



RECOMMENDED CSTE SURVEILLANCE INDICATORS FOR SUBSTANCE ABUSE & MENTAL HEALTH



CSTE™
COUNCIL OF STATE AND
TERRITORIAL EPIDEMIOLOGISTS

MAY 2016

Acknowledgements

“The reason for collecting, analyzing, and disseminating information on a disease is to control that disease. Collection and analysis should not be allowed to consume resources if action does not follow.” (1)

This effort was supported by Rob Lyerla, PhD, CAPT, USPHS of the Substance Abuse and Mental Health Services Administration. The document was completed by Richard S. Hopkins, MD, MSPH, a CSTE consultant, and the CSTE Workgroup for Substance Abuse and Mental Health Surveillance Indicators. The workgroup, consisting of substance abuse and mental health epidemiologists and various subject matter experts, selected and defined key indicators for state-based surveillance of substance abuse and mental health.

Workgroup members included:

- Michael Landen, MD, MPH, New Mexico Department of Health, Substance Abuse Subcommittee Co-Chair
- Corinne Miller, PhD, Michigan Department of Health and Human Services, Substance Abuse Subcommittee Co-Chair
- Cathy Saiki, MS, California Department of Health
- Denise Paone, EdD, New York City Department of Health and Mental Hygiene
- Ellenie Tuazon, MPH, New York City Department of Health and Mental Hygiene
- Hal Johnson, MPH, Hal Johnson Consulting (FL)
- James W. Davis, MA, New Mexico Department of Health
- Jennifer Sabel, PhD, Washington State Department of Health
- Jessica Reno MPH, New Mexico Department of Health
- Luigi Garcia Saavedra, MPH, New Mexico Department of Health
- Steve Wirtz, PhD, California Department of Health
- Svetla Slavova, PhD, Kentucky Injury Prevention and Research Center
- Toby Yak, MPH, Iowa Department of Public Health
- Thomas Largo, MPH, Michigan Department of Health and Human Services

SAMHSA Members:

- Patrick M. High, DrPH, Substance Abuse and Mental Health Services Administration
- Alejandro Azofeifa, DDS, MSc, MPH, Substance Abuse and Mental Health Services Administration

CSTE Staff:

- Richard S. Hopkins, MD, MSPH, Council of State and Territorial Epidemiologists Consultant
- Nidal A- Z Kram, MPH, Council of State and Territorial Epidemiologists

This publication was supported by the Substance Abuse and Mental Health Services Administration (agreement 14-OA-22-20-206). Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Substance Abuse and Mental Health Services Administration or the Department of Health and Human Services.

Table of Contents

Importance of Substance Abuse and Mental Health to Overall Health in the United States	3
Public Health Surveillance Indicators	6
Public Health Surveillance for Mental Health in the United States	7
Public Health Surveillance for Substance Abuse in the United States	9
Existing Sets of Surveillance Indicators	10
CSTE Workgroup on Surveillance Indicators for Substance Abuse and Mental Health	12
CSTE Workgroup List of Recommended Indicators	12
Developmental Indicators	14
Pilot Testing and Position Statement	15
References	16
Appendix A. Comparison of Recommended Substance Abuse/Mental Health Indicators with Selected Other Documents	20
Appendix B. Surveillance System Attributes for Each Recommended Indicator	27
Appendix C. Definitions for Substance Abuse and Mental Health Surveillance Indicators	31

Importance of Substance Abuse and Mental Health to Overall Health in the United States

United States death rates from suicide, drug abuse and chronic liver disease have been rising for 10 to 15 years—a trend in stark contrast to gains in life expectancy and reductions in mortality from many other causes. Moreover, mortality attributable to substance abuse and mental health disorders is but a small part of their total impact, which includes much suffering, disability and economic cost.

The national age-adjusted suicide death rate for all ages increased from 10.5 per 100,000 in 1999 to 12.9 in 2014. Suicide death rates are consistently higher in men than in women, but rates in both sexes have increased similarly. Suicide rates and rate increases were greater in non-Hispanic whites (12.0 to 16.4 deaths per 100,000 in 1999 and 2014) than in other racial/ethnic groups (2).

U.S. age-adjusted death rates from opioid overdose (fatal poisonings) rose from 2.5 in 2000 to 5.4 in 2010, and further rose to 9.0 in 2014. The age-adjusted death rate for heroin-related drug-poisoning nearly tripled from 1.0 to 3.4 per 100,000 from 2010 to 2014 (3). This increase in drug-poisoning deaths is the major contributor to the rise in the overall age-adjusted unintentional injury death rate from 35.3 to 40.5 per 100,000 from 1999 to 2014 (4).

The overall U.S. age-adjusted death rate from chronic liver disease and cirrhosis rose slightly, from 9.6 to 10.2 per 100,000, from 1999 to 2013 (4). Age-specific rates, however, have been increasing substantially in adults aged 45 to 64 (17.4 to 20.1 per 100,000 for age 45 to 54, and 23.7 to 30.4 per 100,000 for ages 55 to 64). Similar patterns are seen for the subset of those suffering from “alcoholic liver disease” (4). In 2013, there were 29,000 deaths attributable to alcohol, an increase from 25,500 in 2010. The overall 2013 death rate from alcohol-related causes was 9.2 per 100,000, with the highest rate by age being 25.3 in those aged 55 to 64. Of these deaths, 74% were in men, and 86% were in white non-Hispanic persons (5).

Looking beyond mortality, economic impact data are more readily available for abuse of alcohol and other substances than for mental illness. According to Sacks and coauthors (6), “Excessive drinking cost the U.S. \$249 billion in 2010, or \$2.05 per drink, a significant increase from \$223.5 billion, or \$1.90 per drink, in 2006. Most of these costs were due to reduced workplace productivity, crime, and the cost of treating people for health problems caused by excessive drinking.” Opioid abusers generate, on average, annual direct health care costs 8.7 times higher than non-abusers (7). In 2006 an estimated \$57.8 billion was spent in the United States on care for mental illness, similar to the value for cancer (8). Worldwide, the economic impact of mental illness for the period 2010 to 2030, calculated three different ways, is estimated to be

A Definition of Public Health Surveillance

“The ongoing, systematic collection, analysis, and interpretation of health data, essential to the planning, implementation and evaluation of public health practice, closely integrated with the dissemination of these data to those who need to know and linked to prevention and control.” (2)

similar to that of cardiovascular disease (9). The Global Burden of Disease Study has demonstrated an increase in global disease burden due to depression, bipolar disorder, and other mental health disorders since 1990. In the United States, depression has become the fifth most common cause of disability (37).

Recognizing the importance of these causes of illness, disability, economic impact and death, a decade ago the Council of State and Territorial Epidemiologists (CSTE) established a substance abuse subcommittee, which has been moving toward the development of a set of substance abuse and mental health surveillance indicators for use by state and local public health departments. This work has been undertaken in partnership with the U.S. Department of Health and Human Services' (HHS's) the Substance Abuse and Mental Health Services Administration (SAMHSA) and key programs of the Centers for Disease Control and Prevention (CDC). As a first step, a CSTE workgroup developed a surveillance measure for hospitalizations attributable to alcohol and other drugs (AOD) and piloted a version of the measure, restricted to *other drugs*, in ten states. In 2015, CSTE obtained funding from SAMHSA to support development of a broader set of surveillance indicators in the domains of substance abuse and mental health.

A variety of criteria has been proposed for deciding whether a condition should be placed under public health surveillance. In general, conditions that are strong candidates to be put under public health surveillance are (10):

- Clinically severe, with high risk of hospitalization or death (severity).
- Commonly occurring, and thus important contributors to overall morbidity or mortality (frequency).
- Responsible for substantial economic impact, either in cost of medical care or in lost productivity and years of healthy life (economic impact).
- Preventable, with a feasible method for preventing or controlling the condition (preventability).
- Not fully understood, and thus additional data are needed to inform planning or evaluation of disease prevention and control activities (planning and evaluation).

In addition, a set of surveillance system attributes was developed by CDC to facilitate surveillance system evaluation (11). These attributes can be assessed in a formative evaluation even before a surveillance system is operational. According to CDC, a surveillance system is more likely to be effective if:

- There is a practicable surveillance methodology with standardized definitions and methods (feasibility).
- It is associated with only a small incremental operational cost (cost).
- It is easy to use, and thus not a burden for practitioners or other partners (simplicity).

- It is flexible, and thus readily adjustable to account for new risk factors, at-risk populations, diagnostic methods, or case definitions (flexibility).
- It is sensitive, and thus able to detect a high fraction of the cases or events that are intended to be detected (sensitivity).
- It has a high positive predictive value, so that a high fraction of the cases or events detected are those intended to be detected (positive predictive value).
- It is timely, by generating data on a time scale useful for resource-allocation for prevention, control and evaluation activities (timeliness).

In general, mental illness and substance abuse disorders easily meet the first set of criteria, for frequency, severity and economic impact of illness. A substantial degree of potential preventability is suggested by the disparate impact of these disorders on segments of the population. Impacts vary considerably from state to state, among communities within states, and among groups defined by age, race, sex, ethnicity, culture, and socioeconomic status. Moreover, rates of mental illness and substance abuse disorders sometimes change rapidly. The high rates seen among different groups, locations and time periods are not inevitable, and could, in principle, be lowered with sustained implementation of appropriate evidence-based prevention measures. Population-based state- and local-level surveillance information is critical to public health, substance abuse and mental health officials for program planning and evaluation.

Public Health Surveillance Indicators

Starting with tobacco use in 1996, CSTE and partners have gradually identified sets of surveillance indicators in numerous noninfectious disease domains to complement the nationally notifiable conditions, most of them infectious, that make up the Nationally Notifiable Diseases Surveillance System. The CSTE Blueprint for Public Health Surveillance (12) called for development of a set of conditions to be put under uniform national surveillance, as the National Public Health Surveillance System. So far, sets of surveillance indicators have been developed in the domains of occupational health (1996), chronic disease (1998), maternal and child health (1998), injuries (1999), poisonings (2000), environmental health (2001), and oral health (2002), with several subsequent rounds of updates in most of these domains (e.g., chronic disease in 2013 and oral health in 2015). The existing chronic disease and injury/poisoning indicator sets (13, 14) include items relevant to substance abuse and mental health.

CSTE adoption of surveillance indicators in a particular domain means that there is agreement among states that these are important conditions to put under surveillance, that all states should use the same specified indicator definitions and methods, and that these uniformly collected data should be shared -- among states, with federal public health authorities, with those who have a need to know, and with the public in general. Prevention and control programs can use these data to develop and target interventions and for evaluation. In some

domains, almost all data collection and analysis are done by state-based epidemiologists, while in others, the work is shared between state-based epidemiologists and federal staff who can calculate values for many indicators for all jurisdictions using national datasets. Methods for dissemination of the state-by-state indicator values include publications of periodic multi-state summaries by consortia of the states, to publication of summaries by national organizations like CSTE or Safe States, or data maintenance in publicly accessible websites.

Public Health Surveillance for Mental Illness and Suicidality in the United States

The major sources of information on the epidemiology of mental illness in the United States have been a series of national surveys, implemented beginning in the 1960s. These include the Epidemiology Catchment Area studies (15) and four rounds of the National Comorbidity Survey (16). These surveys have gradually grown in sophistication, especially as reliable instruments have been developed for ascertaining the presence or absence of major disorders, such as depression, through structured face-to-face interviews, questionnaires, and computer-assisted data gathering. They have also grown in sample size, so that regional or even statewide estimates can sometimes be made. However, these large survey efforts have typically been repeated about once a decade and do not always have sufficient sample sizes to support state-level estimates. Therefore, they are not suitable for the kind of near real-time surveillance needed by public health departments.

Since 1971, SAMHSA (and its predecessor agency, the Alcohol, Drug Abuse and Mental Health Administration) have conducted annual, random sample, population-based surveys of drug use and mental health with adequate sample sizes to make state-level estimates of key findings. The current version of this family of surveys is the National Survey of Drug Use and Health (NSDUH) (17). Due to periodic changes in survey methodology and questionnaire items, results from the earlier years of the survey cannot always be directly compared with current data; full backwards comparability for the current survey design and instrument extends to 2002 for substance abuse and to 2008 for mental illness.

NSDUH has more depth with respect to drug use than for mental health. Its mental health modules include youth (ages 12-17) having major depressive episodes (MDE) in the past year and in their lifetime, treatment for depression among youth who indicated having an MDE, and mental health service use in the past year. Its emphasis for adult mental illness include lifetime and past year major depressive episode, past year any mental illness and serious mental illness, past year and past month serious psychological distress, past year serious thoughts of suicide and suicidal behaviors and mental health service use in the past year. The NSDUH is not designed to estimate the prevalence of specific disorders other than depression. However, a clinical follow-up interview to the NSDUH was conducted from 2008-2012 that collected specific mental disorders on a small subset of adults who response to the NSDUH.

The CDC-sponsored Youth Risk Behavioral Surveillance System (YRBSS) (18) obtains rich information about suicidal ideation, self-harm and suicide attempts, as well as other mental

illness symptoms pertaining to adolescents attending public school for grades 9-12. Data are not available for every state, however, and are only obtained every other year.

The Behavioral Risk Factor Surveillance System (BRFSS) survey (19) of adults aged 18 and older has a well-validated and detailed optional module (20) available for depression, but the module has been used consistently by only a few states. It was included in the BRFSS for 39 states in 2006 but only 8 in 2008. Some states have continued to use it, for example New Mexico in 2011. The BRFSS has also developed an optional module using six questions known as the Kessler 6 to assess non-specific psychological distress. (21) The module was included in the BRFSS in 26 states in 2007 and in 8 states in 2009. State-level results for both of these modules were published in the 2011 CDC report on Mental Illness Surveillance Among Adults in the United States (22). Several states have published state-level surveillance summaries using these data (see for example 23 and 24).

BRFSS items about general mental health (e.g., *Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days out of the last 30 has your mental health not been good?*) are routinely obtained in every state for all adults and are also tabulated separately for women of reproductive age.

The National Health and Nutrition Examination Survey (NHANES) is a program of studies designed to assess the health and nutritional status of adults and children in the United States, which is conducted in 2-year cycles. The survey combines interviews and physical examinations. The Depression Screener has been administered during a computer-assisted personal interview as part of NHANES since 2005 (25). NHANES is designed to produce US regional estimates but not state-level estimates.

Few state and local health departments have routinely analyzed available hospital discharge data for mental health conditions. This omission is partly because many states do not include specialty psychiatric hospitals in their hospital discharge databases, and thus the epidemiologic picture would be incomplete. Also, in many jurisdictions the epidemiologic surveillance functions and programmatic activities related to substance abuse and mental health are in different agencies. Finally, to date there has been no standard epidemiologic method for monitoring hospitalization rates for substance abuse and mental health disorders. All states have access to high-quality data on incidence of completed suicide through their vital statistics records, though comparability among states is somewhat compromised by differences in states' medical examiner/coroner (ME/C) protocols.

Variability in suicide rates by attributes like age, race, socioeconomic status, marital status, religion, ethnicity and geographic area has been known for over a century (26). Although rates in any particular subgroup tend to be stable over periods of a few to ten years or more, there can be striking cumulative changes over time, suggesting changes in underlying risk factors. In fact, the close association between suicide rates and various social factors is among the best evidence that prevention of suicide is possible by concerted community action.

Finally, our understanding of suicide patterns is aided by investigating the natural pathways that can end in suicide, including symptoms of depression, episodes of major depression, hospitalization for mood disorders, suicidal ideation, episodes of self-harm, and suicide attempts. As more and better population-based surveillance is carried out in near real-time for other mental health disorders, we can expect to understand more about the natural risk factors and prevention potential for these disorders as well. As evidenced by the results of the NSDUH survey, only 31.5% of adults with serious mental illness receive treatment or counseling (38). Programs that increase access to the behavioral health care system may prevent future mental illness and other outcomes such as substance abuse and suicide.

