

2018



# Substance Abuse in Minnesota: A State Epidemiological Profile

## Section 8. Appendix

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# Substance Abuse in Minnesota

## Section 8. Appendix

The 2018 Minnesota State EpiProfile is divided into eight parts:

1. Introduction (which includes a profile overview, population snapshot, and acknowledgements)
2. Executive Summary
3. Alcohol: Use, Consequences, and Intervening Variables
4. Tobacco and Nicotine: Use, Consequences, and Intervening Variables
5. Drugs: Use, Consequences, and Intervening Variables
6. Mental Health and Shared Factors
7. Socioeconomic Factors
8. Appendix (which includes technical notes and data sources)

## Appendix

### Definitions and Technical Notes

For more detailed explanations of survey sample, census, rate, count, and other definitions please see the “Tools” section of the SEOW website: [www.sumn.org](http://www.sumn.org).

#### Survey Sample

In a sample survey, only part of the total population is approached for information. The data are then 'expanded' or 'weighted' to make inferences about the whole population. The survey sample is the set of observations taken from a subset of

the population for the purpose of obtaining information about the entire population. The Minnesota Survey of Adult Substance Use and the Behavioral Risk Factor Surveillance System survey use samples to represent the state population at large.

In cases where data is presented from such studies, the reader is provided with the percent of the population only, not raw number of respondents.

#### Census

A census is an enumeration of people at a particular time. Unlike a sample-based survey, a census surveys an entire population. The Minnesota Student Survey (MSS) is a census of all schools in Minnesota. In a census, schools may decline to participate. In 2016, 85% of publicly operating school districts participated in the MSS.

Because answers to MSS questions were derived from a census of all schools, data is presented both in raw number and in percent terms.

#### Rate

Rates are ratios, calculated by dividing the numerator by the denominator. In epidemiology, a rate is the frequency with which a health event occurs in a defined population. The components of the rate are the raw number (numerator) and the population (denominator). In the Profile, rates are presented per 1,000 or 100,000 of the population and are noted accordingly. Be sure to reference each data sheet for the denominator.

**Incidence** rates differ from prevalence rates. Incidence refers to the frequency of development of a *new* illness in a population in a certain period of time, normally one year. **Prevalence** refers to the current number of people

suffering from an illness in a given year; this number includes all those who may have been diagnosed in prior years, as well as in the current year.

A percent is the ratio of a number to 100; percent means “per hundred.” Proportions are a part, share, or portion of its relation to a whole often expressed as a percentage. Percentages in this profile based on Minnesota Student Survey data or Minnesota Survey of Adult Substance Use data were calculated using a demographic-specific denominator. For example, the percent of male 12<sup>th</sup> graders in the seven-county metro area who reported drinking any alcohol in the past 30 days is based on the total number of male 12<sup>th</sup> graders in the seven-county metro area who responded to the survey question about 30-day alcohol use (not based on the total number of students in Minnesota who responded to this question).

Rate ratios are presented in the Epi Profile, often comparing a Minnesota rate to a US rate (calculated by simply dividing the Minnesota rate by the US rate). A rate ratio of 1.00 indicates that the Minnesota rate equals the US rate. Over 1.00 indicates higher use, while less than 1.00 indicates lower use.

### Counts

Many data sources in the Profile present official count data. These include, but are not limited to, death, arrest and corrections data. These data provide actual raw numbers reported to and collected by various state agencies. Whenever possible, raw numbers are provided along with percentages.

## Data Sources

### Data Source: Alcohol-Related Disease Impact (ARDI)

**Description:** The Centers for Disease Control and Prevention (CDC) calculate Alcohol-Related Disease Impact (ARDI) estimates of alcohol-related deaths due to alcohol consumption. To do this, ARDI either calculates or uses pre-determined estimates of Alcohol-Attributable Fractions (AAFs)—that is, the proportion of deaths from various causes that are due to alcohol. These AAFs are then multiplied by the number of deaths caused by a specific condition (e.g., liver cancer) to obtain the number of alcohol-attributable deaths.

