SAMHSA
Substance Abuse and Mental Health Services Administration

2023 National Survey on Drug Use and Health (NSDUH) Sample Design Plan

Substance Abuse and Mental Health Services Administration
Center for Behavioral Health Statistics and Quality
Rockville, Maryland

September 2022

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Acknowledgments

This report was prepared for the Substance Abuse and Mental Health Services Administration (SAMHSA), U.S. Department of Health and Human Services (HHS), under Contract No. 75S20322C00001 with RTI International. Marlon Daniel served as the government project officer and as the contracting officer representative.

Recommended Citation

Center for Behavioral Health Statistics and Quality. (2022). *2023 National Survey on Drug Use and Health (NSDUH) sample design plan* (unpublished internal documentation). Substance Abuse and Mental Health Services Administration.

Originating Office

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U.S. Department of Health and Human Services
Substance Abuse and Mental Health Services Administration
Center for Behavioral Health Statistics and Quality
Populations Survey Branch

September 2022

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1. Introduction

1.1 Purpose

The goal of this report is to describe sampling plans for the 2023 National Survey on Drug Use and Health (NSDUH). The report is organized into five chapters and includes a list of cited references, a list of contributors, and an appendix. The remainder of Chapter 1 describes the target population and provides a general overview of the 2023 NSDUH sample design. Chapter 2 discusses the 2014 through 2022 coordinated design and the motivation for extending it to 2023. Chapters 3 and 4 focus on the features that will be employed in 2023, including a hybrid address-based sampling (ABS)[1] and field enumeration sampling frame (Chapter 3), the selection of dwelling units (DUs) (Chapter 4), and the selection of people (Chapter 4). Then, Chapter 5 describes the sample design for the Mental Illness Calibration Study (MICS), which is planned for the 2023 and 2024 NSDUHs. Finally, Appendix A presents the parametric variance model and sample design parameters used to project relative standard errors for 25 key outcome measures and domains of interest.

1.2 Target Population

The respondent universe for the 2023 NSDUH (conducted by RTI International[2]) is the civilian, noninstitutionalized population aged 12 years or older within the 50 states and the District of Columbia. Consistent with NSDUH designs since 1991, the 2023 NSDUH universe includes residents of noninstitutional group quarters (e.g., shelters, rooming houses, dormitories) and civilians residing on military bases. Persons excluded from the universe include those with no fixed household address (e.g., persons experiencing homelessness not in shelters) and residents of institutional group quarters, such as jails and hospitals.

1.3 Design Overview

A coordinated sample design was developed for the 2014 through 2017 NSDUHs. A large reserve sample of area clusters was selected at the time the 2014 through 2017 NSDUH sample was selected. This reserve sample is being used to field the 2018 through 2022 NSDUHs. Because 2020 Census data are not available, the reserve sample will also be used for the 2023 NSDUH. The 50 percent overlap in sampled clusters will be continued so that half of the sampled clusters are carried over from the 2022 NSDUH and the other half are new.

For the 2023 through 2027 NSDUHs, the Substance Abuse and Mental Health Services Administration (SAMHSA) aims to improve the precision of estimates for minorities or hard-to-reach populations. Toward this goal, the selection of smaller areas within secondary sampling units (SSUs) will be eliminated in the new portion of the 2023 sample. Using larger geographic

[1] ABS refers to the sampling of residential addresses from a list based on the U.S. Postal Service's Computerized Delivery Sequence (CDS) file.

[2] RTI International is a trade name of Research Triangle Institute. RTI and the RTI logo are U.S. registered trademarks of Research Triangle Institute.

areas is expected to reduce intracluster correlation and increase precision. Some larger SSUs may need to be subsampled to make field enumeration feasible, however.

Within sampled areas, NSDUH has traditionally used field enumeration to construct DU frames. A specially trained field lister visits each sampled area to obtain a complete and accurate list of all potentially eligible DUs within the sampled area's boundaries. Like the 2022 NSDUH, a hybrid ABS approach will be implemented for the 2023 NSDUH. In this two-tiered hybrid approach, areas with medium or low expected ABS coverage will be field enumerated, whereas areas with high expected ABS coverage will use the ABS frame (see Chapter 3).

Over a period of several years, RTI International developed and tested an electronic listing (eListing) application to transition NSDUH's paper-based field enumeration process to an electronic format. Beginning with the 2023 NSDUH, the eListing application will be used to enumerate DUs in areas with medium or low expected ABS coverage and to locate sampled DUs during data collection. Use of the eListing application at both stages (field enumeration and data collection) is expected to result in process efficiencies and improve data quality. For sampled areas carried over from the 2022 NSDUH, paper DU listings will be converted to eListings so that only electronic maps are used to support data collection in 2023.

Similar to NSDUHs dating back to 1999,[3] the 2023 survey will provide state estimates based on requested sample sizes per state. Like the 2021 and 2022 NSDUHs, selected DUs will be mailed an invitation to participate in the survey online. Then, field interviewers will visit all pending DUs to complete the screener and/or interview any selected individuals using computer-assisted interviewing methods. A $30 incentive will be provided to web and in-person survey participants, as has been done since the 2002 NSDUH. The total sample size of 67,507 completed interviews will be distributed within five age groups as follows: 25 percent for youths aged 12 to 17, 25 percent for young adults aged 18 to 25, 15 percent for adults aged 26 to 34, 20 percent for adults aged 35 to 49, and 15 percent for adults aged 50 or older. This sample size will allow SAMHSA to continue to report on estimates for some demographic subgroups at the national level with adequate precision without the need to oversample these subgroups, as was required prior to the 1999 survey.

The MICS is planned for the 2023 and 2024 NSDUHs. The goal of MICS is to recalibrate estimate(s) of mental illness using criteria in the *Diagnostic and Statistical Manual of Mental Disorders*, 5th edition (American Psychiatric Association, 2013). At the end of the NSDUH interview, respondents selected for MICS will be asked to participate in a follow-up clinical interview that will be conducted via Zoom or phone. The MICS sample design is similar to that of the 2008-2012 Mental Health Surveillance Studies and is described in Chapter 5.

[3] Prior to 2002, the survey was called the National Household Survey on Drug Abuse.

2. 2014-2023 Coordinated Sample

2.1 Overview

A coordinated sample design was developed for the 2014 through 2017 National Surveys on Drug Use and Health (NSDUHs) and was extended to the 2018 through 2022 NSDUHs. In summary, each state is stratified into state sampling regions (SSRs), then census tracts are selected within SSRs (Stage 1), census block groups (CBGs) are selected within census tracts (Stage 2), and census blocks are selected within CBGs (Stage 3). The 2010 decennial census and 2006-2010 American Community Survey (ACS) data were used to select the coordinated sample originally. Because the 2020 decennial census data were not available, the Substance Abuse and Mental Health Services Administration (SAMHSA) made the decision to extend the coordinated sample design to the 2023 NSDUH.

In preparation for the 2014 NSDUH sample redesign, several optimization models and other related analyses were conducted (RTI International, 2012). SAMHSA used the results from these analyses to inform the 2014 through 2023 design. The multiyear design allows for a cost-efficient sample allocation to the largest states, while maintaining adequate sample sizes in smaller states to support small area estimation (SAE) at the state and substate levels.

First-, second-, and third-stage sampling units were formed and selected ahead of time and in sufficient numbers to support the 2014 through 2017 NSDUH main studies and several large field tests. Additional "reserve" sampling units were selected to carry the sample through the next decennial census. This reserve sample is being used to support the 2018 through 2023 NSDUHs. In addition to being efficient, the process of selecting sampled areas ahead of time minimizes respondent burden by preventing most physical dwelling units (DUs) from being selected more than once during the years of the coordinated sample.[4]

The coordinated design for the 2014 through 2023 NSDUHs facilitates 50 percent overlap in sampled areas between each 2 successive years from 2014 through 2023. This designed sample overlap may slightly increase the precision of estimates of year-to-year trends if a reused sampled area is somewhat homogeneous, creating a small positive correlation in successive years. The 50 percent overlap of sampled areas significantly reduces costs because DU frames need to be constructed for only one half of the sampled areas each year after 2014.

As with the design for most area household surveys, NSDUH's 2014 through 2023 design offers the advantage of increasing interviewing efficiency by clustering the sample of DUs within a sample of geographies. Also, because a complete frame of DUs does not exist in all areas, the clustered area design enables the construction of a DU frame for a representative sample of geographies so that all DUs have a chance of selection. The main concern of area surveys is the potential variance-increasing effects of clustering and unequal weighting, but these potential problems are directly addressed by (1) selecting a rather large sample of clusters at the

[4] For the 2023 NSDUH, using secondary sampling units (SSUs) as the smallest geographic unit allows for some SSUs to partially overlap with smaller area segments used in previous surveys. As a result, some DUs that were selected in previous years may be selected for the 2023 NSDUH. Duplicate sample dwelling units (SDUs) *within* the 2023 sample will be removed.

early stages of selection and (2) selecting these clusters with probability proportional to a composite size measure defined as the population weighted by the state sampling rate in each age group. This type of selection boosts precision by achieving an approximately self-weighting sample within each state and age group (Center for Behavioral Health Statistics and Quality, 2022). Furthermore, the composite size measure approach tends to equalize final cluster sizes, thus equalizing interviewer workloads within states.

