

2019 NSDUH, Supporting Statement  
Attachment A – Sample Design Report

# SAMPLE DESIGN

## 2019 National Survey on Drug Use and Health Sample Design

The 2019 National Survey on Drug Use and Health (NSDUH) is a continuation of a four-year sample design which was introduced by the Center for Behavioral Health Statistics and Quality (CBHSQ) in 2014. Similar to previous NSDUHs, the 2019 NSDUH sample design is a stratified, multi-stage area probability design. The sample design provides for estimates by state in all 50 states and the District of Columbia (DC). As shown in **Table 1**, the 2019 survey will have a sample designed to yield 4,560 completed interviews in California; 3,300 completed interviews each in Texas, New York, and Florida; 2,400 completed interviews each in Illinois, Pennsylvania, Ohio, and Michigan; 1,500 completed interviews each in Georgia, North Carolina, New Jersey, and Virginia; 967 completed interviews in Hawaii; and 960 completed interviews in each of the remaining 37 states and DC, for a total national target sample size of 67,507. The sample will be selected from 6,000 area segments which vary in size according to state. For the 2019 NSDUH, each state sample will be allocated to age groups as follows: 25 percent 12 to 17, 25 percent 18 to 25, 15 percent 26 to 34, 20 percent 35 to 49, and 15 percent 50 or older.

**Table 1. Sample Sizes and Projected Respondents by State and Age Group, 2019 NSDUH**

State	Age 12–17	Age 18–25	Age 26–34	Age 35–49	Age 50+	Total Age 12+	State Sampling Regions (SSRs)	Segment Size	No. of Segments
Total Population	16,877	16,877	10,126	13,501	10,126	67,507	750		6,000
CA	1,140	1,140	684	912	684	4,560	36	15.833	288
TX, NY, FL	825	825	495	660	495	3,300	30	13.75	240
IL, PA, OH, MI	600	600	360	480	360	2,400	24	12.5	192
GA, NC, NJ, VA	375	375	225	300	225	1,500	15	12.5	120
HI	242	242	145	193	145	967	12	10.07	96
Remaining 37 States and DC	240	240	144	192	144	960	12	10	96

Beginning in 2014 and continuing with the 2019 NSDUH, the sample will be designed to yield a minimum of 200 completed interviews in Kauai County, Hawaii over a three-year period. This will allow for Kauai County to be included as a separate entity in the production of substate estimates that are produced biennially and typically based on three years of data. To achieve this goal while maintaining precision at the state level, Kauai County will be treated separately from the remainder of Hawaii for sample allocation and sample size management purposes. The annual sample in Hawaii will consist of 67 completed interviews in Kauai and 900 completed interviews in the remainder of the state, for a total of 967 completed interviews each year.

Finally, the 2019 design includes the selection of Census block groups at the second stage of selection. This stage of selection was included beginning in 2014 to facilitate moving to an address-based sample (ABS) design in the future, if desired. Compared to geocoding at the Census block level, geocoding accuracy improves significantly at the Census block group level in both rural and urban areas. Thus, in an ABS design, Census block groups would serve as geographic clusters in areas with sufficient mailing address coverage. The selection of Census tracts at the first stage of selection and Census block groups at the second stage has the potential to reduce sampling variance by controlling the distribution of selected areas and reducing the chance of selecting neighboring and possibly similar areas within tracts and block groups. In addition, the merging of NSDUH data to external data sources for future analysis purposes is simplified when sampled areas are contained within tract and block group boundaries to the extent possible.

### **First, Second, and Third Stages of Selection: Census Tracts, Census Block Groups and Segments**

A coordinated sample for the period 2014-2017 was selected down to the area segment level as a means of coordinating the overlap of sample areas from year to year. In anticipation of the next decennial census data being unavailable, a large reserve sample was also selected and is available for use in 2018 and 2019.

