drink of alcohol in the past 30 days.

Table 17. Current alcohol use, adults age 18+, by age and sex, Wisconsin, 2000-2008

Year	U.S.	Wisconsin	18-24	25-44	45-64	65+	Males	Females	Females 18-44
2000	--	71%	77%	76%	71%	59%	79%	65%	70%
2001	55%	70%	72%	75%	71%	59%	77%	64%	69%
2002	57%	70%	73%	77%	68%	56%	76%	64%	71%
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%

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

Table 18. Current alcohol use, adults 18+, by race/ethnicity, Wisconsin, 2000-2008

Year	African American	American Indian	Asian	Hispanic	White
2000-2002	45%	69%	52%	61%	72%
2001-2003	51%	65%	50%	64%	72%
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%

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

Table 19. Prevalence of current alcohol use among adults 18 and older, Wisconsin by county, 2004-2006 and 2005-2007

County	2004-2006	2005-2007	County	2004-2006	2005-2007
Adams	64%	61%	Marinette	70%	73%
Ashland	64%	71%	Marquette	63%	62%
Barron	51%	51%	Menominee	61%	65%
Bayfield	64%	59%	Milwaukee	66%	66%
Brown	75%	71%	Monroe	56%	52%
Buffalo	66%	67%	Oconto	60%	67%
Burnett	64%	55%	Oneida	68%	69%
Calumet	70%	74%	Outagamie	74%	73%
Chippewa	61%	58%	Ozaukee	77%	74%
Clark	53%	51%	Pepin	62%	61%
Columbia	65%	67%	Pierce	62%	69%
Crawford	57%	59%	Polk	71%	71%
Dane	74%	75%	Portage	73%	69%
Dodge	66%	64%	Price	63%	62%
Door	70%	73%	Racine	66%	67%
Douglas	62%	67%	Richland	60%	66%
Dunn	71%	62%	Rock	63%	64%
Eau Claire	68%	70%	Rusk	56%	61%
Florence	58%	57%	St. Croix	74%	75%
Fond du Lac	72%	73%	Sauk	65%	65%
Forest	53%	47%	Sawyer	57%	60%
Grant	55%	70%	Shawano	65%	64%
Green	63%	65%	Sheboygan	76%	77%
Green Lake	69%	66%	Taylor	75%	72%
Iowa	54%	63%	Trempealeau	57%	59%
Iron	70%	55%	Vernon	64%	62%
Jackson	68%	58%	Vilas	67%	69%
Jefferson	59%	60%	Walworth	63%	64%
Juneau	64%	62%	Washburn	76%	66%
Kenosha	63%	62%	Washington	69%	71%
Kewaunee	71%	73%	Waukesha	75%	74%
La Crosse	60%	64%	Waupaca	59%	60%
Lafayette	62%	62%	Waushara	69%	58%
Langlade	56%	60%	Winnebago	68%	68%
Lincoln	61%	58%	Wood	62%	63%
Manitowoc	67%	69%			
Marathon	67%	69%	**Wisconsin**	68%	68%

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

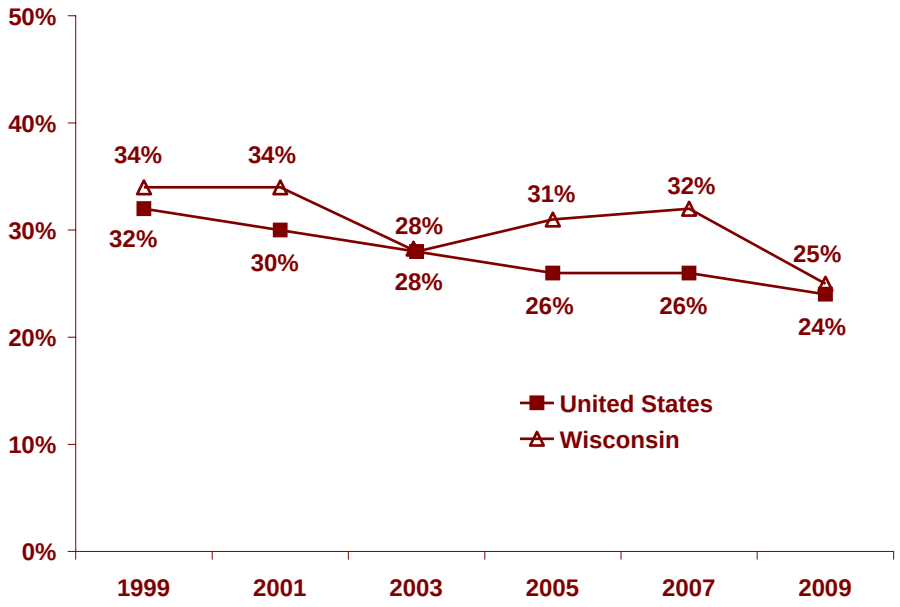
Binge Drinking

- The Youth Risk Behavior Survey defines binge drinking as five or more drinks of alcohol in a row.

- In 2009, 25% of Wisconsin high school students reported binge use of alcohol. This represents a sharp decline from the beginning of the decade (34%) and from 2007 (32%) (Figure 28). If this decline can be sustained, Wisconsin students will have achieved the same decline as has been seen more steadily across U.S. high school students as a whole.

- Binge drinking prevalence was lowest among African American students and Asian/Pacific Islander students (Table 20).

Figure 28. Prevalence of binge drinking among high school students, Wisconsin and the United States, 1999-2009



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

Table 20. Binge drinking among high school students by race/ethnicity, Wisconsin, 2001-2009

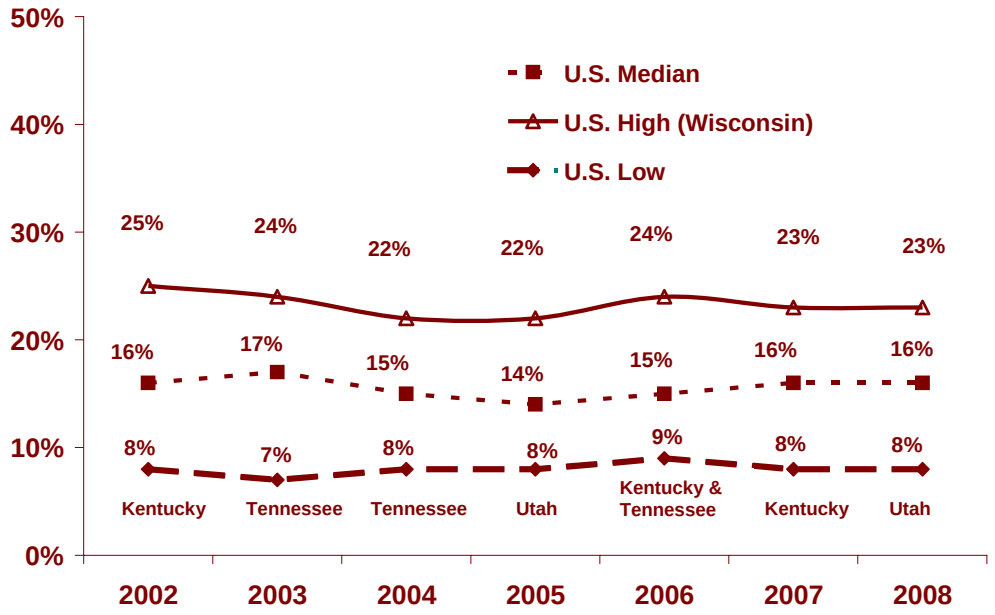
Race/Ethnicity	2001-2003	2003-2005	2005-2007	2007-2009
White	33%	31%	33%	30%
African American	16%	15%	15%	14%
Hispanic/Latino	35%	28%	26%	25%
Asian or Pacific Islander	24%	24%	22%	20%
American Indian or Alaskan Native	49%	42%	41%	35%
Multiracial	25%	26%	36%	34%

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

- The Centers for Disease Control and Prevention (CDC) defines binge drinking as five or more drinks on one occasion for men, and four or more drinks on one occasion for women. Prior to 2006, it was defined as five or more drinks for both sexes.

- The prevalence of binge drinking among Wisconsin adults (age 18 and older) in 2008 was 23% (Figure 29). As has been the case in previous years, this was the highest state prevalence of binge drinking in the United States.

Figure 29. Adult binge drinking prevalence: Range of state estimates: Low, high, and United States median, 2002-2008



Source: Behavioral Risk Factor Surveillance System, Centers for Disease Control and Prevention.

- In 2008, binge drinking in Wisconsin was highest among men, adults ages 18 to 44, American Indians and whites (Tables 21 and 22).