**Sponsored by:** Centers for Disease Control and Prevention (CDC)

**Geographic level:** National, State

**Frequency:** Latest: 2006-2010 average

**Strengths/weaknesses:**

#### Strengths

- Provides alcohol-attributable mortality estimates for a number of diseases in addition to the total alcohol-related deaths
- Minnesota-specific alcohol-related deaths are available by gender, by age group, and by alcohol consumption levels

#### Weaknesses

- Based on BRFSS data, which is self-report
- BRFSS prevalence estimates are based on alcohol use during the past 30 days; former drinkers are not included in the calculations
- ARDI exclusively uses the underlying cause of death from vital statistics
- Age-specific estimates of AAFs were only available for motor-vehicle traffic deaths

**Link to source:** <https://apps.nccd.cdc.gov/ardi/HomePage.aspx>

### Data Source: Behavioral Risk Factor Surveillance System (BRFSS)

**Description:** The BRFSS is a confidential telephone survey of adults age 18 years and older. Respondents are randomly selected in order to reflect the population of Minnesota.

**Sponsored by:** Centers for Disease Control and Prevention (CDC)

**Geographic level:** National, State

**Frequency:** Data collected and reported annually

**Suppressed values:** Un-weighted denominator counts below 30 are omitted from the Profile to avoid inaccurate representation of gender, age or racial and ethnic groups and to ensure the reliability of estimates.

**Strengths/weaknesses:**

#### Strengths

- Standardized and comparable across states
- Trend data available since 1984

#### Weaknesses

- Non-response bias; bias is reduced by weighting.
- Self-report/response bias
- The recent addition of a cell phone sample, while improving the validity of estimates overall, has made comparisons over time unreliable

**Link to source:** <http://www.cdc.gov/brfss>

### Data Source: Boat & Water Safety Division

**Description:** The Boat & Water Safety Division collects data on alcohol-related boating citations as well as boating fatalities. Data were obtained upon request.

**Sponsored by:** Minnesota Department of Natural Resources

**Geographic level:** State

**Frequency:** Data collected annually

**Strengths/weaknesses:**

Strengths

- Trend data available since 1986

Weaknesses

- Arrest data reflect levels of enforcement as opposed to actual frequency of boating under the influence

### Data Source: CDC Wonder Compressed Mortality Data

**Description:** The Compressed Mortality database contains mortality and population counts for all U.S. counties for the years 1979 to 2005. Counts and rates of death can be obtained by underlying cause of death, state, county, age, race, sex, and year. The International Classification of Diseases 9th Revision (ICD 9) codes are used to specify underlying cause of death for 1979 - 1998. Beginning in 1999, cause of death is specified with the International Classification of Diseases 10th Revision (ICD 10) codes.

**Sponsored by:** Centers for Disease Control and Prevention (CDC)

**Geographic level:** National, State, County

**Frequency:** Data collected and reported annually

**Strengths/weaknesses:**

Strengths

- Standardized and comparable across states
- Trend data available since 1979

Weaknesses

- Race categories are limited to White, Black or African American and Other
- ICD 10 codes differ substantially from ICD 9 codes

**Link to source:** <http://wonder.cdc.gov/mortSQL.html>

### Data Source: College Student Health Survey (CSHS)

**Description:** The College Student Health Survey was designed by Boynton Health Service, University of Minnesota. The survey is administered to self-selected colleges and universities in Minnesota; in 2015, 17 schools participated. Students are asked about health care and insurance access, general health, mental health, substance use, financial health, nutrition and physical health, and sexual health. Reports are prepared for special populations, including veterans and LGB students.

**Sponsored by:** Boynton Health Service, University of Minnesota

**Geographic level:** State

**Frequency:** Data collected and reported annually since 2007 (except 2014)

**Strengths/weaknesses:**

Strengths

- Snapshot of college students in Minnesota
- Questions are designed to be comparable to national data

Weaknesses

- The number of colleges participating changes from year to year

**Link to source:** <http://www.bhs.umn.edu/surveys/>

## Data Source: Fatality Analysis Reporting System (FARS)

**Description:** FARS data are derived from a census of fatal traffic crashes within the 50 States, District of Columbia, and Puerto Rico. To be included in FARS, a crash must involve a motor vehicle traveling on a trafficway customarily open to the public and result in the death of a person (occupant of a vehicle or a non-motorist) within 30 days of the crash.