SSUs and smaller area segments were designed to contain enough DUs to support two annual survey samples (because of the 50 percent overlap in sampled areas) and one field test sample. The minimum size requirement varies by state and the urban/rural status of the sampling unit, as discussed in Section 2.3.

The 2014 through 2023 design ensures a sufficient sample to produce national estimates directly. Depending on the desired precision, either direct estimates or estimates using SAE are produced for state and substate areas, often by combining several years of data. For example, typically 2-year combined estimates are produced by age group within each state, and 3-year combined estimates are produced by substate area and age group using SAE. Other examples include direct estimates for some core-based statistical areas (CBSAs[5]) by age group and gender using multiple years of pooled data.

The 2014 through 2023 surveys are designed to yield the following:

- 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;
- 1,500 completed interviews each in Georgia, New Jersey, North Carolina, and Virginia;
- 967 completed interviews in Hawaii; and
- 960 completed interviews in each of the remaining 37 states and the District of Columbia.

An additional requirement of the 2014 through 2023 sample design is that the sample yield a minimum of 200 completed interviews in Kauai County, Hawaii, over a 3-year period. This allows for Kauai County to be included as a separate entity in the production of substate estimates that are produced biennially and typically based on 3 years of data. To achieve this goal while maintaining precision at the state level, Kauai County is treated separately from the remainder of Hawaii for sample allocation and sample size management purposes. The annual sample in Hawaii consists 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.

[5] CBSAs include metropolitan and micropolitan statistical areas as defined by the Office of Management and Budget (2009). Metropolitan statistical areas contain at least one urbanized area with 50,000 or more people and may include adjacent territory with a high degree of social and economic integration with the core as measured by commuting. Micropolitan statistical areas have an urban core with at least 10,000 but fewer than 50,000 people, plus adjacent territory that is socioeconomically tied to the core by commuting. Both metropolitan and micropolitan statistical areas are defined in terms of whole counties (or equivalent entities).

In expectation, data from roughly a random one fourth of the final sample of respondents are collected in each calendar quarter.[6] This design feature helps control the influence of seasonal variation on annual drug use and mental health prevalence estimates and other important NSDUH outcome measures of interest.

2.2 Stratification

The first level of stratification is the "state," where the District of Columbia is treated as a state. The next level of strata is defined by geographically partitioning each state into roughly equal-sized (according to composite size measure) SSRs; in the NSDUH design, each SSR is expected to yield roughly the same number of interviews within each state during each data collection period. To form SSRs, counties or, when necessary, portions of counties[7] (census tracts) were combined using a geographic information systems (GIS) application developed by RTI until the specified number of SSRs was formed and the SSRs, as a group, spanned the entire land area of the state. The formation of SSRs also took interviewer accessibility into account (e.g., by considering mountain ranges, rivers, and other potential "difficult to travel" areas).

The partitioning of the United States resulted in the formation of 750 SSRs. Within each of these SSRs, a sample of primary sampling units (PSUs; one or more census tracts) was selected. Then, within sampled PSUs, SSUs (one or more CBGs) were selected. Finally, because CBGs generally far exceed the minimum DU requirement (defined in Section 2.3), one smaller geographic area was selected within each sampled SSU. In general, third-stage sampling units consisted of adjacent census blocks. In summary, the first-stage stratification for the 2014 through 2023 studies involves states and SSRs within states, with the first-stage sampling units being census tracts, the second-stage sampling units being CBGs, and the third-stage sampling units being one or more census blocks. As discussed previously, the third stage of selection was eliminated for the new portion of the 2023 NSDUH sample to increase the precision of estimates. In the 2022 NSDUH, SSUs were used for areas with high expected ABS coverage, and smaller area segments (third-stage sampling units) were used for areas requiring field enumeration. Thus, for the 2023 NSDUH, "segment" refers to either an SSU or a third-stage sampling unit.

For the coordinated sample, additional implicit stratification was achieved by sorting the first-stage sampling units (census tracts) by a CBSA/socioeconomic status (SES) indicator[8] and by the percentage of the population who are non-Hispanic White prior to selection. The first-stage sampling units were systematically selected from this well-ordered sample frame.

[6] A slight modification to equal allocation to calendar quarters is discussed in Section 4.3.

[7] In Louisiana, parishes or portions of parishes were combined to form SSRs. In Alaska, whole or portions of boroughs, city and boroughs, municipalities, and census areas were combined.

[8] Four categories of the indicator are defined: (1) CBSA/low SES, (2) CBSA/high SES, (3) non-CBSA/low SES, and (4) non-CBSA/high SES. To define SES, tract-level median rents and property values from the 2006-2010 ACS were given a rank (1…5) based on state and CBSA quintiles. The rent and value ranks then were averaged, weighted by the percent of renter- and owner-occupied DUs, respectively. If the resulting score fell in the lowest 25th percentile by state and CBSA, the area was considered "low SES"; otherwise, it was considered "high SES."

2.3 First-, Second-, and Third-Stage Sample Selections

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 PSU had reached the minimum size requirement. In California, Florida, Georgia, Illinois, Michigan, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Texas, and Virginia, this minimum size requirement was 250 DUs in urban areas and 200 DUs in rural areas. In the remaining states and the District of Columbia, the minimum requirement was 150 DUs in urban areas and 100 DUs in rural areas. After PSUs were formed, a sample was selected within each SSR with probabilities proportional to a composite size measure and with minimum replacement.

For the second stage of selection, adjacent CBGs were aggregated within selected PSUs as necessary to form SSUs to meet the minimum DU requirements (150 or 250 DUs in urban areas and 100 or 200 DUs in rural areas according to state). Then one SSU was selected per sampled PSU with probability proportional to a composite size measure.

The systematic selection of census tracts at the first stage of selection and CBGs 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 analytical purposes is simplified when sampled areas are contained within tract and block group boundaries to the extent possible.

For the third stage of sampling, each selected CBG was partitioned into compact clusters[9] of DUs by aggregating adjacent census blocks. These geographic clusters of blocks or smaller area segments were formed so that they contain the same minimum number of DUs as the PSU (i.e., census tracts) and SSU (i.e., CBGs) to which they belong. That is, smaller area segments contain at least 150 or 250 DUs in urban areas and 100 or 200 DUs in rural areas according to state. Smaller area segments were constructed using 2010 decennial census data supplemented with 2013 DU population estimates obtained from Claritas.[10] One smaller area segment was selected within each sampled SSU with probability proportional to size.

SSUs and smaller area segments were formed to contain sufficient numbers of DUs to support one field test and two annual NSDUH samples (because of the 50 percent overlap in sampled areas between two successive survey years). Because each sampled area has more than twice as many DUs as needed in any given year, each sampled area can be used for two survey cycles. Therefore, half of the sampled areas used in any given year's main sample are used again in the following year as a means of improving the precision of measures of annual change.[11] This SSU or smaller area segment size also allows for any special supplemental sample or field test

[9] Although the entire cluster is compact, the final sample of DUs represents a noncompact cluster. Noncompact clusters differ from compact clusters in that only random units within the cluster are included in the sample. Although compact cluster designs are less costly and more stable, a noncompact cluster design was used because it provides for greater heterogeneity of dwellings within the sample. Also, social interaction (contagion) among neighboring dwellings is sometimes introduced with compact clusters (Kish, 1965).

[10] Claritas is a market research firm headquartered in Cincinnati, Ohio (see https://www.claritas.com/).

[11] Each segment is fielded during the same calendar quarter in each of the 2 years it is used.

that SAMHSA may wish to conduct within the same sampled areas. Table 2.1 shows the allocation of the annual area segment sample by state. As noted previously, for the 2023 NSDUH, "segment" refers either to an SSU or a smaller area segment.

Table 2.1 Annual National Sample of Area Segments

Design Parameter	CA	FL, NY, and TX	IL, MI, OH, and PA	GA, NC, NJ, and VA	Remaining 38 States and DC	Total
Total Sample						
SSRs	36	90	96	60	468	750
Segments	288	720	768	480	3,744	6,000
Total per State						
SSRs	36	30	24	15	12	
Segments	288	240	192	120	96	
Total per SSR						
Segments per Quarter	2	2	2	2	2	
Segments over Four Quarters	8	8	8	8	8	

CA = California; DC = District of Columbia; FL = Florida; GA = Georgia; IL = Illinois; MI = Michigan; NC = North Carolina; NJ = New Jersey; NY = New York; OH = Ohio; PA = Pennsylvania; SSR = state sampling region; TX = Texas; VA = Virginia.

Within each SSR, a total of 48 segments were selected. With the 50 percent segment overlap from one analysis year to the next, the 2014 through 2017 coordinated sample required a sample of 20 segments per SSR. An additional 28 segments per SSR were selected to extend the design to the next decennial census if desired and to support any additional studies embedded within NSDUH. These 28 segments are referred to as the "reserve sample," and 24 of the reserve segments are being used to field the 2018 through 2023 NSDUHs. Thus, a total of 44 segments per SSR are required for the 2014 through 2023 studies.