- Binge drinking among young adults ages 18 to 24 declined from 49% in 2000 to 31% in 2008 (Table 21), although it remains higher than the 2008 U.S. prevalence of 25% in this age group (not shown). Binge drinking declined among men, from 36% in 2000 to 28% in 2008. Binge drinking also declined among American Indians, from 37% in 2000-2002 to 25% in 2006-2008 (Table 22).

- A note about the cell phone-only population and binge drinking: Current evidence from the Behavioral Risk Factor Surveillance System and the National Health Interview Survey indicates that the cell phone-only population has a higher prevalence of binge drinking than the population with landline telephones, and estimates using data from only landline interviews are likely to underestimate binge drinking by as much as 2 to 3 percentage points. CDC will make combined (landline and cell-only) data sets available to states sometime in the second half of 2010, but had not yet done so at the time this report was developed.

Table 21. Binge drinking among adults (age 18+) by sex and age, Wisconsin, 2000-2008

Year	U.S.	Wisconsin	18-24	25-44	45-64	65+	Males	Females	Females (18-44)
2000	**	25%	49%	32%	19%	4%	36%	16%	24%
2001	15%	26%	47%	34%	18%	5%	37%	15%	24%
2002	16%	25%	41%	33%	19%	5%	36%	14%	22%
2003	17%	25%	43%	31%	18%	6%	33%	15%	25%
2004	15%	22%	37%	29%	17%	5%	31%	14%	21%
2005	14%	22%	33%	28%	21%	4%	32%	12%	18%
2006	15%	24%	38%	32%	20%	6%	33%	16%	24%
2007	16%	23%	36%	29%	20%	8%	27%	17%	25%
2008	16%	23%	31%	31%	20%	8%	28%	17%	24%

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

** No U.S. estimate for 2000. Alcohol questions not asked in all states until 2001.

Table 22. Binge drinking among adults (age 18+) by race/ethnicity, Wisconsin, 2000-2008

Year	African American	American Indian	Asian	Hispanic/ Latino	White
2000-2002	16%	37%	12%	28%	25%
2001-2003	16%	34%	11%	28%	25%
2002-2004	15%	35%	15%	28%	24%
2003-2005	15%	31%	16%	28%	23%
2004-2006	14%	32%	17%	28%	22%
2005-2007	16%	29%	18%	25%	24%
2006-2008	17%	25%	17%	21%	24%

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

Table 23. Prevalence of binge drinking among adults age 18 and older, Wisconsin by county, 2004-2006 and 2005-2007

County	2004-2006	2005-2007	County	2004-2006	2005-2007
Adams	35%	28%	Marinette	19%	25%
Ashland	28%	35%	Marquette	29%	27%
Barron	16%	17%	Menominee	24%	37%
Bayfield	29%	18%	Milwaukee	22%	22%
Brown	26%	25%	Monroe	26%	25%
Buffalo	34%	28%	Oconto	26%	32%
Burnett	*	16%	Oneida	22%	16%
Calumet	32%	30%	Outagamie	30%	34%
Chippewa	18%	16%	Ozaukee	18%	17%
Clark	20%	21%	Pepin	*	25%
Columbia	24%	33%	Pierce	21%	29%
Crawford	22%	21%	Polk	16%	22%
Dane	21%	22%	Portage	24%	24%
Dodge	25%	25%	Price	*	23%
Door	20%	22%	Racine	23%	23%
Douglas	28%	32%	Richland	21%	25%
Dunn	38%	31%	Rock	26%	26%
Eau Claire	34%	35%	Rusk	*	13%
Florence	33%	24%	St. Croix	25%	23%
Fond du Lac	24%	25%	Sauk	29%	28%
Forest	*	21%	Sawyer	*	19%
Grant	19%	31%	Shawano	26%	24%
Green	19%	22%	Sheboygan	28%	29%
Green Lake	26%	20%	Taylor	30%	30%
Iowa	23%	27%	Trempealeau	25%	22%
Iron	30%	20%	Vernon	23%	26%
Jackson	28%	21%	Vilas	*	16%
Jefferson	22%	25%	Walworth	22%	20%
Juneau	19%	16%	Washburn	*	16%
Kenosha	18%	17%	Washington	21%	22%
Kewaunee	39%	35%	Waukesha	16%	14%
La Crosse	19%	18%	Waupaca	22%	22%
Lafayette	21%	14%	Waushara	17%	12%
Langlade	27%	29%	Winnebago	22%	23%
Lincoln	20%	24%	Wood	17%	15%
Manitowoc	28%	36%			
Marathon	23%	24%	**Wisconsin**	23%	23%

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

* Estimate not reliable

Heavy Use of Alcohol

- The Centers for Disease Control and Prevention defines heavy drinking as more than two drinks per day for men and more than one drink per day for women. Prior to 2001, the definition was more than two drinks per day for both sexes.

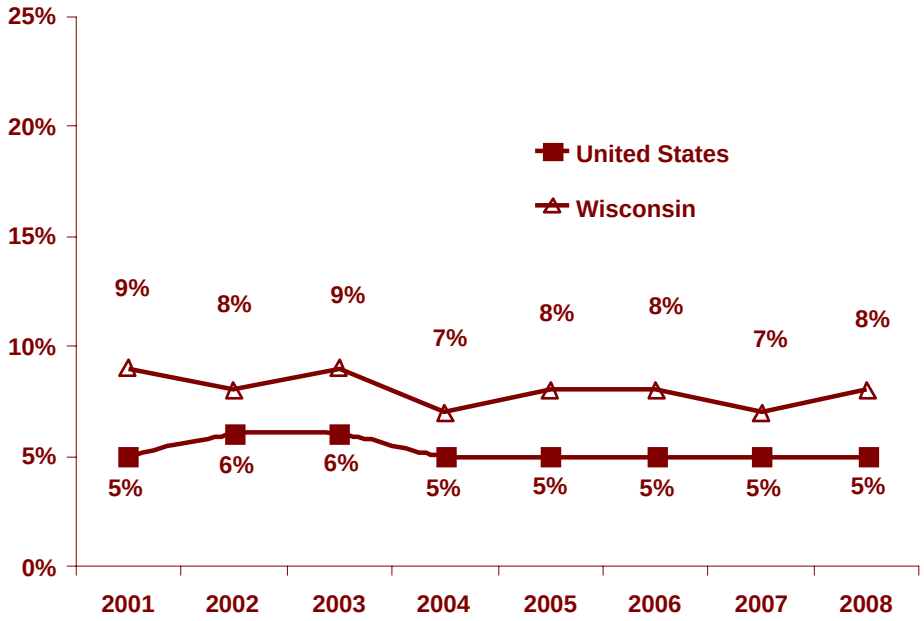
- The prevalence of heavy use of alcohol among Wisconsin adults (age 18 and older) has remained at or near 8% since 2001 (Figure 30). This was consistently higher than the national average (5% in 2008).

- Heavy use of alcohol is highest among the youngest adults, ages 18-24 (Table 24). In 2008, 14% of this age group in Wisconsin reported heavy drinking.

- In 2008, the prevalence of heavy drinking was 9% among men and 7% among women. Men had higher rates of heavy drinking than women in most years since 2000.

- In 2006-2008, heavy use of alcohol was reported most frequently by American Indians (10%) and Hispanics/Latinos (8%) (Table 25). Estimates for American Indian and Asian groups should be interpreted with caution, as they are based on small sample sizes and have large standard errors relative to the size of the estimates.

Figure 30. Prevalence of heavy drinking among adults, Wisconsin and the United States, 2001-2008



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

Table 24. Prevalence of heavy drinking among adults (age 18+) by age and sex, Wisconsin, 2000-2008

Year	U.S.	Wisconsin	18-24	25-44	45-64	65+	Males	Females	Females 18-44
2000	**	5%	8%	6%	6%	1%	9%	2%	3%
2001	5%	9%	18%	9%	8%	3%	11%	7%	9%
2002	6%	8%	12%	9%	7%	4%	10%	6%	7%
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%

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

Table 25. Prevalence of heavy drinking among adults (age 18+) by race/ethnicity, Wisconsin, 2000-2008

Year	African American	American Indian	Asian	Hispanic/ Latino	White
2000-2002	5%	6%	1%	9%	7%
2001-2003	6%	8%	1%	10%	9%
2002-2004	5%	13%	3%	10%	8%
2003-2005	5%	9%	2%	12%	8%
2004-2006	5%	7%	3%	11%	8%
2005-2007	7%	5%	2%	9%	7%
2006-2008	7%	10%	4%	8%	7%