Public Health Surveillance for Substance Abuse in the United States

Drug-use patterns in communities (for drugs with potential for abuse and dependence) are even more dynamic than patterns of mental illness, as they are the net effect of numerous influences, including drug availability, quality and price; introduction of new substances or new formulations of old substances into the market; penalties for drug possession or sale; vigor of law enforcement; treatment availability and use; cultural acceptance; and hard-to-quantify factors related to anomie, powerlessness, and related societal factors (27). One example of this dynamism is the ongoing epidemic of fatal drug overdoses associated with use of prescription pain medicines. As that epidemic has leveled off and receded in some areas, an overlapping epidemic of overdoses associated with heroin use has driven overdose death rates even higher in some parts of the country (3). Prevalence of use, abuse or dependence for various drugs varies by a factor of two to three among the states (See Background sections of most of the indicator definitions in Appendix C).

National surveys such as NSDUH, Monitoring the Future (MtF) (28), and YRBSS provide state-by-state estimates of the use of alcohol and various drugs. NSDUH data provide a 15-year baseline for comparison with current survey estimates of the prevalence of abuse and/or dependence and drug treatment usage among adults. MtF and YRBSS provide similar and complementary data for adolescents, but not for adults. Methodological differences make MtF and YRBSS results hard to compare directly to those in NSDUH. MtF data are collected every other year. BRFSS provides in-depth information about patterns of use of alcohol by adults, but little information about other drug usage.

Direct measurements of the impact of drug abuse and mental illness are not yet standardized nationally. Although a few jurisdictions have been tabulating rates of hospitalization attributable to AOD, a standardized methodology for doing this is just emerging. States may use CDC's web-based Alcohol-related Disease Impact (ARDI) tools to estimate alcohol-related disease impact, including hospitalizations, deaths and costs, but these do not address such impacts due to other drugs.

Existing Sets of Relevant Surveillance Indicators

This effort by the Workgroup on Surveillance Indicators for Substance Abuse and Mental Health has been facilitated by the existence of several sets of surveillance indicators developed by other groups. The Workgroup reviewed these existing indicator sets to identify potential topics, data sources, and conceptual and operational definitions. These indicator sets are reviewed briefly below. Appendix A lists the topics addressed by several of these existing indicator sets, as well as those eventually recommended in the current project.

About ten years ago, SAMHSA sponsored the development of a set of measures under the heading State Epidemiologic Data System (SEDS) (29). This system, which is no longer active, included several indicators that are presented in Appendix A. SAMSHA currently publishes a series of annual state and national reports, the National Findings Reports, State Estimate Reports and the Behavioral Health Barometers (30), drawing on the agency's own rich data resources, including the NSDUH. State-by-state tabulations of many additional measures are available through the SAMSHA website (31).

The U.S. Department of Health and Human Services Healthy People 2020 (HP2020) (32) objectives are measurable, and supported by well-defined data sources that jurisdictions can use to measure progress toward target outcomes. These objectives are a rich source of potential surveillance indicators.

The workgroup reviewed surveillance summary documents from New Mexico (33) and Michigan (34) to identify potential indicators.

CSTE's own previously-adopted chronic disease indicators (13) include items related to alcohol and mental health. The CDC's State Injury Indicators include a Drug Overdose Fatalities Indicator, a Suicide Attempt Hospitalizations, and Suicide Attempt in High School Students. (14). In addition, CSTE recently completed the development of an indicator of hospitalizations attributable to drugs with the potential for abuse and dependence (excluding tobacco and alcohol).

For over 20 years, the National Institute of Drug Abuse (NIDA) sponsored the Community Epidemiology Workgroup (CEWG) (35), a network of drug abuse sentinel surveillance sites that tracked the availability and use, of drugs and the health consequences of drug use, abuse and dependence. The CEWG held a yearly conference and produced an annual report with contributions from participating centers. The lack of standardization of data elements and methods across the sites limited the comparability and utility of the data. CEWG sentinel sites were typically academic centers rather than government agencies with population-level programmatic responsibilities, though many of them collaborated with their jurisdiction's mental health and substance abuse authorities. One state health department (New Mexico) and one large local health department (New York City) were CEWG sentinel surveillance sites. In 2014 NIDA phased out the CEWG and activated a new network of a dozen sites, the National

Drug Early Warning System or N-DEWS, whose coordinating center is at the University of Maryland, College Park. One of the first tasks of the N-DEWS center was to develop, in coordination with the sites and an advisory group, a set of substance abuse measures that are being calculated in a uniform way across the sites (36). The workgroup also reviewed this newly-developed set of measures to identify candidate topics for public health surveillance.

CSTE Workgroup on Surveillance Indicators for Substance Abuse and Mental Health

CSTE's Workgroup on Surveillance Indicators for Substance Abuse and Mental Health met monthly from June through December 2015 to develop a starter set of indicators in these domains. A CSTE consultant facilitated the meetings. In seven conference calls and one two-day, face-to-face meeting, the workgroup identified the scope of the indicators; identified and assessed over 50 potential indicator topics; and went through three rounds of prioritization using a modified Delphi process to identify approximately 20 candidate indicators for the final set. The key result of the scoping exercise was that the group decided to exclude tobacco-related indicators. The 20 candidate indicators were reviewed at the in-person meeting in Chicago, Illinois, October 19-20. Of these, a few were moved to a developmental status and two were consolidated. In addition, two new indicators were added.

CSTE Workgroup Recommended Indicators

The CSTE workgroup recommends the use of 18 indicators to measure and monitor substance abuse and mental health in the United States (See Table 1). Of these 18 indicators, four are derived from death records collected by vital statistics departments; three are derived from hospital discharge and emergency department visit data sets; two are derived from the BRFSS; two are derived from the YRBSS; five are based on published NSDUH data; one is based on the Drug Enforcement Agency's ARCOS database of prescription opioid sales; and one is based on CDC's Alcohol Policy Information System.

Appendix B shows a ranking of the recommended indicators developed by the consultant with workgroup input, based on the two sets of parameters discussed on Page 3: (1) the importance and utility of putting the condition under public health surveillance and (2) the likely effectiveness of public health surveillance (essentially a formative evaluation using CDC guidelines).

Table 1. Indicators Recommended by the CSTE Workgroup on Surveillance Indicators for Substance Abuse and Mental Health

Alcohol:

1. Adult binge drinking prevalence.
2. Youth binge drinking prevalence.
3. Alcohol-related crash death rate.
4. Liver disease and cirrhosis death rate.
5. State excise taxes on alcohol (3 sub-indicators for beer, wine and spirits).

Other drugs:

6. Drug overdose mortality rate.
7. Hospitalization rate associated with all drugs, versions A and B (7 sub-indicators for specific drugs).
8. Prescription opioid sales per capita.
9. Prevalence of dependence on or abuse of drugs or alcohol in the last year – summary.
10. Prevalence of use of selected prescription and illicit drugs (6 sub-indicators for specific drugs).

Mental health:

11. Suicide death rate.
12. Hospital discharge rate for mental disorders (4 sub-indicators for specific disorders).
13. Emergency department visit rate for intentional self-harm.
14. Prevalence rate of youth suicide attempts.
15. Prevalence rate of past-year major depressive episode.
16. Prevalence rate of past-year serious mental illness.
17. Prevalence rate of past-year any mental illness.
18. Prevalence rate of frequent mental distress (≥ 14 days out of 30).

Definitions for these 18 indicators are attached as Appendix C, in a standard format similar to that used in recent years for chronic disease and oral health indicators.

Developmental Indicators

In addition to the recommended indicators, the CSTE workgroup identified almost a dozen topics for future, i.e., *developmental*, indicators. These will be referred to various ongoing substance abuse and mental health subcommittees and workgroups for consideration and possible future development.

- A policy measure related to mental health – Mental Health Subcommittee (once it is formed). This would most likely relate to improving parity for mental health clinical care payment by third-party payers.
- A policy measure related to prescription drug use - Overdose Subcommittee. The model for this would likely be the existing measures related to the characteristics of Prescription Drug Monitoring Programs and state regulation of pain clinics, developed by CDC and described on their Prevention Status Reports web page at www.cdc.gov/drugoverdose/pdmp/index.html
- All-cause alcohol-attributable mortality (from ARDI software tools supplied by CDC) - AOD or Alcohol Subcommittees
- Hospital discharge rate for alcohol-related events – AOD Subcommittee
- Alcohol-related emergency department visits based on hospital discharge data. AOD or alcohol subcommittee.
- Rapid drug overdose mortality, all drugs, using electronic death registration capabilities. - Overdose Subcommittee
- Emergency department visits attributable to or associated with or attributable to all drugs and each specified drug – A and B¹.
- Emergency department visits for illness related to drugs or to alcohol based on real-time access to emergency department visit data through syndromic surveillance data systems. -- AOD Subcommittee
- Additional indicator(s) related to Prescription Drug Monitoring Programs (PDMP). -- PDMP Subcommittee
- Additional indicators related to use and adverse health effects of marijuana, to monitor effects of decriminalization of marijuana use -- Marijuana Subcommittee
- Policy indicator related to suboxone -- PDMP Subcommittee

¹ Once capability is in place for corresponding hospital admission indicator (#7, previous page), most states could easily calculate this measure of ED visits.

Pilot Testing and Position Statement

A position statement to signify CSTE's support for using this set of surveillance indicators will be submitted for adoption at the 2016 CSTE annual meeting in June. Additionally, CSTE will support a pilot test of the recommended indicators in select jurisdictions in 2016, with a view to refining the list and definitions. The findings of the pilot test will be evaluated to confirm that states can efficiently collect, analyze and report on data for the indicators.

Possible barriers to timely completion of a pilot test process include:

- Too few jurisdictions volunteering to take part in the pilot.
- One or more indicators proving to be impossible for several jurisdictions to measure.
- Unexpected opposition within some agencies to participation in the pilot or to certain items among the recommended indicators, even after epidemiology staff have agreed to participate.
- An overly burdensome data collection process at the state and local levels, leading to an incomplete pilot assessment in some jurisdictions.
- Lack of time for CSTE staff, consultants or CSTE member-leaders to devote to the pilot to ensure completion within the desired time frame.

Necessary steps between December 2015 and June 2016:

- Final adoption of indicator list and definitions by the SA/MH surveillance indicator workgroup.
- Workgroup acceptance of this white paper.
- Adoption of the indicator list and definitions and white paper by the CSTE Substance Abuse Subcommittee.
- Preparation and submission of a position statement for consideration at the June, 2016 CSTE annual conference. (Submission deadline March 24, 2016.)
- Presentations in various internal CSTE forums of the position statement and indicators, with possible further modifications before the June 2016 annual meeting.
- Presentation of the position statement in appropriate subcommittee and committee meetings at the CSTE annual meeting, culminating in a vote on the position statement during the CSTE business meeting on Thursday, June 23, 2016

Necessary steps between May 2016 and September 2016:

- Identification of four to eight jurisdictions to pilot the indicators for the most complete recent year of data in their jurisdiction.
- Review of pilot test results to identify possible issues with the indicators and their definitions.

References

1. Foege WH, Hogan RC, Newton LH. Surveillance Projects for Selected Diseases. *Int J Epidemiol* 1976; 5(1):29–37. National Center for Vital Statistics. Deaths: Final Data for 2013. Detailed Tables, Table 18. Available at http://www.cdc.gov/nchs/data/nvsr/nvsr64/nvsr64_02.pdf Accessed December 15, 2015.
2. Thacker SB, Qualters JR, Lee LM. Public health surveillance in the United States: evolution and challenges. *MMWR* 2012;61(Suppl; July 27, 2012):3-9.
3. Rudd RA, Aleshire N, Zibbell JE, Gladden M. Increases in drug and opioid overdose deaths—United States, 200–2014. *MMWR* 2016;64(50): 1378-82.
4. Center for Disease Control and Prevention WONDER compressed mortality file. Available at <http://wonder.cdc.gov/mortSQL.html>. Accessed May 15, 2016.
5. Center for Disease Control and Prevention. Detailed tables for the National Vital Statistics Report “Deaths: Final Data for 2013.” Volume 64, No. 2, Tables 10 through 17, Pages 19-56. Available at http://www.cdc.gov/nchs/data/nvsr/nvsr64/nvsr64_02.pdf. Accessed December 11, 2015.
6. Sacks JJ, Gonzales KR, Bouchery EE, Tomedi L, Brewer RD. 2010 national and state costs of excessive alcohol consumption. *Am J Prev Med* 2015;49(5):e73-e79. DOI: <http://dx.doi.org/10.1016/j.amepre.2015.05.031>.
7. White AG, Birnbaum HG, Mareva MN, et al. Direct costs of opioid abuse in an insured population in the United States. *J Manag Care Pharm* 2005;11(6):469-479.
8. Insel TR. 2008. Assessing the economic costs of serious mental illness. *Am. J Psychiatry*. 165(6):703-711. PMID: 18519528
9. Bloom, D.E., Cafiero, E.T., Jané-Llopis, E., Abrahams-Gessel, S., Bloom, L.R., Fathima, S., Feigl, A.B., Gaziano, T., Mowafi, M., Pandya, A., Prettnner, K., Rosenberg, L., Seligman, B., Stein, A.Z., & Weinstein, C. (2011). The Global Economic Burden of Noncommunicable Diseases. Geneva: World Economic Forum. Accessed March 8, 2016 at http://www3.weforum.org/docs/WEF_Harvard_HE_GlobalEconomicBurdenNonCommunicableDiseases_2011.pdf
10. Sosin DM, Hopkins RS. Surveillance. In: Guest C, Ricciardi W, Kawachi I, Lang I (editors). *Oxford Handbook of Public Health Practice*, 3rd ed. Oxford: Oxford University Press; 2013, pages 140-147.
11. Center for Disease Control and Prevention. Updated guidelines for evaluating public health surveillance systems recommendations from the guidelines working group. *MMWR* 2001;50(RR13):1-35.
12. Meriweather, RA. Blueprint for a National Public Health Surveillance System for the 21st Century. *J Public Health Manag Pract*. 1996; 2(4):16-23.