**Sponsored by:** National Center for Statistics and Analysis (NCSA) of the National Highway Traffic Safety Administration (NHTSA)

**Geographic level:** National, State, County

**Frequency:** Data collected and reported annually

**Strengths/weaknesses:**

### Strengths

- Standardized and comparable across states
- Data are gathered from the State's own source documents and are coded on standard FARS forms
- Trend data available since 1975

### Weaknesses

- Includes fatalities only, not all crashes from impaired driving

**Link to source:** <http://www.fars.nhtsa.dot.gov>

## Data Source: Minnesota Center for Health Statistics Data

**Description:** Mortality data, including lung, bronchus and trachea cancer deaths, cirrhosis deaths, suicides and homicides are obtained upon request. Statistics on smoking during pregnancy are from the Minnesota County Health Tables. Statistics on HIV/AIDS cases involving intravenous drug use (IDU) as the mode of exposure are from the HIV/AIDS Prevalence and Mortality Tables.

**Sponsored by:** Minnesota Department of Health

**Geographic level:** State, County

**Frequency:** Collected and reported annually

**Strengths/weaknesses:**

### Strengths

- Collected consistently by the state
- Trend data available

### Weaknesses

- The MN Center for Health Statistics does not report on details on which lung, bronchus and trachea cancer deaths were caused by cigarette smoking, which cirrhosis deaths were caused by alcohol consumption, or which suicide and homicide deaths were caused by alcohol or other drug consumption.
- Data on smoking during pregnancy is self-reported

**Link to source:** [http://www.health.state.mn.us/divs/chs/top\\_2.htm](http://www.health.state.mn.us/divs/chs/top_2.htm) and <http://www.health.state.mn.us/divs/idepc/diseases/hiv/hivsurvrpts.html>

## Data Source: Minnesota Department of Corrections Data

**Description:** The probation survey is designed to collect data on Minnesota probationers. The definition of probationer is: “All probationers, regardless of conviction status, who were under the supervision of a probation agent as part of a court order at any time including those ordered to pay restitution, complete community service or monitoring.”

The inmate profile captures the number of incarcerated persons in the state of Minnesota twice a year.

**Sponsored by:** Minnesota Department of Corrections

**Geographic level:** State, County

**Frequency:** Probation survey data are collected and reported annually. The inmate profile is compiled bi-annually.

**Strengths/weaknesses:**

### Strengths

- Trend data available since 1981 for inmate profile and 1983 for probation survey

### Weaknesses

- Both the probation survey and the inmate profile count offenders only once and may exclude cases that involve drug or chemical convictions. The probation survey counts an offender once in the most serious category. The inmate profile counts an inmate once, by governing sentence, which is typically the sentence with the greatest release date (and may or may not be the most serious offense).

**Link to source:** <http://www.doc.state.mn.us>

## Data Source: Minnesota Office of Traffic Safety Data—Minnesota Motor Vehicle Crash Facts and Minnesota Impaired Driving Facts

**Description:** Crash Facts provides summary statistical information on crashes, deaths and injuries in Minnesota. Impaired Driving Facts provides similar statistics, but is focused on DWI violations and consequences of impaired driving in Minnesota.

Cost of Alcohol Related Traffic Crashes, Fatalities and Injuries are based on estimates provided by the National Safety Council.

They do not attempt to include “comprehensive costs” but just direct costs of traffic crashes, deaths and injuries due to medical expense, property damage and lost productivity. Other procedures that attempt to include comprehensive costs (e.g. those used by US Department of Transportation) result in total cost estimates about 3 times greater than those calculated here.

**Sponsored by:** Minnesota Office of Traffic Safety

**Geographic level:** State, County

**Frequency:** Data collected and reported annually

**Strengths/weaknesses:**

### Strengths

- Although traffic crash reporting thresholds vary somewhat from state to state, all states produce an annual report summarizing traffic crash statistics. Minnesota’s “Crash Facts” has some comparability to similar reports in all other states.
- Impaired Driving Facts provides detailed information about DWIs, alcohol-related crashes, and injuries and fatalities resulting from those crashes.
- Alcohol-related traffic death statistics are available since 1984; DWI statistics are available since 1990.