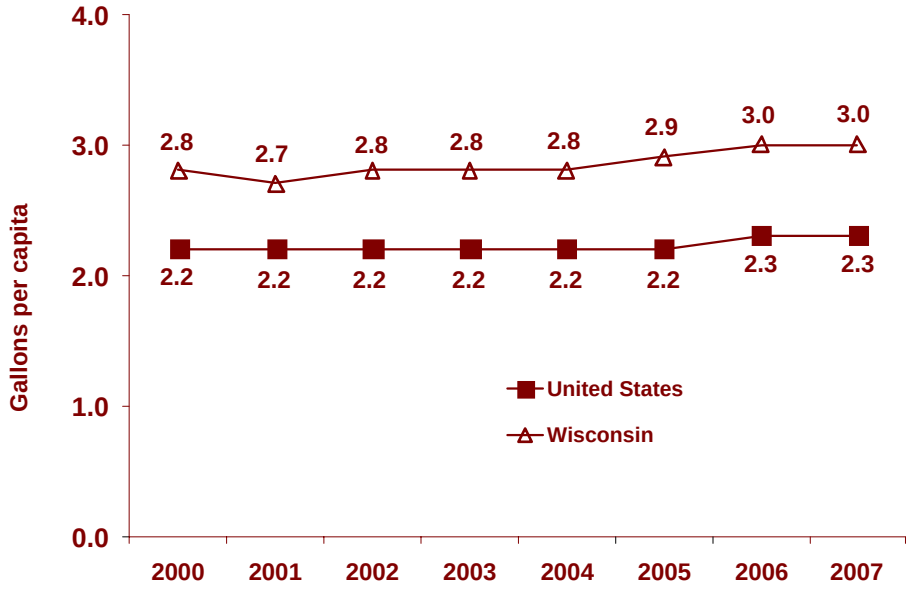
Source: Behavioral Risk Factor Survey, Division of Public Health, Wisconsin Department of Health Services.

Note: Estimates for American Indian and Asian groups should be interpreted with caution, as they are based on small sample sizes and have large standard errors relative to the size of the estimates.

Per Capita Consumption

- Between 2000 and 2007, per capita consumption of alcohol in Wisconsin rose from 2.8 to 3.0 gallons per person (Figure 31). Per capita consumption is gallons of ethanol consumed per person, based on the population age 14 and older.
- Wisconsin's per capita consumption was notably higher than the national average every year (Figure 31).
- Wisconsin's per capita consumption, 3.0 gallons, is equal to 384 fluid ounces, or 768 drinks (each alcoholic drink equals 0.5 ounces of ethanol).

Figure 31. Per capita alcohol consumption, in gallons, Wisconsin and the United States, 2000-2007



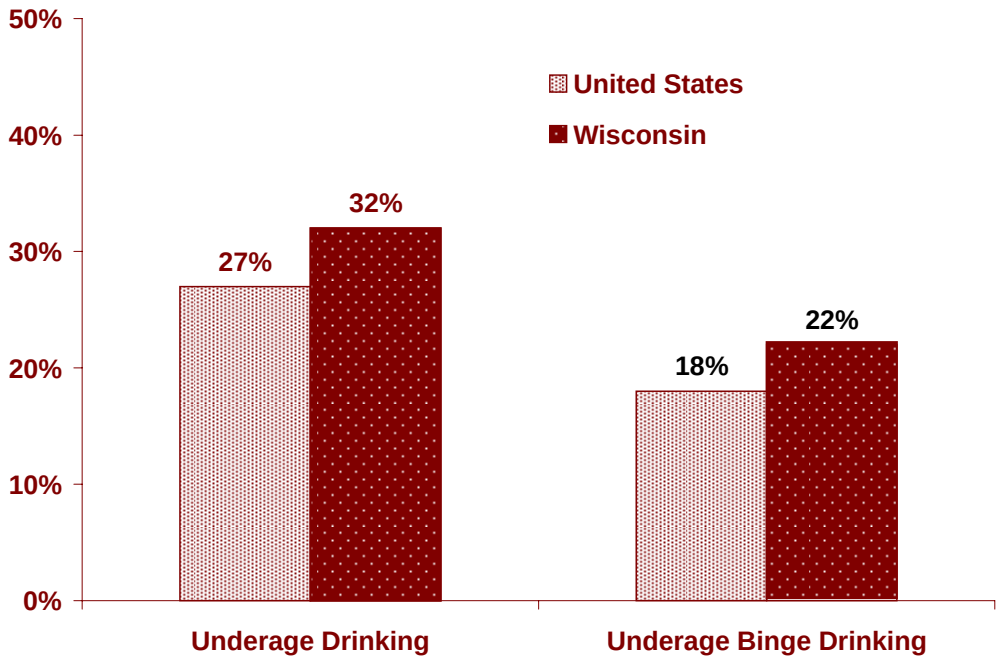
Source: *Per capita ethanol consumption for states, Census regions, and the United States, 1970-2007.* National Institute on Alcohol Abuse and Alcoholism, National Institutes of Health, U.S. Department of Health and Human Services.

Underage Drinking

Compared to the United States as a whole, Wisconsin has higher rates of "underage" drinking, defined by the National Survey on Drug Use and Health as drinking by youth ages 12 to 20. Wisconsin youth are more likely to report both current drinking (at least one drink in the past month) and binge drinking (five or more drinks on one occasion in the past month).

In 2007-2008, 22% of Wisconsin youth ages 12-20 reported binge drinking in the past month (Figure 32), down from 25% in 2005-2006 (not shown).

Figure 32. Prevalence of underage drinking, Wisconsin and the United States, 2007-2008



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

Notes: NSDUH defines "underage" drinking as drinking among youth 12-20 years of age; current drinking as alcohol use in the past month; and binge drinking as five or more drinks on at least one day in the past month.

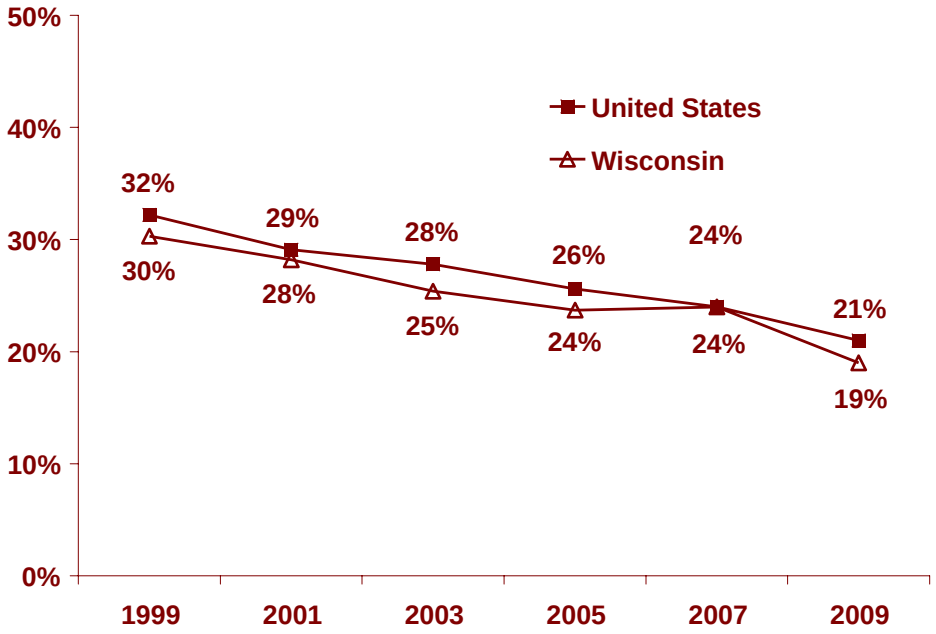
For purposes of clarification, NSDUH data are presented here because they include estimates for ages 12-20, which is an appropriate age span for underage drinking. The other major sources of data on alcohol use, the Behavioral Risk Factor Survey and the Youth Risk Behavior Survey, only provide data for adults 18 and older (the BRFS) and high school students (the YRBS).

Age of Initiation

- The percent of Wisconsin high school students who initiated alcohol use before age 13 declined between 1999 and 2009, from 30% to 19% (Figure 33). Prevalence of before-age-13 initiation among boys exceeded that among girls in each of those years (Table 26).

- During 2007-2009, Hispanic/Latino, African American, and multiracial students were most likely to report initiating alcohol use before age 13 (Table 27). From 2001-2003 to 2007-2009, white and Asian students showed clear decreases in the prevalence of initiation before age 13.