13. Holt JB, Huston SL, Heidari K, Schwartz R, Gollmar CW, Tran A, Bryan L, Liu Y, Croft JB. Indicators for Chronic Disease Surveillance — United States, 2013. *MMWR Recommendations and Reports*, January 9, 2015 / 64(RR01);1-15.
14. Thomas KE, Johnson RL. State injury indicators report: Instructions for Preparing 2013 Data. Atlanta (GA): Centers for Disease Control and Prevention, National Center for Injury Prevention and Control; 2015. Accessed March 8, 2016 at http://www.cdc.gov/injury/pdfs/2013_state_injury_indicator_instructions-a.pdf
15. Regier DA, Myers JK, Kramer M, Robins LN, Blazer DG, et al. The NIMH epidemiologic catchment area program. *Arch Gen Psychiatry* 1984;41:934-941.
16. Harvard Medical School. National Comorbidity Survey (NCS). Available at <http://www.hcp.med.harvard.edu/ncs/index.php>. Accessed January 11, 2016.
17. Substance Abuse and Mental Health Services Administration. Population Data/National Survey of Drug Use and Health. Accessed March 8, 2016. at <http://www.samhsa.gov/data/population-data-nsduh>
18. Centers for Disease Control and Prevention. Youth Risk Behavior Surveillance System. Accessed March 9, 2016 at <http://www.cdc.gov/healthyyouth/data/yrbs/index.htm>. Last updated 5/15/2015.
19. Centers for Disease Control and Prevention. Behavioral Risk Factor Surveillance System. Accessed March 9, 2016, at <http://www.cdc.gov/brfss/>. Last updated February 1, 2016.
20. Centers for Disease Control and Prevention. BRFSS Anxiety and Depression Optional Module. Accessed March 9, 2016 at http://www.cdc.gov/mentalhealth/data_stats/pdf/brfss_anxiety_and_depression_optional_module.pdf. Last updated October 4, 2013.
21. Centers for Disease Control and Prevention. BRFSS Mental Illness and Stigma Optional Module. Accessed March 9, 2016 at http://www.cdc.gov/mentalhealth/data_stats/pdf/brfss-mental-illness-and-stigma-module.pdf. Last updated October 4, 2013.
22. Centers for Disease Control and Prevention. Mental Illness Surveillance Among Adults in the United States. *MMWR* 2011;60(Suppl):1-30.
23. Indiana State Department of Health. Anxiety and Depression in Adults Indiana 2006. In Indiana BRFSS Newsletter volume 6, Issue 1, April 2008. Accessed on March 8, 2016 at http://www.in.gov/isdh/files/brfss_04_08.pdf
24. Connecticut Department of Public Health. Anxiety and Depression in Connecticut Adults. Results from the 2006 BRFSS. No date. Accessed on March 8, 2016 at http://ct.gov/dph/lib/dph/hisr/pdf/brfss_anx_dep_fact_sheet2006.pdf
25. Centers for Disease Control and Prevention. National Health and Nutrition Examination Survey (NHANES) Depression Screener. Accessed March 9, 2016 at

- http://www.cdc.gov/mentalhealth/data_stats/pdf/nhanes_depression_screener.pdf. Last updated October 4, 2013.
26. Durkheim, E. (1897). *Suicide: A Study in Sociology*. The Free Press. ISBN 0-684-83632-7.
 27. See for example Spooner C and Hetherington K, Social Determinants of Drug Use, Technical Report Number 228, National Drug and Alcohol Research Center, University of New South Wales, Sydney, 2004. Accessed February 7, 2016, at ndarc.med.unsw.edu.au/sites/default/files/ndarc/resources/TR.228.pdf
 28. Monitoring the Future, a continuing study of American youth. Accessed March 9, 2016 at <http://www.monitoringthefuture.org/>
 29. Substance Abuse and Mental Health Services Administration. Developing a State Epidemiological Profile for Substance Abuse Prevention, Table A1, page 26, in Epidemiological Workgroup Technical Assistance Toolkit. Accessed March 9, 2016 at <http://www.samhsa.gov/capt/sites/default/files/resources/epi-toolkit.pdf>
 30. Substance Abuse and Mental Health Services Administration. Behavioral Health Barometers. Accessed March 9, 2016 at <http://www.samhsa.gov/data/behavioral-health-barometers>.
 31. Substance Abuse and Mental Health Services Administration. Population Data/NSDUH State Reports. Accessed March 9, 2016 at <http://www.samhsa.gov/data/population-data-nsduh/reports?tab=33>
 32. US Department of Health and Human Services (HHS). Healthy People Topics and Objectives. Accessed March 9, 2016 at <https://www.healthypeople.gov/2020/topics-objectives>. Page last updated 3/8/2016.
 33. New Mexico Department of Health. 2015 New Mexico Regional Mental Health Reports. Accessed March 9, 2016 at <https://ibis.health.state.nm.us/resource/MHReport.html>. Page last updated May 12, 2015.
 34. Michigan Department of Community Health. Bureau of Substance Abuse and Addiction Services. Michigan's State Prevention Enhancement Project and Five-Year Strategic Plan. Lansing, Michigan, July 2012. Accessed March 9, 2016 at https://www.michigan.gov/documents/mdch/SPE_5-Yr_Strategic_Plan_MI_415592_7.pdf.
 35. National Institute on Drug Abuse (NIDA). Community Epidemiology Work Group (CEWG). Accessed March 9, 2016 at <https://www.drugabuse.gov/about-nida/organization/workgroups-interest-groups-consortia/community-epidemiology-work-group-cewg>. Page last updated March 2015.
 36. NDEWS National Drug Early Warning System. Sentinel Community Site (SCS) Profiles by Site. Accessed March 9, 2016 at <http://ndews.umd.edu/publications/sentinel-community-site-scs-profiles-site> And NDEWS Sentinel Community Site (SCS) Cross-Site Comparison Graphics. Accessed March 9 2016 at <http://ndews.umd.edu/sites/ndews.umd.edu/files/NDEWS%20Cross%20Site%20Report%202015%20Final%20Web.pdf>

37. GBD 2013 DALYs and HALE Collaborators. Global, regional, and national disability-adjusted life years (DALYs) for 306 diseases and injuries and healthy life expectancy (HALE) for 188 countries, 1990-2013: quantifying the epidemiological transition. *Lancet*. 2015 Nov 28;386(10009):2145-91.
38. Substance Abuse and Mental Health Services Administration, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2014.

Appendix A Comparison of the Topics of Substance Abuse/Mental Health Indicators Recommended For Public Health Surveillance in This Project with the Topics Chosen for Surveillance in Other Select Documents

Indicator data may be calculated for adults only, for youth only, for youths and adults separately, or for all ages (often with an option for age stratification). The *Select Surveillance Documents* are described previously.

Indicator Topics	Select Surveillance Documents						
	Current CSTE project	State Epidemiologic Data System items	CSTE existing (Chronic Disease, Injury) + developmental indicators	National Survey on Drug Use and Health National Report of Findings & Behavioral Health Barometers	HP 2020 objectives	New Mexico mental health report	N-DEWS substance abuse measures
Current use of alcohol		Adult, youth and whole population	Youth, before pregnancy				
Heavy alcohol use		Adult	Adults, women aged 18 to 44	Adults			
Binge drinking	Youth and adult	Adult, youth and whole population	Youth, adult, women aged 18-44	Youth			Youth, whole population
Binge drinking frequency and intensity among adults who binge drink			Adults				
Alcohol dependence or abuse		Whole population		Whole population			
Perception of no great risk from binge drinking				Youth			
Early initiation of alcohol use		Youth					

	Current CSTE project	State Epidemiologic Data System items	CSTE existing (CD, Injury) + developmental indicators	National Survey on Drug Use and Health National Report of Findings & Behavioral Health Barometers	HP 2020 objectives	New Mexico mental health report	N-DEWS substance abuse measures
Past-year alcohol use treatment among individuals aged 12 or older with alcohol dependence or abuse					Whole population	Whole population	
Mortality associated with alcohol							
Alcohol excise tax	Whole population		Whole population				
Other alcohol-related policies (dram shop, local authority to regulate outlet density)			Whole population				
Drug overdose mortality – all and specified drugs	Whole population	Whole population	Whole population				Whole population
Nonmedical use of prescription drugs	Whole population						
Use of various illicit drugs (marijuana, cocaine, etc.)	Whole population	Youth, whole population		Youth			Youth, whole population

	Current CSTE project	State Epidemiologic Data System items	CSTE existing (CD, Injury) + developmental indicators	National Survey on Drug Use and Health National Report of Findings & Behavioral Health Barometers	HP 2020 objectives	New Mexico mental health report	N-DEWS substance abuse measures
Past-year initiation of substance use				Youth			
Early initiation of marijuana use		Youth					
Perception of no great risk from marijuana use				Youth			
Dependence on alcohol or drugs (combined)	Whole population						Whole population
Percent persons who need alcohol and/or illicit drug treatment and received specialty treatment for abuse or dependence in the past year					Adults and youth		
Illicit drug dependence or abuse		Whole population		Whole population			
Hospitalization for alcohol-related causes							
Hospitalization for illicit drug use (combined)	Whole population		Adults				
Hospitalizations associated with individual drugs	Whole population						

	Current CSTE project	State Epidemiologic Data System items	CSTE existing (CD, Injury) + developmental indicators	National Survey on Drug Use and Health National Report of Findings & Behavioral Health Barometers	HP 2020 objectives	New Mexico mental health report	N-DEWS substance abuse measures
Prescription opioid sales per capita	Whole population						
Specific drugs identified as % of total drug reports seized by law enforcement							
Enrollment in substance abuse treatment				Whole population			
Substance use problems among those enrolled in treatment				Whole population			Whole population
Percentage of treatment admissions citing specific drugs as primary substance (heroin, prescription drugs, etc.)					Adults		Whole population
Individuals receiving methadone				Adult			
Individuals receiving buprenorphine				Adult			
Percent of those with illicit drug dependence or abuse receiving treatment				Adult			

	Current CSTE project	State Epidemiologic Data System items	CSTE existing (CD, Injury) + developmental indicators	National Survey on Drug Use and Health National Report of Findings & Behavioral Health Barometers	HP 2020 objectives	New Mexico mental health report	N-DEWS substance abuse measures
Frequent mental distress	Adults		Adults, women aged 18 to 44 years			Adult	
Felt sad or hopeless during past 12 months						Youth	
Current depression						Adult	
Postpartum depressive symptoms			Women with recent live birth				
Major depressive episode	Adults			Youth			
Treatment among those with major depressive episode				Youth			
Any mental illness	Adults						
Any severe mental illness	Adults			Adult			
Mental health treatment among those with any mental illness				Adult			
Adults served in public mental health (MH) system by employment status and age				Adults			

	Current CSTE project	State Epidemiologic Data System items	CSTE existing (CD, Injury) + developmental indicators	National Survey on Drug Use and Health National Report of Findings & Behavioral Health Barometers	HP 2020 objectives	New Mexico mental health report	N-DEWS substance abuse measures
Adults reporting improved functioning from treatment received in public MH system							
Hospitalization for all mental illnesses	Whole population						
Hospitalization for specific common mental illnesses (mood disorders, schizophrenia, etc.)	Whole population					Whole population	
Hospitalization for alcohol-related mental disorders						Whole population	
Hospitalization for drug-related mental disorders							
Emergency department visits for suicide attempt	Youth, adult						
Serious thoughts of suicide/suicide plan				Adult		Youth, adult	
Self-reported self-harm	Youth					Youth	
Suicide attempt						Youth, adult	

	Current CSTE project	State Epidemiologic Data System items	CSTE existing (CD, Injury) + developmental indicators	National Survey on Drug Use and Health National Report of Findings & Behavioral Health Barometers	HP 2020 objectives	New Mexico mental health report	N-DEWS substance abuse measures
Suicide	Whole population	Whole population				Youth, whole population	
Homicide		Whole population					
Violent crime rate		Whole population					
Property crime rate		Whole population					

Appendix B. Surveillance System Attributes for Each Recommended Indicator

Each of the recommended substance abuse/mental health surveillance indicators was rated on 12 different attributes using a five point Likert Scale (1 being not very important and 5 being very important). Scores, for each of the recommended substance abuse/mental health surveillance indicators, are shown in the table below. The scores were assigned by the consultant, based in part on input early in the process from workgroup members.

The first five attributes (severity, frequency, economic impact, preventability and planning/evaluation) relate primarily to how important the indicator is and the potential for effective intervention to impact the condition. This information informs how justifiable it is to advocate for surveillance of the topic with the identified indicator.

The remaining attributes provide a formative assessment of how well the data source and surveillance method are likely to perform in practice. This information informs how practical and feasible it is to advocate for the surveillance of the topic with the identified indicator.

Final indicator evaluation was done by looking at both sets of attributes and the scores across all attributes. For both sets of attributes, higher ratings indicate greater relevance (justifiable) to public health surveillance and better performance (practical/feasible) for public health surveillance.

	Is surveillance justified?					Formative assessment of surveillance system performance						
	Severity	Frequency	Economic impact	Preventability	Planning and evaluation	Feasibility	Cost of surveillance	Simplicity	Flexibility	Sensitivity	Positive Predictive Value	Timeliness
Adult binge drinking	4	3	3	3	4	5	3	5	1	3	4	2
Youth binge drinking	4	4	3	3	3	5	5	5	1	3	4	1
Alcohol-related crash deaths	4	4	4	5	3	4	1	5	4	3	4	3
Liver disease and cirrhosis deaths	4	4	4	3	4	5	1	5		3	3	3
State excise taxes on alcohol					4	5	1	5				3

	Is surveillance justified?					Formative assessment of surveillance system performance						
	Severity	Frequency	Economic impact	Preventability	Planning and evaluation	Feasibility	Cost of surveillance	Simplicity	Flexibility	Sensitivity	Positive Predictive Value	Timeliness
Drug overdose mortality	5	3	4	4	4	5	3	5	4	3	4	3
Hospital admissions attributable to drugs	4	4	4	4	4	4	4	3	4	3	3	4
Prescription opioid sales per capita	4	4	4	3	3	3	1	5	1			5
Dependence on or abuse of drugs in last year	3	4	4	3	4	5	1	5	1	3	4	2
Prevalence of use of prescription and illicit drugs	5	2	2	2	4	5	1	5	1	3	4	2
Suicide rate	5	4	4	*3	5	5	1	5	4	4	5	3
Hospital admissions for mental disorders	5	4	4	3	4	4	4	3	4	2	4	4

	Is surveillance justified?					Formative assessment of surveillance system performance						
	Severity	Frequency	Economic impact	Preventability	Planning and evaluation	Feasibility	Cost of surveillance	Simplicity	Flexibility	Sensitivity	Positive Predictive Value	Timeliness
ED visits for intentional self-harm	3	5	3	3	4	4	4	4	4	2	4	5
Youth suicide attempts	3	3	2	3	4	5	1	4	1	4	4	1
Past-year depressive episode	3	3	4	3	3	5	1	5	1	3	4	2
Past-year serious mental illness	4	3	3	3	3	5	1	5	1	3	4	2
Past-year any mental illness	2	4	4	3	3	5	1	5	1	3	4	2
Frequent mental distress	5	2	4	2	3	4	1	4	1	4	2	2

Appendix C. Definitions for Substance Abuse and Mental Health Surveillance Indicators.

Adult binge drinking	
Substance Abuse Indicator	
Demographic Group	Adults 18 years old and older.
Numerator	Adults in jurisdiction's Behavioral Risk Factor Surveillance System (BRFSS) sample aged ≥ 18 years who report having ≥ 5 drinks (men) or ≥ 4 drinks (women) on ≥ 1 occasion during the previous 30 days.
Denominator	Adults in jurisdiction's BRFSS sample aged ≥ 18 years who report having a specific number, including zero, of drinks on one occasion during the previous 30 days (excluding unknowns and refusals).
Measure	Calculated annually — crude and age-adjusted weighted prevalence per 100 respondents (standardized by the direct method to the year 2000 standard U.S. population (1)), with 95% confidence interval.
Period for Case Definition	Calculated for all respondents during a calendar year with a 30-day recall period.
Data Resource	Behavioral Risk Factor Surveillance System (BRFSS).
Additional Data Items	Stratify by age group, sex, race, ethnicity, and geographic subarea if feasible given sample size for jurisdiction.
Background	In 2013, a total of 17.4% of adults reported binge drinking on ≥ 1 occasion during the previous 30 days, with a range among states from 10.3% to 24.4%. (2) Binge drinking prevalence in 2010 was higher among men, persons aged 18–34 years, whites, and those with household incomes $\geq \$75,000$ (3). Excessive alcohol use accounted for an estimated average of 88,000 deaths and 2.5 million years of potential life lost (YPLL) in the United States each year during 2006-2010 (4), and an estimated \$223.5 billion in economic costs in 2006 (5). Binge drinking accounted for more than half of those deaths, two thirds of the YPLL (6), and three quarters of the economic costs (5). Binge drinking also is a risk factor for many health and social problems, including motor-vehicle crashes, violence, suicide, hypertension, acute myocardial infarction, sexually transmitted diseases, unintended pregnancy, fetal alcohol syndrome, and sudden infant death syndrome (7, 8). In the United States, binge drinking accounts for more than half of the alcohol consumed by adults (9). However, most binge drinkers are not alcohol dependent (10, 11).
Significance	Reductions in the value of this indicator are expected if states implement policy changes recommended in the

	CDC Prevention Status Report, and other evidence-based interventions.
Limitations of Indicator	This indicator does not convey the frequency of binge drinking or the specific amount of alcohol consumed.
Limitations of Data Resource	As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., college campuses or the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). To address some of these potential concerns, BRFSS began including cell phone-only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparison with prior year data is inappropriate. A recent study using BRFSS data found that self-reports identify only 22%–32% of presumed alcohol consumption in states, based on alcohol sales (12).
Data Access	State-level data for 2013 are accessible at the CDC Chronic Disease Indicators website: http://nccd.cdc.gov/CDI/rdPage.aspx?rdReport=DPH_CDI.IndicatorMap&isCategory=ALC&isIndicator=ALC2_2&rdShowModes=ShowBody%2CScreen&go=GO .
Related Healthy People 2020 Objectives (if applicable)	Healthy People 2020 Objective SA-14.3: Reduce the proportion of persons engaging in binge drinking during the past 30 days—Adults aged 18 years and older. http://www.healthypeople.gov/2020/topics-objectives/topic/substance-abuse/objectives .
Related SA/MH surveillance Indicators	Youth binge drinking.