After selecting the 48 segments per SSR, 12 equal probability subsamples of 4 segments were selected, and each subsample was assigned a sequential panel number. Thus, the SSRs remain the same, and the 48 segments are allocated to 12 panels: 11 for the 2014 through 2023 NSDUHs plus 1 additional panel. Within panels, segments were assigned to quarters in the order they were selected. Two panels or eight segments per SSR are used for each NSDUH year. The panels used in the 2023 NSDUH are designated as panels 10 and 11. Panel 10 segments were used for the 2022 survey and will be used for the second time in 2023, constituting the 50 percent overlap in survey samples. DUs not selected for the 2022 survey will be eligible for selection in the panel 10 segments in 2023. The panel 11 segments will be used for the 2023 survey only.

Table 2.2 displays how a sample of 44 segments selected in an SSR is used to provide 8 segments per year for 10 years. Note that panels 1 and 11 are used only once, but all other samples are used in 2 successive years.

Table 2.2 Sample Rotation within a State Sampling Region; 2014 through 2023

Panel Number	Panel Segments	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
1	4	X									
2	4	X	X								
3	4		X	X							
4	4			X	X						
5	4				X	X					
6	4					X	X				
7	4						X	X			
8	4							X	X		
9	4								X	X	
10	4									X	X
11	4										X

2.4 Fourth and Subsequent Stages of Sample Selection

The selection of DUs (fourth-stage units) and persons (fifth-stage units) are specific to each annual survey or supplement. Sections 4.3 and 4.4 discuss these stages of selection for the 2023 NSDUH.

3. 2023 National Survey on Drug Use and Health Hybrid Address-Based Sampling Frame and Field Enumeration Frame

3.1 Overview

Address-based sampling (ABS) refers to the sampling of residential addresses from a list purchased from a licensed vendor. The vendor lists are based on the U.S. Postal Service's Computerized Delivery Sequence (CDS) file. Relative to field enumeration, ABS has the potential to greatly reduce costs, improve timeliness, and improve frame accuracy in areas with controlled access.

ABS has some limitations. Some addresses may geocode into the wrong area segment and therefore be incorrectly included or excluded in a segment. For example, an address that geocodes across the street from its physical location when the street is the segment's boundary is excluded from the address frame for the segment in which it belongs. It is incorrectly included on the address frame for the adjacent segment. In-person surveys also require addresses that can be located on the ground.[12] Thus, rural areas with high concentrations of PO Box™ addresses and noncity-style addresses[13] are undercovered[14] (Dohrmann et al., 2006, 2007). Finally, group quarters and American Indian or Alaska Native areas also are known to be undercovered (Dohrmann et al., 2006; Dohrmann & Sigman, 2013; McMichael, 2015).

To maximize coverage and minimize costs, many studies use a hybrid ABS approach that uses both ABS and field enumeration, depending on the expected coverage of the ABS frame for particular areas.[15] In a two-tiered hybrid approach, a net coverage estimate is used to assign sampled areas to two coverage tiers. In general, the net coverage estimate is defined as the frame count (i.e., count of ABS addresses that geocode into the sampled area) divided by an external benchmark dwelling unit (DU) estimate (e.g., census count). Areas whose net coverage estimate is below a predetermined threshold are field enumerated, whereas areas whose net coverage estimate exceeds the threshold use ABS.

An ABS research report was prepared to summarize ABS research to date and identify any continued areas of concern for the use of ABS frames on the National Survey on Drug Use and Health (NSDUH) (Substance Abuse and Mental Health Services Administration [SAMHSA], 2019). The findings were then used to inform research questions for an ABS field test. Based on the ABS research report and preliminary results from the ABS field test, SAMHSA approved the implementation of a hybrid ABS frame for the 2022 NSDUH. The 2022

[12] Although data will initially be collected via the web, all pending DUs will be transferred to in-person data collection after a specified period of time. Thus, locatable addresses are required for 2023 NSDUH multimode data collection.

[13] City-style addresses are those with a street number and name, city name, state abbreviation or name, and ZIP code). Noncity-style addresses include PO Boxes, rural route boxes, and highway contract boxes.

[14] Coverage is the extent to which the frame includes the eligible survey population. At the dwelling unit (DU) stage, a frame with complete coverage includes all eligible DUs in the sample segment.

[15] Other studies that have employed a hybrid ABS frame include the National Health Interview Survey, the Residential Energy Consumption Survey, and the U.S. Food & Drug Administration Tobacco Consumer Studies Panel.

approach allowed SAMHSA to deploy a hybrid ABS frame on a limited basis, without significant risk, while realizing some of the cost and timeliness benefits. A less conservative, larger scale deployment of ABS is planned for the 2023 NSDUH.

3.2 2023 NSDUH Hybrid ABS Frame

Half of the 2023 NSDUH secondary sampling units (SSUs) or segments will be retained from the 2022 NSDUH, but the frame construction process for the new portion of the 2023 NSDUH sample differs from that of the overlap sample. Table 3.1 summarizes the hybrid ABS approach for both portions of the sample. Then, Sections 3.2.1 and 3.2.2 discuss the methods used to prepare the DU frames for new and overlap SSUs or segments, respectively, in greater detail.

Table 3.1 Summary of 2023 NSDUH Hybrid Address-Based Sampling (ABS) Approach, New and Overlap Samples

Hybrid ABS Frame Component	New Sample Approach	Overlap Sample Approach
Net Coverage Estimate	Computerized Delivery Sequence (CDS) + NoStat throwback count divided by occupied housing unit count from the 2019 5-year American Community Survey (ACS)	CDS + NoStat throwback count divided by total housing unit count from the 2019 5-year ACS
Coverage Threshold	If the secondary sampling unit (SSU) net coverage estimate falls below 90 percent, it will be assigned to electronic listing (eListing). Otherwise, it will use the ABS frame. SSUs will serve as both eListing and ABS segments.	If the SSU net coverage estimate fell below 95 percent, a smaller segment was selected for field enumeration. Otherwise, the SSU was the segment and used the ABS frame.
Group Quarters	SSUs in which 1 percent or more of the dwelling units are group quarter units will be assigned to eListing.	SSUs with any adult (18+) group quarter population according to the 2019 5-year ACS were assigned to field enumeration.
Drop Points1	If 25 percent or more of the addresses in an SSU are drop points, the SSU will be assigned to eListing.	1. If an SSU had at least one drop point with three or more units, it was assigned to field enumeration. 2. If 25 percent or more of the addresses in an SSU were drop points, the SSU was assigned to field enumeration.

[1]A drop point is a mail receptacle serving multiple housing units.

3.2.1 New Sample Hybrid ABS Approach

As mentioned previously, in the new portion of the 2023 NSDUH sample, SSUs will serve as geographic clusters both in areas with sufficient mailing address coverage and in areas assigned to eListing. Using SSUs as both ABS and eListing segments is expected to reduce intracluster correlation and increase the precision of estimates.

First, net coverage estimates will be computed for all SSUs that were selected at the second stage of selection and assigned to the 2023 NSDUH (panel 11 in Table 2.2). The net

coverage estimate used to stratify SSUs will be computed using the CDS + NoStat throwback[16] count in the numerator because these are the addresses that constitute the ABS frames for NSDUH. Occupied housing unit counts from the 2019 5-year American Community Survey (ACS) will serve as the denominator.

The choice of coverage threshold used to stratify SSUs into those that use the ABS frame and those that are field enumerated involves a trade-off between cost and coverage. Higher thresholds have less cost savings but better accuracy; lower thresholds result in higher cost savings at the expense of accuracy. Based on findings from the ABS field test, a coverage threshold of 90 percent is recommended for NSDUH. Thus, new SSUs with less than 90 percent expected ABS coverage will be assigned to eListing (Table 3.1).

In addition to having high expected ABS coverage, new SSUs will be required to meet separate criteria for group quarters and drop points (defined in the next paragraph) in order to use the ABS frame (Table 3.1). Because group quarters are expected to be undercovered on the ABS frame and because making contact with group quarter administrators at the listing stage improves the likelihood of gaining access for screening and interviewing, it is preferable that SSUs containing group quarters be assigned to field enumeration in a hybrid frame. For the new portion of the sample, any SSU in which 1 percent or more of the DUs are group quarter units[17] will be assigned to eListing.

A drop point is a mail receptacle that is shared by multiple housing units (drop units). While some drop points are large (e.g., gated communities and high-rise apartment buildings), the majority are two-unit drop points (e.g., a duplex with one mailing address) (Amaya, 2017). The ABS frame indicates the number of units at a drop point but does not include unit identifiers (e.g., apartment numbers). Drop points present additional challenges for sample implementation because of their one-to-many relationship to DUs. For this reason, if 25 percent or more of the addresses in a new SSU are drop points, the SSU will be assigned to eListing.

Based on the hybrid ABS approach described above, a total of 1,931 (64.37 percent) of the 3,000 new SSUs in the 2023 sample will use the ABS frame and 1,069 (35.63 percent) will be electronically listed beginning in August 2022. Similar to prior years, specially trained field listers will list all DUs and potential DUs within each eListing SSU. However, for the first time, listers will use the eListing application to record DU information. The electronic listings will be based primarily on observation and may include vacant DUs and units that appear to be DUs but may actually be used for nonresidential purposes. The objective of the listing is to attain as complete a listing of potentially eligible residential addresses as possible. Any false positives for residences—such as vacant DUs or nonresidential units—that are selected into the sample will be eliminated during the household screening process after the sample is selected.