Figure 33. Initiation of alcohol use before age 13, high school students in Wisconsin and the United States, 1999-2009



Source: Youth Risk Behavior Survey, Wisconsin Department of Public Instruction; 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 26. Initiation of alcohol use before age 13, high school students by sex, Wisconsin, 2001-2009

	2001	*2003*	*2005*	*2007*	*2009*
Female	27%	22%	19%	20%	17%
Male	30%	29%	28%	27%	22%

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

Table 27. Initiation of alcohol use before age 13, high school students by race/ethnicity, Wisconsin, 2001-2009

Race/Ethnicity	2001-2003	2003-2005	2005-2007	2007-2009
White	26%	23%	23%	20%
African American	31%	27%	26%	28%
Hispanic/Latino	27%	30%	30%	29%
Asian or Pacific Islander	30%	30%	22%	20%
American Indian or Alaskan Native	**	**	**	**
Multiracial	30%	34%	31%	28%

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

** Too few cases in sample to produce a reliable estimate.

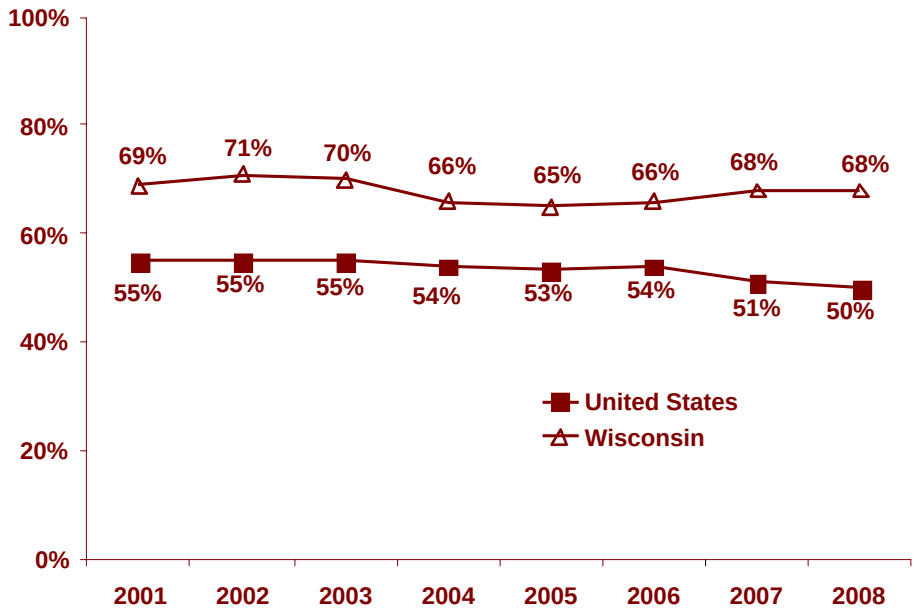
Alcohol Use by Women of Childbearing Age

Alcohol use can impair decision-making and result in risk-taking behaviors, including sexual behaviors; an unplanned pregnancy may be one result. Studies also have shown that alcohol use during pregnancy can harm the developing fetus. The Centers for Disease Control and Prevention (CDC) has reported that Wisconsin is among the states that report the highest rates of drinking among pregnant women and high-risk drinking among women of childbearing age.[4]

- Wisconsin women of childbearing age are more likely to drink than women nationally (Figure 34). In 2008, 68% of Wisconsin women ages 18-44 said they had at least one alcoholic drink in the past 30 days; this compares with 50% of women in the United States.

- Binge drinking is also more prevalent among Wisconsin women of childbearing age, compared with their national counterparts. In 2008, among women ages 18-44, 24% in Wisconsin and 15% nationally said they had consumed four or more drinks on one occasion in the past 30 days (Figure 35).

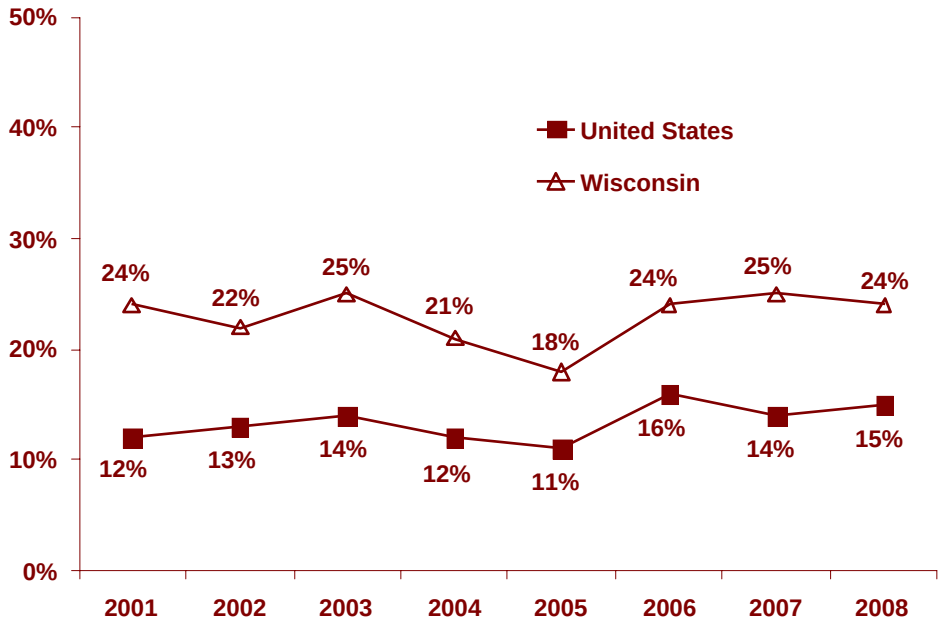
Figure 34. Prevalence of current alcohol use among women ages 18-44, Wisconsin and the United States, 2001-2008



Source: Wisconsin Behavioral Risk Factor Survey; Behavioral Risk Factor Surveillance System, U.S. Centers for Disease Control and Prevention.

[4] U.S. Centers for Disease Control and Prevention (2004). Alcohol consumption among women who are pregnant or who might become pregnant – United States, 2002. *Morbidity and Mortality Weekly Report*, 53(50), 1178-1181.

Figure 35. Binge drinking among women ages 18-44, Wisconsin and the United States, 2001-2008



Source: Wisconsin Behavioral Risk Factor Survey; Behavioral Risk Factor Surveillance System, U.S. Centers for Disease Control and Prevention.

Other Drug Consumption

The use of illicit drugs other than alcohol remains a problem in Wisconsin. As a whole, consumption patterns of illicit drugs in Wisconsin mirror national trends (Table 28).

Wisconsin high school students and their national counterparts show similar patterns of experimentation with illicit drugs, with rates slightly lower in Wisconsin (Figure 36).

Rates of illicit drug use and non-medical use of prescription pain relievers are highest among young adults ages 18-25 (Figure 37).

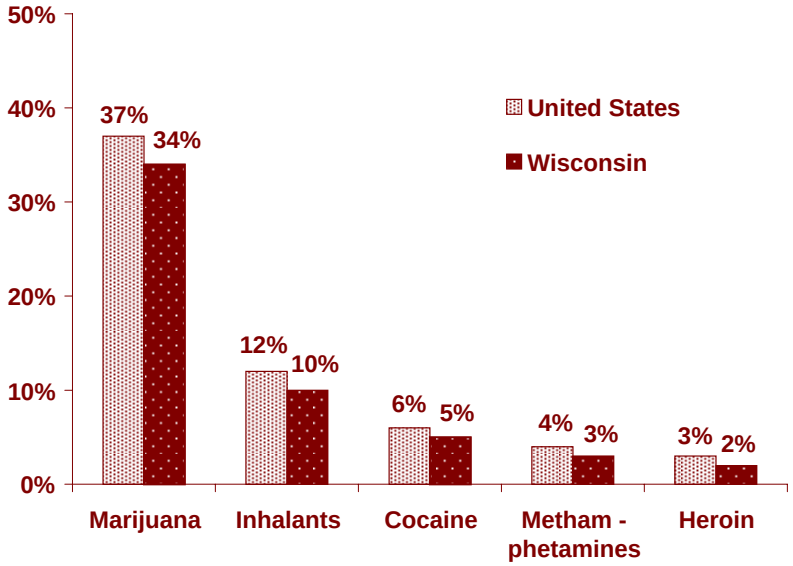
Table 28. Past year and past month use of illicit drugs, age 12 and older, Wisconsin and the United States, 2007-2008

	Past Year		*Past Month*	
	Wisconsin	**United States**	**Wisconsin**	**United States**
Any illicit drugs	--	--	9%	8%
Illicit drugs other than marijuana	--	--	4%	4%
Marijuana	11%	10%	6%	6%
Cocaine	3%	2%	--	--
Non-medical use of pain relievers	6%	5%	--	--