References

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People 2010 Statistical Notes, No. 20. Hyattsville, MD: US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics; 2001. Available at <http://www.cdc.gov/nchs/data/statnt/statnt20.pdf>
2. Centers for Disease Control and Prevention. Chronic Disease Indicators query page, <http://www.cdc.gov/cdi/>. Accessed December 16, 2015.
3. Centers for Disease Control and Prevention. Vital signs: binge drinking prevalence, frequency, and intensity among adults—United States, 2010. MMWR 2012;61:14–9.
4. Centers for Disease Control and Prevention. Alcohol-related Disease Impact (ARDI) application. Atlanta, GA: US Department of Health and Human Services, CDC; 2013. Available at http://nccd.cdc.gov/DPH_ARDI/default/default.aspx
5. Bouchery EE, Harwood HJ, Sacks JJ, Simon CJ, Brewer RD. Economic costs of excessive alcohol consumption in the U.S., 2006. Am J Prev Med 2011;41:516–24.
6. Stahre M, Roeber J, Kanny D, Brewer RD, Zhang X. Contribution of excessive alcohol consumption to deaths and years of potential life lost in the United States. Prev Chronic Dis 2014;11:130293.
7. National Institute of Alcohol Abuse and Alcoholism. Tenth Special Report to the U.S. Congress on Alcohol and Health. Bethesda, MD: US Department of Health and Human Services, National Institutes of Health; 2000.
8. Warren KR, Hewitt BG, Thomas JD. Fetal alcohol spectrum disorders. Alcohol Res Health 34;2011:4–14.
9. Office of Juvenile Justice and Delinquency Prevention. Drinking in America: myths, realities, and prevention policy. Washington, DC: US Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention; 2005. Available at http://web.archive.org/web/20150910124238/http://www.udetc.org/documents/Drinking_in_America.pdf
10. Dawson DA, Grant BF, Li T-K. Quantifying the risks associated with exceeding recommended drinking limits. Alcohol Clin Exp Res 2005;29:902–8.
11. Woerle S, Roeber J, Landen MG. Prevalence of alcohol dependence among excessive drinkers in New Mexico. Alcohol Clin Exp Res 2007;31:293–8.
12. Nelson DE, Naimi TS, Brewer RD, Roeber J. U.S. state alcohol sales compared to survey data, 1993–2006. Addiction 2010;105:1589–96.

Youth binge drinking Substance Abuse Indicator	
Demographic Group	Youth (grades 9 through 12).
Numerator	Students in grades 9–12 who report having ≥ 5 drinks of alcohol within a couple of hours on ≥ 1 day during the past 30 days.
Denominator	Students in grades 9–12 who report having a specific number, including zero, of drinks of alcohol within a couple of hours on ≥ 1 day during the past 30 days (unknown or refusals).
Measure	Calculated annually for all respondents during a calendar year — crude and age-adjusted prevalence per 100 respondents (standardized by the direct method to the year 2000 standard U.S. population), with 95% confidence interval.
Period for Case Definition	Calculated for all respondents during a calendar year, with a 30-day recall period.
Data Resource	Youth Risk Behavior Surveillance System (YRBSS).
Additional Data Items	Stratify by age group, sex, race, ethnicity, and geographic subarea if feasible given sample size for jurisdiction.
Background	In 2013, 20.8% of high school students in the United States reported binge drinking during the past 30 days, with a range among the states from 5.9% to 24.4% (1). Binge drinking accounts for 90% of the alcohol consumed by youths (2), and about 2 in 3 high school students who drink report binge drinking (3), usually on multiple occasions. In 2013, the prevalence of binge drinking among boys was 22.0% and 19.6% among girls (4). The prevalence of binge drinking was higher among non-Hispanic white (23.2%) and Hispanic (22.6%) students than among black students (12.4%); prevalence increased with grade (4). Binge drinking by youth is correlated with binge drinking by adults (5). Alcohol is a factor in the deaths of approximately 4,700 youths in the United States per year, shortening their lives by an average of 60 years (6). Underage drinking cost the U.S. \$24 billion in 2006 (7).

	Binge drinking is a risk factor for many health and social problems, including motor vehicle crashes, violence, suicide, hypertension, acute myocardial infarction, sexually transmitted diseases, unintended pregnancy, fetal alcohol spectrum disorders, and sudden infant death syndrome (8, 9).
Significance	Reductions in the value of this indicator are expected if states implement policy changes recommended in the CDC Prevention Status Report on excessive alcohol use, and other evidence-based interventions.
Limitations of Indicator	The indicator does not convey the frequency of binge drinking or the specific amount of alcohol consumed. The definition of binge drinking used in the data source (YRBSS) is not gender-specific (as it is for adults). This indicator is available every other year.
Limitations of Data Resource	As with all self-reported sample surveys, YRBSS data might be subject to systematic error resulting from noncoverage (e.g., no participation by certain schools), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). YRBSS data only apply to youth who are attending school in regular classrooms, and thus may not be representative of all persons in this age group. YRBSS results are not available from every state because some states do not participate in the YRBSS. Moreover, some states that do participate do not achieve a high enough overall response rate to receive weighted data from CDC, and are therefore not included in the results. Some states may be able to use comparable data for this indicator that are collected through a mechanism other than the YRBSS.
Data Access	State-level data for 2013 (and for both earlier and most recent years) accessible at CDC Chronic Disease Indicators website: http://nccd.cdc.gov/CDI/rdPage.aspx?rdReport=DPH_CDI.IndicatorMap&irbGender=&irbLocation=1&rdShowModes=ShowBody,Screen .

Related Healthy People 2020 Objectives (if applicable)	Healthy People 2020 Objective SA–14.1: Reduce the proportion of students engaging in binge drinking during the past 2 weeks—High school seniors. Healthy People 2020 Objective SA–14.4: Reduce the proportion of persons engaging in binge drinking during the past month—Adolescents aged 12 to 17 years. See: http://www.healthypeople.gov/2020/topics-objectives/topic/substance-abuse/objectives. CDC’s Prevention Status Report: Excessive Alcohol Use (10).
Related SA/MH surveillance Indicators	Adult binge drinking.

References

1. Centers for Disease Control and Prevention. Chronic Disease Indicators query page, <http://www.cdc.gov/cdi/>. Accessed December 16, 2015.
2. Office of Juvenile Justice and Delinquency Prevention. Drinking in America: myths, realities, and prevention policy. Washington, DC: US Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention; 2005.
3. Centers for Disease Control and Prevention. Vital signs: binge drinking among high school students and adults—United States, 2009. MMWR 2010;59:1274–9.
4. Centers for Disease Control and Prevention. *1991-2013 high school Youth Risk Behavior Survey data*. Available at <http://nccd.cdc.gov/youthonline/>. Accessed December 16, 2015.
5. Nelson DE, Naimi TS, Brewer RD, Nelson HA. State alcohol-use estimates among youth and adults, 1993–2005. Am J Prev Med 2009;36:218–24.
6. Centers for Disease Control and Prevention. Alcohol-related Disease Impact (ARDI) application. Atlanta, GA: US Department of Health and Human Services, Centers for Disease Control and Prevention.; 2013. Available at http://nccd.cdc.gov/DPH_ARDI/default/default.aspx
7. Bouchery EE, Harwood HJ, Sacks JJ, Simon CJ, Brewer RD. Economic costs of excessive alcohol consumption in the U.S., 2006. Am J Prev Med 2011;41:516–24.
8. National Institute of Alcohol Abuse and Alcoholism. Tenth Special Report to the U.S. Congress on Alcohol and Health. Bethesda, MD: U.S. Department of Health and Human Services, National Institutes of Health; 2000.
9. Warren KR, Hewitt BG, Thomas JD. Fetal alcohol spectrum disorders. Alcohol Res Health 2011;34:4–14.
10. Centers for Disease Control and Prevention. Prevention Status Reports, 2013: Excessive Alcohol Use. Atlanta, GA: US Department of Health and Human Services, Centers for Disease Control and Prevention; 2014. Accessible from: <http://www.cdc.gov/psr/>.

Alcohol-related crash deaths	
Substance Abuse Indicator	
Demographic Group	All residents.
Numerator	Alcohol-related death of a person involved in crash of a motor vehicle traveling on a public roadway and occurring within 30 days of the crash. Deaths are considered alcohol related if either a driver or non-occupant (e.g., pedestrian or bicyclist) had a blood alcohol concentration (BAC) ≥ 0.01 g/dL.
Denominator	Midyear population for the calendar year.
Measure	Annual number of deaths. Annual mortality rate, crude and age adjusted (standardized by the direct method to the year 2000 standard U.S. population (1)), distribution with 95% confidence intervals and by demographic characteristics when feasible.
Period for Case Definition	Calculated annually for all deaths in the most recent calendar year.
Data Resource	Fatality Analysis Reporting System (FARS) coordinated by the National Highway Traffic Safety Administration (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).
Additional Data Items	Stratify by age group, sex, race, ethnicity, and geographic subarea if feasible given number of events for jurisdiction.
Background	In 2013, 10,076 people died in alcohol-impaired driving crashes, accounting for nearly one third (31%) of all traffic-related deaths in the U.S. Over half (61%) of the 200 child passengers aged 14 years and younger who died in alcohol-related crashes in 2013 were riding with drivers who had a BAC of 0.08 g/dL or higher (2).
Significance	To the extent that states implement effective programs to prevent driving or cycling while intoxicated, as well as other effective traffic and pedestrian safety interventions, the annual rate of alcohol-related crash deaths will decline in those states.
Limitations of Indicator	Injuries severe enough to result in death represent only a small proportion of the overall burden of injury. An evaluation of only these injuries may not present an accurate picture of the causes of less severe injuries.

Limitations of Data Resource	FARS does not include non-traffic crashes, such as those occurring on driveways and other private property. In addition, it does not include deaths that occur more than 30 days after the motor vehicle crash. Because BACs are not available on all fatalities, the FARS BAC estimates are based on a multiple imputation process.
Data Access	Data calculated by CDC and included in annual summary of injury surveillance. FARS data are available at http://www.nhtsa.gov/FARS .
Related Healthy People 2020 Objectives (if applicable)	SA-17: Decrease the rate of alcohol-impaired driving (.08+ blood alcohol content [BAC]) fatalities. See: http://www.healthypeople.gov/2020/topics-objectives/topic/substance-abuse/objectives .
Related surveillance Indicators	Liver disease mortality, adult binge drinking, youth binge drinking.

References

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People 2010 Statistical Notes, No. 20. Hyattsville, MD: US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics; 2001. Available at <http://www.cdc.gov/nchs/data/statnt/statnt20.pdf>
2. National Center for Statistics and Analysis. Alcohol impaired driving: 2013 data. (Traffic Safety Facts. DOT HS 812 102). Washington, DC: National Highway Traffic Safety Administration; December 2014. Accessible at <http://www-nrd.nhtsa.dot.gov/Pubs/812102.pdf>. Accessed December 16, 2015.

Mortality from liver disease and cirrhosis	
Substance Abuse Indicator	
Demographic Group	All residents.
Numerator	Resident deaths during a calendar year with International Classification of Diseases, 10th Revision codes K70 or K73–K74 as the underlying cause of death.
Denominator	Midyear resident population for the same calendar year.
Measure	Annual number of deaths. Annual mortality rate: crude and age adjusted (standardized by the direct method to the year 2000 standard U.S. population distribution (1)) with 95% confidence intervals and by demographic characteristics when feasible.
Period for Case Definition	Rate calculated annually for resident deaths occurring during a calendar year.
Data Resource	Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).
Additional Data Items	Stratify by age group, sex, race, ethnicity, and geographic subarea if feasible given number of events for jurisdiction.
Background	In 2010, a total of 31,903 persons died from chronic liver disease. The age-adjusted rate of death among males (12.5 per 100,000 population) was greater than the rate among females (6.4 per 100,000 population)(2). Death rates among states ranged from 6.4 to 17.0 per 100,000 per year (3). Excessive alcohol use accounted for an estimated average of 88,000 deaths and 2.5 million years of potential life lost in the United States each year during 2006–2010 (4) and an estimated \$223.5 billion in economic costs in 2006 (5). Sustained alcohol consumption is the leading cause of liver cirrhosis, the 12th leading cause of death (6). The risk for chronic liver disease and cirrhosis is directly related to heavy and long-term alcohol consumption.
Significance	Implementation of effective state programs to reduce long-term and heavy alcohol consumption, as well as to prevent cirrhosis of other etiologies (such as chronic infection with hepatitis B and C viruses) should reduce state liver disease death rates.

Limitations of Indicator	Because alcohol-related disease can have a long latency, changes in behavior or clinical practice affecting population mortality might not be apparent for years. Not all chronic liver disease deaths are alcohol-attributable (6). In 2009, however, almost 70% of U.S. cirrhosis deaths were alcohol-attributable, and the proportion of cirrhosis deaths coded as 100% alcohol-attributable increased dramatically during 1970–2009 among adults aged 25–64 years (6).
Limitations of Data Resource	Causes of death and other variables listed on the death certificate might be inaccurate.
Data Access	Chronic Disease Indicators (CDI) website: http://nccd.cdc.gov/CDI/rdPage.aspx?rdReport=DPH_CDI.IndicatorMap&irbGender=&irbLocation=1&rdShowModes=ShowBody,Screen
Related Healthy People 2020 Objectives (if applicable)	Healthy People 2020 objective SA–11: Reduce cirrhosis deaths. See: http://www.healthypeople.gov/2020/topics-objectives/topic/substance-abuse/objectives .
Related surveillance Indicators	None.

References

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People 2010 Statistical Notes, No. 20. Hyattsville, MD: US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics; 2001. Available at <http://www.cdc.gov/nchs/data/statnt/statnt20.pdf>.
2. National Center for Vital Statistics Report: Deaths: Final Data for 2013. Detailed Tables. Table 15. Accessible at http://www.cdc.gov/nchs/data/nvsr/nvsr64/nvsr64_02.pdf. Accessed December 15, 2015.
3. Centers for Disease Control and Prevention, National Center for Health Statistics. Health Data Interactive. Atlanta, GA: Centers for Disease Control and Prevention. Available at <http://www.cdc.gov/nchs/hdi.htm>.
4. Centers for Disease Control and Prevention. Alcohol-related Disease Impact (ARDI) application. Atlanta, GA: US Department of Health and Human Services, Centers for Disease Control and Prevention; 2013. Available at http://nccd.cdc.gov/DPH_ARDI/default/default.aspx
5. Bouchery EE, Harwood HJ, Sacks JJ, Simon CJ, Brewer RD. Economic costs of excessive alcohol consumption in the U.S., 2006. Am J Prev Med 2011;41:516–24.
6. National Institute on Alcohol Abuse and Alcoholism. Liver cirrhosis mortality in the United States, 1970–2009. Surveillance Report No. 93. Arlington, VA: National Institute on Alcohol Abuse and Alcoholism; 2012. Available at <http://pubs.niaaa.nih.gov/publications/Surveillance93/Cirr09.htm>.