[16] The NoStat file, another U.S. Postal Service file from CDS file vendors, contains addresses that do not receive mail delivery (e.g., new construction). *Active* NoStat addresses include rural throwbacks and internal drops. Rural throwbacks are locatable addresses for residents on rural postal routes who specify that their mail be delivered to the post office rather than their home address. Internal drops are locatable addresses for units (i.e., include unit type and identifying number) with identical street addresses on the CDS (Shook-Sa et al., 2013).

[17] Group quarter units are estimated by dividing the 2019 ACS group quarter population by the average number of people per group quarter unit from historical NSDUHs.

Some large SSUs will need to be subsampled to make eListing feasible. When possible, SSUs with more than 750 expected DUs or more than 75 square miles and at least 200 expected DUs will be subsampled using standard subsegmenting procedures (see Appendix D in the sample design report [Center for Behavioral Health Statistics and Quality {CBHSQ}, 2022]). The sample weights will be adjusted to reflect this subsampling.

3.2.2 Overlap Sample Hybrid ABS Approach

Compared with geocoding at the census block level, geocoding accuracy improves significantly at the census block group (CBG) level in both rural and urban areas (Shook-Sa et al., 2010). Thus, in the 2022 hybrid ABS approach, SSUs (one or more CBGs) served as geographic clusters in areas with sufficient mailing address coverage. Net coverage estimates were computed for all SSUs that were selected for the 2022 NSDUH (panel 10 in Table 2.2). Those SSUs that met the ABS coverage criteria then served as sample segments.[18] SSUs that did not meet the ABS coverage criteria required field enumeration. For cost-efficiency, the smaller geographic area selected at the third stage of selection was field enumerated and considered the sample segment. These ABS and field enumerated segments will be used for the second time in 2023 and will retain their 2022 ABS or field enumeration designation.

For the 2022 NSDUH overlap sample, the SSU-level net coverage estimates were computed by dividing the CDS + NoStat throwback count by the total housing unit count from the 2019 5-year ACS. Using total housing units instead of occupied housing units in the denominator provided a conservative estimate of ABS coverage. A relatively high coverage threshold of 95 percent was used to stratify SSUs based on the net coverage estimate. As noted previously, a higher threshold allowed SAMHSA to roll out ABS on a limited basis for the 2022 NSDUH.

SSUs were also required to meet separate criteria for group quarters and drop points. For the 2022 NSDUH overlap sample, any SSU with a nonzero adult (18 or older) group quarters population according to the 2019 5-year ACS was assigned to field enumeration. In addition, two drop point criteria were applied. First, if an SSU had at least one drop point with three or more units, it was assigned to field enumeration. This step eliminated the need to subsample units if more than five drop units were found at a selected drop point (and added as missed DUs). Second, if 25 percent or more of the addresses in an SSU were drop points (even if all of them were two-unit drop points), the SSU was assigned to field enumeration. This step eliminated the need to subsample missed DUs if more than 10 drop units were added as missed DUs within the segment.

Based on the 2022 NSDUH hybrid ABS approach, a total of 973 (32.43 percent) of the 3,000 overlap segments in the 2023 NSDUH sample will use ABS and 2,027 (67.57 percent) were field enumerated on paper in the second half of 2021. As noted previously, the paper DU listings will be converted to eListings prior to 2023 NSDUH data collection.

[18] Because smaller geographic areas are not sampled within ABS segments, the third-stage probability of selection is set to 1 for these segments.

For ABS segments retained from the 2022 NSDUH, the most recent version of the CDS will be used; however, addresses selected for the 2022 NSDUH will be ineligible for selection in the 2023 NSDUH sample.

Some ABS SSUs contain a large number of DUs. Prior to 2023, all NSDUH systems were built around a 10-digit DU identification number (DUID) with the last three digits being the DU line number. Rather than change the length of the DUID for the 2022 NSDUH, SSUs assigned to ABS and with more than 999 DUs were subsampled using standard subsegmenting procedures (CBHSQ, 2022). In summary, each large ABS SSU was divided into smaller areas containing an approximately equal number of DUs and no more than 999 DUs. Then, one area was randomly selected. The sample weights were adjusted accordingly. In 2023, NSDUH systems will be updated to accommodate an 11-digit DU identification number so new ABS SSUs will not need to be subsampled unless they contain more than 9,999 DUs.

4. 2023 National Survey on Drug Use and Health Dwelling Unit and Person Samples

4.1 Overview and Requirements

The requirement of 67,507 completed interviews for the 2023 National Survey on Drug Use and Health (NSDUH) was derived from the following objectives:

- minimum sample sizes of 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; 1,500 completed interviews each in Georgia, New Jersey, North Carolina, and Virginia; 967 completed interviews in Hawaii; and 960 completed interviews in each of the remaining 37 states and the District of Columbia; and
- allocation to age groups as follows: 25 percent for youths aged 12 to 17, 25 percent for young adults aged 18 to 25, 15 percent for adults aged 26 to 34, 20 percent for adults aged 35 to 49, and 15 percent for adults aged 50 or older.

The 1999 sample was the first to reflect the objective of the Substance Abuse and Mental Health Services Administration (SAMHSA) to develop reliable and representative state-level estimates using small area estimation (SAE) and direct estimation procedures. This objective continues to apply for the 2023 sample. To achieve this objective, the targeted sample size by state was set to be at least 960 completed interviews. In 13 states, the target was set at greater than 960 completed interviews (as shown in Table 4.1). The larger overall sample makes it possible to get adequate precision for national prevalence estimates for Hispanic and non-Hispanic Black or African American populations without any targeted oversampling of high concentration areas of these populations or any oversampling through screening for these populations (as was done for the 1985 through 1998 surveys).

4.2 Sample Allocation

Similar to previous NSDUHs, at the final stage of selection, five age groups will be sampled at different rates. These five age groups will be defined as follows: 12 to 17, 18 to 25, 26 to 34, 35 to 49, and 50 or older. For the 2023 NSDUH, each state's sample will be allocated to age groups, as described in Section 4.1. Table 4.2 displays the age group allocation by state for the 2023 NSDUH sample.

Table 4.1 Summary of the 2023 NSDUH Design

Statistic	CA	FL, NY, and TX	IL, MI, OH, and PA	GA, NC, NJ, and VA	HI	Remaining 37 States and DC	Total
Total Sample							
SSRs	36	90	96	60	12	456	750
Segments	288	720	768	480	96	3,648	6,000
Selected DUs	64,759	140,595	136,334	85,209	13,733	518,070	958,699
Expected Eligible DUs	55,170	119,778	116,148	72,593	11,700	441,363	816,752
Expected Completed Screening Interviews	19,750	42,877	41,578	25,986	4,188	157,996	292,375
Expected Selected Persons	13,348	28,979	28,100	17,563	2,831	106,782	197,602
Expected Completed Interviews	4,560	9,900	9,600	6,000	967	36,480	67,507
Total per State							
SSRs	36	30	24	15	12	12	N/A
Segments	288	240	192	120	96	96	N/A
Expected Selected DUs	64,759	46,865	34,084	21,302	13,733	13,633	N/A
Expected Completed Interviews	4,560	3,300	2,400	1,500	967	960	N/A
Expected Interviews per Segment	15.83	13.75	12.50	12.50	10.07	10.00	N/A
Total per SSR and Segment, by Quarter							
Segments per SSR	2	2	2	2	2	2	N/A
Expected Interviews per SSR	31.67	27.50	25.00	25.00	20.15	20.00	N/A
Expected Interviews per Segment	15.83	13.75	12.50	12.50	10.07	10.00	N/A

CA = California; DC = District of Columbia; DU = dwelling unit; FL = Florida; GA = Georgia; HI = Hawaii; IL = Illinois; MI = Michigan; N/A = not applicable; NC = North Carolina; NJ = New Jersey; NY = New York; OH = Ohio; PA = Pennsylvania; SSR = state sampling region; TX = Texas; VA = Virginia.

Note: This table was prepared using 2019-2021 National Survey on Drug Use and Health data.

Table 4.2 2023 NSDUH Sample Sizes and Projected Respondents; by State and Age Group

State	State Sampling Regions	Total Segments	Total Selected Dwelling Units	Total Selected Persons	Age Groups for Total Respondents					
					12-17	18-25	26-34	35-49	50+	Total
Total Population	750	6,000	958,699	197,602	16,877	16,877	10,126	13,501	10,126	67,507
Northeast										
Connecticut	12	96	13,633	2,810	240	240	144	192	144	960
Maine	12	96	13,633	2,810	240	240	144	192	144	960
Massachusetts	12	96	13,633	2,810	240	240	144	192	144	960
New Hampshire	12	96	13,633	2,810	240	240	144	192	144	960
New Jersey	15	120	21,302	4,391	375	375	225	300	225	1,500
New York	30	240	46,865	9,660	825	825	495	660	495	3,300
Pennsylvania	24	192	34,084	7,025	600	600	360	480	360	2,400
Rhode Island	12	96	13,633	2,810	240	240	144	192	144	960
Vermont	12	96	13,633	2,810	240	240	144	192	144	960

(continued)

Table 4.2 2023 NSDUH Sample Sizes and Projected Respondents; by State and Age Group (continued)

