

**2016-2018 National Surveys on
Drug Use and Health: Guide to Substate
Tables and Summary of Small Area
Estimation Methodology**

Section A: Overview

A.1. Introduction

This document provides information on the model-based small area estimates of substance use and mental disorders in substate regions based on data from the combined 2016-2018 National Surveys on Drug Use and Health (NSDUHs). The estimates along with other related information are available at <https://www.samhsa.gov/data/>.

NSDUH is an annual survey conducted from January through December of the civilian, noninstitutionalized population aged 12 or older and is sponsored by the Substance Abuse and Mental Health Services Administration (SAMHSA), U.S. Department of Health and Human Services. NSDUH is planned and managed by SAMHSA's Center for Behavioral Health Statistics and Quality (CBHSQ). Data collection and analysis are conducted under contract with RTI International.¹

NSDUH is the primary source of statistical information on the use of illicit drugs, alcohol, and tobacco by the U.S. civilian, noninstitutionalized population aged 12 or older. The survey also includes several series of questions focusing on mental health issues. Conducted by the federal government since 1971, NSDUH collects data through face-to-face interviews with a representative sample of the population at the respondent's place of residence.

In 2016-2018, the survey collected data from 203,765 respondents aged 12 or older and was designed to obtain representative samples from the 50 states and the District of Columbia. It covers residents of households and noninstitutional group quarters (e.g., shelters, rooming houses, dormitories) and from civilians living on military bases. NSDUH excludes homeless people who do not use shelters, military personnel on active duty, and residents of institutional group quarters, such as jails and hospitals.

The 1999 survey marked the first year in which the national sample was interviewed using a computer-assisted interviewing (CAI) method. The survey used a combination of computer-assisted personal interviewing (CAPI) conducted by an interviewer and audio computer-assisted self-interviewing (ACASI). Use of ACASI is designed to provide the respondent with a highly private and confidential means of responding to questions and increases the level of honest reporting of illicit drug use and other sensitive behaviors. For further details on the development of the CAI procedures for the 1999 National Household Survey on Drug Abuse (NHSDA),² see the Office of Applied Studies (OAS, 2001).³

The 1999 through 2001 NHSDAs and the 2002 through 2013 NSDUHs employed an independent, multistage area probability sample for each of the 50 states and the District of

¹ RTI International is a registered trademark and a trade name of Research Triangle Institute, Research Triangle Park, North Carolina.

² In 2002, the survey's name changed from the National Household Survey on Drug Abuse (NHSDA) to the National Survey on Drug Use and Health (NSDUH).

³ The Office of Applied Studies (OAS) is the former name of the Center for Behavioral Health Statistics and Quality (CBHSQ).

Columbia. For this design, eight states were designated as large sample states (California, Florida, Illinois, Michigan, New York, Ohio, Pennsylvania, and Texas) with target sample sizes of 3,600 per year. For the remaining 42 states and the District of Columbia, the target sample size was 900 per year. This approach ensured there was sufficient sample in every state to support small area estimation (SAE) production at the state and substate level, while at the same time maintaining efficiency for national estimates. The design also oversampled youths aged 12 to 17 and young adults aged 18 to 25 so that each state's sample was approximately equally distributed among three major age groups: 12 to 17 years, 18 to 25 years, and 26 years or older.

A coordinated design was developed for the 2014 through 2017 NSDUHs. A large reserve sample was selected at the time the 2014 through 2017 NSDUH sample was selected. This reserve sample was (or will be) used to field the 2018 through 2022 NSDUHs. Thus, the 2018 through 2022 NSDUHs simply continue the coordinated design. Similar to the 1999 through 2013 surveys, the coordinated 4-year design (2014 through 2017) is state-based with an independent, multistage area probability sample within each state and the District of Columbia. This design designates 12 states as large sample states that have the following target sample sizes per year: 4,560 completed interviews in California; 3,300 completed interviews each in Florida, New York, and Texas; 2,400 completed interviews each in Illinois, Michigan, Ohio, and Pennsylvania; and 1,500 completed interviews each in Georgia, New Jersey, North Carolina, and Virginia. Making the sample sizes more proportional to the state population sizes improves the precision of national NSDUH estimates. This change also allows for a more cost-efficient sample allocation to the 12 large sample states while slightly increasing the sample sizes in the 38 remaining smaller states and the District of Columbia to improve the precision of state and substate estimates.⁴

Starting in 2014, the allocation of the NSDUH sample is 25 percent for adolescents aged 12 to 17, 25 percent for adults aged 18 to 25, and 50 percent for adults aged 26 or older. The sample of adults aged 26 or older is further divided into three subgroups: aged 26 to 34 (15 percent), aged 35 to 49 (20 percent), and aged 50 or older (15 percent). For more information on the 2014 through the 2017 NSDUH sample design and for differences between the 2013 and 2014 surveys, refer to the 2014 NSDUH sample design report (CBHSQ, 2015a).

This marks the ninth time⁵ that estimates for substate regions (also referred to as planning regions or substate areas) in all 50 states and the District of Columbia have been presented by SAMHSA. Here, substate-level small area estimates are provided for 30 binary (0, 1) substance use or mental health measures using combined data from the 2016-2018 NSDUHs for individuals aged 12 or older (or adults 18 or older for the five mental health outcomes, and individuals aged 12 to 20 for underage alcohol use and underage binge alcohol use). For a list of outcomes for which substate-level estimates are available, refer to [Table A1](#) at the end of this section. These substate estimates are available at <https://www.samhsa.gov/data/>. The list of

⁴ The target sample size per year in each of the small sample states is 960 completed interviews, with the exception of Hawaii where the target sample size is 967 completed interviews.

⁵ Prior to this effort, substate small area estimates using combined 1999-2001, 2002-2004, 2004-2006, 2006-2008, 2008-2010, 2010-2012, 2012-2014, and 2014-2016 data have been produced by SAMHSA. Estimates from recent combined datasets, starting with the 2008-2010 dataset going forward, can be found at <https://www.samhsa.gov/data/>.

products (e.g., tables, maps, substate region definitions) related to the 2016-2018 substate estimates is provided in Section A.2.

Estimates for 406 substate regions were generated using the 2016-2018 NSDUH data. These substate regions are the same as the ones used in the production of the 2014-2016 substate estimates and were defined at that time by government officials from each of the 50 states and the District of Columbia. The substate regions were typically based on the substance abuse treatment planning regions specified by the states in their applications for the Substance Abuse Prevention and Treatment Block Grant (SABG) administered by SAMHSA. The SABG program provides financial and technical assistance to the 50 states, the District of Columbia, and other jurisdictions to support substance abuse prevention and treatment programs and to promote public health. States use NSDUH substate estimates for a variety of purposes, including strategic planning and program development, production of epidemiological profiles for briefing state legislatures and informing the public, allocating funds to substate areas based on the need for services, and other uses. More information on defining these regions is available in Section A.3.

Section A.4 discusses the methodological changes introduced in the 2002 NSDUH. An unanticipated result of these changes was that the prevalence rates for 2002 were in general substantially higher than those for 2001. As a result, the 1999-2001 substate estimates are not comparable with the other substate estimates. Additionally, this section discusses NSDUH questionnaire changes from 2015 and how these changes affect the small area estimates. Section A.5 discussed related substance use measures and warns users about not drawing conclusions by subtracting small area estimates from two different measures.

Section B provides information on the SAE methodology used to produce substate estimates. Section C includes the population estimates and the combined 2016, 2017, and 2018 NSDUH sample sizes and response rates for each substate region. Users may find the population estimates helpful in calculating the prevalence estimate for any combination of substate regions or to determine the number of people using a particular substance in a substate region. For example, the number of individuals aged 12 or older who used marijuana in the past month in Alabama's Region 1 (78,975 individuals) can be obtained by multiplying the prevalence rate (6.88 percent) from Table 3 in the "2016-2018 NSDUH Substate Regions: Excel Tables" (see <https://www.samhsa.gov/data/>) and the population estimate from [Table C1](#) (1,147,891) in this document. Section D lists the references cited in this document, and Section E provides a list of contributors to the production of the 2016-2018 substate estimates.

A.2. Presentation of Findings

In addition to this methodology document for the 2016-2018 substate SAE results, the following files are available at <https://www.samhsa.gov/data/>:

- **2016-2018 NSDUH Substate Region Estimates: Excel Tables and CSV Files:** These Excel tables and comma separated value (CSV) files⁶ for each outcome show the prevalence

⁶ Files with a comma separated value (*.csv) extension are in plain text. They contain characters stored in a flat, nonproprietary format and can be opened by most computer programs. Computers with Microsoft Excel installed open *.csv files in Excel by default, with the fields automatically arranged appropriately in columns. Other database programs also open *.csv files with the fields appropriately arranged.

estimates and 95 percent Bayesian confidence intervals (CIs) for individuals aged 12 or older (12 to 20 for underage alcohol use and underage binge alcohol use and 18 or older for the five mental health outcomes).

- **2016-2018 NSDUH National Maps of Prevalence Estimates, by Substate Region:** More information about these maps is provided in Section A.3.
- **2016-2018 NSDUH Substate Region Definitions:** This document includes maps and tables showing the substate region definitions in terms of census tracts or counties.
- **2016-2018 NSDUH Substate Region Definition SAS files:** These SAS files consist of region definition variables along with census geography variables (state, county, and tract). These files can be used to merge 2016-2018 substate region definitions onto any file containing state, county, and census tract codes (based on 2010 census geography).
- **2016-2018 NSDUH Substate Region Shapefile:** This shapefile includes geographic boundaries of the substate regions and associated prevalence rates. It also includes the map group (one to seven) and associated lower and upper bounds of the group for each substate region. It can be used for analysis and data display with Geographic Information System (GIS) software.
- **2016-2018 NSDUH Substate Region Estimates, by Age Group:** Tables of prevalence estimates and 95 percent Bayesian CIs for youths aged 12 to 17, young adults aged 18 to 25, adults aged 26 or older, and adults aged 18 or older are provided for each measure and for substate regions having sufficient precision. These tables are available in Excel, CSV, and PDF formats.
- **2016-2018 NSDUH Substate Region Estimates Categorized into Seven Groups, by Age Group:** This table shows the ranges of prevalence estimates for each outcome categorized into seven groups from lowest to highest estimate for age groups 12 to 17, 18 to 25, 26 or older, and 18 or older. Information from this table can be used by users who wish to develop state or national maps similar to those produced for the 12 or older age group.
- **2016-2018 NSDUH State-Specific Substate Region Tables and Maps:** These state-specific tables and maps show substate region estimates for each state separately for individuals aged 12 or older (18 or older for the mental health outcomes and 12 to 20 for the underage alcohol use and binge alcohol use outcomes). Note that the seven groups shown on each state-level map are taken from the national maps.
- **Comparison of 2014-2016 and 2016-2018 NSDUH Substate Region Estimates:** These tables show the 2014-2016 and 2016-2018 substate estimates and 95 percent Bayesian CIs, along with an indication of the statistical significance of the difference (p value). The methodology used to conduct significance tests is provided after the last table. The 2014-2016 estimates are compared with the 2016-2018 estimates for all 406 regions and the 14 outcomes available for both time periods. See [Table A1](#) for the list of outcomes available for both time periods.

- **Comparison of 2008-2010 and 2016-2018 NSDUH Substate Region Estimates:** These tables show the 2008-2010 and 2016-2018 substate estimates and 95 percent Bayesian CIs, along with an indication of the statistical significance of the difference (*p* value). This comparison is done between the most recent estimates (in this case, 2016-2018) and the earliest comparable estimates for all outcomes, including mental health (based on 2008-2010 NSDUH data). The methodology used to conduct significance tests is provided after the last table. The 2008-2010 estimates are compared with the 2016-2018 estimates for the 304 regions that remained the same and the 12 outcomes available for both time periods. For the list of outcome measures, see [Table A1](#) at the end of this section, and for the number of regions that remained the same between 2008-2010 and 2016-2018 for each state, see [Table A2](#).
- **2016-2018 NSDUH: Comparison of Population Percentages from the United States, Census Regions, States, District of Columbia, and Substate Regions:** These 52 Excel tables (and matching CSV files) contain *p* values for each outcome that can be used to test the null hypothesis of no difference between population percentages for the following types of comparisons: total United States versus census region, state, and substate region; census region versus census region, state, and substate region; state versus state and substate region; and substate region versus substate region. The methodology used to compute these *p* values is provided in a document published with these Excel tables.

Note that other products may be added at a later date to the 2016-2018 NSDUH substate homepage at <https://www.samhsa.gov/data/>.

A.3. Formation and Ranking of Substate Regions

The substate regions for each state are the same as the ones used in the production of the 2014-2016 substate estimates. These substate regions vary in size, and their use varies across states. In some states, the substate regions are used more for administrative purposes rather than for planning purposes. The goal of the project was to provide substate-level estimates showing the geographic distribution of substance use prevalence for regions that states would find useful for planning and reporting purposes.

Most states defined their regions in terms of counties or groups of counties. A few states defined their regions in terms of census tracts. Several states also requested estimates for aggregate substate regions, along with the estimates for their substate regions. An aggregate substate region is made up of two or more substate regions. These substate region definitions are available in a document titled "2016-2018 NSDUH Substate Region Definitions" (see <https://www.samhsa.gov/data/>, as listed in Section A.2). For the 2014-2016 substate estimates, some of the states (specifically, New Hampshire, Texas, and Washington) wanted maps to be produced only for the aggregate regions. For example, Washington has eight substate regions, and those eight regions were combined to create three aggregate regions used in the maps. The other states with aggregate regions wanted their maps to be produced at the substate level (i.e., Arizona, California, Florida, Illinois, Louisiana, Maine, Minnesota, Missouri, Nebraska, Nevada, New Mexico, New York, North Dakota, and Utah). As a result, across all states, maps were produced for 395 regions (individual substate regions and aggregate regions) based on the

2014-2016 substate estimates. For the 2016-2018 substate estimates, maps have been produced for the same 395 regions and not for 406 regions.

The 395 substate regions used in the maps were ranked from lowest to highest for each measure and were divided into seven categories (based on estimates rounded to two decimals) designed to represent somewhat symmetric distributions, as in a normal distribution. Colors were assigned to all substate regions such that the third having the lowest prevalence are in shades of blue (132 substate regions), the middle third are in white (131 substate regions), and the third with the highest prevalence are in shades of yellow (132 substate regions). The only exceptions are the five perception-of-risk outcomes, which have the highest estimates represented in blue and the lowest estimates represented in shades of yellow to reflect the inverse relationship between substance use and the perception of risk from using that substance. To further distinguish among the substate regions displaying relatively higher prevalence, the "highest" third has been subdivided into (a) orangish-yellow for the 18 substate regions with the highest estimates, (b) dark yellow for the 37 substate regions with the next highest estimates, and (c) light yellow for the 77 substate regions in the third highest group. The "lowest" third is categorized in a similar way using three distinct shades of blue. In some cases, a group (or category) could have more or fewer substate regions because two (or more) substate regions have the same estimate (to two decimal places). When such ties occurred at the "boundary" between two groups, all substate regions with the same estimate (to two decimal places) were assigned to the lower group. The upper and lower limits of each of the seven categories shown in the map legend collectively define a continuum and are not necessarily the actual values of a particular substate region. Note that the rankings used to create these maps do not account for the standard errors of the estimates (i.e., just because two regions are in different map groups does not imply that they are significantly different from each other). Tables containing p values for comparing two substate regions can be found at the same webpage. Specifically, see the "2016-2018 NSDUH: Comparison of Population Percentages from the United States, Census Regions, States, District of Columbia, and Substate Regions."

For example, in Figure 13 (a national map showing alcohol use in the past month among persons aged 12 or older) (see the "2016-2018 NSDUH National Maps of Prevalence Estimates, by Substate Region" at <https://www.samhsa.gov/data/> as listed in Section A.2), the values on the boundary in the lowest category (group 1) correspond to Utah County in Utah (19.56 percent) and Catchment Area 3 in Arkansas (35.60 percent) and are displayed in the legend. In the next to lowest category, Catchment Area 4 in Arkansas (35.80 percent) and the Southeast region in Oklahoma (42.52 percent) are the regions with the lowest and highest values; however, in the continuum of the legend, the lower limit for group 2 was assigned a value of 35.61 percent because the upper limit of group 1 is 35.60 percent.

The 2016-2018 substate estimates and corresponding Bayesian CIs are available in the "2016-2018 NSDUH Substate Region Estimates: Excel Tables and CSV Files" (as mentioned in Section A.2, see <https://www.samhsa.gov/data/>). These tables also contain a sort order number and a map group indicator. The map indicator = 1 for the national estimate, = 2 for census region estimates, = 3 for state-level estimates, = 4 if a region is part of the 395 substate/aggregate region-level estimates included in the maps, and = 5 for all other substate/aggregate region-level estimates not included in the maps. The order number takes on values of 1 to 497 and can be used to re-sort the file to the original order.

In addition to the substate region estimates, estimates are provided for the 50 states and the District of Columbia and also for the four census regions. These estimates are produced using the SAE methodology described in Section B. The national estimates and associated CIs are design-based estimates and are also included. Because these estimates are based on 3 consecutive years of data, they are not directly comparable with the annually published state, census region, or national estimates based on only 2 consecutive years of NSDUH data. The U.S. Census Bureau defines the census regions as follows:

Northeast Region - Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.

Midwest Region - Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

South Region - Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia.

West Region - Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

A.4. Comparability with Past Estimates

For the 2002 NSDUH, a number of methodological changes were introduced, including a \$30 incentive for participating in the survey, additional training for interviewers to encourage adherence to survey protocols, a change in the survey name, and a shift to the 2000 decennial census (from the 1990 census) as a basis for population counts used in sample selection, weighting, and estimation. Additional information on these methodological changes is available in a report by the OAS (2005). An unanticipated result of these changes was that the prevalence rates for 2002 were in general substantially higher than the 2001 prevalence rates. The jump in the prevalence rates between 2001 and 2002 was more than the usual year-to-year change. Because of the changes in the survey in 2002, substate estimates for 1999-2001 are not comparable with the other substate estimates. It is not possible to separate the effect of the methodological changes from the true trends in substance use.

However, estimates from 2002-2004, 2004-2006, 2006-2008, 2008-2010, 2010-2012, 2012-2014, 2014-2016, and 2016-2018 are comparable for outcome measures defined in a similar manner and for substate regions defined consistently across these time periods. [Table A1](#) at the end of this section lists the outcome measures for which substate estimates were produced using 2016-2018 NSDUH data and shows the outcome measures that remained comparable over time (indicated with an "X" in the table) since 2002-2004.

It is useful to note that the 2002-2004 to 2008-2010 substate estimates were produced using predictors from the 2000 census; also, the survey weights used population projections from the 2000 census. The 2010-2012, 2012-2014, 2014-2016, and 2016-2018 estimates, on the other hand, were produced using 2010 census data. Hence, when reviewing changes between 2008-2010 and 2016-2018, it is important to note that they may be confounded with changes due to

differences in the source of the predictors and the population projections (referred to as "census effects"). The impact of such census effects on national and state estimates is discussed in Section B.4.3 in Appendix B of the 2011 NSDUH national findings report (CBHSQ, 2012) and the "2011-2012 NSDUH: Impact of Using 2010 Census Data on 2010-2011 Small Area Estimates" at <https://www.samhsa.gov/data/>.

During regular data collection and processing checks for the 2011 NSDUH, data errors were identified. These errors were falsified cases submitted by field interviewers that affected the data for Pennsylvania (2006 to 2010) and Maryland (2008 and 2009). Cases with erroneous data were removed from the data files, and the remaining cases were reweighted to provide representative estimates (for more details on this data error, refer to Section A.7 of the "2011-2012 NSDUH: Guide to State Tables and Summary of Small Area Estimation Methodology" at <https://www.samhsa.gov/data/>). The 2006-2008, 2008-2010, and the 2010-2012 substate estimates exclude data based on falsified cases.

In 2015, a number of changes were made to the NSDUH questionnaire and data collection procedures. These changes were intended to improve the quality of the data that were collected and to address the changing needs of substance use and mental health policy and research.⁷ Discussed here briefly is the effect of the redesign on the comparability between the 2015 NSDUH and earlier NSDUHs, specifically related to the SAE outcomes. For a more detailed discussion of the questionnaire redesign and its effect, see Section C of the 2015 NSDUH's methodological summary and definitions report (CBHSQ, 2016a) and a brief report summarizing the implications of the changes for data users (CBHSQ, 2016b).