State excise taxes on alcohol Substance Abuse Indicator (3 sub-indicators, one each for beer, wine and distilled spirits)	
Demographic Group	All residents.
Numerator	State taxes levied per gallon of beverage at the wholesale or retail level, by beverage type, reported separately for beer, wine, or distilled spirits.
Denominator	None.
Measure	Excise tax amount, by beverage type, in most recent year.
Period for Case Definition	Mid-year excise tax amount, by beverage type.
Data Resource	Alcohol Policy Information System (APIS): https://alcoholpolicy.niaaa.nih.gov/ .
Additional Data Items	Not applicable.
Background	The Community Preventive Services Task Force recommends increasing the unit price of alcohol by raising taxes, based on strong evidence of effectiveness for reducing excessive alcohol consumption and related harms (1). Public health effects are expected to be proportional to the size of the tax increase (2). Alcohol consumption is particularly sensitive to the price of alcoholic beverages (2). Across alcohol beverage types (i.e., beer, wine, and distilled spirits), the median price elasticity (a measure of the relationship between price and consumption) ranges from -0.50 for beer to -0.79 for distilled spirits, and the overall price elasticity for ethanol is -0.77 (2). Thus, a 10% increase in the price of alcoholic beverages likely would reduce overall consumption by <7% (2). Recent analyses also note a substantial gap between the societal and governmental cost of excessive alcohol consumption (approximately \$1.90 and \$0.80 per drink, respectively) and the total federal and state taxes on alcoholic beverages (approximately \$0.12 per drink) (3). Alcohol excise taxes are implemented at the state and federal levels and are beverage specific (i.e., differ for beer, wine, and distilled spirits) (2). These taxes usually are based on the volume of alcohol sold and not on the sales price; therefore, their contribution to the total price of alcohol can erode over time

	because of inflation (2). At the state and federal levels, inflation-adjusted alcohol taxes have decreased considerably since the 1950s (2). Concordant with this decrease in the real value of these taxes, the inflation-adjusted price of alcohol has decreased, reflecting the fact that changes in taxes are efficiently passed on through changes in prices (2).
Significance	This indicator provides information about the level of state alcohol excise taxes and supports state-level surveillance of an important component of the price of alcohol (i.e., beverage-specific alcohol excise taxes), which has been strongly associated with changes in alcohol consumption (2). Changes in state alcohol excise tax levels can be expected to lead to changes in per capita consumption and patterns of consumption.
Limitations of Indicator	Taxes other than excise taxes that can affect the price of alcoholic beverages (e.g., sales taxes, which are levied as a percentage of the beverage's retail price) are not reported.
Limitations of Data Resource	Beverage-specific state tax levels are based on the taxes assessed on an index beverage within a particular beverage category (e.g., beer with 5% alcohol by volume)(4). APIS reports taxes for the most commonly sold container size and therefore does not include data on the taxes levied on alcoholic beverages sold in other container sizes. Tax amounts are not reported for states and beverage types for which the index beverage is available in state-run retail stores or through state-run wholesalers. In these cases, the state sets a price for each alcohol product that is some combination of cost, mark-up, and taxes, and determining the dollar value assigned to each of these components is not possible. Some states have separate tax rates for other types of alcoholic beverages (e.g., sparkling wine) that are not included in APIS. However, these beverages generally constitute a small segment of the alcohol retail market. This measure is for overall alcohol consumption but is not a direct measure of alcohol abuse.
Data Access	Wine excise tax for 2012: http://nccd.cdc.gov/CDI/rdPage.aspx?rdReport=DPH_CDI.IndicatorMap&irbGender=&irbLocation=1&rdShowModes=ShowBody,Screen . Similar data are available for beer and for distilled spirits.

Related Healthy People 2020 Objectives (if applicable)	CDC Prevention Status Report: Excessive alcohol use (5).
Related surveillance Indicators	All alcohol-related indicators.

References

1. Task Force on Community Preventive Services. Increasing alcohol beverage taxes is recommended to reduce excessive alcohol consumption and related harms. *Am J Prev Med* 2010;38:230–2.
2. Elder RW, Lawrence B, Ferguson A, et al; Task Force on Community Preventive Services. The effectiveness of tax policy interventions for reducing excessive alcohol consumption and related harms. *Am J Prev Med* 2010;38:217–29.
3. Bouchery EE, Harwood HJ, Sacks JJ, Simon CJ, Brewer RD. Economic costs of excessive alcohol consumption in the U.S., 2006. *Am J Prev Med* 2011;41:516–24.
4. National Institute on Alcohol Abuse and Alcoholism. Alcohol policy information system (APIS). Rockville, MD: National Institute on Alcohol Abuse and Alcoholism. Available at <http://alcoholpolicy.niaaa.nih.gov>.
5. Centers for Disease Control and Prevention. Prevention Status Reports, 2013: Excessive Alcohol Use. Atlanta, GA: US Department of Health and Human Services, Centers for Disease Control and Prevention; 2014. Available from <http://www.cdc.gov/psr/>.

Drug overdose mortality, all drugs	
Substance Abuse Indicator	
Demographic Group	All state/jurisdiction residents.
Numerator	Deaths with any of the following International Classification of Disease 10th Revision (ICD-10) codes as an underlying cause of death: X40–X44, accidental poisoning by drugs; X60–X64, intentional self-poisoning by drugs; X85, assault by drug poisoning; Y10–Y14, drug poisoning of undetermined intent. Deaths should also be tabulated on a drug-specific basis, using the T codes below to assign deaths to selected specific drugs. (Deaths may be counted more than once if more than one drug was involved in the death.)
Denominator	Midyear population estimate for the jurisdiction.
Measure	Death rate per 100,000 population, crude and age-adjusted rates (by the direct method to the year 2000 U.S. standard population) calculated annually, as a total for all drug types together and by drug type.
Period for Case Definition	Data are calculated annually for the most recent calendar year.
Data Resource	Death certificate data from vital statistics agencies (numerator, need both underlying cause and multiple cause files) and population estimates from the U.S. Census Bureau.
Additional Data Items	Stratify by age group, sex, race, ethnicity, and geographic subarea, if feasible given number of events for jurisdiction. T-codes are used to assign numerator records to specific drug types. Unspecified drug type should be included as a category. Drug categories include opium (T42.0), heroin (T40.1), other opioids including codeine and morphine (T40.2), methadone (T40.3), other synthetic narcotics (T40.4), cocaine (T40.5), other and unspecified narcotics (T40.6), cannabis (T40.7), lysergide (T40.8), other unspecified psychodysleptics (T40.9), benzodiazepines (T42.4), and psychostimulants with abuse potential (T43.6). Also stratify by T50.9, other and unspecified drugs, medicaments and biological substances, if it is present and none of the other listed T codes are present. Deaths with mention of multiple drugs are

	counted once in each drug type.
Background	The number and rate of drug poisoning deaths (overdoses) has increased significantly in all regions of the country (1). In 2013 there were almost 44,000 deaths attributed to drug poisoning. From 1999 to 2013, the U.S. death rate from drug poisoning more than doubled, from 6.1 to 13.8 per 100,000 per year. Within this overall epidemic of drug overdose deaths, there has been striking variability by age group, race, ethnicity, and region. From 1999 to about 2006, the major contributor to the increase in such deaths was opioid analgesics. Since 2006, the death rate due to these drugs has stabilized around 5 per 100,000, while the death rate for drug-poisoning deaths involving heroin has risen from 1.0 per 100,000 in 2010 to 2.7 in 2013 (1). Deaths associated with benzodiazepine tranquilizers increased 5-fold from 2001 to 2014 (2). Cocaine-involved deaths peaked in 2006, but reached a low point in 2010 and have since edged up (2). The dynamic and diverse nature of these overdose deaths suggests a need for systematic and timely surveillance for overall deaths and for deaths associated with use of specific substances.
Significance	This indicator measures the burden of deaths attributed to these drugs in the population. Total and drug-specific data illuminate the impact of policies related to prescription drugs and illicit drugs. Drug overdose deaths are preventable through a series of mutually reinforcing activities including (1) measures to reduce inappropriate prescribing of analgesics through health insurance and healthcare system policies and procedures, prescription drug monitoring programs, tighter standards for pain clinics and law enforcement activities; (2) efforts to assure providers know how to identify and address addiction and make appropriate treatment referrals; (3) increased availability of treatment for drug abuse or dependence; and (4) programs to make naloxone more readily available.
Limitations of Indicator	Both underlying-cause and multiple-cause death certificate files are needed for these analyses. Death records often lack specificity as to the exact drug responsible for the death. Deaths suspected to be due to these drugs are typically medical examiner or coroner cases, and the

	extent of laboratory analysis varies by jurisdiction. Records indicating that the death is due to overdose with an unknown or unspecified drug are an issue in many states, and these should be tabulated separately. Nationally, 22% of 2013 death certificates for persons dying of drug poisoning lacked information on the type(s) of drug involved (3), and this varied considerably among the states. Information about drug type may not be fully comparable across jurisdictions. Multiple drugs are often involved in a drug overdose death, and each death should be tabulated according to each drug mentioned on the death certificate. For example, approximately 16% of drug-poisoning deaths involving heroin also involve opioid analgesics (1). In deaths involving opioids, substances such as tranquilizers and alcohol may be important cofactors in causing death, with only modest doses of the opioid
Limitations of Data Resource	Finalized files of death certificate data are often unavailable until 6 to 18 months after the end of a calendar year, although they are becoming more timely with electronic death registration. Records for deaths of greatest interest for this indicator are often particularly delayed because of further laboratory testing by the medical examiner or coroner (ME/C), though delays may be minimized through cooperation with these officials. Records for jurisdiction residents who die outside the jurisdiction are also often delayed in the interstate notification process. Jurisdictions vary as to the extensiveness of ME/C laboratory investigation and availability of electronic death records in real time (especially those for ME/C cases).
Data Access	Data can be accessed by state offices of vital statistics and through CDC WONDER (http://wonder.cdc.gov).
Related Healthy People 2020 Objectives (if applicable)	MSA 12: Reduce drug-induced deaths. MSP 2.4: Reduce deaths from the use of pain medicines. IVP 9: Prevent an increase in poisoning deaths. See http://www.healthypeople.gov/2020/topics-objectives/topic/substance-abuse/objectives.
Related surveillance Indicators	Drug overdose fatality measure in CSTE/Safe States/CDC injury indicator set.

References

1. Hedegaard H, Chen LH, Warner M. Drug-poisoning deaths involving heroin: United States, 2000–2013. NCHS Data Brief, No. 190. Hyattsville, MD: National Center for Health Statistics; 2015.
2. National Institute on Drug Abuse. Overdose Death Rates. Available at <http://www.drugabuse.gov/related-topics/trends-statistics/overdose-death-rates>. Accessed December 16, 2015.
3. Centers for Disease Control and Prevention. NCHS Data on Drug Poisoning Deaths, NCHS Fact Sheet, June 2015. Available at http://www.cdc.gov/nchs/data/factsheets/factsheet_drug_poisoning.htm. Accessed December 16, 2015.

Hospitalizations attributable to or associated with drugs with potential for abuse and dependence; all drugs together and each specified drug – A and B Substance Abuse Indicator (7 sub-indicators)	
Demographic Group	All state/jurisdiction residents.
Numerator ²	Method A — Hospitalizations attributable to drugs with potential for abuse and dependence, excluding alcohol and substances that cause adverse effects in therapeutic use. A case may be identified using either the principal (first-listed) diagnosis [specific International Classification of Disease 9th Revision, Clinical Modification (ICD9-CM) codes are listed in Table 1 below] or the first-listed, valid cause-of-injury code (listed in the second table below) (Table 2). Records with a first-listed ICD9-CM code of E930-E949 are excluded. Method B — (Calculate method B if method A is complete.) Hospitalizations for diseases associated with drugs with the potential for abuse and dependence, all taken together (excluding alcohol and substances that cause adverse effects in therapeutic use), and separately for several key drugs of interest. Records are included if any of the below lists of ICD9-CM diagnosis codes, or E-codes, for drug-related events are present, in either the primary or any secondary diagnoses fields. Note that if more than one drug code is present for an admission, that event will be counted once for each drug code. For both methods — All hospitalizations of jurisdiction residents occurring in acute care, non-federal in-state hospital settings are included. Excluded are those with unknown age, out-of-jurisdiction residence, unknown state of residence, non-acute care or federal hospital admission, and admission only for short stays or observation visits. Both indicators A and B should be calculated separately for various drugs – see Additional Data Items, below. Note that in states where emergency department (ED) visits and hospital discharges are combined in a

² Tables 1, 2 and 3 will be updated by the CSTE Alcohol and Other Drugs workgroup with ICD10-CM code sets.

	single database, the same record selection criteria can be applied to hospital ED visits that do not result in hospitalization as to hospital admissions/discharges.
Denominator	Midyear population estimate for the calendar year for jurisdiction.
Measure	Number of hospital discharges of residents per 10,000 populations per year, crude rates and rates age-adjusted by the direct method to the year 2000 standard population, calculated annually.
Period for Case Definition	Calculated annually for all hospital discharges in the most recent complete calendar year.
Data Resource	State hospital discharge database; CSTE Alcohol and Other Drugs (AOD) workgroup.
Additional Data Items	Stratify by age group, sex, race, ethnicity, and geographic subarea if feasible given number of events for jurisdiction. Stratify also by drug type, and admission to hospital (with or without ED visit) vs. just ED visit. Both indicator A and B should be calculated separately for heroin poisoning, cocaine poisoning, prescription opioid poisoning, benzodiazepine-based tranquilizer poisoning, amphetamine poisoning, cocaine abuse and dependence, and opioid abuse and dependence using the codes and logic in Table 3 below. Each hospital admission should be counted in the tabulations for each mentioned drug.
Background	Drug-related hospitalizations represent the more severe morbidity burden of drug use. Drug-related hospitalizations are preventable through a series of mutually reinforcing activities including, but not limited to, (1) measures to reduce inappropriate prescribing of analgesics through health insurance and care system policies and procedures, prescription drug monitoring programs, tighter standards for pain clinics and law enforcement activities; (2) efforts to assure providers know how to identify and address addiction and make appropriate treatment referrals; (3) increased availability of treatment for drug abuse or dependence and (4) programs to make naloxone more readily available.
Significance	This indicator measures an important component of the morbidity burden of drugs in the population. Total and drug-specific data inform the impact of policies related to nonmedical use of prescription drugs, as well as to other drugs with potential for abuse and dependence. Patterns of drug use and abuse vary greatly over time and by age group, race, ethnicity, income level, and geography. Timely monitoring of hospitalizations by specific drug type, as well as overall, can assist in rapid identification

	and characterization of community health threats.
Limitations of Indicator	Indicator A captures admissions for which drug use is the primary reason, per the admitting physician. Thus, it does not capture admissions for which drug use may be an ancillary or indirect reason, e.g., a motor vehicle crash injury caused by drug-impaired driving. This indicator is only as good as the recognition, documentation and coding of drug use and drug-related diagnoses by hospital staff, all of which are known to vary. It documents definitively those cases in which drug use is the main impetus for the admission. Indicator B assesses hospitalizations in which the admitting physician has identified an issue with drugs with a potential for dependence or abuse, whether or not drug use is the primary reason for admission. For example, it would count an admission for vehicle crash injuries in which acute drug dependence or abuse was present and coded as a secondary diagnosis. It gives a fuller picture of the hospitalization experience of the population of people who use or abuse drugs, but some of the hospitalizations it captures may not be caused by drug use or abuse in any significant way. This indicator is only as good as the recognition, documentation and coding of drug use and drug-related diagnoses by hospital staff, all of which are known to vary.
Limitations of Data Resource ³	Data availability may lag a year or more behind hospitalization date, depending on the jurisdiction. Because most jurisdictions do not include information from U.S. Veterans Administration, Department of Defense and Indian Health Service hospitals in their hospital discharge data—and many do not include specialty hospitals, such as psychiatric facilities—information from these facilities is excluded from the numerator of this measure. As a result, the included hospitalizations may not be representative of all such events in the jurisdiction, and there may be underestimation of hospitalization rates. Since the unit of analysis is the episode of care, not the individual, individuals with several hospital admissions during an analysis period may be counted several times. Completeness and quality of ICD9-CM and ICD10-CM coding are limiting factors for any indicator based on administrative data. Comparability

³ Monitoring hospitalizations and emergency department visits in near real time via use of syndromic surveillance methods has promise and will be explored as a developmental indicator.

	cannot be assured over the transition from ICD9-CM-coded to ICD10-CM-coded hospital discharge data.
Data Access	State agency that collects hospital discharge administrative data.
Related Healthy People 2020 Objectives (if applicable)	IVP-10: Prevent an increase in nonfatal poisonings. MPS 2.3: Reduce serious injuries from the use of pain medicines. See http://www.healthypeople.gov/2020/topics-objectives/topic/medical-product-safety/objectives and http://www.healthypeople.gov/2020/topics-objectives/topic/injury-and-violence-prevention/objectives
Related surveillance Indicators	Drug overdose mortality.