State	State Sampling Regions	Total Segments	Total Selected Dwelling Units	Total Selected Persons	Age Groups for Total Respondents					
					12-17	18-25	26-34	35-49	50+	Total
Midwest										
Illinois	24	192	34,084	7,025	600	600	360	480	360	2,400
Indiana	12	96	13,633	2,810	240	240	144	192	144	960
Iowa	12	96	13,633	2,810	240	240	144	192	144	960
Kansas	12	96	13,633	2,810	240	240	144	192	144	960
Michigan	24	192	34,084	7,025	600	600	360	480	360	2,400
Minnesota	12	96	13,633	2,810	240	240	144	192	144	960
Missouri	12	96	13,633	2,810	240	240	144	192	144	960
Nebraska	12	96	13,633	2,810	240	240	144	192	144	960
North Dakota	12	96	13,633	2,810	240	240	144	192	144	960
Ohio	24	192	34,084	7,025	600	600	360	480	360	2,400
South Dakota	12	96	13,633	2,810	240	240	144	192	144	960
Wisconsin	12	96	13,633	2,810	240	240	144	192	144	960
South										
Alabama	12	96	13,633	2,810	240	240	144	192	144	960
Arkansas	12	96	13,633	2,810	240	240	144	192	144	960
Delaware	12	96	13,633	2,810	240	240	144	192	144	960
District of Columbia	12	96	13,633	2,810	240	240	144	192	144	960
Florida	30	240	46,865	9,660	825	825	495	660	495	3,300
Georgia	15	120	21,302	4,391	375	375	225	300	225	1,500
Kentucky	12	96	13,633	2,810	240	240	144	192	144	960
Louisiana	12	96	13,633	2,810	240	240	144	192	144	960
Maryland	12	96	13,633	2,810	240	240	144	192	144	960
Mississippi	12	96	13,633	2,810	240	240	144	192	144	960
North Carolina	15	120	21,302	4,391	375	375	225	300	225	1,500
Oklahoma	12	96	13,633	2,810	240	240	144	192	144	960
South Carolina	12	96	13,633	2,810	240	240	144	192	144	960
Tennessee	12	96	13,633	2,810	240	240	144	192	144	960
Texas	30	240	46,865	9,660	825	825	495	660	495	3,300
Virginia	15	120	21,302	4,391	375	375	225	300	225	1,500
West Virginia	12	96	13,633	2,810	240	240	144	192	144	960

(continued)

Table 4.2 2023 NSDUH Sample Sizes and Projected Respondents; by State and Age Group (continued)

State	State Sampling Regions	Total Segments	Total Selected Dwelling Units	Total Selected Persons	Age Groups for Total Respondents					
					12-17	18-25	26-34	35-49	50+	Total
West										
Alaska	12	96	13,633	2,810	240	240	144	192	144	960
Arizona	12	96	13,633	2,810	240	240	144	192	144	960
California	36	288	64,759	13,348	1,140	1,140	684	912	684	4,560
Colorado	12	96	13,633	2,810	240	240	144	192	144	960
Hawaii	12	96	13,733	2,831	242	242	145	193	145	967
Idaho	12	96	13,633	2,810	240	240	144	192	144	960
Montana	12	96	13,633	2,810	240	240	144	192	144	960
Nevada	12	96	13,633	2,810	240	240	144	192	144	960
New Mexico	12	96	13,633	2,810	240	240	144	192	144	960
Oregon	12	96	13,633	2,810	240	240	144	192	144	960
Utah	12	96	13,633	2,810	240	240	144	192	144	960
Washington	12	96	13,633	2,810	240	240	144	192	144	960
Wyoming	12	96	13,633	2,810	240	240	144	192	144	960

4.3 Fourth-Stage Sample (Dwelling Unit) Selection

The sampling frame for the fourth stage of sample selection will be made up of dwelling units (DUs) within selected segments (or secondary sampling units [SSUs]). A DU is either a housing unit for a single household or a listing unit (e.g., a dormitory room or a shelter bed) within one of the eligible noninstitutional group quarters that are part of the defined target population. Before any sample selection within selected segments can proceed, DU frames will be constructed using the hybrid address-based sampling (ABS) approaches described in Section 3.2.

To estimate the number of DUs that will need to be selected at the fourth stage of selection, a simulation was run using 2021 NSDUH data. The response rates used in the simulation were computed using Quarter 2 through 4 2019 and Quarter 1 2020 data and were adjusted to Quarter 4 2021 multimode experience. After accounting for eligibility, nonresponse, and the fifth-stage (person) sample selection procedures, it was estimated that roughly 958,699 DUs will need to be selected to obtain a sample of 67,507 responding persons distributed by state and age group as shown in Tables 4.1 and 4.2. While this estimate is based on current NSDUH multimode experience, it will be refined closer to the time the quarterly samples are selected.

For the DU stage of selection, the sample segments (or SSUs) initially will be separated into their respective states. DUs then will be systematically selected from the segment (or SSU) address frames. The sample of DUs selected from each segment (or SSU) will be based on sampling rates that will be predefined for the 50 states and the District of Columbia and will be inversely proportional to the composite-size-measure-based selection probability of the census

tract, census block group, and segment.[19, 20] In addition, historical state-level NSDUH data will be used to accurately predict interviews per household (yield), eligibility rates, and response rates in the allocation of the DU samples.

Some constraints will be put on the DU sample sizes. For example, if at least five unused DUs remain in a segment, a minimum of five sample dwelling units (SDUs) per segment will be required for cost-efficiency.[21] Similarly, to ensure adequate samples for supplemental studies, the DU sample size will be limited to half of the actual listing unit count.[22]

The total sample will be allocated to calendar Quarters 1 through 4 in proportions of 24.0, 26.0, 25.5, and 24.5 percent, respectively (or 96, 104, 102, and 98 percent of the quarterly sample, respectively). This disproportional allocation to calendar quarters allows for smaller sample sizes during the "short" quarters (1 and 4) when either field interviewer (FI) training (Quarter 1) or holidays (Quarter 4) force the interviewing schedule to be shortened. Although the disproportionate allocation does produce some additional unequal weighting, the effect is small and is compensated for by the improved field performance.

In addition, the quarterly samples of DUs will be partitioned into a series of releases. This partitioning will allow for greater control of sample sizes for each individual state within the quarter. As with previous NSDUHs, input will be solicited from the field staff concerning the ongoing quarter; this input plus the realized sample sizes from previous quarters (if available) will be reviewed to determine whether an additional release of sample is needed to meet each state's yearly goal. In addition to the desired quarterly sample, a supplemental sample (typically 20 percent of the quarterly sample) will be selected that can be used to overcome any shortfall in a state's respondent sample size.

During the screening phase of the data collection period, FIs will ask each screening respondent whether any other living quarters are within the structure or on the property of the SDU,[23] such as a basement apartment or an apartment above a garage. If the respondent indicates that a DU is on the premises of the sampled DU and was missed during frame construction, then the new or missed dwelling(s) will be selected. In addition, FIs will be instructed to call their supervisors if they notice large differences in the segment listing and what they encounter in the field during either the screening or interviewing phase of data collection. Then, a special "bust" procedure will be implemented to minimize bias associated with large numbers of missed DUs

[19] The third stage of selection is eliminated in overlap ABS segments and all new segments. For these segments, the third-stage probability of selection will be set to 1.

[20] As a consequence, all DUs within a specific stratum will be selected with approximately the same probability and, therefore, approximately equalized DU sampling weights.

[21] If fewer than five unused DUs remain in the segment, fewer than five SDUs will be selected.

[22] Although the 2023 segments are not planned to be used again, these DU sample size limits will be retained in case, for example, the decennial census data do not become available before the 2024 NSDUH sample is selected.

[23] To avoid respondent confusion, the missed DU question is skipped for web respondents and residents of larger multiunit structures (three or more units). FIs report to their supervisors large differences in the number of units observed and listed. The missed DU question is also skipped for residents of group quarters and residents of housing units associated with group quarters (e.g., a "house mother" apartment in a sorority house). The number of units in a group quarters structure is generally confirmed with a gatekeeper when gaining access to the group quarters.

by selecting a sample of them. A bust is defined as 150 or more missed DUs in a segment or 50 or more missed DUs following any one DU.

4.4 Fifth-Stage Sample (Person) Selection

After DUs are selected within each segment, each selected DU will be mailed an invitation to participate in the survey online. Web screening respondents will enter roster information for all persons residing in the DU. If the DU does not respond initially via web, an FI will visit the DU to obtain a roster of all persons residing in the DU. This roster information will be used to select 0, 1, or 2 persons for the survey. Sampling rates will be preset by age group and state. Roster information will be entered directly into the web or electronic screening instrument, which will automatically implement this fifth stage of selection based on the state and age group sampling parameters.

One benefit of using an electronic screening instrument in NSDUH is the ability to automate a complicated person-level selection algorithm at the fifth stage of the NSDUH design. The selection algorithm allows any pair of survey-eligible people within a DU to have some known chance of being selected. This feature of the design is of interest to NSDUH researchers because, for example, it allows analysts to examine, using appropriate design-based weights, how the drug use propensity of one individual in a family relates to the drug use propensity of another family member residing in the same DU (e.g., the relationship of drug use between a parent and child).

As shown in Table 4.1, at the fifth stage of selection, roughly 197,602 people will be selected from within 292,375 screened and eligible DUs. Assuming a 36 percent screening completion rate and a 34 percent interview completion rate, these sample sizes are sufficient to obtain the desired 67,507 person respondents. Based on Quarter 4 2021 experience, approximately 28,353 (42 percent) of the 67,507 interviews are expected to be completed via web. Table 4.3 displays the expected number of completed screeners and interviews by mode.