### Weaknesses

- Alcohol-related injuries are less well documented than fatalities

**Link to source:** <http://www.dps.state.mn.us/ots>



### Data Source: Minnesota Student Survey (MSS)

**Description:** The MSS is a confidential and anonymous self-administered survey given to 5<sup>th</sup>, 8<sup>th</sup>, 9<sup>th</sup> and 11<sup>th</sup> grade students attending Minnesota public, charter and tribal schools. Most schools elect to participate in the survey; in 2016, this included 85% of eligible school districts, comprising about 169,000 Minnesota students in those grades.

Although the data are not presented here, the survey is also administered to area learning centers, juvenile correction facilities and private schools electing to participate.

**Sponsored by:** Minnesota schools, the Minnesota Department of Education, the Minnesota Department of Health, the Minnesota Department of Human Services, and the Minnesota Department of Public Safety

**Geographic level:** State, County, 7-County Metro and Non-Metro Regions

**Frequency:** Data collected and reported every three years

**Missing Values:** The Profile omits values where the number of total respondents for each question, and for each demographic category, is less than 30. For example, if fewer than 30 female, Hispanic 5<sup>th</sup> graders respond to a particular question, we will suppress the results. This is a rule imposed by the SEOW in order to protect the confidentiality of the survey respondents.

The results of the Minnesota Student Survey are also available at a county level. Data Privacy requirements mandate that data are presented in a manner such that no individual student can be identified through the presentation of the results. As part of the Data Privacy practices, the results are also presented in a manner that no individual school district could be identified through the results. Therefore, for counties that have only one school district, the results are not presented. Results are also withheld for counties in which the minimum number for student participation was not met.

#### Strengths/weaknesses:

##### Strengths

- “Census” of schools, not sample
- School districts get their own data
- Trend data available since 1992 on some questions

##### Weaknesses

- 5<sup>th</sup> graders not asked all drug questions
- Some school districts do not participate.
- Student participation within the school district can vary widely.
- Reporting biases associated with self-report data
- Format changed in 2013; previously, 6<sup>th</sup>, 9<sup>th</sup>, and 12<sup>th</sup> graders were surveyed. Thus, trend data for Minnesota students is available only for 9<sup>th</sup> graders.

#### Link to source:

[http://education.state.mn.us/mde/Learning\\_Support/Safe\\_and\\_Healthy\\_Learners/Minnesota\\_Student\\_Survey/index.html](http://education.state.mn.us/mde/Learning_Support/Safe_and_Healthy_Learners/Minnesota_Student_Survey/index.html)

**Demographics:** As the only statewide survey of youth, the Profile relies heavily on data collected from the Minnesota Student Survey. Characteristics of students who participated in the 2016 Minnesota student survey are follows:

## Appendix

All Minnesota Student Survey Respondents (2016)							
		Male		Female		Total	
		N (#)	%	N (#)	%	N (#)	%
Total		84912	50.5%	83300	49.5%	168212	100.0%
Grade	5th	21,094	50.6%	20,623	49.4%	41,717	100.0%
	8th	22,595	50.4%	22,254	49.6%	44,849	100.0%
	9th	22,829	50.5%	22,346	49.5%	45,175	100.0%
	11th	18,394	50.4%	18,077	49.6%	36,471	100.0%
Race/Ethnicity	White				120748	74.0%	
	African-American, African or Black				12504	6.0%	
	Native American				3624	2.0%	
	Native Hawaiian or Pacific Islander				836	0.0%	
	Asian only				10029	5.0%	
	Multiple Race				13647	7.0%	
	Don't know/No Answer				2865	5.0%	
Ethnic /Cultural Group	Hispanic/Latino				15942	9.4%	
	Somali				3619	2.1%	
	Hmong				4815	2.9%	

## Data Source: Minnesota Survey of Adult Substance Use (MNSASU)

**Description:** The MNSASU is a statewide telephone survey conducted by DHS, in 2004, 2010, and 2014. The primary objective of this project is to obtain current estimates of the number of adults in the general population in Minnesota who are abusing or dependent on alcohol or other drugs and are in need of treatment. The prevalence of *substance* abuse and dependence and need for treatment were assessed for the total population, and by region, race and ethnicity, gender, age group, and immigration status. The population for this survey included Minnesota residents 18 years of age or older and non-institutionalized. The study employed a random digit dial mode of contact, with over 16,000 adults in Minnesota completing the survey.