Table 1. ICD9CM codes and corresponding diagnoses for hospitalizations attributable to drugs with potential for abuse and dependence.

ICD9CM Code	Diagnosis
292.0	Drug-induced mental disorders – Drug withdrawal
304[.00-.93]	Drug dependence
305[.20-.23]	Nondependent abuse of drugs – cannabis abuse
305[.30-.33]	Nondependent abuse of drugs – hallucinogen abuse
305[.40-.43]	Nondependent abuse of drugs – sedative, hypnotic or anxiolytic abuse
305[.50-.53]	Nondependent abuse of drugs – opioid abuse
305[.60-.63]	Nondependent abuse of drugs – cocaine abuse
305[.70-.73]	Nondependent abuse of drugs – amphetamine or related acting sympathomimetic abuse
305[.80-.83]	Nondependent abuse of drugs – antidepressant type abuse
305[.90-.93]	Nondependent abuse of drugs – other, mixed, or unspecified drug abuse
648 [.30-.34]	Drug dependence in pregnancy
760.72	Noxious influences affecting fetus or newborn via placenta or breast milk: narcotics
760.73	Noxious influences affecting fetus or newborn via placenta or breast milk: hallucinogenic agents
760.75	Noxious influences affecting fetus or newborn via placenta or breast milk: cocaine
779.5	Drug withdrawal syndrome in newborn
965[.00-.09]	Poisoning by opiates and related narcotics
967[.0-.9]	Poisoning by sedatives and hypnotics

969.4	Poisoning by benzodiazepine-based tranquilizers
969.6	Poisoning by psychodysleptics (hallucinogens)
969[.70-.79]	Poisoning by psychostimulants
970.81	Poisoning by other specified central nervous system stimulants - cocaine

Table 2. External cause of injury codes (E-codes) and corresponding causes for hospitalizations attributable to drugs with potential for abuse and dependence.

E-code	Cause
E850.0	Accidental poisoning by heroin
E850.1	Accidental poisoning by methadone
E850.2	Accidental poisoning by other opiates and related narcotics
E851	Accidental poisoning by barbiturates
E852[.0-.9]	Accidental poisoning by other sedatives and hypnotics
E853.2	Accidental poisoning by benzodiazepine-based tranquilizers
E854.1	Accidental poisoning by psychodysleptics
E854.2	Accidental poisoning by psychostimulants
E950.1	Suicide and self-inflicted poisoning by barbiturates
E950.2	Suicide and self-inflicted poisoning by other sedatives and hypnotics
E980.1	Poisoning by solid or liquid substances, undetermined whether accidentally or purposely inflicted: barbiturates
E980.2	Poisoning by solid or liquid substances, undetermined whether accidentally or purposely inflicted: other sedatives and hypnotics

Table 3. Criteria for counting hospitalizations in association with specific drugs.	
Sub-indicator*	Codes
Heroin poisoning	First-listed valid ICD9-CM code 965.01 <i>or</i> first-listed valid E-code is E850.0
Cocaine poisoning	First -listed valid ICD9-CM code 970.81
Prescription opioid poisoning	First -listed valid ICD9-CM code is 965.00, 965.02 or 965.09, <i>or</i> first-listed valid E-code is E850.1 or E850.2
Benzodiazepine-based tranquilizer poisoning	First -listed valid ICD9-CM code is 969.4 <i>or</i> first-listed valid E-code is E853.2
Amphetamine poisoning	First -listed valid ICD9-CM code is 969.72
Cocaine abuse or dependence	First -listed valid ICD9-CM code is 304.2 or 305.6
Opioid abuse or dependence	First -listed valid ICD9-CM code is 304.0, 304.7, or 305.5
* For all sub-indicators, exclude if first-listed E-code is E930-E949.	

Prescription opioid sales per capita	
Substance Abuse Indicator	
Demographic Group	State population.
Numerator	Total state sales of prescription opioids, expressed in morphine equivalents (morphine milligram equivalents or MMEs).
Denominator	Midyear population estimate for the calendar year.
Measure	Quantity of opioid prescription drugs expressed as MME, sold per 10,000 population per year, calculated once per year.
Period for Case Definition	Calendar year.
Data Resource	Drug Enforcement Administration ARCOS (Automation of Reports and Consolidated Orders System) database.
Additional Data Items	None.
Background	The number of kilograms of morphine equivalent of prescription opiates and opioids sold per 10,000 population in the U.S. as a whole rose from 3.0 in 2001 to 8.5 in 2014. In 2001, the range among the states was 1.8 to 5.4 kg per 10,000; in 2014 it was 4.8 to 14.8. Prescription opioid drug abuse and dependence has become a major medical and public health issue, whether measured as number of people needing treatment for dependence or addiction, number of hospitalizations or number of overdose deaths. Although opioid drugs are an important medical intervention for pain relief (e.g., in relation to surgery, cancer or injuries), there are large grey areas between indicated and non-indicated uses. These grey areas enable people to obtain prescriptions, often from unethical prescribers, for their own non-medical use or for resale to others. The U.S. Drug Enforcement Administration (DEA) tracks total sales of opioid drugs to pharmacies, measured as MMEs. Because the legitimate medical need for pain relief is roughly the same everywhere (despite varying prescribing practices), total sales of these drugs provides an indicator of their possible overuse, diversion and/or abuse. Measures to control

	diversion of these drugs are different from those needed to control the manufacture, distribution and sale of street drugs such as heroin, methamphetamines and cocaine, which are manufactured outside the legal pharmaceutical industry.
Significance	State restrictions, policies or guidelines to ensure safe opioid prescribing practices should result in a reduction in per-capita sales. Implementation of effective prescription drug monitoring programs (intended to reduce doctor-shopping for opioid drug prescriptions) and pain clinic medical practice guidelines should result in reduced consumption (1).
Limitations of Indicator	This indicator cannot distinguish between prescriptions issued for necessary pain relief and prescriptions issued for other reasons (e.g., because of fraudulent requests by patients or because of unethical prescribing). The optimal amount of prescribed MMEs of opioid drugs per capita is not known. Reducing overall consumption of opioid drugs too low could mean that some people are not obtaining needed pain relief. CDC has issued guidelines for prescribing opioids for pain relief (2).
Limitations of Data Resource	The data reported by the U.S. DEA reflect the distribution of prescription opioids to pharmacies, not actual prescriptions written or filled, medications taken, or individual users. Thus, total sales are an overestimate of consumption. The degree of overestimation is expected to be consistent over time, however. Consumption per capita could reflect heavy consumption by a few people or moderate consumption by many.
Data Access	State-level data are obtained annually from the DEA.
Related Healthy People 2020 Objectives (if applicable)	SA 19.1: Reduce the past-year nonmedical use of pain relievers. See http://www.healthypeople.gov/2020/topics-objectives/topic/substance-abuse/objectives .
Related surveillance Indicators	Prescription drug policy measure (developmental); drug overdose mortality measure.

References

1. Centers for Disease Control and Prevention. Prevention Status Report on Prescription Drug Overdose. Available at <http://www.cdc.gov/psr/prescriptiondrug/index.html>. Accessed December 16, 2015.
2. Centers for Disease Control and Prevention. Proposed 2016 Guideline for Prescribing Opioids for Chronic Pain. Available at <http://www.regulations.gov/#!documentDetail;D=CDC-2015-0112-0001>. Accessed December 16, 2016.

Drug or alcohol dependence or abuse in the last year — summary	
Substance Abuse Indicator	
Demographic Group	All persons aged 12 and older.
Numerator	Number of respondents answering selected National Survey of Drug Use and Health (NSDUH) (1) items positively for dependence on or abuse of alcohol or drugs (including prescription drugs).
Denominator	Number of respondents in jurisdiction (see below for explanation of method).
Measure	Percent of respondents meeting inclusion criteria, calculated annually. State estimates provided by the Substance Abuse and Mental Health Services Administration are developed using a small area estimation procedure in which state-level NSDUH data from 2 survey years are combined with local-area county and census block group/tract-level data from the state. This model-based methodology provides more precise estimates of state-level substance use than those based solely on the sample, particularly for smaller states (2). Drugs for this measure include marijuana/hashish, cocaine (including crack), heroin, hallucinogens, inhalants and methamphetamines, and nonmedical use of prescription pain relievers, tranquilizers, stimulants, or sedatives.
Period for Case Definition	Includes responses from all respondents queried during two calendar years. Each respondent is asked about the previous 12 calendar months.
Data Resource	National Survey of Drug Use and Health.
Additional Data Items	This indicator should be calculated by standard NSDUH age groups (≥ 12 years old, 12 to 17, 18 to 25, ≥ 26 , and ≥ 18 years old).

Background	This is a summary measure of dependence on or abuse of alcohol, drugs or both. It documents the overall abuse/dependence burden on society of all of these agents, whether used separately or together. In 2013, the value of this indicator for the United States for persons aged 12 and over was 8.1%, and the range among the states in 2012/2013 was 7.1% to 13.8% (3). For middle-aged, white, non-Hispanic persons with no education beyond high school, the combined death rate from drug overdose, suicide and alcoholic liver disease has risen strikingly in the first 15 years of the new century (4). This surveillance indicator captures and combines information about most of the direct risk behaviors for these causes of death.
Significance	This indicator captures a very broad set of precursors of ill health, disability and death. Effective evidence-based state-level and national interventions to reduce use and abuse of alcohol and illicit drugs and dependence on these substances, and to improve availability of treatment services, should result in improvements in the value of this indicator.
Limitations of Indicator	This is an overall summary measure of dependence on or abuse of either alcohol, drugs or both. It relies on multiple NSDUH questionnaire items, which are self-reported with a long recall period. The indicator captures information only on non-institutionalized civilian persons (i.e. not in jail, hospitalized long-term or on active duty). It hides regional variations in relative importance of various drugs and of alcohol, but documents the overall burden on society and on the healthcare system of abuse and/or dependence on all these agents together. This indicator is intentionally broad; users interested specifically in alcohol, in illicit drugs as a whole, or in specific illicit drugs will need to examine other indicators.

Limitations of Data Resource	Reported data rely on a two-year rolling average and reflect respondents' recalled experience for the full twelve months before the interview date. Data collected during the two-year period ending in December of one year are reported approximately one year later. Thus, the earliest events captured in the data reported each year may have occurred up to three years before the data become available. The data reported by SAMHSA are derived from a long-running, annual, face-to-face household survey with high response rates and extensive quality checking. Current data are directly comparable to those from 2002 and later and appear consistent with those of other surveys on the same topics. As with any sample survey, issues with data item validity and over- or under-estimation of parameters of interest may arise. Small numbers of subjects in sub-state areas limit ability to make sub-state area estimates, especially in less populous states.
Data Access	State-level NSDUH estimates are available at http://www.samhsa.gov/data/population-data-nsduh/reports?tab=33 .
Related Healthy People 2020 Objectives	SA-19: Reduce the past-year nonmedical use of prescription drugs. SA-13: Reduce past-month use of illicit substances. SA15: Reduce the proportion of adults who drank excessively in the previous 30 days. See http://www.healthypeople.gov/2020/topics-objectives/topic/substance-abuse/objectives .
Related Surveillance Indicators	All alcohol and drug use indicators.

References

1. Substance Abuse and Mental Health Services Administration. National Survey on Drug Use and Health: About the Survey. Available at https://nsduhweb.rti.org/respweb/project_description.html. Accessed December 16, 2015.
2. Substance Abuse and Mental Health Services Administration. 2011-2012 National Surveys on Drug Use and Health: Guide to State Tables and Summary of Small Area Estimation Methodology. Available at <http://www.samhsa.gov/data/sites/default/files/NSDUHStateEst2011-2012/Methodology/Web/NSDUHsaeMethodology2012.htm>. Accessed December 15, 2015.
3. Substance Abuse and Mental Health Services Administration. 2012-2013 National Survey on Drug Use and Health: Model-Based Prevalence Estimates (50 States and the District of Columbia), Table 20. Accessible from <http://www.samhsa.gov/data/sites/default/files/NSDUHsaePercents2014.pdf> Accessed December 15, 2015.
4. Case A, Deaton A. Rising morbidity and mortality in midlife among white non-Hispanic Americans in the 21st century. PNAS 2015; doi:10.1073/pnas.1518393112.

Prevalence of use of selected prescription and illicit drugs Substance Abuse Indicator (6 sub-indicators)	
Demographic Group	All persons aged 12 years and older.
Numerator	Jurisdiction residents indicating use of a specific substance of interest in the indicated time frame in the National Survey of Drug Use and Health (NSDUH)(1).
Denominator	Total respondents in jurisdiction. (See below for explanation of method.)
Measure	Percent of respondents meeting inclusion criteria, calculated annually. State estimates provided by Substance Abuse and Mental Health Services Administration (SAMHSA) are developed using a small area estimation procedure in which state-level NSDUH data from 2 survey years are combined with local-area county and census block group/tract-level data from the state (2). This model-based methodology provides more precise estimates of state-level substance use than those based solely on the sample, particularly for smaller states. Tabulate data separately for illicit drug use in the past month, marijuana use in the past year, marijuana use in the past month, illicit drug use other than marijuana use in the past month, cocaine use in the past year, nonmedical use of pain relievers in the past year. Separate tabulations for each of the substances and time periods mentioned under <i>Additional Data Items</i> .
Period for Case Definition	Includes responses from all respondents queried during two calendar years, each of whom is asked about the previous one month or 12 months or both, depending on the drug.
Data Resource	National Survey of Drug Use and Health.

Additional Data Items ⁴	Tabulate data by standard NSDUH age groups: 12 years old, 12 to 17, 18 to 25, ≥26, ≥18 years old. Illicit drug use in the last month includes use of any of the following: marijuana/hashish, cocaine (including crack), heroin, hallucinogens, inhalants, or prescription-type psychotherapeutics used nonmedically.
Background	Nationwide, NSDUH estimated past-month illicit drug use in 2012-13 as 9.2% for adolescents aged 12 to 17 and 9.3% for adults aged ≥18 years old. State-specific estimates ranged from 6.2% to 15.1% among adolescents and from 6.2% to 15.8% among adults. Similar variability among the states is seen for individual drugs. For past-month use of marijuana, adolescent and adult use were similar; adolescent use ranged from 5.2% to 12.9%, and adult use from 5.0% to 14.2%. Past-year cocaine use was rare in adolescents, ranging from 0.4% to 1.1%, and more common in adults, ranging from 1.1% to 2.9%. States that ranked high or low for one drug were not necessarily the same for another (3). Extensive trend data for 2002-2014 are available at http://www.samhsa.gov/data/sites/default/files/NSDUH-FRR1-2014/NSDUH-FRR1-2014.pdf . Just as for hospitalization and mortality, time trends and population groups with greatest use are quite different for different drugs on a multi-year time scale.
Significance	Use of these substances varies over time, space, and personal characteristics, and is a product of many factors acting separately and together, including price and availability of substances, cultural acceptability, concurrent mental distress, and social factors such as prolonged unemployment, poverty or family dysfunction. The substance abuse surveillance indicators in this document range from simple use (this indicator) through abuse and dependence, to hospitalization and death. It

⁴ SAMHSA may be able to produce tables for additional specific drugs, including heroin and tranquilizers, in time for piloting this measure.

	is important to have windows into the entire potential natural history of drug use and the entire spectrum of severity, in order to understand the determinants of adverse health effects and the impact of various prevention and control measures.
Limitations of Indicator	This is a measure of drug use, not dependence or abuse. It relies on self-report for multiple NSDUH questionnaire items and has a relatively long recall period (one month for some drugs, 12 months for others). The indicators capture information only on non-institutionalized civilian persons (i.e. those not in jail, hospitalized long-term or on active duty). It masks regional variations in drug use within states, but documents the population-level exposure to each.
Limitations of Data Resource	The data reported rely on a two-year rolling average, and reflect respondent's self-reported experience for either one month or a full twelve months before the interview date. Data collected during the two-year period ending in December of one year are reported approximately one year later. Thus, the earliest events captured in the data reported each year may have occurred up to two or even three years before the data become available. The data reported by SAMHSA are derived from a long-running annual face-to-face household survey with high response rates and extensive quality checking, and current data are directly comparable to those from 2002 and later and appear consistent with those of other surveys on the same topics. As with any sample survey, issues with data item validity and over- or under-estimation of parameters of interest may arise. Small numbers of subjects in sub-state areas limit ability to make substate area or race/ethnicity estimates, especially in less populous states.
Data Access	State-level estimates from the NSDUH are available at http://www.samhsa.gov/data/population-data-nsduh/reports?tab=33 .

