

## 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 3 ("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. Census population estimates were used in all rate calculations.
- United States - Crimes and arrests reported to the FBI by law enforcement agencies using the Uniform Crime Reporting System. Rates were calculated using Census population estimates.

### *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, has 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 expenditure were available.

The reported total public funds expended were adjusted for inflation to 2006 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 Use of Alcohol*

- 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.
- National Survey on Drug Use and Health (NSDUH): At least one drink of alcohol in the past 30 days.

### *Binge Use of Alcohol*

- 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.
- National Survey on Drug Use and Health (NSDUH): Five or more drinks on the same occasion (i.e., at the same time or within a couple of hours) on at least one day in the past 30 days.

### *Heavy Use of Alcohol*

Behavior 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.

## 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.
- **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.

### *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	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
BRFS— Main sample	2,231	2,245	2,205	2,177	2,721	3,605	4,356	4,054	4,503	4,900	4,831	
BRFS— County oversample*											3,701	
YRBS		1,326		1,336		2,120		2,121		2,389		2,094
NSDUH**							1,587	1,655	1,805	1,612	1,848	

\* BRFS county estimates in the report are based on three-year aggregations of data (2004-2006) 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](http://www.cdc.gov/brfss) and [dhs.wisconsin.gov/stats/BRFS.htm](http://dhs.wisconsin.gov/stats/BRFS.htm)

The Wisconsin Behavioral Risk Factor Survey is a representative, statewide telephone survey of adults age 18 and older. The Wisconsin BRFS is part of the national Behavioral Risk Factor Surveillance System, a collaboration between the U.S. Centers for Disease Control and Prevention (CDC) and health departments in all states and U.S. territories. CDC weights BRFS data by state to account for non-response and sample design, and to adjust for the demographic characteristics of state populations. National BRFS estimates are medians of the distributions of state/territory estimates. County-specific BRFS estimates in this report were calculated using a three-year aggregated data file re-weighted to represent each county's population.

### Youth Risk Behavior Survey (YRBS)

[www.dpi.state.wi.us/sspw/yrbsindx.html](http://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. State and national YRBS samples are separate, and in some cases, schools may be selected as part of both the national and state 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/](http://nsduhweb.rti.org/)

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

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 Bureau of Health Information and Policy 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 Bureau of Health Information and Policy 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 Bureau of Health Information and Policy.

### 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/departments/nrd-01/summaries/FARS\\_98.html](http://www-nrd.nhtsa.dot.gov/departments/nrd-01/summaries/FARS_98.html)

### Wisconsin Inpatient Hospitalization Data

Data on inpatient stays in Wisconsin hospitals were collected by the Bureau of Health Information and Policy, DHS, through 2003 and subsequently by the Wisconsin Hospital Association Information Center, Inc., under the authority and specifications of Wisconsin statute and rule.

*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 Bureau of Health Information and Policy 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 Bureau of Health Information and Policy.

*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 Bureau of Health Information and Policy, hospital data system records for all Wisconsin residents hospitalized as inpatients in a Wisconsin hospital and discharged in the years 2002-2006 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.

#### *Crime and Arrests in Wisconsin*

<http://oja.wi.gov/docview.asp?docid=5231&locid=97>

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## Wisconsin Epidemiological Profile on Alcohol and Other Drug Use, 2008

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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.

## APPENDIX 3

### Wisconsin Regions by County

**Appendix 3. Wisconsin regions for alcohol and other substance abuse services, National Survey on Drug Use and Health (NSDUH)**

The NSDUH regions of Wisconsin defined here were provided by the Division of Mental Health and Substance Abuse Services, Wisconsin Department of Health Services, and are defined in terms of the state's 72 counties.

Milwaukee	Northeastern	Northern	Southeastern	Southern	Western
Milwaukee	Brown Calumet Door Fond du Lac Green Lake Kewaunee Manitowoc Marinette Marquette Menominee Oconto Outagamie Shawano Sheboygan Waupaca Waushara Winnebago	Ashland Bayfield Florence Forest Iron Langlade Lincoln Marathon Oneida Portage Price Sawyer Taylor Vilas Wood	Jefferson Kenosha Ozaukee Racine Walworth Washington Waukesha	Adams Columbia Crawford Dane Dodge Grant Green Iowa Juneau Lafayette Richland Rock Sauk	Barron Buffalo Burnett Chippewa Clark Douglas Dunn Eau Claire Jackson La Crosse Monroe Pepin Pierce Polk Rusk St. Croix Trempealeau Vernon Washburn

Note: These regions are quite similar to Wisconsin Department of Health Services regions. The only differences are that Milwaukee County constitutes a separate "region" (rather than being included in the Southeastern region), and Vernon County is part of the Western region (instead of the Southern region). In the future, Vernon County will be part of the Southern region in both NSDUH and DHS regional definitions for Wisconsin.