In the alcohol section of the questionnaire, the threshold for defining binge alcohol use among females was revised from five or more drinks on an occasion to four or more drinks on an occasion to ensure consistency with federal definitions.⁸ The threshold for males in 2015 remained at five or more drinks on an occasion. Consequently, a new baseline was established in 2015 for estimates of binge alcohol for the overall population. Substate small area estimates for past month binge alcohol use using combined 2016, 2017, and 2018 were produced to create a new baseline. Because estimates using combined 2014, 2015, and 2016 data were not produced, no comparison was done between the two sets of years (i.e., 2014-2016 vs. 2016-2018) for past month binge alcohol use. Note that this change did not affect estimates for alcohol use or alcohol use disorder.

Several changes were made to the various illicit drug sections of the NSDUH questionnaire in 2015. Specifically, changes were made to the hallucinogen, inhalant, methamphetamine, and prescription psychotherapeutic sections. For details on these specific changes, see Section C.1 of the 2015 NSDUH methodological summary and definitions report (CBHSQ, 2016a). These changes resulted in establishing a new baseline based on 2016-2018

⁷ The exact changes are documented in the 2015 NSDUH's Office of Management and Budget (OMB) clearance package and in a summary report (CBHSQ, 2015b). The summary report and the 2015 NSDUH questionnaire are available on the SAMHSA website at <https://www.samhsa.gov/data/>.

⁸ The National Institute on Alcohol Abuse and Alcoholism (NIAAA, 2016) defines binge drinking as a pattern of drinking that brings blood alcohol concentration (BAC) levels to 0.08 grams per deciliter (g/dL). This typically occurs after four drinks for women and five drinks for men in about 2 hours.

NSDUH data for several small area estimates showing overall illicit drug use (including use disorder and treatment) and pain reliever misuse.²

Additionally, changes to some of the drug modules might have affected the set of respondents in 2015 who were eligible to be asked questions about treatment for substance use. Hence, SAE outcomes on needing but not receiving treatment (for illicit drugs and alcohol) were potentially affected. Thus, substance use treatment estimates were produced using combined 2016, 2017, and 2018 NSDUH data as a new baseline. Because estimates for these treatment outcomes using combined 2014, 2015, and 2016 data were not produced, no comparison between the two sets of years was done.

Finally, although questions on the perceptions of risk of harm from using different substances did not change in 2015, data quality checks on preliminary data and the full 2015 data showed deviations from the expected trends for these measures. A survey redesign carries the risk that preceding changes to the questionnaire will affect how respondents answer later questions (e.g., context effects). A context effect may be said to take place when the response to a question is affected by information that is not part of the question itself. For example, the content of a preceding question may affect the interpretation of a subsequent question. Or a respondent may answer a subsequent question in a manner that is consistent with responses to a preceding question if the two questions are closely related to each other. The set of questions preceding the risk and availability section in the 2015 questionnaire had undergone a number of significant changes that could have affected the way in which respondents answered the perceived risk and availability questions. Because of these deviations, the perception of risk estimates were not produced using the combined 2014, 2015, and 2016 NSDUH data. Estimates were produced using combined 2016, 2017, and 2018 data, establishing a new baseline.

To summarize, several changes in the 2015 questionnaire affected the comparability of the 2014 and 2015 NSDUH data. It was decided, therefore, that for those measures data across those 2 years could not be pooled, and estimates for those measures could not be produced using 2014-2016 NSDUH data. Estimates for these measures are included using the 2016, 2017, and 2018 data, establishing new baselines. Note that because 2014-2016 estimates were not produced for some outcomes, change estimates between 2014-2016 and 2016-2018 were not produced. For a complete list of outcomes for which substate small area estimates are available, refer to [Table A1](#).

² Prior to 2015, NSDUH referred to "nonmedical" use of prescription drugs. See Section C of the 2015 NSDUH methodological summary and definitions report (CBHSQ, 2016a) for further discussion about the change in terminology from nonmedical use to misuse of prescription drugs in 2015. Specifically, the approach and definition for measuring the misuse of prescription drugs were revised to include questions about any use of prescription drugs in addition to questions about misuse (previously called "nonmedical use"). Also, the definition for misuse was revised to focus on specific behaviors that indicate misuse (i.e., use in any way a doctor did not direct respondents to use prescription drugs, including use without a prescription of one's own; use in greater amounts, more often, or longer than told to take a drug; and use in any other way not directed by a doctor). Moreover, questions pertaining to specific prescription drugs focused on the past 12 months instead of the lifetime period that was used in the 2014 and prior questionnaires.

A.5. Related Substance Use Measures

Small area estimates are produced for a number of related drug measures, such as marijuana use and illicit drug use or alcohol use disorder and needing but not receiving treatment at a specialty facility for alcohol use. It might appear that one could draw conclusions by subtracting one from the other (e.g., subtracting the percentage who used illicit drugs other than marijuana in the past month from the percentage who used illicit drugs in the past month to find the percentage who used only marijuana in the past month). Because related measures have been estimated with different models (i.e., separate models by age group and outcome), subtracting one measure from another related measure at the subnational level (i.e., substate region or state) can give misleading results, perhaps even a "negative" estimate, and should be avoided. However, these comparisons can be made at the national level because these estimates are design-based estimates. For example, at the national level, subtracting cigarette use estimates from tobacco use estimates will give the estimate of individuals who did not use cigarettes, but used other forms of tobacco, such as cigars, pipes, or smokeless tobacco.

Table A1. Outcomes, by Survey Year, for Which Substate Small Area Estimates Are Available

Measure	2002-2004	2004-2006	2006-2008	2008-2010	2010-2012	2012-2014	2014-2016	2016-2018
Illicit Drug Use in the Past Month ¹	X	X	X	X	X	X	--	X
Marijuana Use in the Past Year	X	X	X	X	X	X	X	X
Marijuana Use in the Past Month	X	X	X	X	X	X	X	X
Perceptions of Great Risk from Smoking Marijuana Once a Month ¹	X	X	X	X	X	X	--	X
First Use of Marijuana (Marijuana Initiation)	X	X	X	X	X	X	X	X
Illicit Drug Use Other Than Marijuana in the Past Month ¹	X	X	X	X	X	X	--	X
Cocaine Use in the Past Year	X	X	X	X	X	X	X	X
Perceptions of Great Risk from Using Cocaine Once a Month	--	--	--	--	--	--	--	X
Heroin Use in the Past Year	--	--	--	--	--	--	X	X
Perceptions of Great Risk from Trying Heroin Once or Twice	--	--	--	--	--	--	--	X
Methamphetamine Use in the Past Year	--	--	--	--	--	--	--	X
Pain Reliever Misuse in the Past Year ¹	X	X	X	X	X	X	--	X
Alcohol Use in the Past Month	X	X	X	X	X	X	X	X
Underage Past Month Use of Alcohol (among Individuals Aged 12 to 20)	X	X	X	X	X	X	X	X
Binge Alcohol Use in the Past Month ¹	X	X	X	X	X	X	--	X
Underage Past Month Binge Alcohol Use (among Individuals Aged 12 to 20) ¹	X	X	X	X	X	X	--	X
Perceptions of Great Risk from Having Five or More Drinks of an Alcoholic Beverage Once or Twice a Week ¹	X	X	X	X	X	X	--	X
Tobacco Product Use in the Past Month	X	X	X	X	X	X	X	X
Cigarette Use in the Past Month	X	X	X	X	X	X	X	X
Perceptions of Great Risk from Smoking One or More Packs of Cigarettes per Day ¹	X	X	X	X	X	X	--	X
Alcohol Use Disorder in the Past Year	X	X	X	X	X	X	X	X
Alcohol Dependence in the Past Year	X	X	X	X	X	X	--	--
Illicit Drug Use Disorder in the Past Year ¹	X	X	X	X	X	X	--	X
Illicit Drug Dependence in the Past Year	X	X	X	X	X	X	--	--
Pain Reliever Use Disorder in the Past Year	--	--	--	--	--	--	--	X
Substance Use Disorder in the Past Year ¹	X	X	X	X	X	X	--	X
Needing But Not Receiving Treatment at a Specialty Facility for Illicit Drug Use in the Past Year ¹	X	X	X	X	X	X	--	X
Needing But Not Receiving Treatment at a Specialty Facility for Alcohol Use in the Past Year ¹	X	X	X	X	X	X	--	X
Needing But Not Receiving Treatment at a Specialty Facility for Substance Use in the Past Year ¹	--	--	--	--	--	--	--	X
Serious Psychological Distress (SPD) in the Past Year ²	X	X	--	--	--	--	--	--
Had at Least One Major Depressive Episode (MDE) in the Past Year ³	--	X	X	X	X	X	X	X
Serious Mental Illness (SMI) in the Past Year	--	--	--	X	X	X	X	X
Any Mental Illness (AMI) in the Past Year	--	--	--	X	X	X	X	X
Received Mental Health Services in the Past Year	--	--	--	--	--	--	X	X
Had Serious Thoughts of Suicide in the Past Year	--	--	--	X	X	X	X	X

X = available; -- = not available.

NOTE: The measures included in the 1999-2001 substate small area estimation (SAE) report are not included here. Because of the changes in the survey that took place in 2002, the 1999-2001 estimates are not comparable with the 2002-2004 or subsequent year estimates. SAE estimates using the combined 2002-2004, 2004-2006, 2006-2008, 2008-2010, 2010-2012, 2012-2014, and 2014-2016 data can be found at <https://www.samhsa.gov/data/>.

¹ For these outcomes, the 2016-2018 small area estimates are not comparable with the 2012-2014 estimates or the estimates from prior years. Because of comparability issues, 2014-2016 small area estimates were not produced for these outcomes. Prior to 2016-2018, "misuse of pain relievers" was referred to as "nonmedical use of pain relievers."

² Because of questionnaire changes, SPD estimates in 2002-2004 are not comparable with the 2004-2006 SPD estimates. For details, see Section B.7 of the report on *Substate Estimates from the 2004-2006 National Surveys on Drug Use and Health* (Office of Applied Studies, 2008). Additional questionnaire changes were made in 2008 that affected past year SPD trends. However, revised past year SPD measures were created for 2005 through 2007 that are comparable with the 2008 through 2016 past year SPD measure. Substate small area estimates for 2006-2008, 2008-2010, 2010-2012, 2012-2014, 2014-2016, and 2016-2018 were not created for this measure.

³ Questions used to determine MDE were added in 2004. The 2004-2006 MDE estimates are not comparable with the 2006-2008 and subsequent year estimates. For details on MDE, see Sections B.4.2 and B.4.4 in Appendix B of the 2012 NSDUH mental health findings report (CBHSQ, 2013).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Surveys on Drug Use and Health, 2002-2018.

Table A2. NSDUH Substate Region Counts and Overlap, by State and Estimation Period

State	2008-2010		2016-2018 ¹		
	Number of Substate Regions ²	Number of Map Regions ³	Number of Substate Regions ²	Number of Map Regions ³	Number of Substate Regions Overlapping with 2008-2010 ⁴
Total U.S.	383	362	406	395	304
Alabama	4	4	4	4	4
Alaska	4	4	4	4	4
Arizona	4	4	4	4	2
Arkansas	8	8	8	8	8
California	27	27	26	26	25
Colorado	5	5	7	7	0
Connecticut	5	5	5	5	5
Delaware	4	4	4	4	4
District of Columbia	8	8	8	8	8
Florida	18	18	18	18	16
Georgia	6	6	6	6	6
Hawaii	4	4	4	4	4
Idaho	7	7	7	7	5
Illinois	5	5	17	17	0
Indiana	8	8	8	8	8
Iowa	6	6	6	6	6
Kansas	6	6	5	5	0
Kentucky	6	6	6	6	6
Louisiana	5	5	6	6	4
Maine	7	7	8	8	6
Maryland	9	9	9	9	9
Massachusetts	6	6	6	6	6
Michigan	15	15	10	10	3
Minnesota	6	6	9	9	3
Mississippi	7	7	7	7	7
Missouri	7	7	7	7	7
Montana	5	5	5	5	5
Nebraska	6	6	6	6	6
Nevada	3	3	4	4	2
New Hampshire	5	3	5	3	5
New Jersey	4	4	4	4	4
New Mexico	5	5	6	6	4
New York	15	4	15	15	4
North Carolina	12	11	14	14	10

See notes at end of table.

(continued)

Table A2. NSDUH Substate Region Counts and Overlap, by State and Estimation Period (continued)

State	2008-2010		2016-2018 ¹		
	Number of Substate Regions ²	Number of Map Regions ³	Number of Substate Regions ²	Number of Map Regions ³	Number of Substate Regions Overlapping with 2008-2010 ⁴
North Dakota	5	5	8	8	2
Ohio	21	21	21	21	21
Oklahoma	7	7	7	7	7
Oregon	6	6	6	6	6
Pennsylvania	13	13	13	13	13
Rhode Island	4	4	7	7	0
South Carolina	4	4	4	4	2
South Dakota	7	7	5	5	0
Tennessee	7	7	7	7	5
Texas	15	11	15	11	15
Utah	6	6	7	7	5
Vermont	4	4	4	4	4
Virginia	5	5	5	5	5
Washington	6	3	8	3	2
West Virginia	6	6	6	6	6
Wisconsin	6	6	6	6	6
Wyoming	9	9	9	9	9

¹ Substate regions for 2016-2018 are the same as the substate regions for 2014-2016 (see Section A.3).

² Number of regions includes only the main substate regions and not the aggregate regions.

³ More information on the map regions can be found in Section A.3.

⁴ The names of some of the substate regions have changed across the time periods. However, as long as the two regions are made of the same counties or tracts, they are included in the count of overlapping regions.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Surveys on Drug Use and Health, 2008-2010 and 2014-2018.

Section B: Substate Region Estimation

Methodology

The survey-weighted hierarchical Bayes (SWHB) methodology used in the production of state and substate estimates from the 1999 to 2018 National Surveys on Drug Use and Health (NSDUHs) also was used in the production of the 2016-2018 substate estimates. The SWHB methodology is described by Folsom, Shah, and Vaish (1999). A general model description is given in Section B.1. A brief discussion of the precision of the estimates and interpretation of the Bayesian confidence intervals (CIs) is given in Section B.2. The goals of the small area estimation (SAE) modeling, the general model description, and the implementation of SAE modeling remain the same and are described in Appendix E of the 2001 state report (Wright, 2003).

Small area estimates obtained using the SWHB methodology are design consistent (i.e., for states or substate areas with large sample sizes, the small area estimates are close to the corresponding robust design-based estimates). The substate small area estimates when aggregated by using the appropriate population totals result in national small area estimates that are very close to the national design-based estimates. However, for many reasons, including internal consistency, it is desirable to have the national small area estimates exactly match the national design-based estimates. Beginning in 2002, exact benchmarking was introduced (see Appendix A, Section A.4, in Wright & Sathe, 2005). The 2016-2018 substate small area estimates have been benchmarked to the national design-based estimates.

B.1. General SAE Model Description

The model can be characterized as a complex mixed¹⁰ model (including both fixed and random effects) of the following form:

¹⁰ The use of mixed models (fixed and random effects) allows additional error components (random effects) to be included. These account for differences between states and within-state variations that are not taken into account by the predictor variables (fixed effects) alone. It is also difficult (if not impossible) to produce valid mean squared errors (MSEs) for small area estimates based solely on a fixed-effect national regression model (i.e., synthetic estimation) (Rao, 2003, p. 52). The mixed models produce estimates that are approximately represented by a weighted combination of the direct estimate from the substate data and a regression estimate from the national model. The regression coefficients of the national model are estimated using data from all of the substate areas (i.e., borrowing strength), and the regression estimate for a particular substate area is obtained by applying the national model to the substate-specific predictor data. The regression estimate for the substate area is then combined with the direct estimate from the substate data in a weighted combination where the weights are obtained by minimizing the MSE (variance + squared bias) of the small area estimate.

$$\log[\pi_{aijk} / (1 - \pi_{aijk})] = x'_{aijk} \beta_a + \eta_{ai} + \nu_{aij},$$

where π_{aijk} is the probability of engaging in the behavior of interest (e.g., using marijuana in the past month) for person- k belonging to age group- a in substate region- j of state- i .

Let x_{aijk} denote a $p_a \times 1$ vector of the auxiliary (predictor) variables associated with age group- a (12 to 17, 18 to 25, 26 to 34, and 35 or older), and let β_a denote the associated vector of the regression parameters. The age group-specific vectors of the auxiliary variables are defined for every block group in the nation and also include person-level demographic variables, such as race/ethnicity and gender. The auxiliary variables include block group, census tract, county, and state-level data. These predictor variables include demographic and socioeconomic data from the American Community Survey (ACS), population projections obtained from Claritas,¹¹ food stamp participation rates from the U.S. Census Bureau, Uniform Crime Report (UCR) arrest totals from the Federal Bureau of Investigation (FBI), per capita income from the Bureau of Economic Analysis (BEA), unemployment rates from the Bureau of Labor Statistics (BLS), mortality rates from the National Center for Health Statistics (NCHS), treatment rates from the National Survey of Substance Abuse Treatment Services (N-SSATS), and Block Grant awards, cost of services, and total taxable resources from the Substance Abuse and Mental Health Services Administration (SAMHSA). For a complete list of predictors, refer to Section B of the "2017-2018 NSDUH Guide to State Tables and Summary of Small Area Estimation Methodology" at <https://www.samhsa.gov/data/>.

The vectors $\eta_i = (\eta_{1i}, \dots, \eta_{Ai})'$ and $\nu_{ij} = (\nu_{1ij}, \dots, \nu_{Aij})'$, defined as state- and substate-level random effects, respectively, are assumed to be mutually independent with $\eta_i \sim N_A(0, D_\eta)$ and $\nu_{ij} \sim N_A(0, D_\nu)$, where A is the total number of individual age groups modeled (generally, $A = 4$). For hierarchical Bayes (HB) estimation purposes, an improper uniform prior distribution¹² is assumed for β_a , and proper Wishart prior distributions are assumed for D_η^{-1} and D_ν^{-1} . The HB solution for π_{aijk} involves a series of complex Markov Chain Monte Carlo (MCMC) steps to generate values of the desired fixed and random effects from the underlying joint distribution. The basic process is described in Folsom et al. (1999), Shah, Barnwell, Folsom, and Vaish (2000), and Wright (2003). Once the required number of MCMC samples for the parameters of interest are generated and tested for convergence properties (see Raftery &

¹¹ Claritas is a market research firm headquartered in Ithaca, New York (see <https://www.claritas.com/>). When the Claritas data were obtained for the 2016-2018 NSDUHs, Claritas was affiliated with Nielsen Holdings, from which they became independent in January 2017.

¹² Improper noninformative priors were used for the fixed regression coefficients. Because NSDUH's sample size is very large (approximately 200,000 observations across 3 years), it can be said with certainty that the posterior distribution for the fixed regression coefficients will be proper. For the D_η and D_ν matrices, noninformative proper inverse Wishart prior distributions were used so that proper posterior distributions are guaranteed. Noninformative priors are used so that the data speak for themselves and inferences are unaffected by information external to the current data. For further information on Bayesian inference and analysis, see Box and Tiao (1992) and Gelman, Carlin, Stern, and Rubin (2003).

Lewis, 1992), the small area estimates for each age group × race/ethnicity × gender cell within a block group can be obtained. These block group-level small area estimates then can be aggregated using the appropriate population projections to form substate- and state-level small area estimates for the desired age group(s). These small area estimates then are benchmarked to the national design-based estimates (for details on exact benchmarking, see Section B.4 of the "2017-2018 NSDUH Guide to State Tables and Summary of Small Area Estimation Methodology" at <https://www.samhsa.gov/data/>).

Because the objective here was to produce small area estimates for substate regions, it was decided to ratio adjust the person-level sampling weights to match population projections available from Claritas at the substate × age group × gender level. Note that these population projections from Claritas were adjusted to match the NSDUH analysis weight at the state × age group × race × gender level, taking into account the NSDUH population, which is made up of U.S. civilian, noninstitutionalized individuals. These adjusted sampling weights are used in the estimation because they reflect the demography of the substate regions better than the unadjusted weights. This ratio adjustment was done at the substate region (406 regions) × age group (12 to 17, 18 to 25, 26 to 34, and 35 or older) × gender (male and female) level collectively over 3 years (2016, 2017, and 2018) of data.

The SAE methodology used here tends to borrow strength from both the national model and the state-level random effects. Estimates for substate regions with smaller sample sizes tend to be shrunk more toward the corresponding state and national prevalence estimates than substate regions with larger sample sizes. This methodology tends to cluster the small sample substate estimates around their state prevalence estimates. Thus, relatively high estimates for substate regions with small sample sizes tend to shrink toward the state prevalence estimates, while relatively low estimates tend to increase toward the state prevalence estimates. On the other hand, for substate regions with large sample sizes, the methodology produces estimates that are close to the weighted average of the sample data in that substate region. In addition, these estimates are design consistent so that, as the sample size for a substate region increases, the estimate approaches the corresponding design-based estimate.