Related Healthy People 2020 Objectives	SA-2: Increase the proportion of adolescents never using substances. SA-13: Reduce past-month use of illicit substances. SA-19: Reduce the past-year nonmedical use of prescription drugs. See http://www.healthypeople.gov/2020/topics-objectives/topic/substance-abuse/objectives .
Related Surveillance Indicators	Prevalence of abuse or dependence on drugs or alcohol; hospitalization rates associated with drug use; drug poisoning mortality rate.

References

1. Substance Abuse and Mental Health Services Administration. National Survey on Drug Use and Health: About the Survey. Available at https://nsduhweb.rti.org/respweb/project_description.html. Accessed December 16, 2015.
2. Substance Abuse and Mental Health Services Administration. 2011-2012 National Surveys on Drug Use and Health: Guide to State Tables and Summary of Small Area Estimation Methodology. Available at <http://www.samhsa.gov/data/sites/default/files/NSDUHStateEst2011-2012/Methodology/Web/NSDUHsaeMethodology2012.htm>. Accessed December 15, 2015.
3. Substance Abuse and Mental Health Services Administration. 2012-2013 National Survey on Drug Use and Health: Model-Based Prevalence Estimates (50 States and the District of Columbia), Tables 1, 2, 3, 6, 7, 8. Available at <http://www.samhsa.gov/data/sites/default/files/NSDUHStateEst2012-2013-p1/Tables/NSDUHsaePercents2013.pdf>. Accessed December 15, 2015.

Suicide rate Mental Health Indicator	
Demographic Group	All jurisdiction residents.
Numerator	Number of suicides by jurisdiction residents, in total and by age group, with underlying cause indicated by any of the following International Classification of Disease 10 th Revision (ICD10) codes: X60–X84, intentional self-harm; Y87.0, sequelae of intentional self-harm; U03, terrorism-intentional self-harm.
Denominator	Jurisdiction population for the calendar year total and by age group.
Measure	Annual number of deaths. Annual mortality rate per 100,000 population — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population (1)).
Period for Case Definition	Calculated annually for deaths occurring during most recent calendar year.
Data Resource	Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).
Additional Data Items	Stratify by age group, sex, race, ethnicity, and geographic subarea if feasible given sample size for jurisdiction. Age groups should include 10-24 years, 25-64 years, and 65+ years.
Background	In 2013, suicide was the tenth leading cause of death in the U.S. with over 41,000 deaths. It was the second leading cause of death among residents aged 15 to 34 years, the fourth leading cause in those aged 35 to 44, and the fifth leading cause in those aged 45 to 54. Age-adjusted state-specific suicide death rates range from 8.0 to 23.1 deaths per 100,000 per year; the national rate was 13.0 in 2013, up from 10.4 in 2000 (2).
Significance	To the extent that effective, evidence-based strategies are implemented in communities, suicide rates can be expected to fall, and this change will be reflected in this indicator. Striking regional variations in suicide rates indicate the potential for prevention.

Limitations of Indicator	Injuries severe enough to result in death represent only a small proportion of the overall burden of self-inflicted injury. An evaluation limited to fatal injuries may not present an accurate picture of the causes and impacts of less-severe injuries. Medical examiners or coroners may misclassify intentionality of death. The proportion of deaths of undetermined intent varies by jurisdiction.
Limitations of Data Resource	The accuracy of indicators based on vital statistics codes is limited by the completeness and quality of coding. The overall completeness of external cause coding on death data is uniformly high. Coding criteria specify that cases of injury death must contain an injury code in the underlying-cause-of-death field. Data-sharing among geographic jurisdictions can be slow, making final determination of numbers of suicide deaths less timely than desired. Different jurisdictional definitions and processes may result in some loss of comparability across jurisdictions.
Data Access	Counts of deaths by underlying cause are obtained through relationships with jurisdictional vital records departments.
Related Healthy People 2020 Objectives (if applicable)	MHMD-1: Reduce the suicide rate. See http://www.healthypeople.gov/2020/topics-objectives/topic/mental-health-and-mental-disorders/objectives .
Related Surveillance Indicators	Attempted suicide, injury suicide indicator.

References

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People 2010 Statistical Notes, No. 20. Hyattsville, MD: US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics; 2001. Accessible at http://www.cdc.gov/nchs/products/hp_pubs.htm#notes.
2. National Center for Vital Statistics. Deaths: Final Data for 2013. Detailed Tables, Table 18. Available at http://www.cdc.gov/nchs/data/nvsr/nvsr64/nvsr64_02.pdf Accessed December 15, 2015.
3. United States Surgeon General. National Strategy for Suicide Prevention: Goals and Objectives for Action, 2012. A Report of the U.S. Surgeon General and of the National Action Alliance for Suicide Prevention. Available at <http://www.surgeongeneral.gov/library/reports/national-strategy-suicide-prevention/>. Accessed December 15, 2015. PMID: 23136686

Hospital discharges for mental disorders	
Mental Health (3 subindicators)	
Demographic Group	All jurisdiction residents.
Numerator	All jurisdiction residents discharged from civilian, non-federal acute care hospitals with a primary diagnosis of a mental disorder, in total, and separately for mood and depressive disorders, schizophrenic disorders, and all mental disorders EXCEPT drug- or alcohol-induced mental disorders.
Denominator	Annual population of jurisdiction.
Measure	Age-adjusted (to the 2000 U.S. population) annual rate per 10,000 person-years of hospital discharge from civilian, non-federal acute care facilities with primary diagnosis of a mental disorder (International Classification of Disease 9th Clinical Modification (ICD9-CM) codes 290-319, ICD10-CM codes F10 to F48); and for each of three narrower categories of mental disorder separately, per below.
Period for Case Definition	Calculated annually for all hospital discharges occurring during the most recent calendar year with complete data.
Data Resource	Hospital discharge database maintained by jurisdiction agency.
Additional Data Items	Stratify by age group, sex, race, ethnicity, and geographic subarea if feasible given number of events for jurisdiction. Calculate crude rates for youth aged 12 to 24, adults aged 25 to 44, and adults aged 45 and older. Calculate rates for the sub-indicators of (1) mood and depressive disorders (ICD9-CM 296 and 311; ICD10-CM F30 to F39), (2) schizophrenic disorders (ICD9-CM 295; ICD10-CM F20 to F29), and (3) all mental disorders EXCEPT drug- and alcohol-induced mental disorders (ICD9-CM 290, 293-302, 306-319); ICD10-CM F20 to F48).

Background	Mental disorders, when serious and untreated, can cause significant morbidity, reduced quality of life, numerous hospitalizations and a burden to the local healthcare system. Mood disorders are particularly important contributors to disability-adjusted life years lost (DALYs), contributing 3.7% of the U.S. total in 2013, and to years lived with disability (YLDs), contributing 7.7% of the U.S. total in 2013. Anxiety disorders contribute 2.3% of DALYs and 4.7% of YLDs, and schizophrenia contributes 0.9% of DALYs and 1.9% of YLDs (1).
Significance	Planning for healthcare system resources, including outpatient treatment (which can reduce hospitalizations and costs) can be improved by understanding subpopulation rates of hospitalizations for mental disorders and trends in those rates. Evidence-based primary and secondary preventive interventions should have an impact on these rates.
Limitations of Indicator	Severity of illness resulting in hospital admission varies by locale based on local mental health systems. Admissions with one of the designated codes present only as a secondary diagnosis are excluded from the numerator. Changes in insurance reimbursement policies, or changes in recommendations for psychiatric diagnosis, may increase or decrease hospitalization rates without reflecting changes in true disease burden.
Limitations of Data Resource	Out-of-jurisdiction admissions by jurisdiction residents are typically not included in jurisdiction databases. In addition, discharges from federal hospitals (e.g., U.S. Veterans Administration, Department of Defense and Indian Health Service hospitals) and from specialty facilities (e.g., psychiatric care centers) may or may not be included in the hospital discharge database, depending on state law and local data agreements. Such differences would limit inter-jurisdiction comparisons.
Data Access	Jurisdiction-sponsored hospital discharge dataset.
Related Healthy People 2020 Objectives (if applicable)	MHMD-4: Reduce the proportion of persons who experience major depressive episodes (MDEs). MHMD-9: Increase the proportion of adults with mental health disorders who receive treatment. See http://www.healthypeople.gov/2020/topics-objectives/topic/mental-health-and-mental-disorders/objectives .

Related surveillance Indicators	Major Depressive Episodes, serious mental illness, any mental illness, days of mental health not good.
---------------------------------	--

Reference

1. Institute for Health Metrics and Evaluation, University of Washington. Global Disease Compare Viz Hub. Available at <http://vizhub.healthdata.org/gbd-compare/>. Accessed December 16, 2016.

Emergency department visits for intentional self-harm	
Mental Health	
Demographic Group	All jurisdiction residents.
Numerator	Number of visits to civilian, acute care, nonfederal hospital emergency departments by jurisdiction residents with any primary diagnosis of intentional self-injury (International Classification of Disease 9 th Revision Clinical Modification (ICD9-CM) codes E950-E958) or first-listed valid E-code in secondary diagnosis field. (Corresponding ICD10-CM codes are T36 to T65 inclusive where 6th digit is 2, and X71 to X83 inclusive, as first-listed diagnosis.)
Denominator	Annual population of the jurisdiction.
Measure	Visits to civilian, acute care, nonfederal hospital emergency departments with any primary diagnosis of intentional self-injury (ICD-9 codes E950-E958 or first-listed ICD10-CM codes T36 to T65 inclusive where 6th digit is 2, and X71 to X83 inclusive), with age-adjusted rates per 10,000 person-years, adjusted to the U.S. 2000 standard population.
Period for Case Definition	Calculated annually for all eligible emergency department visits during a calendar year.
Data Resource	Administrative emergency department visit data maintained by jurisdiction hospital discharge data systems, containing one record for each emergency department visit, using ICD9-CM or ICD10-CM diagnosis codes. In some states the syndromic surveillance system may be able to provide the same data.
Additional Data Items	Stratify by age group, sex, race, ethnicity, and geographic subarea if feasible given number of events for jurisdiction. Age groups should include 10-24 years, 35-64 years, and ≥65 years.

Background	Suicide attempts are highly correlated with suicide mortality, though the relationship between attempts and completions is different for men and for women. Suicide is one of the top 10 leading causes of death in the United States and is increasing in certain demographic subgroups. An analysis focusing only on completed suicides will miss important morbidity. Putting this behavior under public health surveillance defines the suicide risk by subpopulation and by access to certain suicide mechanisms, thus providing more detail than is available for completed suicides alone. A national strategy to prevent suicide includes components to promote healthy and empowered individuals, families and communities; to enhance preventive services; to increase availability of treatment and support services; and to improve surveillance, research and evaluation (1).
Significance	Successful efforts to prevent suicides should also prevent suicide attempts, and this should be evident in the data. The relationship between attempts and completed suicides may differ by subpopulation and by method.
Limitations of Indicator	Only self-injury presentations to the emergency department are included; persons who do not seek medical care are not counted. Intentionality may be misclassified by clinicians. This indicator does not perfectly measure suicide attempts: for example, injury may be intentional but not intended to result in death. Sequelae of intentional self-injury (E959) are not included in this measure to reduce duplicate counts for individual suicide attempts. However, this convention may exclude persons who did not initially visit the emergency department for their injury. There is little experience to date in most jurisdictions for systematic examination of this indicator.
Limitations of Data Resource	E-codes may not be documented for every visit when ICD9-CM is used. There is little experience so far on possible quality issues in facilities using ICD10-CM. Residents who are treated in other geographic areas are not captured. Federal facilities (e.g., Veterans Administration, Department of Defense, Indian Health Service hospitals) sometimes do not have data-sharing agreements with local areas, so visits to such facilities would be missed in some states, but not others, if they were included in the analysis.

Data Access	Emergency department administrative data are available through jurisdiction-specific hospital discharge data systems.
Related Healthy People 2020 Objectives	MHMD-1: Reduce the suicide rate. MHMD2: Reduce suicide attempts by adolescents. See http://www.healthypeople.gov/2020/topics-objectives/topic/mental-health-and-mental-disorders/objectives.
Related surveillance Indicators	Youth suicide attempts, suicide rate.

Reference

1. United States Surgeon General. National Strategy for Suicide Prevention: Goals and Objectives for Action, 2012. A Report of the U.S. Surgeon General and of the National Action Alliance for Suicide Prevention. Available at <http://www.surgeongeneral.gov/library/reports/national-strategy-suicide-prevention/>. Accessed December 15, 2015. PMID: 23136686

Self-reported youth suicide attempts	
Mental Health	
Demographic Group	Youth enrolled in public school, grades 9 through 12.
Numerator	Youth who reported attempted suicide at least once in the past 12 months in the Youth Risk Behavior Surveillance System (YRBSS).
Denominator	All youth grades 9-12 who answered the relevant YRBSS question.
Measure	Percentage of high school students who answered, “1 time,” “2 or 3 times,” “4 or 5 times,” or “6 or more times,” to the question, <i>During the past 12 months, how many times did you actually attempt suicide?</i>
Period for Case Definition	Data are collected every other year (odd numbered years) during a period of a few weeks to months; respondents are asked about the past 12 months.
Data Resource	Youth Risk Behavior Surveillance System.
Additional Data Items	Grade level, sex, race/ethnicity.
Background	Suicide attempts are highly correlated with suicide mortality, and are a major cause of morbidity. Persons who attempt suicide are at increased risk for completed suicide. The ratio between attempts and completions is not the same for men and women, or for boys and girls. Suicide is one of the 5 leading causes of death for U.S. youth. In the 2013 YRBSS, nationwide, 8.0% of students had attempted suicide one or more times during the 12 months before the survey. The prevalence of having attempted suicide was higher among female (10.6%) than male (5.4%) students. Among the 40 states with analyzable data, the percentage of students reporting having attempted suicide ranged from 6.0% to 14.3% (1).

Significance	YRBSS data define the risk for suicide attempt and indirectly for completed suicide by subpopulation. Successful efforts to prevent suicide should also prevent suicide attempts, and this should be evident in the data. The relationship between attempts and completed suicides may differ by subpopulation and by method.
Limitations of Indicator	Data are based on self-report, with a relatively long 12-month recall period.
Limitations of Data Resource	Only public school students are included; youth who drop out of high school are excluded. In 2013 only 40 of the states participated fully in the YRBSS and had data reported (1). Some states that collect survey data do not get a high enough response rate, and CDC does not weight or report these data. Data are collected only for odd-numbered years.
Data Access	Youth Risk Behavior Surveillance System.
Related Healthy People 2020 Objectives	MHMD2: Reduce suicide attempts by adolescents. See http://www.healthypeople.gov/2020/topics-objectives/topic/mental-health-and-mental-disorders/objectives
Related Surveillance Indicators	Self-harm indicator for adults, suicide rates for adults and youth.