The sample was stratified by region, and African Americans, American Indians, Latinos, Hmong and other Asian Americans were over-sampled to ensure adequate numbers of respondents to provide reliable estimates for these sub-groups. The survey was administered by the University of Minnesota, School of Public Health in both English and Spanish. In 2010 the weighted response rate was 47%. These data are self-reported.

**Sponsored by:** Minnesota Department of Human Services, Performance Measurement and Quality Improvement

**Geographic level:** State, 7-County Metro and Non-Metro Regions, Prevention Regions

**Frequency:** Next year data will be available: 2018

**Strengths/weaknesses:**

### Strengths

- The survey methods employed over-sampling and weighting to accurately reflect the Minnesota population
- Trends can be observed with the recently available 2010 data

### Weaknesses

- Telephone non-coverage-(e.g., 2000 Census estimates that MN had 1.1% households with no phone).
- Non-response bias; bias is reduced by weighting.
- Self-report/response bias
- Small subpopulation sizes limit the comparisons that are possible across groups.

**Link to source:** <http://dhs.state.mn.us/mnsasu/>

## Data Source: National Institute on Alcohol Abuse and Alcoholism (NIAAA)

**Description:** The NIAAA collects data on volume beverage and ethanol consumption in gallons for states, as well as per capita ethanol consumption. Data are presented for beer, wine, spirits, and all three combined.

**Sponsored by:** National Institutes of Health

**Geographic level:** National, State, and Census Regions

**Frequency:** Data are collected and reported annually

**Strengths/weaknesses:**

### Strengths

- Trend data available since 1970
- Collected consistently

### Weaknesses

- Data not available by county or by demographic group

**Link to source:** <http://pubs.niaaa.nih.gov/publications/surveillance.htm>

### Data Source: National Survey on Drug Use and Health (NSDUH)

**Description:** The NSDUH is a nationwide survey involving in-home interviews with approximately 70,000 randomly selected individuals age 12 and older. Data are presented as two-year averages. Accordingly, the Profile presents combined data from 2003/2004, 2004/2005, 2005/2006, etc.

**Sponsored by:** Substance Abuse and Mental Health Services Administration (SAMHSA)

**Geographic level:** National, State

**Frequency:** Data are presented as two-year averages

**Strengths/weaknesses:**

Strengths

- Trend data available between 1972 and 2014

Weaknesses

- No state data by Race/Ethnicity
- Changes to the survey in 2015 limit trend data for some indicators

**Link to source:** <http://oas.samhsa.gov/stateTrends.htm>

### Data Source: Safe and Healthy Minnesota Schools (SAHMS)

**Description:** The SAHMS Portal contains data, by school district, on disciplinary incidents involving alcohol, tobacco and other drugs. Districts report all disciplinary incidents that result in an out-of-school suspension/removal of one day or longer, and expulsions/exclusions. In addition, SAHMS contains Minnesota Students Survey data and data on ATOD programs provided by each district.

**Sponsored by:** Minnesota Department of Education

**Geographic level:** State, Region, County, School District

**Frequency:** Data collected and reported annually

**Strengths/weaknesses:**

Strengths

- Data collected consistently
- Trend data available since the 2004/2005 school year
- Data available at the sub-state level

Weaknesses

- Does not reflect the actual number of youth possessing or using alcohol, tobacco or other drugs at school—only those caught and disciplined

**Link to source** (You must create an account, if you don't currently have one, to view this portal):

<https://education.state.mn.us/MIDMS/login.jsf?Appld=EDPPublic>

## Data Source: Shoveling Up II: The Impact of Substance Abuse on Federal, State, and Local Budgets

**Description:** The Shoveling UP II report, based on three years of research and analysis, assess the costs of tobacco, alcohol and illegal and prescription drug abuse to all levels of government using the most conservative assumptions.