Table 4.3 2023 NSDUH Expected Completed Screening Interviews and Interview Respondents; by Mode

Mode	Selected DUs	Expected Eligible DUs	Expected Completed Screening Interviews	Expected Selected Persons	Expected Completed Interviews
Total Sample	958,699	816,752	292,375	197,602	67,507
Web	86,283	86,274	86,274	58,309	28,353
In-person	872,416	730,478	206,101	139,293	39,154

DU = dwelling unit.

4.5 Pair Sampling Parameter

The pair sampling algorithm in NSDUH is based on the Chromy and Penne (2002) adaptation of the Brewer (1963, 1975) method for selecting samples of size 2. Chromy and Penne (2002) adapted the method to select samples of 0, 1, or 2 persons within a selected DU

containing at least one eligible person. They also introduced a pair sampling parameter λ that governs the number of pairs selected.

The target selection probability for person i in DU h is defined as P_{hi}.[24] Then, to ensure that all pairs have a positive probability of selection, all person probabilities must be strictly less than 1, and, arbitrarily, the maximum P_{hi} is set to 0.99. In Brewer's (unadapted) method of sampling pairs, the sum of first-order inclusion probabilities is always equal to $n = 2$. However, because the design calls for a selection of 0, 1, or 2 persons per DU, it is unlikely that the sum of person probabilities within a DU, $S_h = \Sigma_i P_{hi}$, equals 2. The following adaptations are then applied to the sampling algorithm:

- If $S_h > 2$, a multiplicative scaling factor, $F_h = 2/S_h$, is applied to all the target selection probabilities so that they are scaled down to sum to exactly 2.
- If $S_h < 2$, the problem is remedied by creating three dummy persons and distributing the remaining size measure $(2 - S_h)$ to them equally (i.e., the inclusion of dummy persons in the selection could result in the selection of 0 or 1 actual persons). Operationally, this initially requires the application of the following multiplicative scaling factor to the person probabilities:

$$F_h = \min\left\{\frac{2}{S_h}, \frac{0.99}{\max(P_{hi})}\right\}.$$

However, a further modification is applied to this scaling factor that allows some flexibility in the actual number of pairs selected. This modification is governed by the pair sampling parameter λ. Define

$$T(\lambda) = S_h + \lambda(2 - S_h); 0 \leq \lambda \leq 1.$$

Then the modified multiplicative scaling factor is expressed as

$$F_h^* = \min\left\{\frac{T(\lambda)}{S_h}, \frac{0.99}{\max(P_{hi})}\right\}.$$

Simulation analyses resulted in the selection of λ = 0.50 for the 2002 to 2013 NSDUH sample designs. However, changes to the sample design in 2014 with respect to age group and state necessitated further simulation analyses to identify the value of λ best suited for the 2014 through 2023 design. Simulation analyses based on the 2012 screening data, modified to reflect the required 2014 through 2023 age group sample proportions (but not modified to reflect the new state proportions), were conducted, and λ = 0.25 was selected. Using λ = 0.25, the 2014 through 2023 design was expected to produce a similar number and distribution of selected pairs as the previous design (Center for Behavioral Health Statistics and Quality, 2016). Table 4.4 displays the expected pair selection counts (scaled to sum to 67,507) and corresponding pair response rates for λ = 0.25 updated using 2021 screening data.

[24] P_{hi} is equivalent to the state (h) and segment (j) probability of selection in age group a, or S_{hja}, in the 2021 NSDUH sample design report (Center for Behavioral Health Statistics and Quality, 2022).

Table 4.4 Expected Pair Selection Counts and Response Rates for λ = 0.25

Age Group Pair	Selected Pairs	Pair Response Rate, %
12+, 12+	43,629	27.8
12-17, 12-17	5,052	34.9
12-17, 18-25	4,360	25.8
12-17, 26+	12,151	27.8
18-25, 18-25	6,619	28.0
18-25, 26+	7,208	25.9
26+, 26+	8,239	26.2

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2021.

4.6 Expected Precision and Projected Domain Sample Sizes

The multistage, stratified 2023 survey design is intended to achieve acceptable precision for various person subpopulations of interest. The allocation of persons per state and age group (12 to 17, 18 to 25, 26 to 34, 35 to 49, and 50 or older) is also taken as a requirement to support direct estimation in some large sample states and SAE in the remaining states. Using the state and age group distribution presented in Table 4.2 and 2021 NSDUH data, estimates and relative standard errors for 25 key outcome measures and domains of interest were modeled and are presented in Table 4.5. The parametric variance model represents the variance of key estimates as a function of sample design parameters, including unequal weighting effects, clustering effects, and the impact of respondent sample size differences across segments (or SSUs) and DUs (see Appendix A).

Table 4.5 Relative Standard Errors and Completed Interviews for Key Outcome Measures; by Demographic Domain

Data File Variable Name	Measure	Domain	2021 Prevalence	2021 RSE	Projected RSE (2023)	Expected Completed Interviews (2023)
ALCMON	Past Month Alcohol Use	12+	0.4755	0.0086	0.0108	67,507
ALCMON	Past Month Alcohol Use	12-20	0.1514	0.0306	0.0425	23,334
ALCMON	Past Month Alcohol Use	50+	0.4713	0.0156	0.0179	10,126
ALCMON	Past Month Alcohol Use	API, 12+	0.3191	0.0501	0.0597	4,025
ALCMON	Past Month Alcohol Use	AIAN, 12+	0.3756	0.0978	0.1277	849
ALCMON	Past Month Alcohol Use	Pregnant, 12-44	0.0975	0.2151	0.2708	632
BNGDRKMON	Past Month Binge Alcohol Use	18-25	0.2915	0.0238	0.0219	16,877
BNGDRKMON	Past Month Binge Alcohol Use	12+	0.2145	0.0146	0.0176	67,507
MRJMON	Past Month Marijuana Use	12+	0.1299	0.0209	0.0215	67,507
MRJMON	Past Month Marijuana Use	12-17	0.0576	0.0617	0.0530	16,877
MRJMON	Past Month Marijuana Use	18-25	0.2413	0.0264	0.0244	16,877
MRJMON	Past Month Marijuana Use	50+	0.0756	0.0481	0.0576	10,126
MRJMON	Past Month Marijuana Use	API, 12+	0.0613	0.1193	0.1166	4,025
MRJMON	Past Month Marijuana Use	AIAN, 12+	0.2702	0.1370	0.1522	849
MRJMON	Past Month Marijuana Use	Pregnant, 12-44	0.0714	0.2732	0.2904	632
CIGMON	Past Month Cigarette Use	12-17	0.0151	0.1280	0.1111	16,877
CIGMON	Past Month Cigarette Use	12+	0.1559	0.0202	0.0249	67,507

(continued)

Table 4.5 Relative Standard Errors and Completed Interviews for Key Outcome Measures; by Demographic Domain

Data File Variable Name	Measure	Domain	2021 Prevalence	2021 RSE	Projected RSE (2023)	Expected Completed Interviews (2023)
PNRNMMON	Past Month Pain Reliever Misuse	18-25	0.0064	0.1439	0.1661	16,877
PNRNMMON	Past Month Pain Reliever Misuse	12+	0.0086	0.0816	0.0935	67,507
ABODALC	Past Year Alcohol Disorder	12+	0.0523	0.0335	0.0349	67,507
UDPYILL	Past Year Illicit Drug Disorder	12+	0.0349	0.0369	0.0360	67,507
UDPYILAL	Past Year Substance Use Disorder	50+	0.0434	0.0688	0.0819	10,126
TXYRSPILAL	Past Year Specialty Substance Use Treatment	12+	0.0106	0.0732	0.0780	67,507
SMIPY	Past Year SMI	18+	0.0555	0.0299	0.0313	50,630
IRAMDEYR	Past Year MDE	18+	0.0829	0.0243	0.0257	50,630

AIAN = American Indian or Alaska Native (NEWRACE2 = 3); API = Asian or Pacific Islander (NEWRACE2 = 4 or 5); MDE = major depressive episode; Pregnant, 12-44 = (PREG2=1); RSE = relative standard error; SMI = serious mental illness.

Note: Projected RSEs were determined using 2014 through 2023 state and age sample allocations in a variance component model. All model components, except average cluster sizes and coefficients of variation, were updated using 2021 NSDUH data (see Appendix A).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2021.

4.7 Assignment of Respondents to 2010 Census Blocks

To allow external data (e.g., census and American Community Survey data) to be appended to the NSDUH analytic file, a census block will be assigned to each of the approximately 67,507 respondents. In ABS segments, the census block will be based on the geocoded location of the address. In field enumerated segments, the census block will be assigned based on the SDU's location on the electronic map. With eListing, manual census block assignments will no longer be required.

5. General Sample Allocation Procedures for the Mental Illness Calibration Study

The overarching goal of the Mental Illness Calibration Study (MICS) within the National Survey of Drug Use and Health (NSDUH) is to fit a prediction model for serious mental illness (SMI) among adults aged 18 or older that can be used to create updated model-based estimates of SMI and other mental illness categories at the national and domain levels (e.g., by age group and race/ethnicity). This sample of respondents will be contacted following their main NSDUH interview for a clinical follow-up interview. This clinical interview will be conducted using criteria in the *Diagnostic and Statistical Manual of Mental Disorders,* 5th edition (American Psychiatric Association, 2013) for diagnoses. These data will provide the dependent variables in the prediction models that will be used to compute updated mental illness estimates for the NSDUH data products and data files.