B.2. Precision Validation of the Estimates

The primary purpose of producing substate estimates is to give policy officials and data users a better perspective on the range of prevalence estimates within and across states. Because the data were collected in a consistent manner by field interviewers who adhered to the same procedures and administered the same questions across all states and substate regions, the results are comparable within and across the 50 states and the District of Columbia.

The 95 percent Bayesian CI associated with each estimate defines the range that contains the true parameter value with 95 percent probability. For example, the estimated prevalence of past month use of marijuana in Region 1 in Alabama is 6.9 percent, and the 95 percent CI ranges from 5.5 to 8.7 percent.¹³ Therefore, the probability is 0.95 that the true value is within that range. The CI indicates the uncertainty due to both sampling variability and model bias. The key

¹³ See Table 3 in the "2016-2018 NSDUH Substate Region Estimates: Excel Tables and CSV Files" at <https://www.samhsa.gov/data/>.

assumption underlying the validity of the CIs is that the state- and substate-level error (or bias correction) terms in the models behave like random effects with zero means and common variance components.

A comparison of the standard errors (SEs) among substate regions with small ($n \leq 500$), medium ($500 < n \leq 1,000$), and large ($n > 1,000$) sample sizes for certain measures shows that the small area estimates behave in predictable ways. Regardless of whether the substate region is from a state with a larger annual sample size or one of the other states, the sizes of the CIs are very similar and are primarily a function of the sample size of the substate region and the prevalence estimate of the measure. Substate regions with large sample sizes had the smallest SEs. For past month use of alcohol, where the national prevalence for all individuals aged 12 or older was 51.2 percent (for 2016-2018), the average relative standard error (RSE)¹⁴ was about 4.8 percent, and the RSE for substate regions with a large sample size was about 3.1 percent. For substate regions with a medium sample size, the average RSE was 4.0 percent; for small sample sizes, the average RSE was 5.4 percent. For past month use of marijuana (with a national prevalence of 9.5 percent), the average RSE was 9.0 percent for substate regions with large samples. For medium sample sizes, the average RSE was 11.1 percent, and for small samples, the RSE was 14.0 percent, whereas the overall national average RSE was 12.7 percent. Substance use measures with lower prevalence rates, such as past year use of cocaine (2.0 percent nationally), displayed larger average RSEs. For substate regions with large sample sizes, the average RSE was 16.7 percent. For those with medium sample sizes, the average RSE was 20.2 percent, and for those with small sample sizes, the average RSE was 23.9 percent. The overall national RSE for past year use of cocaine was 22.2 percent.

¹⁴ The RSE of an estimate is the posterior SE divided by the estimate itself. Note that the RSEs have been calculated based on the unbenchmarked small area estimates.

Section C: Sample Sizes, Response Rates, and Population Estimates

Table C1. Sample Sizes, Weighted Screening and Interview Response Rates, and Population Estimates, by Substate Region, for Individuals Aged 12 or Older: 2016, 2017, and 2018 NSDUHs

State/Substate Region	Total Selected DUs	Total Eligible DUs	Total Completed Screeners	Weighted DU Screening Response Rate (Percentage)	Total Selected	Total Responded	Population Estimate	Weighted Interview Response Rate (Percentage)	Weighted Overall Response Rate (Percentage)
Total United States	650,597	550,871	415,128	75.40%	292,385	203,765	271,818,889	67.37%	50.80%
Northeast	145,171	123,765	87,875	69.26%	58,640	38,911	47,904,221	63.66%	44.09%
Midwest	147,436	125,898	97,864	77.07%	69,134	47,877	56,998,599	67.40%	51.94%
South	212,770	177,945	137,009	78.82%	95,345	68,489	102,502,191	70.00%	55.17%
West	145,220	123,263	92,380	72.88%	69,266	48,488	64,413,879	65.89%	48.02%
Alabama	9,021	7,311	6,031	82.62%	4,028	2,882	4,078,039	67.38%	55.67%
Region 1	2,508	2,101	1,788	84.99%	1,204	862	1,147,891	66.96%	56.90%
Region 2	2,650	2,189	1,733	79.46%	1,181	821	1,300,621	65.57%	52.10%
Region 3	1,694	1,262	1,061	84.21%	700	522	731,710	71.24%	59.99%
Region 4	2,169	1,759	1,449	82.52%	943	677	897,817	67.42%	55.63%
Alaska	9,998	7,534	5,757	76.00%	4,111	2,890	585,498	68.65%	52.17%
Anchorage	3,891	3,180	2,393	75.38%	1,728	1,264	238,843	68.81%	51.87%
Northern	2,176	1,582	1,176	74.51%	885	600	129,568	68.32%	50.90%
South Central	2,754	1,915	1,473	75.55%	1,007	704	155,337	69.53%	52.53%
Southeast	1,177	857	715	81.67%	491	322	61,749	66.55%	54.35%
Arizona	8,592	6,535	5,041	76.53%	3,626	2,713	5,853,899	73.36%	56.14%
Central	5,077	4,042	3,053	74.93%	2,335	1,684	3,503,579	69.80%	52.30%
North	1,292	866	686	78.59%	430	351	701,867	80.99%	63.66%
South	2,223	1,627	1,302	79.33%	861	678	1,648,453	79.24%	62.86%
South A	1,478	1,054	828	77.95%	469	379	897,920	81.74%	63.71%
South B	745	573	474	81.88%	392	299	750,533	75.68%	61.97%
Arkansas	8,511	7,028	5,889	84.03%	4,060	2,981	2,481,911	70.21%	58.99%
Catchment Area 1	1,204	1,068	842	79.29%	648	448	414,236	69.20%	54.87%
Catchment Area 2	917	744	619	83.87%	423	303	298,928	68.31%	57.29%
Catchment Area 3	1,105	918	796	86.62%	563	414	327,236	72.23%	62.57%
Catchment Area 4	862	738	628	85.40%	425	314	217,872	68.61%	58.59%
Catchment Area 5	1,359	1,124	971	86.48%	689	529	372,204	75.25%	65.08%
Catchment Area 6	566	440	382	86.91%	252	199	170,568	71.19%	61.87%
Catchment Area 7	687	509	466	91.98%	254	197	188,904	69.31%	63.75%
Catchment Area 8	1,811	1,487	1,185	79.73%	806	577	491,964	67.45%	53.77%

See notes at end of table.

(continued)

Table C1. Sample Sizes, Weighted Screening and Interview Response Rates, and Population Estimates, by Substate Region, for Individuals Aged 12 or Older: 2016, 2017, and 2018 (continued)

State/Substate Region	Total Selected DUs	Total Eligible DUs	Total Completed Screeners	Weighted DU Screening Response Rate (Percentage)	Total Selected	Total Responded	Population Estimate	Weighted Interview Response Rate (Percentage)	Weighted Overall Response Rate (Percentage)
California	40,179	36,793	24,848	67.60%	20,957	13,637	32,928,005	62.17%	42.03%
Region 1R	1,512	1,339	1,031	77.10%	742	564	816,595	75.78%	58.43%
Region 2R	1,204	998	697	69.36%	458	321	888,935	66.98%	46.46%
Region 3R (Sacramento)	1,873	1,704	1,185	69.31%	859	623	1,247,629	68.84%	47.71%
Region 4R	1,455	1,293	897	70.04%	546	353	1,138,140	61.19%	42.86%
Region 5R (San Francisco)	1,173	1,028	525	49.95%	352	217	779,719	60.67%	30.30%
Region 6 (Santa Clara)	2,025	1,844	1,330	72.24%	1,152	689	1,611,621	57.06%	41.22%
Region 7R (Contra Costa)	1,239	1,156	807	69.54%	603	404	949,025	66.12%	45.98%
Region 8R (Alameda)	1,568	1,453	1,021	70.91%	781	512	1,369,454	61.89%	43.88%
Region 9R (San Mateo)	925	852	636	75.06%	531	363	647,112	64.73%	48.59%
Region 10	1,224	1,154	617	54.01%	501	295	1,088,574	57.13%	30.85%
Region 11 (Los Angeles)	10,152	9,540	5,930	62.50%	5,300	3,170	8,573,274	57.18%	35.74%
LA SPA 1 and 5	1,358	1,256	743	59.70%	639	417	930,633	63.37%	37.84%
LA SPA 2	2,055	1,976	1,185	60.12%	1,071	618	1,892,712	54.70%	32.88%
LA SPA 3	1,697	1,608	1,028	64.21%	900	542	1,525,776	58.98%	37.87%
LA SPA 4	1,492	1,368	691	50.93%	542	294	1,003,214	51.53%	26.25%
LA SPA 6	826	766	579	75.72%	626	393	823,913	57.71%	43.69%
LA SPA 7	957	917	602	66.31%	650	368	1,078,359	53.90%	35.74%
LA SPA 8	1,767	1,649	1,102	67.01%	872	538	1,318,668	59.09%	39.60%
Region 12R	775	703	553	78.98%	418	294	725,161	68.76%	54.31%
Regions 13 and 19R	2,466	2,178	1,577	72.37%	1,513	1,024	2,109,431	63.75%	46.13%
Region 14 (Orange)	2,830	2,679	1,663	62.14%	1,524	949	2,728,413	57.44%	35.69%
Region 15R (Fresno)	1,046	974	730	74.94%	636	472	793,599	69.69%	52.23%
Region 16R (San Diego)	3,405	3,086	2,018	64.53%	1,690	1,103	2,790,454	62.82%	40.54%
Region 17R	1,538	1,383	1,059	76.90%	1,018	708	1,224,865	67.37%	51.81%
Region 18R (San Bernardino)	1,711	1,605	1,089	68.12%	1,073	678	1,762,209	60.97%	41.53%
Region 20R	922	854	713	83.68%	650	485	796,371	70.62%	59.09%
Region 21R	1,136	970	770	79.48%	610	413	887,425	68.82%	54.69%

See notes at end of table.

(continued)

Table C1. Sample Sizes, Weighted Screening and Interview Response Rates, and Population Estimates, by Substate Region, for Individuals Aged 12 or Older: 2016, 2017, and 2018 (continued)

State/Substate Region	Total Selected DUs	Total Eligible DUs	Total Completed Screeners	Weighted DU Screening Response Rate (Percentage)	Total Selected	Total Responded	Population Estimate	Weighted Interview Response Rate (Percentage)	Weighted Overall Response Rate (Percentage)
Colorado	8,217	6,949	5,488	78.84%	4,141	2,878	4,692,315	67.13%	52.92%
Region 1	1,426	1,061	841	78.34%	647	442	769,225	68.29%	53.50%
Region 2	611	551	437	79.42%	345	224	362,516	61.34%	48.72%
Region 3	1,730	1,620	1,314	80.85%	1,135	782	1,227,457	66.35%	53.65%
Region 4	589	440	364	82.64%	228	180	314,956	79.42%	65.64%
Region 5	1,400	1,255	923	75.05%	613	406	598,063	64.09%	48.09%
Region 6	1,451	1,165	898	77.14%	643	443	794,164	64.88%	50.05%
Region 7	1,010	857	711	83.13%	530	401	625,935	73.56%	61.15%
Connecticut	9,631	8,429	6,081	72.32%	4,514	2,930	3,060,928	63.40%	45.85%
Eastern	1,295	1,092	824	75.67%	529	373	369,670	69.70%	52.74%
North Central	2,842	2,490	1,760	70.95%	1,203	774	855,545	62.73%	44.51%
Northwestern	1,572	1,409	1,053	74.79%	842	539	527,560	62.85%	47.00%
South Central	2,117	1,795	1,395	77.91%	1,050	689	712,353	64.46%	50.22%
Southwest	1,805	1,643	1,049	63.87%	890	555	595,799	59.53%	38.02%
Delaware	10,654	8,752	6,315	72.24%	4,243	2,863	811,077	66.12%	47.77%
Kent	1,709	1,443	1,110	77.19%	752	534	147,471	66.57%	51.39%
New Castle (excluding Wilmington City)	5,308	4,877	3,383	69.35%	2,411	1,592	414,384	65.18%	45.21%
Sussex	3,036	1,944	1,474	75.56%	857	572	184,497	66.96%	50.60%
Wilmington City	601	488	348	71.68%	223	165	64,725	71.01%	50.90%
District of Columbia	19,999	17,150	10,683	59.89%	3,865	2,917	589,214	72.91%	43.67%
Ward 1	2,460	2,101	1,313	60.61%	439	322	73,570	68.93%	41.78%
Ward 2	2,663	2,336	1,039	43.63%	320	236	77,981	70.34%	30.69%
Ward 3	2,764	2,344	1,511	62.49%	560	425	74,852	73.72%	46.07%
Ward 4	2,087	1,900	1,317	68.00%	496	364	72,772	71.12%	48.36%
Ward 5	2,710	2,202	1,410	63.79%	508	383	75,100	72.79%	46.43%
Ward 6	2,829	2,385	1,489	57.54%	478	364	76,238	74.74%	43.01%
Ward 7	2,100	1,829	1,202	65.52%	482	357	69,356	72.33%	47.39%
Ward 8	2,386	2,053	1,402	68.52%	582	466	69,346	77.86%	53.35%

See notes at end of table.

(continued)

Table C1. Sample Sizes, Weighted Screening and Interview Response Rates, and Population Estimates, by Substate Region, for Individuals Aged 12 or Older: 2016, 2017, and 2018 (continued)

State/Substate Region	Total Selected DUs	Total Eligible DUs	Total Completed Screeners	Weighted DU Screening Response Rate (Percentage)	Total Selected	Total Responded	Population Estimate	Weighted Interview Response Rate (Percentage)	Weighted Overall Response Rate (Percentage)
Florida	34,793	28,711	21,463	74.53%	14,443	10,296	17,884,314	68.47%	51.03%
Broward (Circuit 17)	3,109	2,561	1,728	67.49%	1,188	822	1,655,538	65.73%	44.37%
Central I	4,668	4,070	3,193	78.69%	2,400	1,727	2,264,667	68.42%	53.84%
Circuit 9	2,644	2,382	1,886	79.44%	1,572	1,146	1,357,634	70.40%	55.92%
Circuit 18	2,024	1,688	1,307	77.78%	828	581	907,033	65.75%	51.14%
Central II	10,331	8,003	6,036	74.81%	3,881	2,844	5,011,862	69.97%	52.34%
Circuit 6	2,983	2,314	1,692	73.42%	998	708	1,303,238	67.84%	49.81%
Circuit 10	1,167	959	789	82.20%	539	434	671,254	78.58%	64.59%
Circuit 12	1,675	1,185	837	72.18%	431	316	716,007	72.57%	52.38%
Circuit 13 (Hillsborough)	2,256	2,031	1,557	76.61%	1,147	865	1,193,806	72.87%	55.82%
Circuit 20	2,250	1,514	1,161	72.86%	766	521	1,127,558	63.09%	45.97%
Northeast	6,678	5,603	4,303	76.42%	2,543	1,749	3,320,978	66.86%	51.10%
Circuit 4	2,044	1,781	1,378	77.35%	867	599	1,023,112	66.15%	51.16%
Circuit 5	2,028	1,641	1,276	77.06%	684	471	997,885	69.30%	53.40%
Circuit 7	1,675	1,396	1,035	73.33%	589	388	815,433	60.92%	44.67%
Circuit 8 plus Columbia, Dixie, Hamilton, Lafayette, and Suwannee	931	785	614	78.42%	403	291	484,548	73.31%	57.49%
Northwest	2,657	2,118	1,737	82.01%	1,140	846	1,316,227	71.88%	58.94%
Circuit 1	1,164	987	801	81.12%	504	369	646,967	70.80%	57.44%
Circuit 2 plus Madison and Taylor	936	702	566	80.56%	383	289	399,662	71.57%	57.66%
Circuit 14	557	429	370	86.26%	253	188	269,597	74.35%	64.13%
South (Circuits 11 and 16)	4,172	3,683	2,578	69.60%	2,020	1,411	2,489,580	68.59%	47.73%
Southeast	3,178	2,673	1,888	70.77%	1,271	897	1,825,463	67.38%	47.69%
Circuit 15 (Palm Beach)	2,139	1,785	1,213	68.22%	925	646	1,255,101	64.48%	43.99%
Circuit 19	1,039	888	675	75.69%	346	251	570,362	73.82%	55.88%

See notes at end of table.

(continued)

Table C1. Sample Sizes, Weighted Screening and Interview Response Rates, and Population Estimates, by Substate Region, for Individuals Aged 12 or Older: 2016, 2017, and 2018 (continued)

State/Substate Region	Total Selected DUs	Total Eligible DUs	Total Completed Screeners	Weighted DU Screening Response Rate (Percentage)	Total Selected	Total Responded	Population Estimate	Weighted Interview Response Rate (Percentage)	Weighted Overall Response Rate (Percentage)
Georgia	12,187	10,482	7,990	76.25%	6,100	4,483	8,576,228	70.32%	53.62%
Region 1	3,072	2,663	2,161	80.67%	1,672	1,161	2,206,077	66.49%	53.64%
Region 2	1,557	1,308	992	76.75%	792	621	1,088,254	77.25%	59.29%
Region 3	3,746	3,332	2,334	69.99%	1,859	1,361	2,583,337	69.34%	48.53%
Region 4	630	482	427	88.68%	271	206	525,805	72.44%	64.24%
Region 5	1,569	1,300	1,019	78.82%	724	518	975,715	68.35%	53.88%
Region 6	1,613	1,397	1,057	75.61%	782	616	1,197,041	75.87%	57.37%
Hawaii	11,622	9,834	6,823	68.93%	4,430	3,020	1,160,319	65.40%	45.08%
Hawaii Island	1,670	1,352	1,100	82.12%	631	437	154,486	67.58%	55.49%
Honolulu	7,726	6,583	4,224	63.68%	2,893	1,982	818,512	64.97%	41.37%
Kauai	755	650	540	83.00%	309	207	56,197	64.28%	53.35%
Maui	1,471	1,249	959	76.75%	597	394	131,124	65.75%	50.46%
Idaho	7,516	6,278	5,201	82.76%	4,020	3,012	1,408,573	73.92%	61.18%
Region 1	1,148	853	637	75.23%	438	276	197,481	62.06%	46.69%
Region 2	592	527	403	76.04%	291	222	98,503	79.75%	60.65%
Region 3	1,066	976	816	82.99%	690	543	222,809	77.94%	64.68%
Region 4	2,094	1,850	1,513	81.92%	1,131	842	408,837	75.16%	61.57%
Region 5	951	722	667	92.22%	504	425	161,117	81.98%	75.60%
Region 6	466	347	301	87.07%	225	159	104,021	65.12%	56.70%
Region 7	1,199	1,003	864	86.08%	741	545	215,805	71.44%	61.49%

See notes at end of table.