**Sponsored by:** The National Center on Addiction and Substance Abuse (CASA) at Columbia University

**Geographic level:** National and State

**Frequency:** Published in 2009, using 2005 data.

**Strengths/weaknesses:**

### Strengths

- Shows spending for each sector

### Weaknesses

- Spending is not broken down by substance

**Link to source:** [http://www.casacolumbia.org/templates/publications\\_reports.aspx](http://www.casacolumbia.org/templates/publications_reports.aspx)

## Data Source: Smoking-Attributable Mortality, Morbidity, and Economic Costs (SAMMEC)

**Description:** SAMMEC derives smoking-attributable mortality (SAM) using an attributable-fraction formula. The Adult SAMMEC module provides the smoking-attributable fractions (SAFs) of deaths for 19 smoking-related diseases are calculated using sex-specific smoking prevalence and relative risk (RR) of death data for current and former smokers aged 35 and older. The Adult module also provides the average annual smoking-attributable productivity losses in dollars. The MCH Smoking Attributable Health Outcomes report displays the smoking-attributable fraction (SAF), smoking-attributable mortality (SAM), and smoking-attributable years of potential life lost (YPLL) for each of the diseases for which maternal smoking is a significant risk factor. The MCH module also provides smoking-attributable neonatal expenditures in dollars.

**Sponsored by:** Centers for Disease Control and Prevention (CDC)

**Geographic level:** National, State

**Frequency:** Adult module—five year reports: 1997-2001 and 2000-2004; MCH module—single year reports for 1999 through 2004

**Strengths/weaknesses:**

### Strengths

- Provides smoking attributable mortality rate (SAM) for each of the 19 diseases in addition to the total SAM rate
- Minnesota-specific smoking-attributable deaths are available by gender

### Weaknesses

- The attributable-fraction methodology calculates smoking-attributable deaths using smoking prevalence and number of deaths for the current year. However, most smoking-attributable deaths are the result of smoking in previous decades, during which smoking rates were higher. During periods where smoking prevalence is declining, the attributable-fraction (AF) methodology will tend to understate the number of deaths caused by smoking.
- The estimates in Adult SAMMEC do not account for deaths from cigar smoking, pipe smoking, and smokeless tobacco use.
- The productivity loss estimates are also understated because they do not include the value of work missed because of smoking-related illness, other smoking-related absenteeism, excess work breaks, or the effects of secondhand smoke.
- Smoking status is obtained through maternal self-reports.

**Link to source:** <http://www.healthdata.gov/dataset/smoking-attributable-mortality-morbidity-and-economic-costs-sammec-smoking-attributable-6>

### Data Source: SYNAR Data

**Description:** The Synar Amendment requires states to have laws prohibiting the sale of tobacco products to those younger than 18 and to conduct annual random, unannounced inspections of a valid sample of tobacco retailers to ensure compliance. Statistics presented are the retailer violation rates (RVR) by Federal Fiscal Year (FFY).

**Sponsored by:** Center for Substance Abuse Prevention (CSAP)

**Geographic level:** National, State

**Frequency:** Data collected and reported annually

**Strengths/weaknesses:**

Strengths

- Compliance checks are conducted uniformly from state to state
- Trend data are available since 1997

Weaknesses

- There may be some variation in how compliance checks are conducted

**Link(s) to source:** Minnesota data: <http://prevention.samhsa.gov/tobacco/01synartable.aspx>

National data: <http://www.samhsa.gov/synar>

### Data Source: Uniform Crime Reports (UCR)

**Description:** The Minnesota Bureau of Criminal Apprehension collects activity information from law enforcement agencies throughout the State of Minnesota. Uniform Crime Reports measure the amount of criminal activity within the State as collected and prepared from data submitted by individual law enforcement agencies.

The offense categories presented in the Profile are Part II offenses: liquor laws and narcotics arrests. The St. Paul Police Department does not submit Part II arrest data to the BCA

**Sponsored by:** Minnesota Bureau of Criminal Apprehension (BCA)

**Geographic level:** State, County

**Frequency:** Data collected and reported annually

**Strengths/weaknesses:**

Strengths

- Trend data available since 1935; change in format means some data not available after 2015.
- UCR data for Minnesota are captured nationally in Crime in the United States, an annual publication of the Federal Bureau of Investigation (FBI)

Weaknesses

- "Criminal activity" consists of measurements involving offenses, clearances, and arrests all of which are subject to reporting biases
- Race/ethnicity is often determined by law enforcement and therefore may not be as accurate as self-reported status.

**Link to source:** Minnesota Uniform Crime Reports:

<https://dps.mn.gov/divisions/bca/bca-divisions/mnjis/Pages/uniform-crime-reports.aspx>

Crime in the United States: <http://www.fbi.gov/ucr/ucr.htm>