5.1 Respondent Universe and Sampling Methods for the Mental Illness Calibration Study

The 2023 and 2024 MICS samples are designed to yield 2,000 clinical interviews per year. Each year, the probability sample will be distributed across four calendar quarters, resulting in approximately 500 MICS follow-up clinical interviews per quarter. Similar to the Mental Health Surveillance Study (MHSS) fielded during the 2008 through 2012 NSDUHs, the probability sample will be embedded in the main study sample; therefore, the initial interview for the validation cases will be included in the target study sample of approximately 50,630 main study adult interviews. The target population for the MICS will exclude persons whose main study interview was conducted in Spanish.

The selection algorithm developed and used in the 2012 MHSS to mitigate the problem of extreme weights will be used for the MICS. A subsample of eligible respondents aged 18 or older will be selected for clinical follow-up with probabilities based on their Kessler-6 (K6) nonspecific psychological distress scale score (Kessler et al., 2003) and World Health Organization Disability Assessment Scale (WHODAS) score (Novak et al., 2010; Rehm et al., 1999), and an age group adjustment factor will be applied. A probability sampling algorithm will be programmed in the computer-assisted interviewing instrument so that selected respondents can be recruited for the subsequent clinical psychiatric interview conducted on Zoom.

5.2 Person Sample Allocation Procedures for the Mental Illness Calibration Study

Table 5.1 shows some of the factors used to compute sampling rates. Based on 2021 population estimates and the 2023 planned sample, the average weighting[25] for persons aged 50 or older is 5.9 times as large as the average weighting for persons aged 18 to 25. (Smaller differences occur for intermediate age groups.) To compensate for this initial disparity in weights and to focus on persons aged 18 or older as a whole, sampling rates were set for persons aged 18

[25] The average weight is equal to the estimated population totals per age group from the 2021 NSDUH divided by the expected target sample for each age group planned for years 2023 and 2024.

to 25, then adjusted for the other three age groups by applying the equalization factor, *F*, shown in Table 5.1.[26] Persons completing the Spanish-language questionnaire were not eligible to be selected for the clinical follow-up. An eligibility factor of 97.31 percent (estimated from the 2021 NSDUH for adults 18 or older) was used for all age groups. The response rate used in the calculations was set to 40 percent. This rate is the product of the percentage agreeing to the follow-up survey (assumed to be 80 percent) and the proportion of those who actually complete the follow-up (assumed to be 50 percent).[27]

Table 5.1 MICS Age-Related Factors

Age	2021 Population	Planned Sample	Average Weight	Weight Equalization Factor[1]
18 to 25	33,458,433	16,877	1,982.5	1.0000
26 to 34	40,161,932	10,126	3,966.2	2.0006
35 to 49	62,151,458	13,501	4,603.5	2.0006
50 or Older	118,052,839	10,126	11,658.4	2.0006

[1] The weight equalization factor that was computed for Age 26 to 34 was also used for Age 35 to 49 and 50 or Older to reduce the unequal weighting effect.

The general sample allocation strategy is to find an allocation that provides the most precise estimate of SMI. A total of 225 strata were defined based on the combination of 25 possible K6 scores (0 to 24) and 9 possible WHODAS scores (0 to 8). First, the predicted probability of SMI in each stratum is calculated as the average value of the predicted probabilities of SMI (variable SMIPP in the NSDUH dataset) among all the adult respondents within this stratum in the 2021 NSDUH. Then, the proportionality factors, $r_{h,age}$, for setting sampling rates by stratum (denoted *h*) and age group are computed as:

$$r_{h,age} \propto \frac{\sqrt{P_h(1-P_h)}}{E * RR} * F_{age}$$

where P_h refers to the predicted probability of SMI in stratum *h*, and F_{age}, E, and RR refer to the age-specific weight equalization factors, the overall eligibility factor, and the overall response rate factor, respectively. These proportionality factors will then be multiplied by the projected sample counts and scaled to achieve an overall respondent sample of 2,000 persons aged 18 or older to obtain the stratum and age-specific sampling rates. As an example, the predicted probability of SMI for a person with a K6 score of 10 and a WHODAS score of 6 is 0.1123. For the 18 to 25 age group, the proportionality factor then would be

$$r_{h,18-25} = \frac{\sqrt{0.1123(1-0.1123)}}{0.9731 * 0.4} * 1.000 = 0.8112$$

[26] Use of the derived weight equalization factors in Table 5.1 would have greatly increased the sampling rate for persons aged 50 or older. An adjusted set of factors that partially reduced the unequal weighting effects across age groups was specified instead. The adjusted equalization factors for the 35 to 49 and 50 or older age groups were set equal to the factor for the 26 to 34 age group.

[27] Response rate factors were projected using the 2012 Mental Health Surveillance Study and the 2020 Clinical Validation Study as well as consideration of other factors that might impact the response rate.

An adjustment factor of 0.1444 was applied to each proportionality factor in order to achieve an overall sample of 2,000 persons in each year. Thus, the sampling rate for this stratum and age group was 0.8112 * 0.1444 = 0.1171.

Projected yields of positive cases based on the predicted probability of SMI broken out by age group are provided in Table 5.2. In addition, Tables 5.3 and 5.4 provide the 2022 MICS sample allocation by K6 group and WHODAS score, respectively.

Table 5.2 Projected Yields of Predicted Positive Cases

	Age Group				
	18 or Older	**18 to 25**	**26 to 34**	**35 to 49**	**50 or Older**
Total Selected Sample	5,138	1,290	1,355	1,571	922
Expected Completed Interviews	2,000	502	527	612	359
Expected Respondents with AMI	1,095	349	323	314	109
Expected Respondents with SMI	389	144	115	103	27

AMI = any mental illness; SMI = serious mental illness.

The probability sample of 2,000 clinical follow-up interviews will be distributed across four calendar quarters in each year with approximately 500 follow-up interviews per quarter. Throughout the 2023 and 2024 surveys, the MICS sample will be monitored, and the sampling parameters will be modified on an as-needed basis.

The analysis weight for the MICS sample will be separate from the main study analysis weight. To compute the MICS analysis weight, the main study analysis weight will be multiplied by the inverse of the probability of selecting the person for clinical follow-up (the inverse of the sampling rate used to select the person) and nonresponse and poststratification adjustments. In addition to the analysis weight, MICS-specific variance estimation strata and replicates will be created to appropriately account for the design when computing variances of estimates.

Table 5.3 2023 MICS Sample Allocation, by K6 Group

K6 Group	**Percent of Population[1]**	**Assumed SMI Rate (Percent)[1,2]**	**Expected Completed Interviews**	**Expected SMI Count**	**Overall Sampling Rate**
0 to 3	52.58	0.94	525	0	0.06018
4 to 5	11.19	1.31	151	0	0.06788
6 to 7	8.52	2.05	138	2	0.07726
8 to 9	5.95	3.15	122	3	0.09426
10 to 11	4.74	5.18	138	6	0.12043
12 to 15	8.31	11.20	354	59	0.16814
16 or Higher	8.71	33.69	572	319	0.23591
Total	**100.00**	**5.11**	**2,000**	**389**	

K6 = Kessler-6, a 6-item psychological distress scale; SMI = serious mental illness.

[1] Source: 2021 National Survey on Drug Use and Health.

[2] To compute assumed SMI rates, SMI estimates by K6 and WHODAS score were averaged (weighted) across K6 scores. These rates are not the actual SMI rates that were used in the sample allocation.

Table 5.4 2023 MICS Sample Allocation, by WHODAS Score

WHODAS Score	Percent of Population[1]	Assumed SMI Rate (Percent)[1,2]	Expected Completed Interviews	Expected SMI Count	Overall Sampling Rate
0	70.15	1.01	777	1	0.06229
1	7.17	2.14	137	3	0.08699
2	4.86	4.54	141	7	0.12023
3	3.69	6.70	133	12	0.14334
4	3.33	11.36	141	22	0.17428
5	2.63	16.43	149	37	0.20859
6	2.59	23.74	155	61	0.23789
7	2.17	34.78	142	79	0.25612
8	3.42	46.91	224	167	0.27277
Total	**100.00**	**5.11**	2,000	389	

K6 = Kessler-6, a 6-item psychological distress scale; SMI = serious mental illness; WHODAS = World Health Organization Disability Assessment Scale.

[1] Source: 2021 National Survey on Drug Use and Health.

[2] To compute assumed SMI rates, SMI estimates by K6 and WHODAS score were averaged (weighted) across K6 scores. These rates are not the actual SMI rates that were used in the sample allocation.

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This methodological report was prepared by the Substance Abuse and Mental Health Services Administration (SAMHSA), Center for Behavioral Health Statistics and Quality, and by RTI International. Work by RTI was performed under Contract No. 75S20322C00001. Marlon Daniel served as the government project officer and as the contracting officer representative, and David Hunter served as the RTI project director.