(continued)

Table C1. Sample Sizes, Weighted Screening and Interview Response Rates, and Population Estimates, by Substate Region, for Individuals Aged 12 or Older: 2016, 2017, and 2018 (continued)

State/Substate Region	Total Selected DUs	Total Eligible DUs	Total Completed Screeners	Weighted DU Screening Response Rate (Percentage)	Total Selected	Total Responded	Population Estimate	Weighted Interview Response Rate (Percentage)	Weighted Overall Response Rate (Percentage)
Illinois	23,511	20,581	13,695	66.80%	11,404	7,171	10,705,375	60.65%	40.51%
Region 1 (Cook)	9,894	8,727	4,544	52.45%	3,961	2,353	4,371,358	58.33%	30.59%
Region 1.1 (Far North Side)	863	789	381	46.70%	314	196	400,289	57.53%	26.87%
Region 1.2 (Northwest Side)	585	535	308	58.60%	305	158	225,528	49.45%	28.98%
Region 1.3 (North Central Side)	1,114	979	142	15.27%	128	75	405,543	60.33%	9.22%
Region 1.4 (West Side)	1,015	834	381	45.96%	341	198	390,700	59.53%	27.36%
Region 1.5 (South Side)	1,700	1,426	636	45.02%	534	327	548,751	62.67%	28.22%
Region 1.6 (Southwest Side)	452	348	196	56.07%	212	116	301,632	54.90%	30.78%
Region 1.7 (Suburban Cook)	4,165	3,816	2,500	65.64%	2,127	1,283	2,098,916	57.94%	38.04%
Region 2	6,707	6,131	4,443	72.73%	3,992	2,610	3,396,154	62.96%	45.79%
Region 2a (DuPage)	1,676	1,516	1,021	67.41%	872	553	785,557	62.64%	42.22%
Region 2b	3,265	3,014	2,245	75.01%	2,124	1,358	1,825,754	60.86%	45.65%
Region 2c (Winnebago)	453	410	307	75.52%	226	162	236,371	67.70%	51.12%
Region 2d	1,313	1,191	870	72.99%	770	537	548,471	68.02%	49.65%
Region 3	3,048	2,490	2,091	84.32%	1,594	1,013	1,199,804	60.70%	51.18%
Region 3a (Champaign)	475	379	289	76.48%	236	161	171,873	65.53%	50.12%
Region 3b	2,573	2,111	1,802	85.76%	1,358	852	1,027,931	59.92%	51.39%
Region 4	1,550	1,313	1,093	83.21%	786	522	747,304	65.94%	54.87%
Region 4a (Sangamon)	440	379	317	83.94%	245	162	167,953	66.30%	55.65%
Region 4b	1,110	934	776	82.94%	541	360	579,351	65.79%	54.57%
Region 5	2,312	1,920	1,524	79.42%	1,071	673	990,756	58.73%	46.64%
Region 5a	1,055	904	736	81.56%	535	366	441,546	65.33%	53.28%
Region 5b	1,257	1,016	788	77.49%	536	307	549,210	52.85%	40.96%
Indiana	8,839	7,528	5,584	74.55%	4,065	2,871	5,535,704	69.03%	51.46%
Central	2,571	2,300	1,615	70.36%	1,227	892	1,484,631	72.33%	50.90%
East	587	470	377	80.73%	305	214	459,110	72.54%	58.56%
North Central	1,364	1,139	861	75.48%	574	372	772,260	59.76%	45.11%
Northeast	815	734	561	76.61%	438	282	546,041	67.27%	51.53%
Northwest	874	766	562	74.21%	418	293	624,471	66.56%	49.39%
Southeast	933	795	650	82.03%	470	348	593,268	72.60%	59.55%
Southwest	757	637	465	73.31%	282	203	431,125	71.21%	52.21%
West	938	687	493	73.17%	351	267	624,799	68.60%	50.20%

See notes at end of table.

(continued)

Table C1. Sample Sizes, Weighted Screening and Interview Response Rates, and Population Estimates, by Substate Region, for Individuals Aged 12 or Older: 2016, 2017, and 2018 (continued)

State/Substate Region	Total Selected DUs	Total Eligible DUs	Total Completed Screeners	Weighted DU Screening Response Rate (Percentage)	Total Selected	Total Responded	Population Estimate	Weighted Interview Response Rate (Percentage)	Weighted Overall Response Rate (Percentage)
Iowa	9,300	7,893	6,460	82.02%	4,295	2,958	2,620,272	68.53%	56.21%
Central	1,818	1,580	1,250	79.37%	898	607	480,987	66.98%	53.16%
North Central	1,142	990	813	81.98%	515	371	287,189	71.00%	58.20%
Northeast	2,142	1,801	1,480	82.42%	977	661	636,592	67.23%	55.41%
Northwest	1,408	1,137	990	87.27%	625	446	394,291	71.59%	62.47%
Southeast	2,049	1,747	1,381	79.28%	941	611	556,745	64.24%	50.93%
Southwest	741	638	546	85.95%	339	262	264,467	77.94%	66.99%
Kansas	7,779	6,677	5,379	80.61%	4,083	2,948	2,375,700	70.45%	56.79%
Northeast	3,723	3,359	2,510	74.82%	2,021	1,461	1,194,749	70.10%	52.45%
Northwest and North Central	792	670	581	86.38%	373	259	187,830	68.14%	58.86%
South Central	2,184	1,851	1,580	85.45%	1,159	853	682,128	72.98%	62.36%
Southeast	673	453	396	87.05%	261	157	173,781	58.96%	51.33%
Southwest	407	344	312	90.68%	269	218	137,212	77.91%	70.65%
Kentucky	8,617	7,101	5,720	80.45%	4,309	2,901	3,704,174	64.64%	52.00%
Adanta, Cumberland River, and Lifeskills	1,369	1,061	876	82.47%	698	439	618,455	60.62%	50.00%
Bluegrass, Comprehend, and North Key	2,329	1,957	1,557	79.51%	1,308	861	1,094,193	64.30%	51.12%
Centerstone	2,137	1,841	1,517	82.36%	1,094	839	824,704	73.78%	60.77%
Communicare and River Valley	869	727	609	83.59%	435	277	414,396	59.34%	49.60%
Four Rivers and Pennyroyal	878	741	581	77.81%	389	242	344,348	60.43%	47.02%
Kentucky River, Mountain, and Pathways	1,035	774	580	75.18%	385	243	408,078	58.62%	44.07%

See notes at end of table.

(continued)

Table C1. Sample Sizes, Weighted Screening and Interview Response Rates, and Population Estimates, by Substate Region, for Individuals Aged 12 or Older: 2016, 2017, and 2018 (continued)

State/Substate Region	Total Selected DUs	Total Eligible DUs	Total Completed Screeners	Weighted DU Screening Response Rate (Percentage)	Total Selected	Total Responded	Population Estimate	Weighted Interview Response Rate (Percentage)	Weighted Overall Response Rate (Percentage)
Louisiana	8,605	6,990	5,825	83.40%	4,037	2,931	3,829,776	70.64%	58.91%
Regions 1 and 10	1,654	1,408	1,137	80.66%	780	542	757,676	68.88%	55.56%
Region 1	849	680	564	82.99%	391	295	404,960	76.10%	63.16%
Region 10 (Jefferson)	805	728	573	78.50%	389	247	352,716	62.12%	48.77%
Regions 2 and 9	2,239	1,802	1,508	83.84%	1,052	726	1,017,812	68.10%	57.09%
Region 3	719	605	524	86.52%	380	287	323,962	74.58%	64.53%
Regions 4, 5, and 6	2,266	1,812	1,483	82.07%	980	695	979,418	68.52%	56.23%
Regions 7 and 8	1,727	1,363	1,173	86.02%	845	681	750,908	76.81%	66.07%
Maine	11,239	8,626	7,085	82.29%	4,219	2,944	1,161,401	69.83%	57.46%
Aroostook/Downeast	1,423	980	863	88.28%	459	361	138,517	77.71%	68.60%
Aroostook	595	434	384	88.78%	205	174	61,720	83.25%	73.91%
Downeast	828	546	479	87.87%	254	187	76,796	73.01%	64.15%
Central	1,229	1,027	831	81.46%	519	407	150,718	77.40%	63.04%
Cumberland	2,356	1,889	1,481	78.75%	929	578	250,290	62.88%	49.52%
Midcoast	1,498	1,117	929	83.41%	495	330	128,482	68.63%	57.24%
Penquis	1,455	1,158	1,032	89.26%	572	417	149,381	74.56%	66.55%
Western	1,816	1,251	1,000	79.63%	647	457	167,603	70.26%	55.95%
York	1,462	1,204	949	78.82%	598	394	176,410	64.85%	51.11%
Maryland	8,802	7,835	5,517	70.52%	3,960	2,913	5,048,978	72.14%	50.88%
Anne Arundel	643	594	391	67.00%	273	202	476,219	74.48%	49.90%
Baltimore City	1,346	1,091	744	69.27%	521	423	514,101	78.62%	54.46%
Baltimore County	979	877	588	67.41%	368	249	700,996	69.89%	47.11%
Montgomery	1,388	1,304	931	70.36%	712	522	875,896	72.19%	50.79%
North Central	752	707	541	76.90%	386	290	408,428	74.58%	57.35%
Northeast	524	437	306	69.99%	239	158	421,097	62.66%	43.85%
Prince George's	1,438	1,315	831	63.24%	625	457	740,816	70.67%	44.69%
South	983	861	658	76.55%	448	322	485,604	70.26%	53.78%
West	749	649	527	81.17%	388	290	425,821	72.96%	59.22%

See notes at end of table.

(continued)

Table C1. Sample Sizes, Weighted Screening and Interview Response Rates, and Population Estimates, by Substate Region, for Individuals Aged 12 or Older: 2016, 2017, and 2018 (continued)

State/Substate Region	Total Selected DUs	Total Eligible DUs	Total Completed Screeners	Weighted DU Screening Response Rate (Percentage)	Total Selected	Total Responded	Population Estimate	Weighted Interview Response Rate (Percentage)	Weighted Overall Response Rate (Percentage)
Massachusetts	10,868	9,729	6,880	70.50%	4,800	2,937	5,899,409	60.64%	42.75%
Boston	1,411	1,277	718	56.00%	501	328	751,419	66.28%	37.12%
Central	1,334	1,228	877	70.99%	610	366	757,376	58.98%	41.88%
Metrowest	2,723	2,523	1,830	72.41%	1,269	752	1,374,715	57.94%	41.96%
Northeast	1,938	1,810	1,303	71.78%	942	597	1,165,860	61.08%	43.85%
Southeast	2,088	1,711	1,314	76.26%	846	492	1,116,919	59.21%	45.15%
Western	1,374	1,180	838	71.16%	632	402	733,121	65.12%	46.34%
Michigan	22,382	18,798	14,917	79.34%	10,157	7,253	8,446,882	68.99%	54.74%
Region 1	728	521	427	82.49%	238	182	276,512	75.89%	62.60%
Region 2	1,598	1,003	852	84.34%	527	357	441,769	71.02%	59.90%
Region 3	2,375	2,125	1,764	82.97%	1,407	1,050	1,048,655	72.20%	59.91%
Region 4	2,163	1,737	1,475	84.44%	955	730	713,780	71.77%	60.61%
Region 5	4,038	3,271	2,699	82.55%	1,777	1,300	1,415,351	70.77%	58.42%
Region 6	1,644	1,469	1,181	80.45%	795	629	689,782	76.93%	61.89%
Region 7	3,854	3,219	2,225	69.36%	1,584	1,079	1,461,192	65.63%	45.52%
Region 8	2,584	2,401	1,863	77.50%	1,286	862	1,076,728	66.07%	51.21%
Region 9	1,970	1,835	1,364	74.18%	890	570	731,786	61.71%	45.77%
Region 10	1,428	1,217	1,067	87.76%	698	494	591,326	66.62%	58.46%
Minnesota	7,998	6,958	5,459	78.25%	4,046	2,858	4,650,527	69.98%	54.76%
Regions 1 and 2	1,099	743	612	82.02%	406	272	458,184	70.04%	57.45%
Region 1	552	361	302	83.49%	218	145	173,704	69.87%	58.34%
Region 2	547	382	310	80.58%	188	127	284,480	70.23%	56.60%
Regions 3 and 4	1,311	1,084	868	79.78%	645	473	786,680	71.09%	56.72%
Region 3	400	277	230	82.78%	164	113	273,652	63.73%	52.75%
Region 4	911	807	638	78.86%	481	360	513,028	73.08%	57.63%
Regions 5 and 6	1,428	1,262	1,061	83.54%	787	521	851,893	63.03%	52.66%
Region 5	642	557	473	85.02%	375	253	428,834	65.25%	55.48%
Region 6	786	705	588	82.38%	412	268	423,059	61.02%	50.27%
Region 7	4,160	3,869	2,918	75.42%	2,208	1,592	2,553,770	71.88%	54.22%
Region 7A (Hennepin)	1,773	1,649	1,207	73.28%	900	667	1,048,506	73.27%	53.70%
Region 7B (Ramsey)	867	777	617	79.81%	469	324	457,197	68.81%	54.92%
Region 7C	1,520	1,443	1,094	75.51%	839	601	1,048,068	72.03%	54.39%

See notes at end of table.

(continued)

Table C1. Sample Sizes, Weighted Screening and Interview Response Rates, and Population Estimates, by Substate Region, for Individuals Aged 12 or Older: 2016, 2017, and 2018 (continued)

State/Substate Region	Total Selected DUs	Total Eligible DUs	Total Completed Screeners	Weighted DU Screening Response Rate (Percentage)	Total Selected	Total Responded	Population Estimate	Weighted Interview Response Rate (Percentage)	Weighted Overall Response Rate (Percentage)
Mississippi	7,365	6,116	5,121	83.68%	3,951	2,850	2,455,673	69.12%	57.84%
Region 1	1,571	1,361	1,198	88.01%	967	710	558,689	72.16%	63.51%
Region 2	879	706	599	84.90%	450	371	295,156	81.21%	68.95%
Region 3	1,154	957	772	80.39%	615	439	340,561	66.50%	53.46%
Region 4	1,467	1,283	987	76.98%	778	524	461,407	62.67%	48.24%
Region 5	378	273	233	84.97%	158	117	146,442	68.14%	57.90%
Region 6	730	572	530	92.58%	391	291	254,180	70.18%	64.97%
Region 7	1,186	964	802	83.09%	592	398	399,236	65.11%	54.10%
Missouri	8,603	7,280	6,080	83.65%	4,069	2,907	5,089,218	69.49%	58.13%
Central	1,262	1,042	914	87.64%	681	509	691,338	73.09%	64.05%
Eastern	2,994	2,615	2,122	81.48%	1,381	976	1,767,821	67.19%	54.74%
Eastern (St. Louis City and County)	1,784	1,511	1,181	78.66%	760	547	1,107,128	67.83%	53.35%
Eastern (excluding St. Louis)	1,210	1,104	941	85.29%	621	429	660,693	66.40%	56.63%
Northwest	2,279	1,950	1,624	83.06%	1,054	728	1,235,245	67.83%	56.33%
Northwest (Jackson)	1,205	1,046	848	80.97%	552	394	562,721	69.62%	56.38%
Northwest (excluding Jackson)	1,074	904	776	85.46%	502	334	672,524	65.63%	56.09%
Southeast	811	630	563	89.45%	379	297	600,117	76.72%	68.63%
Southwest	1,257	1,043	857	82.67%	574	397	794,697	69.62%	57.55%
Montana	10,613	8,632	7,110	82.76%	4,225	2,961	885,203	70.67%	58.49%
Region 1	770	556	474	85.95%	271	193	70,119	70.34%	60.46%
Region 2	1,455	1,207	884	74.70%	511	356	125,221	67.71%	50.58%
Region 3	2,159	1,877	1,549	82.54%	958	679	183,877	72.53%	59.87%
Region 4	2,931	2,400	1,969	82.37%	1,250	848	235,903	69.52%	57.26%
Region 5	3,298	2,592	2,234	86.39%	1,235	885	270,082	71.74%	61.98%

See notes at end of table.

(continued)

Table C1. Sample Sizes, Weighted Screening and Interview Response Rates, and Population Estimates, by Substate Region, for Individuals Aged 12 or Older: 2016, 2017, and 2018 (continued)

State/Substate Region	Total Selected DUs	Total Eligible DUs	Total Completed Screeners	Weighted DU Screening Response Rate (Percentage)	Total Selected	Total Responded	Population Estimate	Weighted Interview Response Rate (Percentage)	Weighted Overall Response Rate (Percentage)
Nebraska	8,061	7,082	5,549	78.53%	4,090	2,891	1,569,575	70.11%	55.05%
Regions 1 and 2	732	606	522	85.82%	367	261	156,846	68.20%	58.53%
Region 1	323	255	227	89.00%	159	117	73,686	69.15%	61.55%
Region 2	409	351	295	83.67%	208	144	83,160	67.54%	56.51%
Region 3	1,114	956	776	81.46%	554	399	191,358	73.96%	60.24%
Region 4	913	791	674	85.53%	459	321	171,049	67.03%	57.33%
Region 5	1,812	1,614	1,301	80.88%	965	661	388,103	69.52%	56.22%
Region 6	3,490	3,115	2,276	73.20%	1,745	1,249	662,219	70.41%	51.54%
Nevada	7,743	6,965	4,798	67.92%	4,056	2,910	2,496,940	69.25%	47.04%
Clark – Region 1	5,374	4,872	3,305	68.06%	2,922	2,116	1,804,158	69.44%	47.26%
Region 3	1,021	871	638	73.14%	447	297	304,901	66.33%	48.51%
Capital District	454	429	309	71.96%	231	158	144,728	65.01%	46.78%
Rural/Frontier	567	442	329	74.17%	216	139	160,173	67.78%	50.28%
Washoe – Region 2	1,348	1,222	855	64.39%	687	497	387,880	70.55%	45.43%
New Hampshire	10,413	8,736	6,703	76.29%	4,229	2,895	1,164,925	67.43%	51.44%
Central	3,068	2,605	2,068	79.21%	1,331	949	330,730	70.00%	55.45%
Central 1	1,582	1,270	1,018	79.85%	693	512	164,197	74.11%	59.18%
Central 2	1,486	1,335	1,050	78.61%	638	437	166,533	65.53%	51.51%
Northern	1,670	1,142	947	80.81%	528	397	149,680	74.11%	59.89%
Southern	5,675	4,989	3,688	73.63%	2,370	1,549	684,515	64.49%	47.49%
Southern 1 (Rockingham)	2,125	1,908	1,408	74.28%	875	562	264,688	63.92%	47.48%
Southern 2	3,550	3,081	2,280	73.24%	1,495	987	419,827	64.84%	47.49%
New Jersey	14,598	12,947	9,065	69.10%	6,955	4,503	7,566,601	62.42%	43.13%
Central	3,178	2,887	2,013	68.55%	1,438	912	1,733,735	62.31%	42.71%
Metropolitan	3,179	2,878	2,019	70.22%	1,675	1,103	1,828,664	61.72%	43.34%
Northern	5,041	4,488	3,135	67.13%	2,366	1,506	2,441,191	60.91%	40.88%
Southern	3,200	2,694	1,898	71.83%	1,476	982	1,563,011	65.72%	47.21%

See notes at end of table.

(continued)

Table C1. Sample Sizes, Weighted Screening and Interview Response Rates, and Population Estimates, by Substate Region, for Individuals Aged 12 or Older: 2016, 2017, and 2018 (continued)

State/Substate Region	Total Selected DUs	Total Eligible DUs	Total Completed Screeners	Weighted DU Screening Response Rate (Percentage)	Total Selected	Total Responded	Population Estimate	Weighted Interview Response Rate (Percentage)	Weighted Overall Response Rate (Percentage)
New Mexico	8,842	6,311	5,264	83.50%	3,602	2,843	1,731,228	77.02%	64.31%
Region 1	1,420	1,079	910	84.59%	663	512	358,594	73.72%	62.36%
Region 2	1,301	848	689	81.60%	402	339	248,368	83.41%	68.06%
Region 3 (Bernalillo)	2,823	2,235	1,773	79.44%	1,204	937	564,892	75.76%	60.18%
Region 4	1,194	888	755	84.97%	587	458	215,465	76.55%	65.05%
Region 5	2,104	1,261	1,137	90.02%	746	597	343,909	78.19%	70.39%
Region 5a	1,229	594	533	89.85%	309	258	161,861	84.51%	75.93%
Region 5b (Dona Ana)	875	667	604	90.19%	437	339	182,048	72.61%	65.49%
New York	40,854	35,546	21,781	60.74%	15,337	9,853	16,736,238	61.01%	37.06%
Region 1: Long Island	4,974	4,471	2,879	64.42%	2,296	1,296	2,434,284	53.21%	34.28%
Region 2: New York City	17,050	15,315	8,035	51.39%	6,021	3,531	7,233,272	54.72%	28.12%
Region 2A: Bronx	2,420	2,237	1,447	64.48%	1,170	845	1,174,724	70.26%	45.30%
Region 2B: Kings	5,284	4,685	2,720	58.41%	1,991	1,086	2,193,829	51.28%	29.96%
Region 2C: New York	4,289	3,815	1,441	35.81%	993	574	1,472,592	53.74%	19.24%
Region 2D: Queens	4,112	3,720	1,877	50.30%	1,460	793	1,990,858	52.22%	26.26%
Region 2E: Richmond	945	858	550	64.16%	407	233	401,270	53.22%	34.14%
Region 3: Mid-Hudson	4,560	3,911	2,370	60.44%	1,708	1,106	1,957,266	62.94%	38.04%
Region 4: Capital Region	2,181	1,875	1,279	68.94%	835	575	807,673	71.84%	49.53%
Region 5: Mohawk Valley	359	307	220	71.91%	148	92	218,663	60.15%	43.25%
Region 6: North Country	873	579	471	80.52%	220	174	260,857	79.51%	64.02%
Region 7: Tug Hill Seaway	546	414	344	83.05%	217	169	213,289	73.58%	61.10%
Region 8: Central	2,438	2,090	1,383	66.37%	926	709	859,336	75.81%	50.31%
Region 9: Southern Tier	1,344	992	760	76.68%	430	338	377,220	78.36%	60.08%
Region 10: Finger Lakes	3,279	2,858	2,043	71.43%	1,296	941	1,079,246	70.54%	50.39%
Region 11: Western	3,250	2,734	1,997	73.21%	1,240	922	1,295,132	72.10%	52.78%

See notes at end of table.