The “first level” of stratification within the coordinated design is states. The larger sample sizes obtained at the state level along with small area estimation (SAE) techniques or direct estimation techniques will enable the development of estimates for all states, for several demographic subgroups within each state (e.g., age group and gender), for some Core Based Statistical Areas (CBSAs), and for other small areas.

The “second level” of stratification within the coordinated design was defined as contiguous geographic areas (groups of Census tracts) within each state. Within each state, state sampling regions (SSRs) are of approximately equal size in terms of the population and allocated state sample, except in Hawaii where Kauai County is its own SSR and the remainder of the state is divided into equal-sized regions.

The design of the first stage of selection began with the construction of an area sample frame that contained one record for each census tract in the United States. If necessary, census tracts were aggregated until each tract had a minimum number of dwelling units. In California, Texas, New York, Florida, Illinois, Pennsylvania, Ohio, Michigan, Georgia, North Carolina, New Jersey, and Virginia, this minimum size requirement was 250 dwelling units in urban areas and 200 dwelling units in rural areas. The basis for the differing minimum dwelling unit requirement in urban and rural areas is that it is more difficult to meet the requirement in rural areas, and 200 dwelling units are sufficient to support one field test and two main study samples. In the remaining states and DC, the number of completed interviews per sampled area is smaller and, therefore, fewer dwelling units are needed. In these states, the minimum requirement was 150 dwelling units in urban areas and 100 dwelling units in rural areas. After primary sampling units (PSUs; one or more census tracts) were formed, a sample was selected within each SSR with probabilities proportionate to a composite size measure and with minimum replacement. Additional implicit

stratification was achieved by sorting the first-stage sampling units by a CBSA/SES (socioeconomic status) indicator<sup>1</sup> and by percent non-Hispanic white prior to selection.

For the second stage of selection, adjacent Census block groups were aggregated within selected PSUs as necessary to meet the minimum dwelling unit requirements (150 or 250 dwelling units in urban areas and 100 or 200 dwelling units in rural areas, according to state). After the resulting secondary sampling units (SSUs; one or more census block groups) were formed, one SSU was selected per sampled PSU with probability proportionate to a composite size measure.

For the third stage of sampling for the coordinated sample, each of the selected Census block groups was partitioned into clusters of dwelling units by aggregating adjacent Census blocks. Consistent with the terminology used in previous surveys, these geographic clusters of blocks are referred to as *segments*. Segments were formed so that they contain the same minimum number of dwelling units as the PSU (i.e., Census tracts) and SSU (i.e., Census block groups) to which they belong. That is, area segments contain at least 150 or 250 dwelling units in urban areas and 100 or 200 dwelling units in rural areas according to state. Segments were constructed using 2010 Decennial Census data supplemented with 2013 population projections obtained from outside sources. A sample *dwelling unit* in the survey refers to either a housing unit or a group quarters listing unit such as a dormitory room or a shelter bed.

One segment was selected within each selected Census block group with probability proportionate to a composite size measure. As mentioned previously, segments were formed so that they will contain sufficient numbers of dwelling units to support one field test and two annual survey samples. This allows half of the segments used in any given year's main sample to be used again in the following year as a means of improving the precision of measures of annual change. This also allows for any special supplemental sample or field test that SAMHSA may wish to conduct within the same segments.

A sample of 8 segments per SSR will be used for the 2019 survey year. These 8 segments will be randomly assigned to quarters and to two panels within each quarter. The panels used in the 2019 survey will be designated as panels 6 and 7. Panel 6 segments have been used for the 2018 survey and will be used for the second time in the 2019 survey. The panel 7 segments will be used for the 2019 and 2020 surveys. Dwelling units that were not selected for the 2018 survey will be eligible for selection in the panel 6 segments in 2019.

Approximately one-fourth of the final sample of respondents will be collected from each calendar quarter. This design feature will help control the influence of seasonal variation on drug use prevalence estimates and other important survey outcome measures of interest.