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

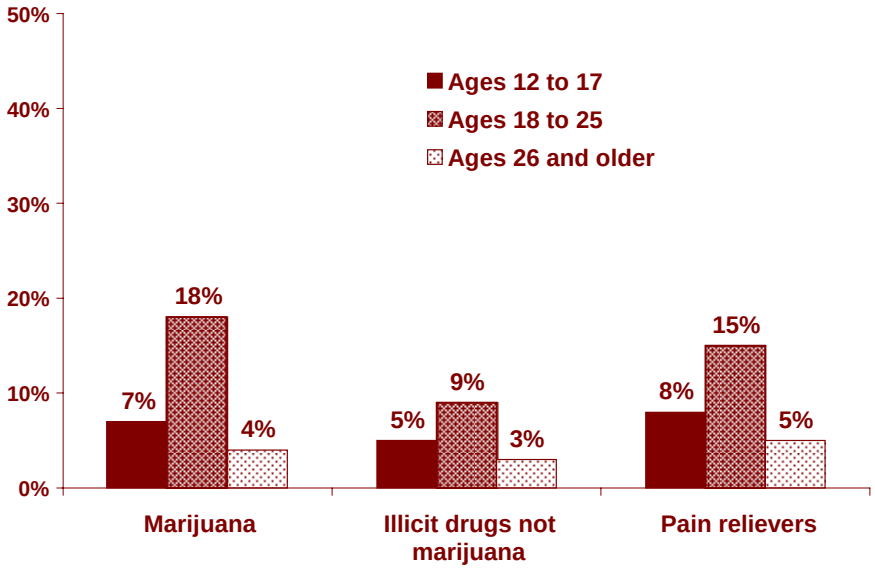
Note: Dash (--) indicates data not available.

Figure 36. Lifetime use of illicit drugs among high school students, Wisconsin and the United States, 2009



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

Figure 37. Use of marijuana, illicit drugs other than marijuana, and pain relievers for non-medical purposes, age 12 and older by age group, Wisconsin, 2007-2008



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

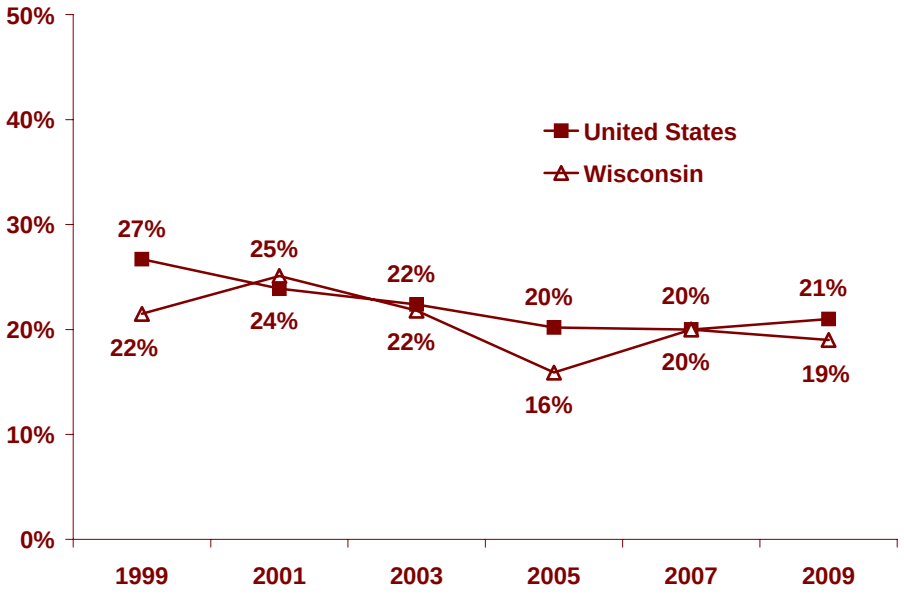
Note: Use of marijuana and use of illicit drugs other than marijuana are use in the past month; use of pain relievers is use in the past year.

Marijuana

Arrests for marijuana possession accounted for 73% of all drug arrests in Wisconsin in 2008. Marijuana use can lead to decreased lung function, and impaired memory among youth.

- Between 1999 and 2009, the prevalence of current marijuana use among Wisconsin high school students showed some evidence of change: it was 22% in 1999 and 19% in 2009 (Figure 38), with some fluctuation in the intervening years. All three of the most recent years of data showed lower rates than the three years preceding them.

Figure 38. Current marijuana use among high school students, Wisconsin and the United States, 1999-2009

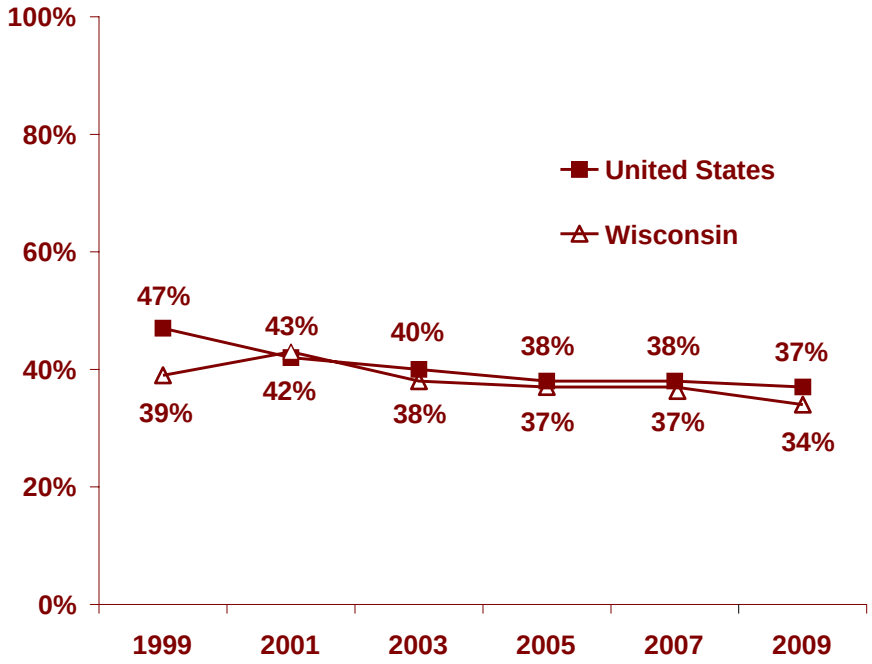


Source: Youth Risk Behavior Survey, Wisconsin Department of Public Instruction; U.S. Centers for Disease Control and Prevention.

- Experimentation with marijuana among Wisconsin high school students rose between 1999 (39%) and 2001 (43%), but has decreased since then (Figure 39).

- In 2009, 34% of Wisconsin high school students had tried marijuana at least once.

Figure 39. Lifetime marijuana use among high school students, Wisconsin and the United States, 1999-2009



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

- Among Wisconsin high school students in 2007-2009, current marijuana use was highest for American Indian/Alaskan Native students (37%) and African American students (31%) (Table 29). In addition, higher proportions of American Indian and African American students reported having tried marijuana before age 13 (17% and 14%, respectively; Table 30) than the average for all Wisconsin high school students (7% in 2007-2009, not shown).

- In Wisconsin, the prevalence of current marijuana use was similar among high school students (19% in 2009; Figure 38, page 70) and young adults ages 18 to 25 (18% in 2007-2008; Figure 37, page 69). The prevalence for adults ages 26 and older was 4% in 2007-2008 (Figure 37).

Table 29. Current marijuana use among high school students by race/ethnicity, Wisconsin, 2003-2009

Race/Ethnicity	2003-2005	2005-2007	2007-2009
White	18%	16%	18%
African American	31%	32%	31%
Hispanic/Latino	22%	24%	23%
Asian or Pacific Islander	16%	10%	10%
American Indian or Alaskan Native	27%	26%	37%
Multiracial	20%	24%	24%

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

Table 30. Initiation of marijuana use before age 13, high school students by race/ethnicity, Wisconsin, 2003-2009

Race/Ethnicity	2003-2005	2005-2007	2007-2009
White	6%	10%	5%
African American	20%	23%	14%
Hispanic/Latino	13%	16%	**
Asian or Pacific Islander	10%	6%	6%
American Indian or Alaskan Native	19%	**	17%
Multiracial	13%	14%	13%