(continued)

Table C1. Sample Sizes, Weighted Screening and Interview Response Rates, and Population Estimates, by Substate Region, for Individuals Aged 12 or Older: 2016, 2017, and 2018 (continued)

State/Substate Region	Total Selected DUs	Total Eligible DUs	Total Completed Screeners	Weighted DU Screening Response Rate (Percentage)	Total Selected	Total Responded	Population Estimate	Weighted Interview Response Rate (Percentage)	Weighted Overall Response Rate (Percentage)
North Carolina	12,934	10,987	8,614	78.32%	6,240	4,450	8,550,036	69.83%	54.69%
Alliance Behavioral Healthcare 1	973	813	664	81.81%	512	390	680,684	75.08%	61.43%
Alliance Behavioral Healthcare 2	1,127	1,047	749	71.52%	618	461	860,408	72.64%	51.95%
Cardinal Innovations Healthcare Solutions 1	1,029	926	716	77.20%	540	334	648,460	60.54%	46.74%
Cardinal Innovations Healthcare Solutions 2	698	596	474	79.35%	342	261	580,879	76.12%	60.40%
Cardinal Innovations Healthcare Solutions 3	1,101	967	763	78.82%	574	367	858,518	63.46%	50.02%
CenterPoint Human Services	833	678	530	78.00%	349	261	469,591	75.87%	59.18%
Eastpointe	1,173	1,023	797	78.11%	545	412	703,678	73.57%	57.46%
Partners Behavioral Health Management	1,144	1,011	819	81.04%	575	403	782,232	69.43%	56.27%
Sandhills Center 1	763	654	534	81.65%	412	305	494,208	73.01%	59.61%
Sandhills Center 2	680	606	469	77.21%	351	238	446,482	65.61%	50.66%
Smoky Mountain Center 1	1,223	918	732	79.49%	448	309	464,578	68.10%	54.13%
Smoky Mountain Center 2	526	442	358	80.86%	225	134	467,841	58.75%	47.51%
Trillium Health Resources 1	909	703	549	77.72%	419	331	534,374	72.66%	56.47%
Trillium Health Resources 2	755	603	460	76.22%	330	244	558,102	71.95%	54.84%
North Dakota	10,464	8,421	7,173	85.37%	4,240	2,906	619,356	67.73%	57.82%
Badlands and West Central	2,709	2,269	2,007	88.57%	1,209	804	166,597	64.73%	57.33%
Badlands	617	467	410	87.28%	250	168	38,048	64.67%	56.44%
West Central	2,092	1,802	1,597	88.92%	959	636	128,549	64.75%	57.58%
Lake Region	535	447	387	87.00%	201	149	34,533	72.53%	63.10%
North Central	1,302	959	778	81.25%	462	289	88,430	63.13%	51.29%
Northeast	1,177	906	789	87.73%	462	344	76,116	72.98%	64.03%
Northwest	947	608	532	87.19%	343	206	34,920	61.39%	53.53%
South Central	1,029	769	648	84.27%	325	240	48,024	73.71%	62.12%
Southeast	2,765	2,463	2,032	82.65%	1,238	874	170,735	69.53%	57.47%

See notes at end of table.

(continued)

Table C1. Sample Sizes, Weighted Screening and Interview Response Rates, and Population Estimates, by Substate Region, for Individuals Aged 12 or Older: 2016, 2017, and 2018 (continued)

State/Substate Region	Total Selected DUs	Total Eligible DUs	Total Completed Screeners	Weighted DU Screening Response Rate (Percentage)	Total Selected	Total Responded	Population Estimate	Weighted Interview Response Rate (Percentage)	Weighted Overall Response Rate (Percentage)
Ohio	22,189	19,391	14,921	77.05%	10,501	7,260	9,780,581	67.05%	51.66%
Boards 2, 46, 55, and 68	614	549	435	79.38%	334	228	428,829	63.16%	50.14%
Boards 3, 52, and 85	772	681	564	82.71%	416	277	323,279	66.28%	54.82%
Boards 4 and 78	886	750	634	84.77%	405	305	261,280	71.25%	60.40%
Boards 5 and 60	708	605	492	81.71%	349	254	288,142	73.47%	60.03%
Boards 7, 15, 41, 79, and 84	687	594	482	80.83%	303	190	389,995	62.69%	50.67%
Boards 8, 13, and 83	716	672	499	74.20%	370	220	429,017	60.63%	44.99%
Board 9 (Butler)	723	672	530	78.66%	378	236	314,512	57.73%	45.41%
Board 12	733	610	387	63.37%	302	190	295,265	62.51%	39.61%
Boards 18 and 47	2,908	2,508	1,842	73.51%	1,258	898	1,314,788	69.06%	50.77%
Boards 20, 32, 54, and 69	826	737	659	89.54%	480	337	286,037	68.49%	61.32%
Boards 21, 39, 51, 70, and 80	1,064	900	736	81.54%	504	359	474,034	67.48%	55.02%
Boards 22, 74, and 87	851	713	613	85.99%	456	357	329,520	75.57%	64.98%
Boards 23 and 45	621	576	455	79.12%	333	217	321,414	64.75%	51.23%
Board 25 (Franklin)	2,425	2,156	1,605	74.71%	1,224	851	1,029,412	68.91%	51.48%
Boards 27, 71, and 73	1,108	913	703	77.21%	493	346	415,376	67.11%	51.82%
Boards 28, 43, and 67	790	741	605	81.57%	385	234	417,780	55.39%	45.18%
Board 31 (Hamilton)	1,739	1,509	1,115	73.93%	761	519	663,926	65.62%	48.51%
Board 48 (Lucas)	737	597	434	73.18%	304	229	363,344	74.35%	54.41%
Boards 50 and 76	1,167	1,072	864	80.75%	554	397	517,791	69.23%	55.90%
Board 57 (Montgomery)	1,134	958	635	66.58%	435	306	461,282	68.80%	45.81%
Board 77 (Summit)	980	878	632	72.07%	457	310	455,558	66.96%	48.26%
Oklahoma	8,737	7,294	5,708	78.19%	4,227	2,867	3,210,733	66.96%	52.35%
Central	1,066	953	739	77.67%	578	375	415,685	63.35%	49.21%
East Central	780	637	509	80.98%	381	264	365,733	65.66%	53.17%
Northeast	1,374	1,092	911	82.90%	618	420	404,063	66.69%	55.29%
Northwest and Southwest	1,184	913	784	86.33%	562	381	453,510	65.13%	56.23%
Oklahoma County	1,775	1,532	1,102	71.33%	760	512	626,766	67.82%	48.37%
Southeast	1,199	954	781	82.02%	633	460	430,643	73.86%	60.58%
Tulsa County	1,359	1,213	882	73.14%	695	455	514,333	65.10%	47.61%

See notes at end of table.

(continued)

Table C1. Sample Sizes, Weighted Screening and Interview Response Rates, and Population Estimates, by Substate Region, for Individuals Aged 12 or Older: 2016, 2017, and 2018 (continued)

State/Substate Region	Total Selected DUs	Total Eligible DUs	Total Completed Screeners	Weighted DU Screening Response Rate (Percentage)	Total Selected	Total Responded	Population Estimate	Weighted Interview Response Rate (Percentage)	Weighted Overall Response Rate (Percentage)
Oregon	10,203	8,949	6,989	78.17%	4,335	2,985	3,527,514	68.11%	53.24%
Region 1 (Multnomah)	1,999	1,821	1,309	72.50%	818	573	700,007	68.67%	49.79%
Region 2	2,385	2,143	1,701	79.47%	1,116	795	842,636	71.51%	56.83%
Region 3	3,033	2,629	2,032	77.01%	1,340	896	1,092,479	67.27%	51.81%
Region 4	1,476	1,279	1,046	81.71%	539	357	493,891	62.16%	50.79%
Region 5 (Central)	489	417	345	83.00%	173	114	183,774	63.20%	52.46%
Region 6 (Eastern)	821	660	556	84.37%	349	250	214,727	72.14%	60.86%
Pennsylvania	24,845	21,168	16,344	77.37%	10,170	7,135	10,861,105	68.67%	53.12%
Region 1 (Allegheny)	2,846	2,473	1,852	74.93%	1,078	737	1,059,655	68.63%	51.42%
Regions 3, 8, 9, and 51	1,466	1,213	995	82.08%	553	397	596,374	71.55%	58.73%
Regions 4, 11, 37, and 49	1,766	1,336	1,067	79.97%	609	404	769,051	65.00%	51.98%
Regions 5, 18, 23, 24, and 46	1,523	1,342	1,122	83.78%	612	440	634,977	70.05%	58.69%
Regions 6, 12, 16, 31, 35, 45, and 47	1,353	1,064	842	79.28%	530	400	607,788	71.33%	56.55%
Regions 7, 13, 20, and 33	4,730	4,325	3,188	73.90%	2,105	1,438	2,127,061	67.09%	49.58%
Regions 10, 15, 27, 32, 43, and 44	1,186	927	768	83.30%	455	332	431,672	69.41%	57.82%
Regions 17 and 21	620	478	412	86.47%	279	196	310,722	69.38%	59.99%
Regions 19, 26, 28, and 42	2,811	2,546	2,095	82.38%	1,381	1,009	1,237,969	72.47%	59.70%
Regions 22, 38, 40, 41, and 48	1,377	1,219	1,009	83.02%	594	382	704,683	62.91%	52.23%
Regions 29 and 34	930	857	636	74.64%	411	263	563,611	64.52%	48.16%
Regions 30 and 50	1,256	1,040	815	78.46%	509	354	517,085	68.35%	53.63%
Region 36 (Philadelphia)	2,981	2,348	1,543	65.79%	1,054	783	1,300,456	70.38%	46.30%
Rhode Island	10,377	9,014	6,484	72.19%	4,230	2,869	908,479	67.26%	48.55%
Region 1: Southern Providence County	1,734	1,589	1,124	70.74%	674	444	165,937	66.40%	46.97%
Region 2: Northern Providence County/Blackstone Valley	2,168	1,947	1,434	74.07%	947	658	182,739	67.35%	49.89%
Region 3: Providence	1,535	1,287	799	62.44%	647	477	153,606	71.47%	44.62%
Region 4: Kent County	1,759	1,607	1,200	74.74%	742	475	147,338	67.32%	50.32%
Region 5: East Bay	991	891	622	70.32%	414	281	83,680	66.97%	47.09%
Region 6: Newport County	962	737	596	81.19%	359	217	71,381	59.54%	48.34%
Region 7: South County	1,228	956	709	74.10%	447	317	103,799	70.28%	52.08%

See notes at end of table.

(continued)

Table C1. Sample Sizes, Weighted Screening and Interview Response Rates, and Population Estimates, by Substate Region, for Individuals Aged 12 or Older: 2016, 2017, and 2018 (continued)

State/Substate Region	Total Selected DUs	Total Eligible DUs	Total Completed Screeners	Weighted DU Screening Response Rate (Percentage)	Total Selected	Total Responded	Population Estimate	Weighted Interview Response Rate (Percentage)	Weighted Overall Response Rate (Percentage)
South Carolina	8,347	6,808	5,360	78.78%	3,864	2,880	4,196,076	73.05%	57.54%
Region 1	2,788	2,281	1,807	79.18%	1,293	960	1,309,126	72.03%	57.03%
Region 2	2,029	1,770	1,430	81.10%	1,036	746	1,034,946	69.32%	56.22%
Region 3	1,289	1,032	816	79.09%	591	447	724,545	76.09%	60.18%
Region 4	2,241	1,725	1,307	75.87%	944	727	1,127,459	76.19%	57.80%
South Dakota	8,316	6,908	5,778	83.76%	4,013	2,878	708,303	71.40%	59.80%
Region 1	1,951	1,688	1,407	83.68%	912	655	175,353	71.22%	59.60%
Region 2	916	654	546	83.86%	362	273	65,276	75.84%	63.60%
Region 3	2,184	1,678	1,451	86.47%	1,012	735	166,253	71.98%	62.25%
Region 4	1,032	878	708	80.83%	474	325	98,954	66.18%	53.49%
Region 5	2,233	2,010	1,666	82.80%	1,253	890	202,467	71.81%	59.46%
Tennessee	8,524	7,009	5,764	82.27%	4,041	2,924	5,615,393	69.98%	57.57%
Region 1	650	521	462	88.57%	303	220	452,378	74.57%	66.05%
Region 2	1,627	1,306	1,100	84.18%	765	573	1,050,281	72.84%	61.32%
Region 3	1,505	1,149	1,021	88.59%	663	472	841,193	66.74%	59.13%
Region 4 (Davidson)	842	701	489	69.88%	346	221	558,141	64.10%	44.79%
Region 5	1,830	1,623	1,341	82.83%	1,021	703	1,377,511	65.65%	54.38%
Region 6	884	696	609	87.86%	406	313	539,798	72.91%	64.06%
Region 7 (Shelby)	1,186	1,013	742	73.23%	537	422	796,091	76.94%	56.34%

See notes at end of table.

(continued)

Table C1. Sample Sizes, Weighted Screening and Interview Response Rates, and Population Estimates, by Substate Region, for Individuals Aged 12 or Older: 2016, 2017, and 2018 (continued)

State/Substate Region	Total Selected DUs	Total Eligible DUs	Total Completed Screeners	Weighted DU Screening Response Rate (Percentage)	Total Selected	Total Responded	Population Estimate	Weighted Interview Response Rate (Percentage)	Weighted Overall Response Rate (Percentage)
Texas	22,073	18,551	15,303	82.45%	13,188	9,935	22,902,252	72.82%	60.04%
Region 1	785	642	540	84.19%	401	292	738,666	73.81%	62.14%
Region 2	557	450	422	93.56%	293	229	468,724	78.31%	73.27%
Region 3	6,055	5,372	4,582	85.59%	4,082	3,201	6,202,507	76.54%	65.51%
Region 3a	3,694	3,347	2,733	82.05%	2,547	1,891	3,974,563	72.53%	59.51%
Region 3bc	2,361	2,025	1,849	91.51%	1,535	1,310	2,227,944	83.04%	75.99%
Region 4	922	698	618	88.27%	472	378	978,898	77.84%	68.71%
Region 5	765	538	462	86.76%	348	279	673,658	80.70%	70.02%
Region 6	5,099	4,437	3,288	74.37%	2,947	2,064	5,580,881	65.90%	49.01%
Region 6a	4,576	4,002	2,935	73.54%	2,583	1,814	4,999,370	66.13%	48.63%
Region 6bc	523	435	353	81.53%	364	250	581,511	64.22%	52.36%
Region 7	2,694	2,116	1,740	82.37%	1,500	1,107	2,796,069	71.40%	58.81%
Region 7a	1,563	1,207	959	79.91%	805	554	1,800,760	68.22%	54.52%
Region 7bcd	1,131	909	781	85.55%	695	553	995,309	75.71%	64.77%
Region 8	2,311	1,878	1,544	82.41%	1,281	943	2,385,533	72.23%	59.52%
Region 9	533	415	368	88.93%	282	197	508,212	67.48%	60.01%
Region 10	705	590	522	88.84%	490	391	745,497	76.83%	68.25%
Region 11	1,647	1,415	1,217	83.13%	1,092	854	1,823,607	74.85%	62.22%
Region 11abd	1,053	909	779	85.63%	703	540	1,142,451	74.44%	63.74%
Region 11c (Hidalgo)	594	506	438	79.19%	389	314	681,156	75.63%	59.89%
Utah	4,945	4,402	3,750	85.15%	3,807	2,883	2,467,283	74.25%	63.22%
Bear River, Northeastern, Summit, Tooele, and Wasatch	532	452	404	89.56%	373	266	297,596	68.90%	61.71%
Central, Four Corners, San Juan, and Southwest	748	570	472	83.65%	429	309	296,636	68.69%	57.46%
Central, Four Corners, and San Juan	340	254	205	82.36%	172	117	112,557	66.61%	54.86%
Southwest	408	316	267	84.73%	257	192	184,079	70.21%	59.49%
Davis County	444	419	364	86.50%	388	298	266,849	77.05%	66.65%
Salt Lake County	1,979	1,814	1,512	83.11%	1,535	1,173	936,240	75.51%	62.76%
Utah County	805	745	651	87.55%	736	575	457,916	76.89%	67.32%
Weber, Morgan	437	402	347	86.01%	346	262	212,045	73.13%	62.90%

See notes at end of table.

(continued)

Table C1. Sample Sizes, Weighted Screening and Interview Response Rates, and Population Estimates, by Substate Region, for Individuals Aged 12 or Older: 2016, 2017, and 2018 (continued)

State/Substate Region	Total Selected DUs	Total Eligible DUs	Total Completed Screeners	Weighted DU Screening Response Rate (Percentage)	Total Selected	Total Responded	Population Estimate	Weighted Interview Response Rate (Percentage)	Weighted Overall Response Rate (Percentage)
Vermont	12,346	9,570	7,452	77.64%	4,186	2,845	545,133	69.34%	53.83%
Champlain Valley	4,374	3,635	2,762	75.91%	1,711	1,105	220,447	64.36%	48.86%
Rural Northeast	3,296	2,503	1,802	71.36%	999	700	128,298	73.61%	52.53%
Rural Southeast	2,794	2,019	1,698	84.08%	870	617	112,386	71.30%	59.95%
Rural Southwest	1,882	1,413	1,190	84.07%	606	423	84,002	72.41%	60.87%
Virginia	13,237	11,393	9,038	79.39%	6,372	4,530	7,017,789	68.62%	54.48%
Region 1	2,296	1,969	1,664	84.66%	1,116	820	1,090,274	71.08%	60.18%
Region 2	3,294	3,029	2,237	74.03%	1,797	1,216	2,027,323	66.02%	48.87%
Region 3	2,377	1,903	1,628	85.45%	1,016	731	1,159,736	69.01%	58.97%
Region 4	2,326	2,070	1,612	77.84%	1,135	828	1,191,126	70.22%	54.65%
Region 5	2,944	2,422	1,897	78.33%	1,308	935	1,549,330	68.39%	53.57%
Washington	8,413	7,372	5,749	78.08%	4,238	2,864	6,197,230	65.54%	51.17%
Region 1	1,866	1,502	1,223	81.74%	915	619	1,339,113	65.57%	53.60%
Greater Columbia and North Central	1,143	983	815	83.28%	635	426	801,258	65.74%	54.75%
Spokane	723	519	408	78.77%	280	193	537,855	65.25%	51.39%
Region 2	4,036	3,644	2,739	75.21%	2,047	1,342	2,864,320	63.63%	47.86%
King	2,726	2,453	1,775	72.44%	1,347	872	1,835,987	63.26%	45.82%
North Sound	1,310	1,191	964	81.01%	700	470	1,028,332	64.34%	52.12%
Region 3	2,511	2,226	1,787	80.36%	1,276	903	1,993,798	68.66%	55.18%
Pierce	1,051	919	701	76.20%	497	357	731,198	67.44%	51.39%
Salish	402	348	293	84.26%	206	135	330,878	68.02%	57.31%
SW WA and Great Rivers	814	735	608	82.80%	434	316	640,453	70.80%	58.62%
Thurston-Mason	244	224	185	82.49%	139	95	291,269	67.52%	55.69%
West Virginia	10,364	8,427	6,668	79.26%	4,417	2,886	1,550,528	63.47%	50.31%
Region I	878	720	602	83.87%	351	224	121,465	63.76%	53.48%
Region II	1,323	1,130	906	80.23%	651	448	222,380	68.20%	54.72%
Region III	1,032	831	665	80.25%	421	282	142,575	66.49%	53.36%
Region IV	2,144	1,764	1,401	79.46%	995	605	344,631	57.49%	45.68%
Region V	3,058	2,423	1,917	79.33%	1,258	807	437,954	62.42%	49.52%
Region VI	1,929	1,559	1,177	75.47%	741	520	281,523	66.75%	50.37%

See notes at end of table.