#### **Fourth Stage of Selection: Listed Lines**

Before any sample selection within selected segments can proceed, specially trained field household listers will list all dwelling units and potential dwelling units within each selected area segment. A dwelling unit is either a housing unit for a single household or one of the eligible

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<sup>1</sup> Four categories are defined as: (1) CBSA/low SES, (2) CBSA /high SES, (3) Non-CBSA /low SES, and (4) Non-CBSA /high SES.

noninstitutional group quarters listing units that are part of the defined target population. The listings will be based primarily on observations of the area segment and may include vacant dwelling units and units that appear to be dwelling units but may actually be used for nonresidential purposes. The objective of the listing is to attain as complete a listing of eligible residential addresses as possible; any false positives for residences will be eliminated during the household screening process after the sample is selected.

The sampling frame for the fourth stage of sample selection will be the lines of listed dwelling units and potential dwelling units. After accounting for eligibility, nonresponse, and the fifth-stage sample selection procedures, it was determined that roughly 219,350 lines will need to be selected in order to obtain a sample of 67,507 responding persons distributed by state and age-group as shown in **Table 1**.

### **Fifth Stage of Selection: Persons**

After dwelling units are selected within each segment, an interviewer will visit each selected dwelling unit to obtain a roster of all persons residing in the dwelling unit. This roster information will be used to select 0, 1, or 2 persons for the survey. Sampling rates will be pre-set by age group and State. Roster information will be entered directly into the electronic screening instrument which will automatically implement this fifth stage of selection based on the State and age group sampling parameters.

One exciting consequence of using an electronic screening instrument in the survey is the ability to efficiently sample from all possible pairs of respondents within a dwelling unit while preserving the target sampling rates for individuals within 5 age groups (12 to 17, 18 to 25, 26 to 34, 35 to 49, and 50 or older). Using an adaptation of Brewer's method for samples of size 2, a sample of 0, 1, or 2 persons will be selected from each dwelling unit. As a consequence, *any* two survey-eligible people within a dwelling unit will have a known chance of being selected, that is, all survey eligible pairs of people will have some nonzero chance of being selected. This feature of the design is of interest to survey researchers because for example, it will allow analysts to examine how the drug use propensity of one individual in a family will relate to the drug use propensity of another family member residing in the same dwelling unit (e.g., the relationship of drug use between a parent and child).

As illustrated in **Table 2**, at the fifth stage of selection, roughly 96,765 people will be selected from within 137,231 screened and eligible dwelling units. Assuming an 75% screening completion rate and a 70% interview completion rate, these sample sizes are sufficient to obtain the desired 67,507 respondents.

**Table 2. Summary of 2019 Main Study Design**

<b>Statistic</b>	<b>2019 NSDUH</b>	<b>2019 Rate</b>
State Sampling (SS) Regions	750	
Segments	6,000	
Selected Lines	219,305	
Eligible Dwelling Units	183,760	0.84
Completed Screening Interviews	137,231	0.75
Selected Persons	96,765	0.71
Completed Interviews	67,507	0.70

**Expected Precision of Survey Estimates**

The multistage, stratified 2019 survey design has been designed to achieve acceptable precision for various person subpopulations of interest. The allocation of persons per state and age group (12-17, 18-25, 26-34, 35-49, and 50 or older) was also taken as a requirement to support direct estimation in some large sample states and SAE in the remaining states. **Table 3** shows the projected relative standard errors for selected prevalence measures.