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

** Too few cases in sample to provide a reliable estimate.

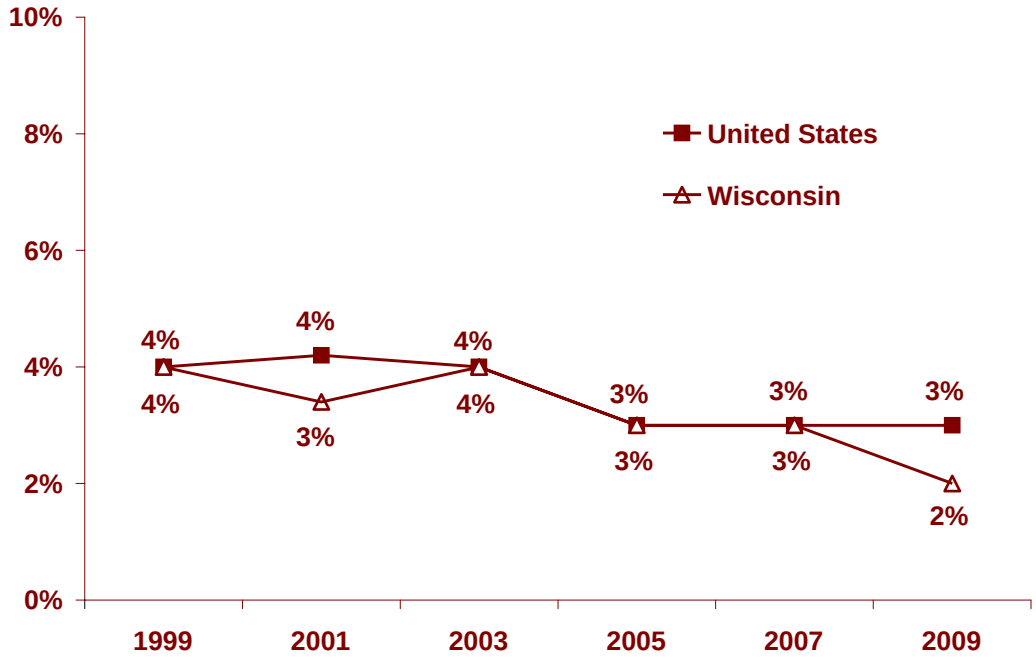
Cocaine

Cocaine users face the possibilities of arrest, 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. Cocaine continues to be the most frequently mentioned illicit substance reported to the Drug Abuse Warning Network (DAWN) by hospital emergency departments nationwide.

- The prevalence of current cocaine use among Wisconsin high school students decreased from 4% in 1999 to 2% in 2009 (Figure 40).

- Nevertheless, pockets of higher use remain evident. Multiracial high school students reported a higher prevalence of current cocaine use than the Wisconsin average (Table 31). Young adults ages 18-25 have a higher rate than other age groups of using illicit drugs such as cocaine (Figure 37, page 69).

Figure 40. Current cocaine use among high school students, Wisconsin and the United States, 1999-2009



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

Table 31. Current cocaine use among high school students by race/ethnicity, Wisconsin, 2001-2009

Race/Ethnicity	2001-2003	2003-2005	2005-2007	2007-2009
White	3%	3%	3%	6%
African American	5%	6%	3%	5%
Hispanic/Latino	7%	6%	3%	5%
Asian or Pacific Islander	7%	3%	4%	7%
American Indian or Alaskan Native	**	**	**	**
Multiracial	3%	7%	7%	11%

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

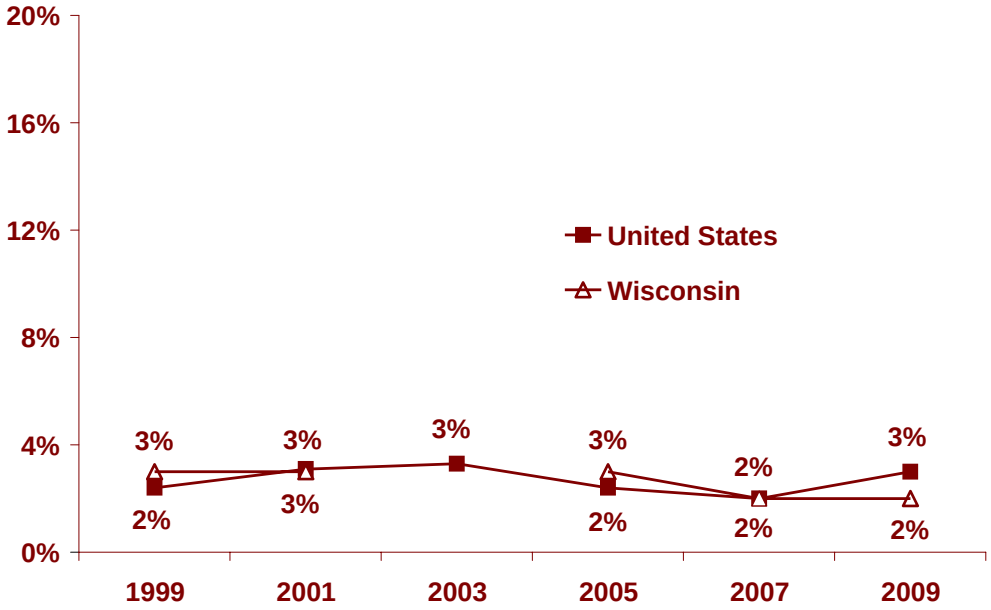
** Too few cases in sample to produce a reliable estimate.

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.

- The prevalence of lifetime heroin use among high school students in Wisconsin remained steady at 3% between 1999 and 2005, and was 2% in 2007 and 2009 (Figure 41). During 2007-2009, the prevalence of lifetime heroin use was highest among multiracial students (6%) (Table 32).

Figure 41. Lifetime heroin use among high school students, Wisconsin and the United States, 1999-2009



Source: Youth Risk Behavior Survey, Wisconsin Department of Public Instruction; U.S. Centers for Disease Control and Prevention. (Note: Data not available for Wisconsin in 2003.)

Table 32. Lifetime heroin use among high school students by race/ethnicity, Wisconsin, 2001-2009

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

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

* Question on heroin use was not asked in 2003.

** Too few cases to produce a reliable estimate.

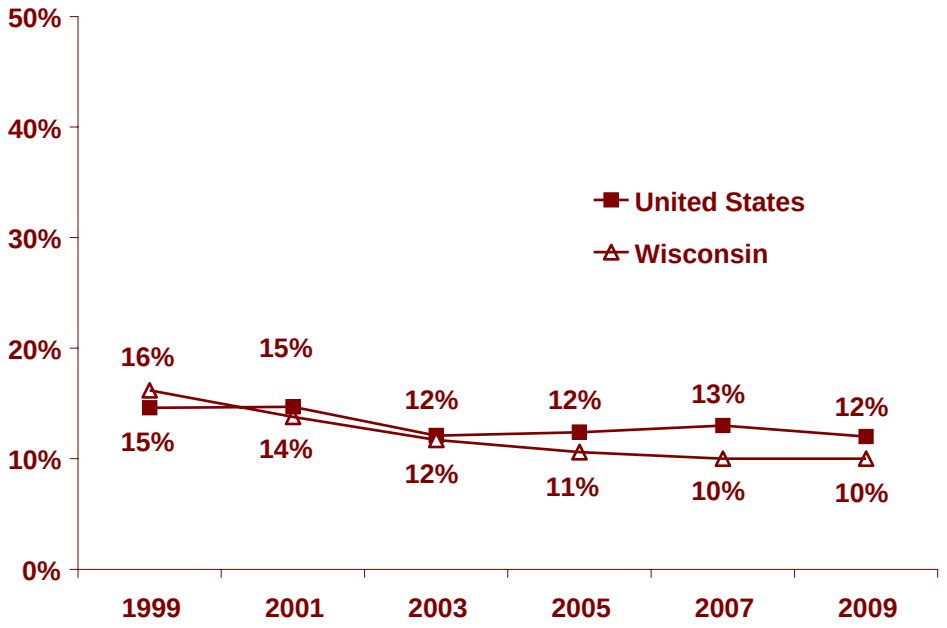
Inhalants

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 in the same way that cocaine, amphetamine/methamphetamine, PCP, and nicotine promote euphoria. This finding emphasizes the addictive nature of inhalants.[5]

- The prevalence of lifetime inhalant use among high school students has dropped since 1999. In 2009, 10% of Wisconsin high school students reported having used inhalants to get high at some point in their lifetime (Figure 42).

Figure 42. Lifetime inhalant use among high school students, Wisconsin and the United States, 1999-2009



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

[5] U.S. Substance Abuse and Mental Health Services Administration (SAMHSA), National Clearinghouse for Alcohol and Drug Information, 2005.