(continued)

Table C1. Sample Sizes, Weighted Screening and Interview Response Rates, and Population Estimates, by Substate Region, for Individuals Aged 12 or Older: 2016, 2017, and 2018 (continued)

State/Substate Region	Total Selected DUs	Total Eligible DUs	Total Completed Screeners	Weighted DU Screening Response Rate (Percentage)	Total Selected	Total Responded	Population Estimate	Weighted Interview Response Rate (Percentage)	Weighted Overall Response Rate (Percentage)
Wisconsin	9,994	8,381	6,869	82.00%	4,171	2,976	4,897,105	70.08%	57.46%
Milwaukee	1,631	1,453	1,104	75.48%	659	468	793,541	72.32%	54.59%
Northeastern	1,662	1,505	1,277	84.59%	784	543	1,061,996	68.07%	57.57%
Northern	1,421	1,016	878	86.71%	452	344	418,906	72.14%	62.55%
Southeastern	1,856	1,664	1,297	78.00%	856	589	993,520	67.32%	52.51%
Southern	2,260	1,777	1,512	85.18%	924	678	961,360	72.08%	61.40%
Western	1,164	966	801	83.13%	496	354	667,782	68.89%	57.27%
Wyoming	8,337	6,709	5,562	83.02%	3,718	2,892	479,872	75.05%	62.30%
Judicial District 1 (Laramie)	1,378	1,180	903	76.78%	587	426	78,904	70.58%	54.19%
Judicial District 2	753	546	453	83.08%	365	297	45,801	78.47%	65.19%
Judicial District 3	1,165	926	786	85.07%	546	426	66,876	72.93%	62.04%
Judicial District 4	581	502	412	81.91%	220	156	31,996	71.55%	58.61%
Judicial District 5	979	793	661	83.36%	381	305	45,952	77.89%	64.93%
Judicial District 6	829	612	515	84.12%	353	291	50,041	76.36%	64.23%
Judicial District 7 (Natrona)	977	856	693	81.32%	483	387	65,385	78.55%	63.87%
Judicial District 8	672	522	454	87.18%	320	252	33,644	76.27%	66.49%
Judicial District 9	1,003	772	685	88.57%	463	352	61,272	75.10%	66.52%

DU = dwelling unit; SPA = service planning area.

NOTE: For substate region definitions, see the "2016-2018 National Survey on Drug Use and Health Substate Region Definitions" at <https://www.samhsa.gov/data>.

NOTE: To compute the pooled 2016-2018 weighted response rates, the three samples were combined, and the individual-year weights were used for the pooled sample. Thus, the response rates presented here are weighted across 3 years of data rather than being a simple average of the 2016, 2017, and 2018 individual response rates.

NOTE: The total responded column represents the combined sample size from the 2016, 2017, and 2018 NSDUHs.

NOTE: The population estimate is the simple average of the 2016, 2017, and 2018 population counts for individuals aged 12 or older. Because of rounding, the sum of the substate region population counts within a state may not exactly match the state population count listed in the table.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2016, 2017, and 2018.

Table C2. Sample Sizes, Weighted Interview Response Rates, and Population Estimates, by Substate Region, for Individuals Aged 12 to 20 and Adults Aged 18 or Older: 2016, 2017, and 2018 NSDUHs

State/Substate Region	12-20 Total Selected	12-20 Total Responded	12-20 Population Estimate	12-20 Weighted Interview Response Rate (Percentage)	18+ Total Selected	18+ Total Responded	18+ Population Estimate	18+ Weighted Interview Response Rate (Percentage)
Total United States	92,510	69,031	37,857,440	74.71%	224,350	152,771	246,905,278	66.57%
Northeast	18,769	13,299	6,243,027	69.99%	44,819	29,099	43,852,084	63.06%
Midwest	22,021	16,381	8,130,070	74.19%	53,009	35,817	51,692,303	66.65%
South	29,984	22,949	14,421,915	77.19%	73,296	51,542	92,913,586	69.19%
West	21,736	16,402	9,062,427	74.45%	53,226	36,313	58,447,305	64.91%
Alabama	1,290	995	597,055	77.17%	3,104	2,171	3,703,785	66.37%
Region 1	394	305	163,254	77.59%	915	640	1,040,884	65.97%
Region 2	360	270	192,089	75.14%	936	633	1,182,343	64.36%
Region 3	225	177	113,506	79.91%	557	415	667,061	70.85%
Region 4	311	243	128,206	77.14%	696	483	813,497	66.16%
Alaska	1,385	1,027	87,677	75.11%	3,061	2,117	526,974	68.00%
Anchorage	580	464	35,170	78.15%	1,283	901	215,590	67.47%
Northern	319	219	21,113	69.31%	664	457	115,873	68.82%
South Central	335	248	23,320	77.61%	743	510	139,340	68.81%
Southeast	151	96	8,074	68.33%	371	249	56,172	66.66%
Arizona	1,200	933	854,702	78.68%	2,734	2,020	5,299,849	72.77%
Central	791	603	522,384	77.80%	1,745	1,229	3,159,031	68.72%
North	140	114	97,524	81.44%	322	263	641,866	81.08%
South	269	216	234,793	80.09%	667	528	1,498,951	79.44%
South A	126	103	122,197	82.29%	380	312	822,838	82.28%
South B	143	113	112,596	78.14%	287	216	676,113	75.20%
Arkansas	1,319	1,034	358,669	78.66%	3,085	2,240	2,245,124	69.59%
Catchment Area 1	198	148	67,500	74.75%	501	344	370,060	69.02%
Catchment Area 2	152	124	38,047	81.18%	340	240	273,880	67.66%
Catchment Area 3	186	138	48,331	73.98%	409	299	295,264	71.86%
Catchment Area 4	136	110	32,235	82.84%	318	229	196,019	67.41%
Catchment Area 5	231	187	54,473	80.56%	523	399	338,976	75.02%
Catchment Area 6	80	68	23,855	83.07%	194	148	155,307	69.66%
Catchment Area 7	87	72	26,641	82.11%	188	143	170,977	68.14%
Catchment Area 8	249	187	67,585	77.24%	612	438	444,642	66.89%

See notes at end of table.

(continued)

Table C2. Sample Sizes, Weighted Interview Response Rates, and Population Estimates, by Substate Region, for Individuals Aged 12 to 20 and Adults Aged 18 or Older: 2016, 2017, and 2018 NSDUHs (continued)

State/Substate Region	12-20 Total Selected	12-20 Total Responded	12-20 Population Estimate	12-20 Weighted Interview Response Rate (Percentage)	18+ Total Selected	18+ Total Responded	18+ Population Estimate	18+ Weighted Interview Response Rate (Percentage)
California	6,295	4,626	4,655,216	73.26%	16,333	10,208	29,899,013	60.93%
Region 1R	240	181	102,310	74.83%	582	443	750,496	75.89%
Region 2R	146	116	123,959	76.58%	338	224	808,504	65.63%
Region 3R (Sacramento)	228	178	173,384	76.80%	685	484	1,130,122	67.83%
Region 4R	152	115	145,041	74.51%	424	259	1,040,432	59.75%
Region 5R (San Francisco)	60	49	56,312	77.65%	302	175	743,766	59.31%
Region 6 (Santa Clara)	317	219	214,381	70.79%	902	508	1,465,508	55.16%
Region 7R (Contra Costa)	180	142	130,455	77.28%	480	308	859,455	65.36%
Region 8R (Alameda)	213	159	173,017	74.54%	629	400	1,255,995	60.97%
Region 9R (San Mateo)	143	112	77,355	78.63%	419	274	592,284	63.38%
Region 10	142	90	161,610	61.38%	392	228	988,826	56.96%
Region 11 (Los Angeles)	1,492	1,034	1,177,373	69.93%	4,220	2,410	7,817,815	55.89%
LA SPA 1 and 5	184	138	121,197	75.49%	509	315	856,877	61.45%
LA SPA 2	332	224	244,221	69.11%	820	447	1,731,106	53.01%
LA SPA 3	246	152	205,649	62.74%	730	442	1,394,341	59.01%
LA SPA 4	92	64	107,303	65.88%	473	243	934,681	50.60%
LA SPA 6	195	148	149,208	74.04%	487	278	730,934	54.81%
LA SPA 7	203	135	172,495	69.04%	510	271	968,243	52.29%
LA SPA 8	240	173	177,300	73.47%	691	414	1,201,634	58.13%
Region 12R	142	99	112,870	69.08%	307	215	650,298	68.21%
Regions 13 and 19R	512	383	348,198	74.85%	1,125	733	1,882,937	62.33%
Region 14 (Orange)	462	340	372,895	71.82%	1,192	698	2,482,732	55.64%
Region 15R (Fresno)	225	178	135,062	76.79%	469	340	705,706	68.36%
Region 16R (San Diego)	511	386	378,661	76.63%	1,319	827	2,550,254	61.62%
Region 17R	336	256	210,584	74.57%	768	514	1,086,442	66.18%
Region 18R (San Bernardino)	361	254	299,598	69.32%	819	498	1,566,738	59.76%
Region 20R	245	201	133,375	82.77%	495	358	709,167	69.08%
Region 21R	188	134	128,775	73.27%	466	312	811,535	68.52%

See notes at end of table.

(continued)

Table C2. Sample Sizes, Weighted Interview Response Rates, and Population Estimates, by Substate Region, for Individuals Aged 12 to 20 and Adults Aged 18 or Older: 2016, 2017, and 2018 NSDUHs (continued)

State/Substate Region	12-20 Total Selected	12-20 Total Responded	12-20 Population Estimate	12-20 Weighted Interview Response Rate (Percentage)	18+ Total Selected	18+ Total Responded	18+ Population Estimate	18+ Weighted Interview Response Rate (Percentage)
Colorado	1,283	959	644,802	74.16%	3,193	2,162	4,264,119	66.24%
Region 1	184	121	100,388	61.83%	505	345	704,962	68.40%
Region 2	113	88	56,141	78.26%	259	154	325,629	58.71%
Region 3	400	297	181,638	72.63%	824	551	1,098,723	65.51%
Region 4	70	49	41,316	69.32%	181	149	288,296	80.64%
Region 5	164	116	70,024	70.24%	506	328	552,242	63.54%
Region 6	184	150	102,559	82.13%	505	329	728,929	62.96%
Region 7	168	138	92,735	84.69%	413	306	565,338	72.32%
Connecticut	1,432	1,014	424,835	71.40%	3,495	2,207	2,786,759	62.58%
Eastern	161	122	56,450	77.70%	415	290	339,679	69.15%
North Central	341	238	114,266	69.83%	947	588	779,574	61.80%
Northwestern	271	189	71,968	69.44%	629	390	478,405	62.06%
South Central	347	242	95,508	70.97%	801	515	653,232	63.76%
Southwest	312	223	86,642	71.64%	703	424	535,870	58.55%
Delaware	1,321	938	104,483	71.84%	3,281	2,180	741,661	65.64%
Kent	259	200	20,718	77.66%	562	388	133,807	65.20%
New Castle (excluding Wilmington City)	747	523	56,141	70.74%	1,858	1,202	378,242	64.65%
Sussex	240	161	19,584	67.87%	686	457	170,532	66.92%
Wilmington City	75	54	8,040	74.18%	175	133	59,080	71.71%
District of Columbia	1,192	956	54,088	81.77%	2,857	2,114	557,854	72.45%
Ward 1	73	59	5,994	83.99%	376	271	70,687	68.57%
Ward 2	86	72	6,984	85.40%	289	210	76,699	70.03%
Ward 3	176	144	6,574	81.99%	402	296	71,167	73.20%
Ward 4	145	105	6,602	74.28%	367	272	67,791	71.12%
Ward 5	165	132	6,772	79.34%	360	265	71,166	72.36%
Ward 6	101	81	4,506	80.70%	389	293	72,911	74.58%
Ward 7	181	140	7,708	77.78%	324	235	64,127	71.80%
Ward 8	265	223	8,949	86.42%	350	272	63,306	76.89%

See notes at end of table.

(continued)

Table C2. Sample Sizes, Weighted Interview Response Rates, and Population Estimates, by Substate Region, for Individuals Aged 12 to 20 and Adults Aged 18 or Older: 2016, 2017, and 2018 NSDUHs (continued)

State/Substate Region	12-20 Total Selected	12-20 Total Responded	12-20 Population Estimate	12-20 Weighted Interview Response Rate (Percentage)	18+ Total Selected	18+ Total Responded	18+ Population Estimate	18+ Weighted Interview Response Rate (Percentage)
Florida	4,537	3,497	2,200,195	77.10%	11,104	7,703	16,461,513	67.69%
Broward (Circuit 17)	375	295	204,055	78.99%	904	602	1,516,919	64.75%
Central I	776	611	303,239	78.93%	1,864	1,299	2,072,084	67.43%
Circuit 9	519	407	193,590	78.32%	1,225	873	1,237,374	69.69%
Circuit 18	257	204	109,649	80.10%	639	426	834,710	64.43%
Central II	1,186	929	590,315	77.64%	2,997	2,146	4,621,482	69.31%
Circuit 6	276	205	139,833	73.91%	785	549	1,209,708	67.33%
Circuit 10	195	166	89,180	86.47%	381	300	612,547	77.62%
Circuit 12	127	101	73,698	78.30%	337	242	666,468	72.37%
Circuit 13 (Hillsborough)	355	286	165,604	80.74%	901	663	1,086,319	72.06%
Circuit 20	233	171	122,001	70.57%	593	392	1,046,440	62.49%
Northeast	743	539	407,320	73.18%	1,977	1,333	3,061,929	66.30%
Circuit 4	292	218	138,137	73.83%	627	417	931,736	65.08%
Circuit 5	152	102	103,042	71.03%	569	394	928,614	69.26%
Circuit 7	181	128	97,861	69.82%	453	288	752,086	60.04%
Circuit 8 plus Columbia, Dixie, Hamilton, Lafayette, and Suwannee	118	91	68,281	79.51%	328	234	449,493	72.83%
Northwest	418	328	179,243	78.90%	849	623	1,210,885	71.29%
Circuit 1	181	144	87,500	80.17%	370	264	592,228	69.88%
Circuit 2 plus Madison and Taylor	143	110	59,267	77.32%	289	220	370,571	71.35%
Circuit 14	94	74	32,476	79.04%	190	139	248,086	73.87%
South (Circuits 11 and 16)	630	469	305,265	75.38%	1,567	1,070	2,293,453	67.92%
Southeast	409	326	210,758	78.14%	946	630	1,684,762	66.07%
Circuit 15 (Palm Beach)	300	238	144,638	77.27%	695	457	1,158,916	62.89%
Circuit 19	109	88	66,120	80.71%	251	173	525,846	73.07%

See notes at end of table.

(continued)

Table C2. Sample Sizes, Weighted Interview Response Rates, and Population Estimates, by Substate Region, for Individuals Aged 12 to 20 and Adults Aged 18 or Older: 2016, 2017, and 2018 NSDUHs (continued)

State/Substate Region	12-20 Total Selected	12-20 Total Responded	12-20 Population Estimate	12-20 Weighted Interview Response Rate (Percentage)	18+ Total Selected	18+ Total Responded	18+ Population Estimate	18+ Weighted Interview Response Rate (Percentage)
Georgia	1,854	1,462	1,268,988	78.86%	4,726	3,416	7,712,367	69.52%
Region 1	522	391	329,750	76.27%	1,262	861	1,971,947	65.55%
Region 2	273	220	162,400	80.93%	627	491	984,586	77.22%
Region 3	491	397	372,857	78.86%	1,501	1,071	2,323,055	68.40%
Region 4	87	66	79,784	73.09%	196	149	474,744	72.17%
Region 5	223	174	143,653	78.22%	548	381	883,809	67.29%
Region 6	258	214	180,543	84.06%	592	463	1,074,226	75.13%
Hawaii	1,430	1,044	138,954	73.58%	3,333	2,216	1,064,678	64.57%
Hawaii Island	215	156	18,748	75.51%	448	309	141,308	67.14%
Honolulu	950	707	98,052	74.74%	2,193	1,451	752,120	63.85%
Kauai	92	63	6,548	66.04%	235	156	51,443	64.21%
Maui	173	118	15,605	67.79%	457	300	119,807	65.65%
Idaho	1,258	990	216,232	78.46%	3,073	2,262	1,256,899	73.23%
Region 1	117	77	26,531	67.22%	349	217	178,686	61.62%
Region 2	83	62	13,698	76.71%	239	185	90,893	80.52%
Region 3	231	192	36,741	84.75%	503	385	196,552	76.79%
Region 4	346	272	60,351	77.88%	875	638	365,015	74.46%
Region 5	165	150	25,031	90.63%	391	323	143,067	80.96%
Region 6	73	58	16,760	76.28%	168	113	92,257	63.58%
Region 7	243	179	37,120	73.20%	548	401	190,431	70.98%

See notes at end of table.

(continued)

Table C2. Sample Sizes, Weighted Interview Response Rates, and Population Estimates, by Substate Region, for Individuals Aged 12 to 20 and Adults Aged 18 or Older: 2016, 2017, and 2018 NSDUHs (continued)

State/Substate Region	12-20 Total Selected	12-20 Total Responded	12-20 Population Estimate	12-20 Weighted Interview Response Rate (Percentage)	18+ Total Selected	18+ Total Responded	18+ Population Estimate	18+ Weighted Interview Response Rate (Percentage)
Illinois	3,463	2,443	1,511,837	70.59%	8,860	5,363	9,704,395	59.61%
Region 1 (Cook)	1,114	756	579,365	68.43%	3,170	1,812	3,982,249	57.45%
Region 1.1 (Far North Side)	80	56	44,120	64.19%	264	160	371,462	57.02%
Region 1.2 (Northwest Side)	101	63	31,600	66.34%	242	115	203,995	46.90%
Region 1.3 (North Central Side)	10	7	30,542	67.80%	124	73	387,953	60.50%
Region 1.4 (West Side)	66	48	54,618	75.47%	300	171	355,596	59.06%
Region 1.5 (South Side)	151	101	77,383	62.84%	426	254	498,671	62.65%
Region 1.6 (Southwest Side)	64	37	53,212	63.05%	162	85	265,349	53.29%
Region 1.7 (Suburban Cook)	642	444	287,891	70.67%	1,652	954	1,899,223	56.71%
Region 2	1,326	959	524,306	71.86%	2,997	1,886	3,037,213	61.79%
Region 2a (DuPage)	287	207	109,677	73.41%	648	391	709,052	61.29%
Region 2b	724	509	298,134	69.36%	1,579	976	1,619,786	59.85%
Region 2c (Winnebago)	68	57	33,017	83.26%	177	118	213,820	65.57%
Region 2d	247	186	83,478	74.75%	593	401	494,555	66.86%
Region 3	492	349	176,716	70.88%	1,242	759	1,096,955	59.57%
Region 3a (Champaign)	63	52	31,243	78.96%	203	131	159,770	63.88%
Region 3b	429	297	145,473	69.35%	1,039	628	937,184	58.85%
Region 4	224	163	100,757	74.32%	613	398	682,184	65.31%
Region 4a (Sangamon)	71	49	22,428	72.28%	190	125	152,561	66.11%
Region 4b	153	114	78,329	75.25%	423	273	529,623	64.97%
Region 5	307	216	130,694	72.05%	838	508	905,794	57.48%
Region 5a	167	126	59,604	76.61%	410	270	401,560	63.92%
Region 5b	140	90	71,090	66.19%	428	238	504,235	51.90%
Indiana	1,247	939	818,824	74.90%	3,139	2,166	4,997,784	68.30%
Central	377	290	217,806	77.25%	940	671	1,331,208	71.81%
East	99	73	66,936	76.57%	244	167	418,826	71.63%
North Central	177	127	115,995	67.63%	430	264	694,642	58.38%
Northeast	147	96	84,056	66.02%	324	207	487,799	67.46%
Northwest	124	96	91,143	75.61%	324	222	563,191	65.85%
Southeast	152	122	81,392	79.44%	363	262	536,304	71.92%
Southwest	72	56	60,625	79.94%	237	168	391,075	70.46%
West	99	79	100,870	79.10%	277	205	574,738	67.16%

See notes at end of table.

(continued)

Table C2. Sample Sizes, Weighted Interview Response Rates, and Population Estimates, by Substate Region, for Individuals Aged 12 to 20 and Adults Aged 18 or Older: 2016, 2017, and 2018 NSDUHs (continued)

State/Substate Region	12-20 Total Selected	12-20 Total Responded	12-20 Population Estimate	12-20 Weighted Interview Response Rate (Percentage)	18+ Total Selected	18+ Total Responded	18+ Population Estimate	18+ Weighted Interview Response Rate (Percentage)
Iowa	1,351	987	377,130	73.38%	3,291	2,222	2,375,777	67.98%
Central	286	206	70,024	73.25%	678	448	433,095	66.21%
North Central	146	115	44,080	80.83%	404	283	262,883	70.09%
Northeast	326	229	90,460	68.96%	752	504	578,505	67.08%
Northwest	211	157	56,532	77.09%	464	328	356,453	71.20%
Southeast	280	197	78,869	70.71%	727	456	506,635	63.37%
Southwest	102	83	37,165	76.08%	266	203	238,205	77.92%
Kansas	1,374	1,046	368,757	75.26%	3,093	2,200	2,138,502	70.01%
Northeast	682	521	186,716	75.76%	1,531	1,097	1,076,524	69.82%
Northwest and North Central	101	79	25,905	78.63%	291	194	170,831	67.06%
South Central	394	300	106,297	75.20%	862	621	611,959	72.37%
Southeast	92	56	25,883	58.92%	196	119	157,824	59.58%
Southwest	105	90	23,956	85.05%	213	169	121,364	76.91%
Kentucky	1,348	982	526,354	73.30%	3,331	2,190	3,363,945	63.79%
Adanta, Cumberland River, and Lifeskills	212	150	88,904	71.58%	558	338	562,344	59.55%
Bluegrass, Comprehend, and North Key	416	294	161,366	72.51%	998	643	991,757	63.44%
Centerstone	338	280	112,815	82.57%	838	625	748,769	72.83%
Communicare and River Valley	146	101	61,000	67.23%	324	200	373,718	58.15%
Four Rivers and Pennyroyal	112	74	47,957	65.33%	306	186	314,211	59.96%
Kentucky River, Mountain, and Pathways	124	83	54,312	69.77%	307	198	373,147	58.60%

See notes at end of table.