**Table 3. Estimated Prevalences and Relative Standard Errors for Key Measures by Demographic Domain**

<b>Measure</b>	<b>Domain</b>	<b>Prevalence</b>	<b>Projected RSE</b>
Past Month Alcohol Use	12+	0.5075	0.0069
Past Month Alcohol Use	12-20	0.1932	0.0158
Past Month Alcohol Use	50+	0.4882	0.0126
Past Month Alcohol Use	API,12+	0.3569	0.0428
Past Month Alcohol Use	AIAN, 12+	0.3437	0.0801
Past Month Alcohol Use	Pregnant, 12-44	0.0823	0.2241
Past Month Binge Alcohol Use	18-25	0.3835	0.0129
Past Month Binge Alcohol Use	12+	0.2425	0.0111
Past Month Marijuana Use	12+	0.0890	0.0184
Past Month Marijuana Use	12-17	0.0646	0.0387
Past Month Marijuana Use	18-25	0.2078	0.0199
Past Month Marijuana Use	50+	0.0431	0.0573
Past Month Marijuana Use	API,12+	0.0374	0.1080
Past Month Marijuana Use	AIAN, 12+	0.1363	0.1266
Past Month Marijuana Use	Pregnant, 12-44	0.0491	0.2830
Past Month Cigarette Use	12-17	0.0343	0.0553
Past Month Cigarette Use	12+	0.1905	0.0144
Past Month Pain Reliever Misuse	18-25	0.0182	0.0714
Past Month Pain Reliever Misuse	12+	0.0124	0.0492
Past Year Alcohol Disorder	12+	0.0559	0.0237
Past Year Illicit Drug Disorder	12+	0.0274	0.0304
Past Year Substance Use Disorder	50+	0.0406	0.0600
Past Year Specialty Substance Use Treatment	12+	0.0083	0.0610
Past Year SMI	18+	0.0424	0.0294
Past Year MDE	18+	0.0671	0.0232

Note: Prevalence estimates are based on data from the 2016 NSDUH. Projected RSEs were determined using 2014 through 2019 state and age sample allocations in a variance component model. All model components were updated using 2016 NSDUH data..

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Attachment L – Interview Incentive Receipt



# Interview Incentive Receipt

U.S. Department of Health and Human Services

and

RTI International

**thank you for participating in the 2019 National Survey on Drug Use and Health.**

In appreciation of your participation in this important study, you are eligible to receive \$30 in cash.

Since maintaining the confidentiality of your information is important to us, your name will not be entered on this form. However, the interviewer must sign and date this form to certify you received (or declined) the cash incentive.

_____ Interviewer	_____ Date	_____ Case ID
<input type="checkbox"/> Accepted Cash Incentive		<input type="checkbox"/> Declined Cash Incentive

If you ever feel that you need to talk to someone about mental health issues, you can call the National Lifeline Network. Counselors are available to talk at any time of the day or night and they can give you information about services in your area.

1-800-273-TALK or 1-800-273-8255

1-888-628-9454 (Spanish)

<http://suicidepreventionlifeline.org/>

If you ever feel that you need to talk to someone about drug use issues, you can call the Substance Abuse and Mental Health Services Administration's Treatment Referral Helpline. This is a 24-hour service that will help you locate treatment options near you.

1-800-662-HELP or 1-800-662-4357

1-800-487-4889 (TDD)

<http://findtreatment.samhsa.gov>

Disposition: Top copy to Respondent, yellow to Field Supervisor, pink to Field Interviewer.

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Attachment S – Certificate of Participation



# Certificate of Participation

The U.S. Department of Health and Human Services and RTI International would like to thank

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[Participant's Signature]

for participating in the **National Survey on Drug Use and Health**

on

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[Date of Interview]

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Field Interviewer

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FI ID #

*Ilona S. Johnson*

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Ilona S. Johnson,  
National Field Director  
RTI International  
3040 Cornwallis Road  
Research Triangle Park, NC 27709



This document certifies that the above named individual participated in NSDUH, a voluntary survey for the U.S. Department of Health and Human Services. Across the country, some participants approach their school teachers or other group leaders to ask about possible special community service credit as they completed this important national survey. The time commitment for participation in this survey is between 1 and 2 hours. A copy of the NSDUH brochure, which explains the study in more detail, should accompany this certificate. If you need further information, contact the National Field Director, Ilona Johnson, at (800) 848-4079.