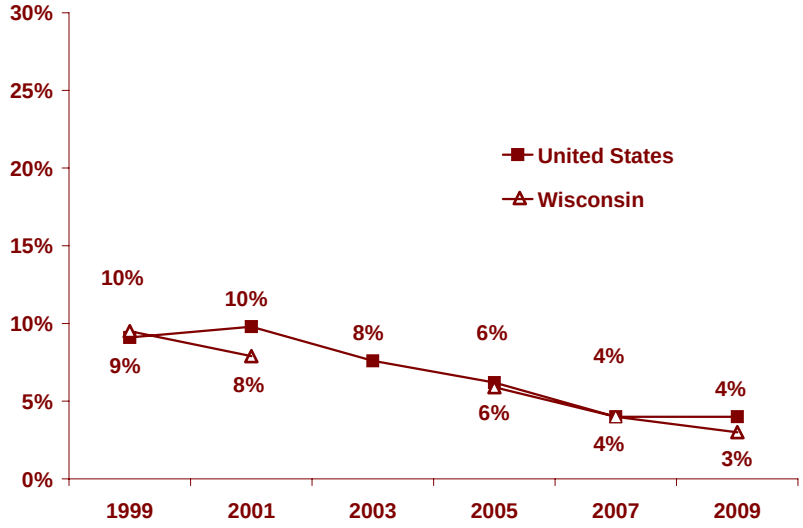
Methamphetamines

As well as being highly addictive, methamphetamine use can lead to neurological damage and psychotic behaviors.

- Lifetime methamphetamine use among Wisconsin high school students decreased between 1999 and 2009, following a national trend. The prevalence of lifetime methamphetamine use among Wisconsin high school students was 10% in 1999 and 3% in 2009 (Figure 43).

- Among high school students in 2007-2009, white and African American students reported the lowest prevalence of lifetime methamphetamine use (3% and 4%, respectively), while Asian students reported the highest (8%; Table 33).

Figure 43. Lifetime methamphetamine use among high school students, Wisconsin and the United States, 1999-2009



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

Table 33. Lifetime methamphetamine use among high school students by race/ethnicity, Wisconsin, 2001-2009

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

Source: Youth Risk Behavior Survey, Wisconsin Department of Public Instruction; U.S. Centers for Disease Control and Prevention.
* Question on methamphetamine use was not asked in 2003.
* * Too few cases to produce a reliable estimate.

Non-Medical Use of Prescription Drugs

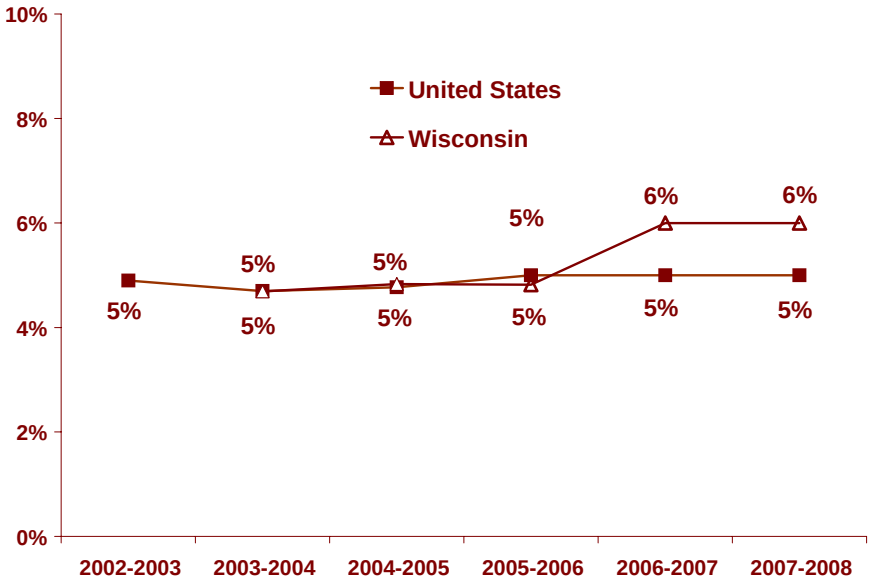
A 2001 survey found that lifetime non-medical use of prescription stimulants among college students in the United States was approximately 7%, and past-year use was an estimated 4%. The study also found that non-medical prescription drug use was associated with use of alcohol, cigarettes, marijuana and other illicit drugs.[6]

Nationally, emergency department visits involving nonmedical 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.[7]

- During 2007-2008, 6% of Wisconsin residents ages 12 and older reported using pain relievers for non-medicinal purposes in the past year (Figure 44). This percentage has increased since 2005-2006, and is higher than the prevalence reported nationally (5%). The prevalence of use was highest among young adults ages 18 to 25 (15%, Figure 37).

- Twenty-one percent (21%) of Wisconsin high school students in 2009 (23% in 2007) reported using prescription drugs ("such as OxyContin, Percocet, Vicodin, Adderal, Ritalin, or Xanax") for non-medical purposes at some point in their lives. The 2009 percentage for U.S. high school students as a whole was similar (20%).

Figure 44. Use of prescription pain relievers for non-medical purposes in the past year, age 12 and older, Wisconsin and the United States, 2002-2008



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

[6] McCabe SE, J Knight, C Teter and H Wechsler. 2005. Non-medical use of prescription stimulants among U.S. college students: prevalence and correlates from a national survey. *Addiction,* Vol. 100 (1), 96-106.

[7] Centers for Disease Control and Prevention. 2010. Emergency department visits Involving nonmedical use of selected prescription drugs—United States, 2004-2008. *Morbidity and Mortality Weekly Report.* June 18, 2010 / 59(23); 705-709.

Conclusion

The social, economic and health costs of substance abuse in Wisconsin are high. Wisconsin has one-and-a-half times the national rate of arrests for OWI (operating a motor vehicle while intoxicated) and more than three times the national rate of arrests for liquor law violations. For most years since 2000, Wisconsin's rate of deaths due to alcohol-related motor vehicle crashes was higher than the national average as well.

These high rates of alcohol-related consequences are not surprising given Wisconsin's high rate of alcohol consumption. The rate of per capita alcohol consumption in Wisconsin is among the highest in the nation. Data for 2008 show that Wisconsin has a higher prevalence of alcohol use and binge drinking among adults compared to other states. Rates of underage drinking (by youth ages 12-20) and underage binge drinking are also higher compared to rates for the United States. Wisconsin has the highest rate of drinking and driving in the nation.

As shown in this report, Wisconsin has recently made progress in reducing alcohol consumption among youth. For the first time since 1999, Wisconsin's rate of drinking among high school students fell below the national average in 2009. Combined with a steadily increasing age of initiation, and falling rates of underage binge drinking, Wisconsin appears to be improving in terms of youth alcohol use.

Alcohol-related motor vehicle deaths have also decreased. In 2008, Wisconsin's rate of alcohol-related motor vehicle fatalities fell below the national rate for the first time in many years.

Wisconsin rates of drug-related deaths and drug law arrests are lower than national averages. However, the rate of drug-related deaths in Wisconsin increased steadily from 2000 before declining in 2008. The 2008 rate was twice what it was at the beginning of the decade, suggesting a new public health priority for the state.

Misuse and abuse of pharmaceutical drugs appears to be a growing problem nationally and in Wisconsin. There is a lack of data concerning the prevalence and burden associated with their misuse and abuse. As a result, this report does not provide substantial information regarding this problem. The State Council on Alcohol and Other Drug Abuse has established a Controlled Substances Prevention Sub-Committee that is examining this issue. The Sub-Committee is expected to issue a report in June 2011 highlighting Wisconsin's prevalence of and recommendations to reduce and prevent the abuse and misuse of pharmaceutical drugs. The Sub-Committee will identify prescription drugs that are most often abused in Wisconsin, including drugs of abuse with high consequences. The Sub-Committee will also examine 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.

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, an earlier version of this Profile helped to identify key consequences of alcohol and other drug abuse in the state. The priorities defined in this Profile (and the

earlier edition) are being used to assist local organizations/governments to address those specific consequences. These priorities are:

- Underage drinking (ages 12-20)
- Adult binge drinking (ages 18-34)
- Alcohol-related motor vehicle fatalities and injuries (especially among people ages 16 to 34)
- Drug-related deaths (with a focus on unintentional opioid-related overdoses and deaths among people ages 20-54).

The Strategic Prevention Framework State Incentive Grant (funded by the U.S. Substance Abuse and Mental Health Services Administration) is providing additional funding for local communities to do in-depth needs assessments on the risks and protective factors associated with the documented consequences of alcohol and drug abuse. The *2010 Wisconsin Epidemiological Profile on Alcohol and Other Drug Use* focuses on key problem areas at both the statewide and local level to guide Wisconsin's funding decisions for the greatest potential impact.

APPENDIX 1
Indicator Definitions

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. `

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 not been adjusted for inflation.

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.

- United States – Crimes and arrests reported to the FBI by law enforcement agencies using the Uniform Crime Reporting System.

Dependence or Abuse

- Alcohol or Drug Abuse – 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

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 2008 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

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

Current Alcohol Use

- Youth Risk Behavior Survey (YRBS): At least one drink of alcohol on one or more of the past 30 days.
- Behavioral Risk Factor Survey (BRFS): At least one drink of alcohol in the past 30 days.