(continued)

Table C2. Sample Sizes, Weighted Interview Response Rates, and Population Estimates, by Substate Region, for Individuals Aged 12 to 20 and Adults Aged 18 or Older: 2016, 2017, and 2018 NSDUHs (continued)

State/Substate Region	12-20 Total Selected	12-20 Total Responded	12-20 Population Estimate	12-20 Weighted Interview Response Rate (Percentage)	18+ Total Selected	18+ Total Responded	18+ Population Estimate	18+ Weighted Interview Response Rate (Percentage)
Louisiana	1,298	977	544,148	74.42%	3,081	2,211	3,466,043	70.20%
Regions 1 and 10	245	176	97,719	70.97%	600	413	692,600	68.54%
Region 1	131	99	52,344	78.23%	298	227	371,409	76.06%
Region 10 (Jefferson)	114	77	45,375	63.23%	302	186	321,191	61.63%
Regions 2 and 9	309	216	148,187	68.76%	811	556	919,560	67.95%
Region 3	138	107	47,176	78.28%	277	206	291,661	73.93%
Regions 4, 5, and 6	301	220	141,855	72.50%	752	529	882,658	68.16%
Regions 7 and 8	305	258	109,211	83.18%	641	507	679,564	75.97%
Maine	1,404	1,010	140,644	73.09%	3,210	2,226	1,071,266	69.69%
Aroostook/Downeast	149	117	15,524	79.09%	352	279	128,455	77.84%
Aroostook	67	57	7,171	85.99%	161	137	57,065	83.25%
Downeast	82	60	8,353	72.40%	191	142	71,390	73.22%
Central	171	147	18,142	88.05%	391	294	138,876	76.13%
Cumberland	291	190	31,245	67.51%	700	428	230,401	62.48%
Midcoast	149	86	14,030	57.06%	379	256	118,725	69.01%
Penquis	176	127	19,468	73.69%	449	332	138,570	74.94%
Western	268	198	21,305	76.71%	480	341	154,031	70.22%
York	200	145	20,931	71.22%	459	296	162,208	64.55%
Maryland	1,203	921	660,889	76.52%	3,075	2,220	4,596,124	71.42%
Anne Arundel	75	57	60,848	74.78%	210	152	433,909	73.95%
Baltimore City	141	119	61,563	85.70%	426	340	475,444	77.82%
Baltimore County	108	71	87,682	63.46%	286	191	642,689	69.67%
Montgomery	198	154	114,317	79.97%	557	403	790,417	71.61%
North Central	119	93	56,620	78.68%	295	219	366,876	73.90%
Northeast	83	59	54,778	68.66%	175	113	382,743	61.83%
Prince George's	173	133	102,172	75.18%	515	369	675,099	69.84%
South	149	114	66,714	76.89%	333	230	441,385	68.92%
West	157	121	56,195	78.29%	278	203	387,563	72.14%

See notes at end of table.

(continued)

Table C2. Sample Sizes, Weighted Interview Response Rates, and Population Estimates, by Substate Region, for Individuals Aged 12 to 20 and Adults Aged 18 or Older: 2016, 2017, and 2018 NSDUHs (continued)

State/Substate Region	12-20 Total Selected	12-20 Total Responded	12-20 Population Estimate	12-20 Weighted Interview Response Rate (Percentage)	18+ Total Selected	18+ Total Responded	18+ Population Estimate	18+ Weighted Interview Response Rate (Percentage)
Massachusetts	1,584	1,046	858,668	67.49%	3,714	2,216	5,415,955	60.07%
Boston	162	112	107,280	69.34%	418	265	706,204	65.55%
Central	190	113	117,048	60.36%	467	280	689,006	58.82%
Metrowest	392	264	196,226	66.45%	967	546	1,257,105	57.05%
Northeast	281	201	164,635	71.88%	729	442	1,064,425	60.02%
Southeast	276	164	154,619	62.12%	644	364	1,024,791	58.47%
Western	283	192	118,860	72.79%	489	319	674,424	65.83%
Michigan	3,244	2,505	1,202,884	76.80%	7,805	5,426	7,680,398	68.16%
Region 1	72	55	35,755	72.91%	189	142	255,692	75.31%
Region 2	156	106	53,168	67.04%	407	273	405,956	71.24%
Region 3	509	422	164,551	82.25%	1,062	764	943,302	70.95%
Region 4	299	251	104,204	83.00%	728	538	648,052	70.74%
Region 5	555	442	215,827	78.92%	1,396	991	1,292,960	69.86%
Region 6	243	198	104,605	82.23%	605	476	628,770	76.65%
Region 7	508	362	204,305	71.61%	1,218	813	1,324,416	64.82%
Region 8	412	301	141,953	73.86%	962	629	978,078	65.39%
Region 9	238	170	94,702	70.53%	724	450	667,588	60.97%
Region 10	252	198	83,814	79.69%	514	350	535,585	65.06%
Minnesota	1,289	969	647,949	74.09%	3,113	2,138	4,217,608	69.26%
Regions 1 and 2	121	90	60,016	73.08%	315	202	419,894	69.37%
Region 1	73	50	24,642	65.27%	164	106	157,221	69.72%
Region 2	48	40	35,374	84.82%	151	96	262,672	69.00%
Regions 3 and 4	222	174	113,288	75.78%	472	334	712,230	70.05%
Region 3	59	44	36,956	72.65%	114	73	250,182	61.31%
Region 4	163	130	76,333	76.68%	358	261	462,048	72.36%
Regions 5 and 6	244	174	121,988	71.52%	625	409	773,769	62.39%
Region 5	126	93	60,499	73.77%	296	197	390,286	64.55%
Region 6	118	81	61,489	68.79%	329	212	383,483	60.44%
Region 7	702	531	352,656	74.52%	1,701	1,193	2,311,715	71.26%
Region 7A (Hennepin)	271	205	135,271	74.54%	710	519	957,489	73.18%
Region 7B (Ramsey)	141	102	64,423	70.70%	366	245	416,708	67.89%
Region 7C	290	224	152,962	76.44%	625	429	937,518	70.99%

See notes at end of table.

(continued)

Table C2. Sample Sizes, Weighted Interview Response Rates, and Population Estimates, by Substate Region, for Individuals Aged 12 to 20 and Adults Aged 18 or Older: 2016, 2017, and 2018 NSDUHs (continued)

State/Substate Region	12-20 Total Selected	12-20 Total Responded	12-20 Population Estimate	12-20 Weighted Interview Response Rate (Percentage)	18+ Total Selected	18+ Total Responded	18+ Population Estimate	18+ Weighted Interview Response Rate (Percentage)
Mississippi	1,275	989	366,409	77.92%	3,015	2,123	2,213,025	68.20%
Region 1	310	236	85,693	77.52%	747	544	502,349	71.79%
Region 2	129	116	42,816	88.87%	361	290	266,386	80.37%
Region 3	204	162	52,917	78.85%	470	325	307,406	65.29%
Region 4	263	191	68,810	72.42%	580	378	414,462	61.45%
Region 5	58	47	20,376	77.54%	112	80	132,527	67.18%
Region 6	129	104	37,291	82.32%	291	211	229,715	68.65%
Region 7	182	133	58,506	74.51%	454	295	360,181	64.00%
Missouri	1,292	970	729,779	75.63%	3,119	2,200	4,622,126	69.02%
Central	237	182	108,498	75.50%	509	376	630,613	72.77%
Eastern	419	317	244,846	76.00%	1,067	739	1,604,721	66.43%
Eastern (St. Louis City and County)	218	169	147,693	78.31%	596	424	1,009,348	67.25%
Eastern (excluding St. Louis)	201	148	97,153	73.47%	471	315	595,372	65.42%
Northwest	322	232	178,766	73.83%	820	563	1,117,763	67.59%
Northwest (Jackson)	161	116	78,664	75.74%	443	319	509,598	69.65%
Northwest (excluding Jackson)	161	116	100,102	71.60%	377	244	608,165	65.00%
Southeast	135	108	84,261	81.48%	286	226	546,634	76.80%
Southwest	179	131	113,408	73.89%	437	296	722,395	69.07%
Montana	1,329	974	115,902	73.10%	3,245	2,236	809,957	70.40%
Region 1	99	73	9,264	69.85%	194	135	63,680	70.42%
Region 2	167	120	17,357	73.11%	371	255	113,643	67.11%
Region 3	289	202	24,223	69.78%	741	519	167,208	72.35%
Region 4	398	292	30,601	74.12%	988	656	217,226	69.16%
Region 5	376	287	34,457	75.25%	951	671	248,200	71.53%

See notes at end of table.

(continued)

Table C2. Sample Sizes, Weighted Interview Response Rates, and Population Estimates, by Substate Region, for Individuals Aged 12 to 20 and Adults Aged 18 or Older: 2016, 2017, and 2018 NSDUHs (continued)

State/Substate Region	12-20 Total Selected	12-20 Total Responded	12-20 Population Estimate	12-20 Weighted Interview Response Rate (Percentage)	18+ Total Selected	18+ Total Responded	18+ Population Estimate	18+ Weighted Interview Response Rate (Percentage)
Nebraska	1,315	965	236,531	74.16%	3,132	2,181	1,414,491	69.65%
Regions 1 and 2	131	98	22,944	71.27%	276	192	141,483	67.81%
Region 1	52	41	10,777	77.20%	124	92	66,680	69.15%
Region 2	79	57	12,167	67.51%	152	100	74,803	66.87%
Region 3	183	128	28,779	71.58%	427	306	172,263	74.03%
Region 4	158	119	25,913	74.95%	339	233	153,671	66.42%
Region 5	284	195	57,818	68.86%	772	531	353,418	69.80%
Region 6	559	425	101,077	78.02%	1,318	919	593,657	69.40%
Nevada	1,221	952	337,080	77.64%	3,179	2,214	2,269,280	68.26%
Clark – Region 1	904	715	246,705	78.17%	2,286	1,602	1,636,776	68.35%
Region 3	127	86	38,993	69.54%	348	230	277,962	66.11%
Capital District	63	47	17,549	71.59%	185	123	132,673	64.38%
Rural/Frontier	64	39	21,443	67.21%	163	107	145,288	68.04%
Washoe – Region 2	190	151	51,383	80.40%	545	382	354,543	69.41%
New Hampshire	1,401	999	146,406	70.68%	3,182	2,128	1,069,364	66.90%
Central	474	341	42,441	71.21%	980	691	304,667	69.75%
Central 1	264	188	22,185	71.35%	511	380	151,673	74.29%
Central 2	210	153	20,256	71.00%	469	311	152,994	64.82%
Northern	166	122	18,048	73.54%	411	309	139,265	73.90%
Southern	761	536	85,917	69.69%	1,791	1,128	625,432	63.75%
Southern 1 (Rockingham)	303	201	31,506	64.72%	642	402	241,772	63.44%
Southern 2	458	335	54,411	73.05%	1,149	726	383,660	63.93%
New Jersey	2,173	1,546	1,017,149	70.74%	5,348	3,356	6,879,394	61.54%
Central	447	300	236,015	65.94%	1,077	664	1,571,925	61.81%
Metropolitan	522	378	256,451	72.37%	1,306	830	1,659,823	60.45%
Northern	726	520	316,091	71.09%	1,833	1,130	2,225,017	59.94%
Southern	478	348	208,591	72.87%	1,132	732	1,422,630	65.05%

See notes at end of table.

(continued)

Table C2. Sample Sizes, Weighted Interview Response Rates, and Population Estimates, by Substate Region, for Individuals Aged 12 to 20 and Adults Aged 18 or Older: 2016, 2017, and 2018 NSDUHs (continued)

State/Substate Region	12-20 Total Selected	12-20 Total Responded	12-20 Population Estimate	12-20 Weighted Interview Response Rate (Percentage)	18+ Total Selected	18+ Total Responded	18+ Population Estimate	18+ Weighted Interview Response Rate (Percentage)
New Mexico	1,162	972	244,873	83.62%	2,725	2,102	1,565,363	76.20%
Region 1	222	185	54,131	84.10%	490	367	320,309	72.30%
Region 2	130	118	30,117	92.76%	297	243	227,666	82.35%
Region 3 (Bernalillo)	330	276	76,207	83.01%	957	727	513,440	75.01%
Region 4	212	175	34,033	80.11%	439	331	192,769	75.59%
Region 5	268	218	50,385	82.00%	542	434	311,178	77.98%
Region 5a	102	83	21,237	84.35%	232	198	147,356	84.84%
Region 5b (Dona Ana)	166	135	29,148	80.49%	310	236	163,822	71.71%
New York	4,865	3,358	2,071,701	67.15%	11,653	7,301	15,348,822	60.44%
Region 1: Long Island	779	493	314,013	61.86%	1,689	906	2,211,858	52.09%
Region 2: New York City	1,727	1,125	826,262	63.50%	4,791	2,744	6,680,349	54.20%
Region 2A: Bronx	425	322	167,272	73.62%	870	610	1,064,423	69.47%
Region 2B: Kings	591	354	269,356	59.15%	1,581	851	2,008,592	51.01%
Region 2C: New York	247	160	122,360	59.96%	812	456	1,396,337	53.33%
Region 2D: Queens	340	202	217,291	60.67%	1,217	660	1,844,566	52.00%
Region 2E: Richmond	124	87	49,983	73.29%	311	167	366,431	51.38%
Region 3: Mid-Hudson	624	415	269,805	62.45%	1,213	774	1,768,860	62.93%
Region 4: Capital Region	261	179	101,729	66.87%	633	431	741,578	71.93%
Region 5: Mohawk Valley	48	27	28,387	54.24%	109	69	200,795	60.41%
Region 6: North Country	61	53	30,139	89.37%	173	133	240,795	78.83%
Region 7: Tug Hill Seaway	70	59	30,157	87.48%	159	122	194,423	72.86%
Region 8: Central	324	250	116,511	75.70%	676	510	785,769	75.39%
Region 9: Southern Tier	133	105	52,962	79.97%	323	252	349,102	78.07%
Region 10: Finger Lakes	412	318	140,697	78.07%	980	696	986,294	69.84%
Region 11: Western	426	334	161,039	79.71%	907	664	1,188,997	71.48%

See notes at end of table.

(continued)

Table C2. Sample Sizes, Weighted Interview Response Rates, and Population Estimates, by Substate Region, for Individuals Aged 12 to 20 and Adults Aged 18 or Older: 2016, 2017, and 2018 NSDUHs (continued)

State/Substate Region	12-20 Total Selected	12-20 Total Responded	12-20 Population Estimate	12-20 Weighted Interview Response Rate (Percentage)	18+ Total Selected	18+ Total Responded	18+ Population Estimate	18+ Weighted Interview Response Rate (Percentage)
North Carolina	1,950	1,490	1,179,279	75.80%	4,833	3,353	7,759,846	68.98%
Alliance Behavioral Healthcare 1	158	130	99,336	81.78%	402	297	615,179	74.25%
Alliance Behavioral Healthcare 2	173	144	128,566	84.88%	490	352	770,451	70.92%
Cardinal Innovations Healthcare Solutions 1	184	126	95,826	66.36%	395	232	579,813	59.40%
Cardinal Innovations Healthcare Solutions 2	112	90	81,177	81.54%	258	194	529,727	75.72%
Cardinal Innovations Healthcare Solutions 3	152	103	119,859	66.29%	475	299	774,936	63.08%
CenterPoint Human Services	109	84	65,046	78.78%	265	196	425,950	75.49%
Eastpointe	176	141	97,111	80.18%	416	308	637,715	72.92%
Partners Behavioral Health Management	188	138	104,457	72.34%	434	296	709,615	68.75%
Sandhills Center 1	139	112	69,175	79.11%	316	227	445,872	72.10%
Sandhills Center 2	95	71	63,351	73.11%	278	180	406,745	64.32%
Smoky Mountain Center 1	140	95	58,093	65.08%	345	234	428,827	67.73%
Smoky Mountain Center 2	56	36	54,164	66.83%	188	112	430,236	58.59%
Trillium Health Resources 1	164	139	71,398	85.65%	326	250	490,461	71.00%
Trillium Health Resources 2	104	81	71,722	78.03%	245	176	514,320	71.07%
North Dakota	1,432	1,051	92,979	74.44%	3,168	2,136	566,470	67.30%
Badlands and West Central	424	317	23,414	75.94%	872	556	151,981	63.72%
Badlands	80	62	5,017	79.70%	190	124	34,957	63.85%
West Central	344	255	18,396	75.04%	682	432	117,024	63.67%
Lake Region	72	57	5,906	79.73%	142	104	30,651	72.05%
North Central	166	105	13,390	63.85%	329	203	80,770	62.69%
Northeast	174	143	12,611	84.65%	364	268	70,509	72.62%
Northwest	93	55	4,933	60.56%	267	163	31,717	62.12%
South Central	108	87	6,428	80.37%	235	169	44,138	73.47%
Southeast	395	287	26,298	72.60%	959	673	156,704	69.22%

See notes at end of table.

(continued)

Table C2. Sample Sizes, Weighted Interview Response Rates, and Population Estimates, by Substate Region, for Individuals Aged 12 to 20 and Adults Aged 18 or Older: 2016, 2017, and 2018 NSDUHs (continued)

State/Substate Region	12-20 Total Selected	12-20 Total Responded	12-20 Population Estimate	12-20 Weighted Interview Response Rate (Percentage)	18+ Total Selected	18+ Total Responded	18+ Population Estimate	18+ Weighted Interview Response Rate (Percentage)
Ohio	3,303	2,437	1,366,539	73.29%	8,117	5,481	8,881,486	66.36%
Boards 2, 46, 55, and 68	108	84	62,218	77.67%	251	165	387,256	61.81%
Boards 3, 52, and 85	143	98	49,320	67.03%	315	205	289,559	66.03%
Boards 4 and 78	101	82	33,312	82.07%	329	244	238,353	70.54%
Boards 5 and 60	122	86	44,526	70.54%	268	196	263,194	73.87%
Boards 7, 15, 41, 79, and 84	97	66	48,833	64.53%	229	135	357,089	61.42%
Boards 8, 13, and 83	126	82	63,855	66.43%	280	155	383,730	59.03%
Board 9 (Butler)	124	86	49,847	70.15%	300	181	283,328	56.48%
Board 12	100	62	42,738	58.49%	237	151	269,318	63.01%
Boards 18 and 47	367	278	173,730	75.07%	1,000	701	1,199,146	68.54%
Boards 20, 32, 54, and 69	163	121	41,225	73.82%	354	243	257,579	67.82%
Boards 21, 39, 51, 70, and 80	176	135	69,312	75.55%	360	245	425,441	66.10%
Boards 22, 74, and 87	178	148	47,194	84.60%	366	285	300,211	75.24%
Boards 23 and 45	106	73	48,395	66.20%	250	161	289,356	64.71%
Board 25 (Franklin)	347	266	144,010	77.38%	959	646	936,226	68.02%
Boards 27, 71, and 73	174	125	56,633	70.40%	364	253	376,931	66.60%
Boards 28, 43, and 67	122	85	58,578	64.24%	297	171	380,651	54.03%
Board 31 (Hamilton)	226	162	91,170	71.86%	593	400	604,546	65.24%
Board 48 (Lucas)	104	81	51,457	81.87%	229	169	330,388	73.37%
Boards 50 and 76	156	126	68,055	79.58%	435	300	472,897	68.37%
Board 57 (Montgomery)	132	99	62,179	74.43%	338	232	420,809	68.20%
Board 77 (Summit)	131	92	59,951	72.03%	363	243	415,480	66.43%
Oklahoma	1,339	954	446,767	70.99%	3,199	2,121	2,894,147	66.35%
Central	197	138	58,808	71.34%	423	268	374,774	62.57%
East Central	127	95	51,012	75.09%	275	183	329,032	64.27%
Northeast	184	136	56,346	73.11%	482	318	365,936	65.86%
Northwest and Southwest	184	131	64,433	69.10%	419	277	408,571	64.32%
Oklahoma County	227	164	86,185	70.56%	594	391	564,635	67.53%
Southeast	202	146	58,282	71.34%	467	335	388,994	73.66%
Tulsa County	218	144	71,703	68.44%	539	349	462,205	64.66%

See notes at end of table.