Reference

1. Kann L, Kinchen S, Shanklin SL, et al. Youth risk behavior surveillance —United States, 2013. *MMWR* 2014;63(No. SS-4):1-172.

Depressive episodes in the past year	
Mental Health	
Demographic Group	All residents 18 years or older.
Numerator	Number of National Survey of Drug Use and Health (NSDUH) (1) respondents 18+ years of age in the jurisdiction meeting criteria for major depressive episode.
Denominator	Number of respondents 18+ years of age in the jurisdiction. (See below for explanation of method.)
Measure	Percentage of respondents meeting inclusion criteria defined in the 4th edition of the <i>Diagnostic and Statistical Manual of Mental Disorders</i> (i.e., period of at least 2 weeks in the past year when a person experienced a depressed mood or loss of interest or pleasure in daily activities and had a majority of specified depression symptoms). The measure is calculated separately for 12+ years of age, 12-17 years of age, 18+ years of age, 18 to 25 years of age, and 26+ years of age. State estimates provided by the Substance Abuse and Mental Health Services Administration (SAMHSA) are developed using a small area estimation procedure in which state-level NSDUH data from 2 survey years are combined with local-area county and census block group/tract-level data from the state. This model-based methodology provides more precise estimates of state-level substance use than those based solely on the sample, particularly for smaller states (2).
Period for Case Definition	Includes responses from all respondents queried during two calendar years, each of whom is asked about major depressive episode in the previous 12 calendar months.
Data Resource	National Survey of Drug Use and Health.
Additional Data Items	Stratify by standard NSDUH age groups (12 years old and over, 12 to 17, 18 to 25, 18 and over, and 26 and older).

Background	Depression is common and serious; depressive episodes are major causes of morbidity and disability, as well as being precursors to self-harm and suicide. In the United States during 2012-2013, NSDUH data showed an estimated 6.77% of persons over age 18 had at least one major depressive episode in a 12-month span. Many were not specifically medically attended. The percentage of persons aged 18 and over reporting a major depressive episode by state ranged from 5.63% to 9.45%. An estimated 9.86% of adolescents aged 12 to 17 had at least one major depressive episode in a 12-month span. The percentage of persons aged 12 to 17 reporting a major depressive episode by state ranged from 7.95% to 12.65%. (3)
Significance	Implementation by states of effective and evidence-based interventions to reduce episodes of major depressive episodes should affect the value of this indicator.
Limitations of Indicator	This indicator relies on multiple NSDUH questionnaire items. It relies on self-report and has a long recall period. Classification of respondents does not come from a clinician's diagnosis. The indicator captures information only on non-institutionalized civilian persons (i.e. not in jail, hospitalized long-term or on active duty).
Limitations of Data Resource	Significant time can elapse before data are available for inclusion in a surveillance summary, since reported data rely on a two-year rolling average, data reflect the respondent's experience for a full 12 months before the interview date, and it can be 6 to 12 months after the date of the last interview before the data are cleaned and analyzed. The data reported by SAMHSA are derived from a long-running annual face-to-face household survey with high response rates and extensive quality checking, and current data are directly comparable to those from 2002 and later and appear consistent with those of other surveys of the same topics. As with any sample survey, issues with data item validity and over- or under-estimation of parameters of interest may arise. Small numbers of subjects in sub-state areas limit ability to make substate area or race/ethnicity estimates, especially in less populous states.

Data Access	State-level estimates from the NSDUH are available at http://www.samhsa.gov/data/population-data-nsduh/reports?tab=33 .
Related Healthy People 2020 Objectives (if applicable)	MHMD-4.1: Reduce the proportion of adolescents aged 12 to 17 who experience major depressive episodes. MHMD-4.2: Reduce the proportion of adults aged 18 and older who experience major depressive episodes. See http://www.healthypeople.gov/2020/topics-objectives/topic/mental-health-and-mental-disorders/objectives.
Related Surveillance Indicators	Hospitalization for mental disorders, sub-indicator on mood and depressive disorders.

References

1. Substance Abuse and Mental Health Services Administration. National Survey on Drug Use and Health: About the Survey. Available at https://nsduhweb.rti.org/respweb/project_description.html. Accessed December 16, 2015.
2. Substance Abuse and Mental Health Services Administration. 2011-2012 National Surveys on Drug Use and Health: Guide to State Tables and Summary of Small Area Estimation Methodology. Available at <http://www.samhsa.gov/data/sites/default/files/NSDUHStateEst2011-2012/Methodology/Web/NSDUHsaeMethodology2012.htm>. Accessed December 15, 2015.
3. Substance Abuse and Mental Health Services Administration. 2012-2013 National Survey on Drug Use and Health: Model-Based Prevalence Estimates (50 States and the District of Columbia), Table 26. Available at <http://www.samhsa.gov/data/sites/default/files/NSDUHStateEst2012-2013-p1/Tables/NSDUHsaePercents2013.pdf>. Accessed December 15, 2015.

Serious adult mental illness in the past year Mental Health Indicator	
Demographic Group	Jurisdiction residents aged 18 years or older.
Numerator	Number of respondents to the National Survey of Drug Use and Health (NSDUH) (1) who were 18 years or older and met inclusion criteria.
Denominator	Number of respondents 18 years or older in jurisdiction. (See below for explanation of method.)
Measure	Percentage of adult NSDUH respondents meeting inclusion criteria, defined as currently or at any time in the past year having had a diagnosable mental, behavioral, or emotional disorder (excluding developmental and substance use disorders) of sufficient duration to meet diagnostic criteria specified in the 4th edition of the <i>Diagnostic and Statistical Manual of Mental Disorders</i> , and that resulted in serious functional impairment substantially interfering with or limiting one or major life activities. State estimates provided by the Substance Abuse and Mental Health Services Administration (SAMHSA) are developed using a small-area estimation procedure in which NSDUH data from 2 survey years are combined with local-area county and census block group/tract-level data from the state. This model-based methodology provides more precise estimates of state substance use than those based solely on the sample, particularly for smaller states (2).
Period for Case Definition	Includes responses from all respondents queried during 2 calendar years, each of whom is asked about major depressive episode in the previous 12 calendar months.
Data Resource	National Survey of Drug Use and Health.
Additional Data Items	Stratify on standard NSDUH age groups (≥ 18 years of age; 18 to 25; ≥ 26).
Background	In 2012-2013, 4.14% of U.S. adults aged 18 and over met the criterion of a serious mental illness in the last year, according to the NSDUH. The percentage of such persons reporting serious mental illness by state ranged from 3.26% to 5.48%.

Significance	To the extent that states and other jurisdictions implement evidence-based interventions to prevent serious mental illness and its consequences and assure access to treatment, the value of this indicator can be expected to fall.
Limitations of Indicator	This indicator relies on multiple NSDUH questionnaire items. It relies on self-report and has a long recall period. Classification of respondents does not come from a clinician's diagnosis. The indicator captures information only on non-institutionalized civilian persons (i.e., not in jail, hospitalized long-term or on active duty).
Limitations of Data Resource	Significant time can elapse before data are available for inclusion in a surveillance summary, since reported data rely on a two-year rolling average, data reflect the respondent's experience for a full 12 months before the interview date, and it can be 6 to 12 months after the date of the last interview before the data are cleaned and analyzed. The data reported by SAMHSA are derived from a long-running annual face- to-face household survey with high response rates and extensive quality checking, and current data are directly comparable to those from 2002 and later and appear consistent with those of other surveys of the same topics. As with any sample survey, issues with data item validity and over- or under-estimation of parameters of interest may arise. Small numbers of subjects in sub-state areas limit ability, to make substate area or race/ethnicity estimates, especially in less populous states.
Data Access	NSDUH state-level estimates are available at http://www.samhsa.gov/data/population-data-nsduh/reports?tab=33 .
Related Healthy People 2020 Objectives (if applicable)	MHMD-4.2: Reduce the proportion of adults aged 18 and older who experience major depressive episodes. See http://www.healthypeople.gov/2020/topics-objectives/topic/mental-health-and-mental-disorders/objectives .
Related Surveillance Indicators	Any mental illness among adults, depressive episode, hospitalizations for mental illness.

References

1. Substance Abuse and Mental Health Services Administration. National Survey on Drug Use and Health: About the Survey. Available at https://nsduhweb.rti.org/respweb/project_description.html. Accessed December 16, 2015.
2. Substance Abuse and Mental Health Services Administration. 2011-2012 National Surveys on Drug Use and Health: Guide to State Tables and Summary of Small Area Estimation Methodology. Available at <http://www.samhsa.gov/data/sites/default/files/NSDUHStateEst2011-2012/Methodology/Web/NSDUHsaeMethodology2012.htm>. Accessed December 15, 2015.
3. Substance Abuse and Mental Health Services Administration. 2012-2013 National Survey on Drug Use and Health: Model-Based Prevalence Estimates (50 States and the District of Columbia), Table 23. Available at <http://www.samhsa.gov/data/sites/default/files/NSDUHStateEst2012-2013-p1/Tables/NSDUHsaePercents2013.pdf>. Accessed December 15, 2015.

Any adult mental illness in the past year	
Mental Health Indicator	
Demographic Group	Jurisdiction residents aged 18 years or older.
Numerator	Number of respondents to the National Survey of Drug Use and Health (NSDUH) who were 18 years or older and met inclusion criteria.
Denominator	Number of respondents 18 years or older in jurisdiction. (See below for explanation of method.)
Measure	Percent of adult respondents meeting inclusion criteria, defined as currently or at any time in the past year having had a diagnosable mental, behavioral, or emotional disorder (excluding developmental and substance use disorders) of sufficient duration to meet diagnostic criteria specified in the 4th edition of the <i>Diagnostic and Statistical Manual of Mental Disorders</i> , without regard to level of functional impairment. State estimates provided by the Substance Abuse and Mental Health Services Administration (SAMHSA) are developed using a small area estimation procedure in which state-level NSDUH data from 2 survey years are combined with local-area county and census block group/tract-level data from the state. This model-based methodology provides more precise estimates of substance use at the state level than those based solely on the sample, particularly for smaller states (2).
Period for Case Definition	Includes responses from all respondents queried during 2 calendar years, each of whom is asked about major depressive episode in the previous 12 calendar months.
Data Resource	National Survey of Drug Use and Health.
Additional Data Items	Stratify on standard NSDUH age groups (≥ 18 years of age; 18 to 25 years of age; ≥ 26 years of age).
Background	In 2012-2013, 18.53% of U.S. adults aged 18 and over met the criterion of any mental illness in the last year, according to the NSDUH. The percentage reporting any mental illness by state ranged from 15.62% to 22.31% (3).

Significance	To the extent that states and other jurisdictions can assure that effective, evidence-based interventions are put in place to prevent mental illness and its consequences, and can assure access to treatment, the value of this indicator can be expected to fall.
Limitations of Indicator	This indicator relies on multiple NSDUH questionnaire items. It relies on self-report and has a long recall period. Classification of respondents does not come from a clinician's diagnosis. The indicator captures information only on non-institutionalized civilian persons (i.e. not in jail, hospitalized long-term or on active duty).
Limitations of Data Resource	Significant time can elapse before data are available for inclusion in a surveillance summary, since reported data rely on a two-year rolling average, data reflect the respondent's experience for a full 12 months before the interview date, and it can be 6 to 12 months after the date of the last interview before the data are cleaned and analyzed. The data reported by SAMHSA are derived from a long-running annual face-to-face household survey with high response rates and extensive quality checking, and current data are directly comparable to those from 2002 and later and appear consistent with those of other surveys on the same topics. As with any sample survey, issues with data item validity and over- or under-estimation of parameters of interest may arise. Small numbers of subjects in sub-state areas limit ability, to make substate area or race/ethnicity estimates, especially in less populous states.
Data Access	State-level NSDUH estimates are available at http://www.samhsa.gov/data/population-data-nsduh/reports?tab=33 .
Related Healthy People 2020 Objectives (if applicable)	MHMD-4.2: Reduce the proportion of adults aged 18 and older who experience major depressive episodes. See http://www.healthypeople.gov/2020/topics-objectives/topic/mental-health-and-mental-disorders/objectives .
Related Surveillance Indicators	Any mental illness among adults, depressive episode, hospitalizations for mental illness.

References

1. Substance Abuse and Mental Health Services Administration. National Survey on Drug Use and Health: About the Survey. Available at https://nsduhweb.rti.org/respweb/project_description.html. Accessed December 16, 2015.
2. Substance Abuse and Mental Health Services Administration. 2011-2012 National Surveys on Drug Use and Health: Guide to State Tables and Summary of Small Area Estimation Methodology. Available at <http://www.samhsa.gov/data/sites/default/files/NSDUHStateEst2011-2012/Methodology/Web/NSDUHsaeMethodology2012.htm>. Accessed December 15, 2015.
3. Substance Abuse and Mental Health Services Administration. 2012-2013 National Survey on Drug Use and Health: Model-Based Prevalence Estimates (50 States and the District of Columbia), Table 24. Available at <http://www.samhsa.gov/data/sites/default/files/NSDUHStateEst2012-2013-p1/Tables/NSDUHsaePercents2013.pdf>. Accessed December 15, 2015.

Frequent mental distress (≥14 days out of 30)	
Mental Health Indicator	
Demographic Group	Residents 18 years or older.
Numerator	Respondents who reported that their mental health was not good for ≥14 days in the past month.
Denominator	Weighted number of respondents who reported the number of days in the past month when their mental health was not good, including <i>none</i> (excluding those who refused to answer, had a missing answer, or answered “don’t know/not sure”).
Measure	Crude annual prevalence with 95% confidence intervals weighted using the Behavioral Risk Factor Surveillance System method (to compensate for unequal probabilities of selection and to adjust for nonresponse and telephone noncoverage).
Period for Case Definition	All respondents during a calendar year are asked about their mental health during the 30 days prior to their interview.
Data Resource	Behavior Risk Factor Surveillance System (BRFSS).
Additional Data Items	Stratify by age group, sex, race/ethnicity and geographic area if state sample size permits.
Background	Frequent mental distress is correlated with mental illness, such as clinically significant depression and anxiety. Mental illness can cause significant morbidity and affects healthcare costs. In 2014, the percentage of adults with frequent days of mental distress (days when mental health was not good) in the past 30 days ranged from 8.0% to 15.7% among the states and Washington, D.C. The median value among the states was 11.0% (1). This is the best available measure of overall population mental health.
Significance	Poor mental health interferes with social functioning, is associated with adverse health behaviors, and should be monitored as an overall indicator of chronic disease. Percent of population with frequent mental distress is a good summary measure of population mental health. Evidence-based public health services, mental health services, and other preventive interventions could be expected to reduce the percentage of the population with frequent mental distress.

Limitations of Indicator	There is limited validation of the 14-day frequent mental distress method of analyzing responses to this questionnaire item.
Limitations of Data Resource	As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses, residential institutions or military bases), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). To address some of these potential concerns, BRFSS began including cellular telephone-only users in its 2011 data collection. Because of changes in sampling and weighting methods, 2011 is a new baseline for BRFSS, and comparisons with previous years' data are inappropriate. As a phone-based survey it relies on self-report.
Data Access	BRFSS data can be accessed through the CDC website (e.g. at http://www.cdc.gov/brfss/annual_data/annual_2014.html or http://nccd.cdc.gov/s_broker/WEATSQL.exe/weat/index.hsql), and through a weighted, cleaned dataset provided to each participating state.
Related Healthy People 2020 Objectives (if applicable)	MHMD-4.2: Reduce the proportion of adults aged 18 and older who experience major depressive episodes. MDHD-9: Increase the proportion of adults with mental health disorders who receive treatment. See http://www.healthypeople.gov/2020/topics-objectives/topic/mental-health-and-mental-disorders/objectives
Related Surveillance Indicators	Any mental illness, serious mental illness, major depressive episode, hospitalizations for mental disorders.

Reference

1. Zack M. Tables of prevalence of mental distress on ≥ 14 out of most recent 30 days, from BRFSS, by state, by year, 2011-2014. Personal communication, December 7, 2015.