Binge Drinking

- Youth Risk Behavior Survey (YRBS): Five or more drinks of alcohol in a row on one or more of the past 30 days.
- Behavioral Risk Factor Survey (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

Behavioral Risk Factor Survey (BRFS): More than two drinks per day for men and more than one drink per day for women.

Per Capita Consumption of Alcohol

National Institute on Alcohol Abuse and Alcoholism (NIAA): Per capita gallons of ethanol sold in a state, based on the population age 14 and older.

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: Illicit Drugs

Age of Initiation (Marijuana)

Youth Risk Behavior Survey (YRBS): The percentage of students who tried marijuana for the first time before age 13.

Current Use of Illicit Drugs

- **Current use of marijuana**
  - National Survey on Drug Use and Health (NSDUH): Smoked marijuana in the last month.
  - Youth Risk Behavior Survey (YRBS): Used marijuana one or more times during the past 30 days.

- **Current use of cocaine**
  - National Survey on Drug Use and Health (NSDUH): Used cocaine in the last year.
  - Youth Risk Behavior Survey (YRBS): Used any form of cocaine one or more times during the past 30 days.

- **Current use of illicit drugs other than marijuana**
  - Youth Risk Behavior Survey (YRBS): Used any illicit drugs other than marijuana in the past 30 days.
  - National Survey on Drug Use and Health (NSDUH): Used any illicit drugs other than marijuana in the past month.

- **Current use of pain relievers for non-medical purposes**
  - Youth Risk Behavior Survey (YRBS): Used pain relievers for non-medical purposes in the past 30 days.
  - National Survey on Drug Use and Health (NSDUH): Used pain relievers for non-medical purposes in the past year.

Lifetime Use of Illicit Drugs

- **Lifetime use of marijuana**, Youth Risk Behavior Survey (YRBS): Ever used marijuana, one or more times.

- **Lifetime use of cocaine**, Youth Risk Behavior Survey (YRBS): Ever used any form of cocaine, one or more times.

- **Lifetime use of inhalants**, Youth Risk Behavior Survey (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,** Youth Risk Behavior Survey (YRBS): Ever used heroin, one or more times.

- **Lifetime use of methamphetamines**, Youth Risk Behavior Survey (YRBS): Ever used methamphetamines, one or more times.

APPENDIX 2
Surveys and Other Data Sources

Survey Data: Sample Sizes and Error

Much of the data in this report come from surveys of the Wisconsin population. Estimates derived from surveys differ in their level of precision. Although sample size is not the only factor in determining the amount of potential error in a point estimate, it can provide a general guide. Estimates based on surveys with smaller sample sizes will tend to have wider confidence intervals than estimates from surveys with larger samples.

Readers should also note that sample sizes provided in the table below are for all of Wisconsin. Sample sizes will be much smaller for subgroups of the population, particularly racial subgroups. Although the report includes very few estimates for groups with a sample size smaller than 100, all subgroup estimates should be interpreted with confidence intervals ranging from plus or minus 4 percentage points to plus or minus 10 percentage points.

Table A1 shows Wisconsin statewide sample sizes for the Behavioral Risk Factor Survey (BRFS), the Youth Risk Behavior Survey (YRBS), and the National Survey on Drug Use and Health (NSDUH). Details of each survey follow the table.

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

Survey	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
BRFS—Main sample		2,721	3,605	4,356	4,054	4,503	4,900	4,831	5,021	4,729	
BRFS—County oversample*								3,701	2,414		
YRBS	1,336		2,120		2,121		2,389		2,094		2,434
NSDUH**				1,587	1,655	1,805	1,612	1,848	1,830	1,883	

* BRFS county estimates in the report are based on three-year aggregations of data (2004-2006 and 2005-2007) and are weighted to represent county populations.

** NSDUH estimates in the report are based on two-year aggregations of data.

Methodological Information about the Surveys

Behavioral Risk Factor Survey (BRFS)

www.cdc.gov/brfss and 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, a collaboration between the U.S. Centers for Disease Control and Prevention (CDC) and health departments in all states and U.S. territories. BRFS is state-based and does not have a separate national sample. National BRFS estimates are the medians (mid-points) of the distributions of state-level estimates. CDC weights BRFS data by state to account for non-response and sample design, and to adjust for the demographic characteristics of state populations. County-specific BRFS estimates in this report were calculated using a three-year aggregated data file re-weighted to represent each county's population. As of 2009, BRFS conducts both landline and cell phone-only interviews in all states and territories, but has not yet publicly released cell phone-only or combined landline-cell phone data.

BRFS landline sampling procedures exclude adults living in institutions and other group quarters. CDC calculates post-survey weights for each state's/territory's annual BRFS landline results and provides weighting variables for use in analyzing the data. Weighted BRFS results are representative of state and territory adult populations residing in households with landline telephones.

Early estimates indicate that the cell phone-only population has a higher rate of binge drinking than the population with landline telephones (Blumberg and Luke, 2009; 2008 Wisconsin BRFS Cell Phone Pilot, unpublished data); this effect does not appear to be related to the younger average age of cell phone users. Accordingly, given the continuing increase in cell-only telephone users (now approximately 20% of the population), binge drinking estimates based only on landline survey data are likely to underestimate prevalence by 2 to 3 percentage points. (Reference: Blumberg, S.J. and J.V. Luke. 2009. “Wireless Substitution: Early Release of Estimates from the National Health Interview Survey, July-December, 2008.” U.S. Centers for Disease Control and Prevention.)

Youth Risk Behavior Survey (YRBS)

www.dpi.state.wi.us/sspw/yrbsindx.html
The Youth Risk Behavior Survey is a school-based survey conducted among students in grades 9-12 in public high schools. 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 every two years 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/
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.

NSDUH uses small-area estimation (SAE) to produce estimates for most states, including Wisconsin, as state-level samples are not large enough to produce direct estimates.

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

Other Data Sources for this Report

Mortality Data

Data on deaths of Wisconsin residents from alcoholic liver cirrhosis, "other" alcohol-related causes (other than alcoholic liver cirrhosis and motor vehicle crashes), and drug-related causes were prepared in the Population Health Information Section, Division of Public Health, from Wisconsin resident death certificate files. Comparable data for the United States were supplied by Amanda Jovaag in the University of Wisconsin Population Health Institute using CDC Wonder (available at http://wonder.cdc.gov/mortSQL.html) from the U.S. Centers for Disease Control and Prevention.

Data on deaths from motor vehicle crashes are 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.wisconsin.gov).

Estimating other alcohol-related mortality: 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 63 conditions or groups of conditions and associate each with a distinct fraction of cases attributable to alcohol. Staff from the Division of Public Health, Population Health Information Section and the University of Wisconsin Population Health Institute used the ARDI specifications to identify deaths from these conditions with the ICD-10 codes specifying underlying causes of death. The alcohol-attributable deaths 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-10 codes, and the alcohol-attributable mortality fraction for each is available by request from the Division of Public Health, Population Health Information Section (DHShealthstats@dhs.wisconsin.gov).

Fatality Analysis Reporting System (FARS)

Mortality data on traffic crashes in Wisconsin and the United States are from the Fatality Analysis Reporting System, 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-nrd.nhtsa.dot.gov

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: 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 63 conditions or groups of conditions and associate each with a distinct fraction of cases attributable to alcohol. Staff from the Population Health Information Section and the University of Wisconsin Population Health Institute used the ARDI specifications to identify hospitalizations for these conditions with the ICD-9 codes specifying the principal diagnosis and the first eight other reported diagnoses. The 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 codes, and the alcohol-attributable fraction for each is available by request from the Population Health Information Section (DHShealthstats@dhs.wisconsin.gov).

Drug-related hospitalizations: Drug-related hospitalizations were defined based on ICD-9 codes supplied by Amanda Jovaag in the University of Wisconsin Population Health Institute, as listed in the following table.

Drug-related hospitalizations, ICD-9 codes and descriptions, Wisconsin 2006

ICD-9 Code	*Description*
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

In the Population Health Information Section, hospital data system records for all Wisconsin residents hospitalized as inpatients in a Wisconsin hospital and discharged in the years 2006-2007 and 2007-2008 were examined for the presence of the defined drug-related conditions in the ICD-9-coded principal diagnosis or any of the first eight other diagnoses reported.

Population Estimates, Statewide and by County

The Department of Health Services, Population Health Information Section, 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

Crime and Arrests in Wisconsin
http://oja.wi.gov/category.asp?linkcatid=1324&linkid=709&locid=97

Prepared annually by the Wisconsin Office of Justice Assistance Statistical Analysis Center, *Crime and Arrests in Wisconsin* provides 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.

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.

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.

(P-45718-10) (11/10)

Wisconsin Epidemiological Profile on Alcohol and Other Drug Use, 2010

Wisconsin Department of Health Services
P-45718-10 (November 2010)