(continued)

Table C2. Sample Sizes, Weighted Interview Response Rates, and Population Estimates, by Substate Region, for Individuals Aged 12 to 20 and Adults Aged 18 or Older: 2016, 2017, and 2018 NSDUHs (continued)

State/Substate Region	12-20 Total Selected	12-20 Total Responded	12-20 Population Estimate	12-20 Weighted Interview Response Rate (Percentage)	18+ Total Selected	18+ Total Responded	18+ Population Estimate	18+ Weighted Interview Response Rate (Percentage)
Oregon	1,439	1,000	444,348	69.72%	3,280	2,241	3,234,220	67.89%
Region 1 (Multnomah)	218	156	78,209	69.65%	656	449	648,494	68.07%
Region 2	391	274	111,694	72.79%	802	575	764,250	71.40%
Region 3	484	328	146,680	68.78%	1,033	690	1,002,020	67.33%
Region 4	179	116	55,876	62.75%	403	268	456,271	62.13%
Region 5 (Central)	46	35	22,756	70.79%	139	88	167,777	62.73%
Region 6 (Eastern)	121	91	29,133	74.46%	247	171	195,408	71.63%
Pennsylvania	3,233	2,387	1,392,691	73.89%	7,772	5,359	9,942,088	68.16%
Region 1 (Allegheny)	283	192	120,306	68.03%	875	599	980,269	68.67%
Regions 3, 8, 9, and 51	193	142	74,089	74.13%	410	294	549,652	71.57%
Regions 4, 11, 37, and 49	210	145	101,256	67.96%	449	291	701,250	64.47%
Regions 5, 18, 23, 24, and 46	202	153	80,724	74.07%	453	319	581,321	69.73%
Regions 6, 12, 16, 31, 35, 45, and 47	164	129	84,679	80.19%	437	329	562,641	70.94%
Regions 7, 13, 20, and 33	721	524	282,899	71.93%	1,565	1,043	1,929,265	66.53%
Regions 10, 15, 27, 32, 43, and 44	135	109	50,816	82.77%	352	248	396,681	68.22%
Regions 17 and 21	89	66	42,755	74.19%	211	146	283,627	68.85%
Regions 19, 26, 28, and 42	448	333	165,501	74.25%	1,040	754	1,122,167	72.25%
Regions 22, 38, 40, 41, and 48	175	126	78,451	72.89%	458	284	650,450	62.08%
Regions 29 and 34	127	86	76,148	69.44%	313	191	512,623	63.55%
Regions 30 and 50	146	104	61,033	70.76%	392	270	476,665	68.15%
Region 36 (Philadelphia)	340	278	174,035	81.26%	817	591	1,195,476	69.16%
Rhode Island	1,325	970	122,660	74.94%	3,275	2,182	835,168	66.81%
Region 1: Southern Providence County	216	156	19,571	73.32%	515	332	153,662	66.32%
Region 2: Northern Providence County/Blackstone Valley	304	233	23,484	78.57%	714	479	166,271	66.17%
Region 3: Providence	172	143	29,317	81.21%	534	386	140,250	70.96%
Region 4: Kent County	234	153	16,180	66.96%	564	360	135,951	67.48%
Region 5: East Bay	120	85	10,252	74.38%	314	206	77,215	65.65%
Region 6: Newport County	108	74	8,717	69.78%	277	161	65,906	58.74%
Region 7: South County	171	126	15,140	78.10%	357	258	95,913	70.79%

See notes at end of table.

(continued)

Table C2. Sample Sizes, Weighted Interview Response Rates, and Population Estimates, by Substate Region, for Individuals Aged 12 to 20 and Adults Aged 18 or Older: 2016, 2017, and 2018 NSDUHs (continued)

State/Substate Region	12-20 Total Selected	12-20 Total Responded	12-20 Population Estimate	12-20 Weighted Interview Response Rate (Percentage)	18+ Total Selected	18+ Total Responded	18+ Population Estimate	18+ Weighted Interview Response Rate (Percentage)
South Carolina	1,234	986	580,721	78.68%	3,007	2,188	3,824,084	72.50%
Region 1	413	321	184,384	76.29%	1,010	738	1,190,738	71.84%
Region 2	345	271	150,033	77.67%	799	559	940,138	68.48%
Region 3	186	153	93,719	83.25%	464	342	663,675	75.39%
Region 4	290	241	152,585	80.64%	734	549	1,029,533	75.51%
South Dakota	1,321	1,005	101,966	76.41%	3,047	2,142	640,367	70.83%
Region 1	289	225	25,061	76.27%	684	473	158,354	70.33%
Region 2	114	86	9,681	78.33%	264	201	58,332	75.89%
Region 3	363	274	24,260	76.47%	805	584	151,527	71.81%
Region 4	167	126	14,340	73.75%	335	218	89,908	65.04%
Region 5	388	294	28,625	76.95%	959	666	182,246	71.18%
Tennessee	1,334	1,013	770,091	74.42%	3,060	2,173	5,104,891	69.47%
Region 1	85	58	54,268	70.63%	246	184	416,596	75.29%
Region 2	241	188	135,003	77.28%	575	420	960,783	72.10%
Region 3	226	168	110,250	73.58%	503	352	769,638	65.84%
Region 4 (Davidson)	80	58	74,099	74.07%	285	178	511,882	63.73%
Region 5	382	277	200,121	70.38%	742	497	1,239,604	64.92%
Region 6	139	113	74,748	80.33%	299	228	490,950	72.44%
Region 7 (Shelby)	181	151	121,601	78.08%	410	314	715,438	76.59%

See notes at end of table.

(continued)

Table C2. Sample Sizes, Weighted Interview Response Rates, and Population Estimates, by Substate Region, for Individuals Aged 12 to 20 and Adults Aged 18 or Older: 2016, 2017, and 2018 NSDUHs (continued)

State/Substate Region	12-20 Total Selected	12-20 Total Responded	12-20 Population Estimate	12-20 Weighted Interview Response Rate (Percentage)	18+ Total Selected	18+ Total Responded	18+ Population Estimate	18+ Weighted Interview Response Rate (Percentage)
Texas	4,164	3,356	3,648,618	80.13%	10,210	7,525	20,456,318	71.87%
Region 1	117	94	120,352	82.36%	319	223	663,385	72.62%
Region 2	110	84	71,218	76.24%	220	174	425,186	78.64%
Region 3	1,279	1,058	978,020	82.20%	3,159	2,432	5,527,687	75.67%
Region 3a	795	632	627,349	79.48%	1,981	1,438	3,539,487	71.51%
Region 3bc	484	426	350,672	86.89%	1,178	994	1,988,201	82.45%
Region 4	140	112	141,358	80.80%	384	311	885,313	78.01%
Region 5	96	79	97,510	82.58%	280	226	611,076	81.03%
Region 6	924	721	875,482	77.01%	2,266	1,525	4,979,768	64.48%
Region 6a	798	629	786,974	77.74%	1,995	1,341	4,459,220	64.60%
Region 6bc	126	92	88,508	72.51%	271	184	520,548	63.62%
Region 7	483	380	436,458	79.33%	1,190	865	2,523,767	70.50%
Region 7a	234	172	272,836	75.16%	647	438	1,621,997	67.27%
Region 7bcd	249	208	163,622	84.20%	543	427	901,770	74.89%
Region 8	403	320	378,361	78.45%	994	712	2,133,752	71.22%
Region 9	74	58	79,931	78.07%	223	149	456,101	65.97%
Region 10	170	141	133,669	83.33%	356	281	655,590	75.99%
Region 11	368	309	336,258	83.05%	819	627	1,594,692	73.83%
Region 11abd	229	193	202,327	83.03%	535	401	1,005,709	73.49%
Region 11c (Hidalgo)	139	116	133,931	83.09%	284	226	588,982	74.48%
Utah	1,140	911	440,369	78.75%	2,945	2,193	2,163,014	73.58%
Bear River, Northeastern, Summit, Tooele, and Wasatch	110	85	54,780	75.98%	287	197	259,321	67.44%
Central, Four Corners, San Juan, and Southwest	116	90	54,453	77.90%	339	241	259,854	67.75%
Central, Four Corners, and San Juan	46	30	21,349	62.81%	132	92	98,134	67.41%
Southwest	70	60	33,104	88.05%	207	149	161,719	68.00%
Davis County	142	111	49,402	78.00%	277	207	231,005	76.15%
Salt Lake County	445	355	152,825	77.54%	1,206	910	828,392	75.23%
Utah County	219	176	92,888	80.34%	569	442	397,661	76.28%
Weber, Morgan	108	94	36,021	86.06%	267	196	186,782	71.98%

See notes at end of table.

(continued)

Table C2. Sample Sizes, Weighted Interview Response Rates, and Population Estimates, by Substate Region, for Individuals Aged 12 to 20 and Adults Aged 18 or Older: 2016, 2017, and 2018 NSDUHs (continued)

State/Substate Region	12-20 Total Selected	12-20 Total Responded	12-20 Population Estimate	12-20 Weighted Interview Response Rate (Percentage)	18+ Total Selected	18+ Total Responded	18+ Population Estimate	18+ Weighted Interview Response Rate (Percentage)
Vermont	1,352	969	68,271	72.29%	3,170	2,124	503,268	69.16%
Champlain Valley	565	404	30,176	73.61%	1,315	832	203,342	63.77%
Rural Northeast	316	224	15,836	66.34%	744	512	118,083	73.84%
Rural Southeast	281	199	12,260	71.78%	654	464	103,989	71.33%
Rural Southwest	190	142	9,999	78.41%	457	316	77,854	72.31%
Virginia	1,932	1,454	919,846	75.39%	4,933	3,421	6,388,815	67.71%
Region 1	313	232	153,813	73.45%	877	639	990,046	70.64%
Region 2	550	408	260,618	74.82%	1,356	881	1,829,456	64.73%
Region 3	330	238	146,272	71.28%	790	558	1,068,361	68.20%
Region 4	332	257	155,202	78.06%	892	635	1,086,731	69.31%
Region 5	407	319	203,940	78.67%	1,018	708	1,414,220	67.45%
Washington	1,297	956	812,394	72.01%	3,299	2,170	5,658,537	64.84%
Region 1	275	206	203,787	72.04%	710	464	1,210,193	64.59%
Greater Columbia and North Central	192	144	131,921	74.02%	497	322	719,498	64.68%
Spokane	83	62	71,867	67.77%	213	142	490,695	64.42%
Region 2	601	432	348,106	70.37%	1,623	1,038	2,631,266	63.01%
King	388	275	215,953	69.24%	1,082	683	1,691,554	62.66%
North Sound	213	157	132,152	72.59%	541	355	939,711	63.67%
Region 3	421	318	260,500	74.50%	966	668	1,817,078	68.05%
Pierce	159	125	99,903	76.96%	375	260	664,302	66.43%
Salish	74	50	38,308	68.73%	149	96	305,415	67.67%
SW WA and Great Rivers	142	109	86,382	76.04%	335	241	580,534	70.54%
Thurston-Mason	46	34	35,908	71.13%	107	71	266,827	66.88%
West Virginia	1,394	945	195,318	67.78%	3,395	2,193	1,424,044	63.07%
Region I	107	69	14,623	64.98%	277	176	112,135	63.57%
Region II	211	153	31,249	72.90%	486	329	201,314	67.82%
Region III	147	97	17,179	64.82%	306	208	130,473	66.83%
Region IV	308	202	45,457	65.02%	789	462	319,183	56.43%
Region V	383	252	54,016	66.56%	966	618	401,736	62.21%
Region VI	238	172	32,795	71.90%	571	400	259,203	66.42%

See notes at end of table.

(continued)

Table C2. Sample Sizes, Weighted Interview Response Rates, and Population Estimates, by Substate Region, for Individuals Aged 12 to 20 and Adults Aged 18 or Older: 2016, 2017, and 2018 NSDUHs (continued)

State/Substate Region	12-20 Total Selected	12-20 Total Responded	12-20 Population Estimate	12-20 Weighted Interview Response Rate (Percentage)	18+ Total Selected	18+ Total Responded	18+ Population Estimate	18+ Weighted Interview Response Rate (Percentage)
Wisconsin	1,390	1,064	674,893	76.55%	3,125	2,162	4,452,899	69.21%
Milwaukee	230	174	116,620	77.39%	492	336	718,984	71.44%
Northeastern	233	165	142,197	68.55%	605	410	966,231	67.47%
Northern	150	125	53,135	85.34%	335	245	383,560	70.83%
Southeastern	324	243	140,750	75.65%	609	400	897,869	65.96%
Southern	279	222	128,227	78.18%	721	519	877,472	71.54%
Western	174	135	93,964	76.73%	363	252	608,784	68.19%
Wyoming	1,297	1,058	69,879	80.67%	2,826	2,172	435,402	74.53%
Judicial District 1 (Laramie)	177	124	11,454	68.62%	446	328	71,478	70.87%
Judicial District 2	139	121	7,722	85.25%	329	266	42,739	77.96%
Judicial District 3	208	169	10,690	79.29%	382	288	59,517	71.85%
Judicial District 4	65	45	4,340	71.76%	169	122	29,127	71.91%
Judicial District 5	137	111	6,467	81.39%	284	227	41,739	77.61%
Judicial District 6	125	110	7,457	87.07%	273	223	44,886	75.71%
Judicial District 7 (Natrona)	190	162	9,277	84.36%	349	276	59,375	77.88%
Judicial District 8	110	95	4,527	86.53%	230	174	30,730	75.08%
Judicial District 9	146	121	7,946	81.84%	364	268	55,811	74.08%

SPA = service planning area.

NOTE: For substate region definitions, see the "2016-2018 National Survey on Drug Use and Health Substate Region Definitions" at <https://www.samhsa.gov/data>.

NOTE: Computations in this table are based on a respondent's age at screening. Thus, the data in the Total Responded column(s) could differ from data in other NSDUH tables that use the respondent's age recorded during the interview.

NOTE: To compute the pooled 2016-2018 weighted response rates, the three samples were combined, and the individual-year weights were used for the pooled sample. Thus, the response rates presented here are weighted across 3 years of data rather than being a simple average of the 2016, 2017, and 2018 individual response rates.

NOTE: The total responded column represents the combined sample size from the 2016, 2017, and 2018 NSDUHs.

NOTE: The population estimate is the simple average of the 2016, 2017, and 2018 population counts for individuals aged 12 to 20 and adults aged 18 or older. Because of rounding, the sum of the substate region population counts within a state may not exactly match the state population count listed in the table.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2016, 2017, and 2018.

Section D: References

- Box, G. E. P., & Tiao, G. C. (1992). *Bayesian inference in statistical analysis* (Wiley Classics Library). Hoboken, NJ: John Wiley & Sons.
- Center for Behavioral Health Statistics and Quality. (2012). *Results from the 2011 National Survey on Drug Use and Health: Summary of national findings* (HHS Publication No. SMA 12-4713, NSDUH Series H-44). Retrieved from <https://www.samhsa.gov/data/>
- Center for Behavioral Health Statistics and Quality. (2013). *Results from the 2012 National Survey on Drug Use and Health: Mental health findings* (HHS Publication No. SMA 13-4805, NSDUH Series H-47). Retrieved from <https://www.samhsa.gov/data/>
- Center for Behavioral Health Statistics and Quality. (2015a). *2014 National Survey on Drug Use and Health: Methodological resource book (Section 2, Sample design report)*. Retrieved from <https://www.samhsa.gov/data/>
- Center for Behavioral Health Statistics and Quality. (2015b, August). *National Survey on Drug Use and Health: 2014 and 2015 redesign changes*. Retrieved from <https://www.samhsa.gov/data/>
- Center for Behavioral Health Statistics and Quality. (2016a). *2015 National Survey on Drug Use and Health: Methodological summary and definitions*. Retrieved from <https://www.samhsa.gov/data/>
- Center for Behavioral Health Statistics and Quality. (2016b). *2015 National Survey on Drug Use and Health: Summary of the effects of the 2015 NSDUH questionnaire redesign: Implications for data users*. Retrieved from <https://www.samhsa.gov/data/>
- Folsom, R. E., Shah, B., & Vaish, A. (1999). Substance abuse in states: A methodological report on model based estimates from the 1994-1996 National Household Surveys on Drug Abuse. In *Proceedings of the 1999 Joint Statistical Meetings, American Statistical Association, Survey Research Methods Section, Baltimore, MD* (pp. 371-375). Alexandria, VA: American Statistical Association.
- Gelman, A., Carlin, J. B., Stern, H. S., & Rubin, D. B. (2003). *Bayesian data analysis* (2nd ed., Chapman & Hall/CRC Texts in Statistical Science). Boca Raton, FL: Chapman and Hall/CRC.
- National Institute on Alcohol Abuse and Alcoholism. (2016). *Drinking levels defined*. Retrieved from <https://www.niaaa.nih.gov/alcohol-health/overview-alcohol-consumption/moderate-binge-drinking>
- Office of Applied Studies. (2001). *Development of computer-assisted interviewing procedures for the National Household Survey on Drug Abuse* (HHS Publication No. SMA 01-3514, Methodology Series M-3). Rockville, MD: Substance Abuse and Mental Health Services Administration.

Office of Applied Studies. (2005, September). Appendix C: Research on the impact of changes in NSDUH methods. In *Results from the 2004 National Survey on Drug Use and Health: National findings* (HHS Publication No. SMA 05-4062, NSDUH Series H-28, pp. 145-154). Rockville, MD: Substance Abuse and Mental Health Services Administration.

Office of Applied Studies. (2008, June). *Substate estimates from the 2004-2006 National Surveys on Drug Use and Health*. Rockville, MD: Substance Abuse and Mental Health Services Administration.

Raftery, A. L., & Lewis, S. (1992). How many iterations in the Gibbs sampler? In J. M. Bernardo, J. O. Berger, A. P. Dawid, & A. F. M. Smith (Eds.), *Bayesian statistics 4* (pp. 763-774). London, England: Oxford University Press.

Rao, J. N. K. (2003). *Small area estimation* (Wiley Series in Survey Methodology). Hoboken, NJ: John Wiley & Sons.

Shah, B. V., Barnwell, B. G., Folsom, R., & Vaish, A. (2000). Design consistent small area estimates using Gibbs algorithm for logistic models. In *Proceedings of the 2000 Joint Statistical Meetings, American Statistical Association, Survey Research Methods Section, Indianapolis, IN* (pp. 105-111). Alexandria, VA: American Statistical Association.

Wright, D. (2003, July). *State estimates of substance use from the 2001 National Household Survey on Drug Abuse: Volume II. Individual state tables and technical appendices* (HHS Publication No. SMA 03-3826, NHSDA Series H-20). Rockville, MD: Substance Abuse and Mental Health Services Administration.

Wright, D., & Sathe, N. (2005, January). *State estimates of substance use from the 2002-2003 National Surveys on Drug Use and Health* (HHS Publication No. SMA 05-3989, NSDUH Series H-26). Rockville, MD: Substance Abuse and Mental Health Services Administration.

Section E: List of Contributors

This National Survey on Drug Use and Health (NSDUH) document was prepared by the Center for Behavioral Health Statistics and Quality (CBHSQ), Substance Abuse and Mental Health Services Administration (SAMHSA), U.S. Department of Health and Human Services (HHS), and by RTI International (a registered trademark and a trade name of Research Triangle Institute), Research Triangle Park, North Carolina. Work by RTI was performed under Contract No. HHSS283201700002C.

At RTI, Neeraja S. Sathe and Kathryn Spagnola were responsible for the writing of the document, and Akhil K. Vaish was responsible for the overall methodology and estimation for the model-based Bayes estimates and confidence intervals. At SAMHSA, Xingyou Zhang and Yang Cheng reviewed the document and provided substantive revisions.

The following staff were responsible for generating the estimates: Akhil K. Vaish, Neeraja S. Sathe, and Kathryn Spagnola. The following staff provided other support: Brenda K. Porter and Amber McDonald. Ms. Spagnola also provided oversight for production of the document. Richard S. Straw edited it, and Teresa F. Bass, Kimberly Cone, and Pamela Tuck prepared the web versions. Justine L. Allpress prepared the maps used in the associated files.