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Appendix A:
2023 National Survey on Drug Use and Health
Variance Modeling

Parametric variance models allow a sampling statistician to represent the variance of key estimates as a function of sample design parameters, as mentioned in Section 4.6. Except where noted, the 2021 National Survey on Drug Use and Health (NSDUH) data were used to estimate some of the key population parameters needed for these models. The required parameters include the following:

- variance components,
- unequal weighting effects (UWEs),
- averages and coefficients of variation for respondents per segment,
- averages and coefficients of variation for respondents per dwelling unit (DU), and
- prevalence estimates by domain.

A.1 Variance Components

Treating the variability (variance) of an estimate across individuals, after adjusting for age, as being (on average) composed of random components due to stratum (state sampling region or SSR), segment or secondary sampling unit (SSU) (within SSR),[28] DU (within segment or SSU), and the person (within the DU), the variance components measure the contribution to the variance from each of those components. The notation for variance components associated with SSR, segment or SSU, DU, and person is shown in Table A.1.

Table A.1 Variance Component Notation

Level	Symbol
State Sampling Region (SSR)	σ^2_{SSR}
Segment or SSU	$\sigma^2_{segment}$
Dwelling Unit (DU)	σ^2_{DU}
Person	σ^2_{person}
Total	$\sigma^2 = \sigma^2_{SSR} + \sigma^2_{segment} + \sigma^2_{DU} + \sigma^2_{person}$

Variance components were estimated using the method of moments in SAS PROC NESTED with equal weights (SAS Institute Inc., 2017) and were computed for 11 substance use and treatment variables of interest, controlling for age group. Table A.2 shows variance components for the 11 selected measures.

[28] Because one segment or SSU is selected per sampled PSU, the PSU and segment/SSU components of variance are the same.

Table A.2 Variance Components of Residuals as a Percentage of Total Variance for Selected Measures, Based on 2021 NSDUH

Variable	Mean	Variance Component as a Percent of Total Variance			
		σ^2_{SSR}	$\sigma^2_{segment}$	σ^2_{DU}	σ^2_{person}
Past Month Alcohol Use, 12+	0.4755	2.7251	3.6335	28.0795	65.5619
Past Month Binge Alcohol Use, 12+	0.2145	0.9129	1.7385	30.8592	66.4894
Past Month Marijuana Use, 12+	0.1299	2.3194	1.1551	29.6786	66.8469
Past Month Cigarette Use, 12+	0.1559	2.0814	3.7511	32.8277	61.3398
Past Month Pain Reliever Misuse, 12+	0.0086	0.1027	0.0300	15.0013	84.8660
Past Year Alcohol Disorder, 12+	0.0523	0.3935	0.0379	29.1925	70.3760
Past Year Illicit Drug Disorder, 12+	0.0349	0.6746	0.0000	15.2491	84.0763
Past Year Substance Use Disorder, 50+	0.0434	0.0000	5.7366	22.8460	71.4174
Past Year Specialty Substance Use Treatment, 12+	0.0106	0.3074	0.0016	24.7496	74.9414
Past Year SMI, 18+	0.0555	0.4503	0.0000	4.7326	94.8171
Past Year MDE, 18+	0.0829	0.4086	0.0000	4.3883	95.2031

MDE = major depressive episode; SMI = serious mental illness.
Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2021.

A.2 Unequal Weighting Effects

The UWE for a domain, *d*, is

$$UWE_d = \frac{n_d \sum_{i \in d} w_i^2}{\left(\sum_{i \in d} w_i\right)^2},$$

where n_d is the domain sample size and w_i is the weight for respondent *i*.

Table A.3 displays the UWEs for the 2021 national estimates by five age groups.

Table A.3 Unequal Weighting Effects for the National Estimates, Based on 2021 NSDUH

Age Group	Unequal Weighting Effect
12+	3.91031
12-17	2.70185
18-25	2.99204
26-34	2.93169
35-49	3.07589
50+	2.76581

A.3 Cluster Sizes and Cluster Size Variation

Parametric variance models also require the average cluster size and the coefficient of variation of the cluster size at the segment and DU levels. For age group domain δ, $\bar{m}_{\delta,seg}$ is the segment-level average cluster size, $CV_{m_{\delta,seg}}$ is the segment-level coefficient of variation of the cluster size, $\bar{m}_{\delta,DU}$ is the DU-level average cluster size, and $CV_{m_{\delta,DU}}$ is the DU-level coefficient of variation of the cluster size. Because additional segments were added to the 2021 NSDUH sample, the 2019 NSDUH average cluster sizes and coefficients of variation are closer to expected for the 2023 NSDUH and are presented in Table A.4.

Table A.4 Average Cluster Sizes and Coefficients of Variation, Based on 2019 NSDUH

Age Group Domain (δ)	Population Size $(\sum_{i\in\delta} w_i)$	N_δ	Respondents/DU[1]		Respondents/Segment	
			$\bar{m}_{\delta,DU}$	$CV_{m_{\delta,DU}}$	$\bar{m}_{\delta,seg}$	$CV_{m_{\delta,seg}}$
12+	275,221,249	67,625	0.4569	1.5160	11.2708	0.5364
12-17	24,905,039	16,858	0.1139	3.2007	2.8097	0.8456
12-20	38,073,463	23,158	0.1564	2.7620	3.8597	0.8028
18-25	33,732,492	16,516	0.1116	3.2579	2.7527	1.0754
26-34	40,322,989	10,207	0.0690	3.9711	1.7012	0.9957
50+	115,300,847	10,509	0.0710	3.7744	1.7515	0.9553
18+	250,316,210	50,767	0.3430	1.6768	8.4612	0.5746
API, 12+	16,977,699	3,432	0.0232	7.7135	0.5720	2.7743
AIAN, 12+	1,563,640	804	0.0054	15.6505	0.1340	5.8021
Pregnant, 12+	2,069,681	759	0.0051	13.9477	0.1265	2.9137

AIAN = American Indian or Alaska Native; API = Asian or Pacific Islander; DU = dwelling unit.

[1] The total number of DUs in the sample is actually more than the number of respondents. This does not matter because the key statistic has the form $\bar{m}_{\delta,DU}(1+CV^2_{\delta,DU})$ (see Equation A1 in Section A.5), which is insensitive to the number of DUs in the sample.

A.4 Estimates, by Demographic Domain

The last parameter required for the variance models is prevalence estimates by domain. Table A.5 displays these estimates and their standard errors.

Table A.5 Prevalence Estimates and Standard Errors for Key Outcome Measures; by Demographic Domain

Data File Variable Name	Measure	Domain	2021 Prevalence	Standard Error
ALCMON	Past Month Alcohol Use	12+	0.4755	0.0041
ALCMON	Past Month Alcohol Use	12-20	0.1514	0.0046
ALCMON	Past Month Alcohol Use	50+	0.4713	0.0073
ALCMON	Past Month Alcohol Use	API, 12+	0.3191	0.0160
ALCMON	Past Month Alcohol Use	AIAN, 12+	0.3756	0.0367
ALCMON	Past Month Alcohol Use	Pregnant, 12-44	0.0975	0.0210
BNGDRKMON	Past Month Binge Alcohol Use	18-25	0.2915	0.0069
BNGDRKMON	Past Month Binge Alcohol Use	12+	0.2145	0.0031
MRJMON	Past Month Marijuana Use	12+	0.1299	0.0027
MRJMON	Past Month Marijuana Use	12-17	0.0576	0.0036
MRJMON	Past Month Marijuana Use	18-25	0.2413	0.0064
MRJMON	Past Month Marijuana Use	50+	0.0756	0.0036
MRJMON	Past Month Marijuana Use	API, 12+	0.0613	0.0073
MRJMON	Past Month Marijuana Use	AIAN, 12+	0.2702	0.0370
MRJMON	Past Month Marijuana Use	Pregnant, 12-44	0.0714	0.0195
CIGMON	Past Month Cigarette Use	12-17	0.0151	0.0019
CIGMON	Past Month Cigarette Use	12+	0.1559	0.0032
PNRNMMON	Past Month Pain Reliever Misuse	18-25	0.0064	0.0009
PNRNMMON	Past Month Pain Reliever Misuse	12+	0.0086	0.0007
ABODALC	Past Year Alcohol Disorder	12+	0.0523	0.0018
UDPYILL	Past Year Illicit Drug Disorder	12+	0.0349	0.0013
UDPYILAL	Past Year Substance Use Disorder	50+	0.0434	0.0030
TXYRSPILAL	Past Year Specialty Substance Use Treatment	12+	0.0106	0.0008
SMIPY	Past Year SMI	18+	0.0555	0.0017
IRAMDEYR	Past Year MDE	18+	0.0829	0.0020

AIAN = American Indian or Alaska Native (NEWRACE2 = 3); API = Asian or Pacific Islander (NEWRACE2 = 4 or 5); MDE = major depressive episode; Pregnant, 12-44 = (PREG2=1); SMI = serious mental illness.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2021.

A.5 Variance Models

Let δ be a domain of interest (e.g., 12 to 20, 12 or older Asian or Pacific Islander [API], 18 or older). The parametric variance model for a U.S.-level estimate under the 2014 through 2023 design, with differing age group targets, is as follows:

$$Var\left(\hat{p}|n=67,507\right)= \tag{A1}$$

$$\sum_{relevant\ a} W_{a\delta}^2 \frac{p_a\left(1-p_a\right)}{f_{aCa\delta}67,507}\mathrm{UWE}_a^{US}\left\{\sigma_{seg}^2\bar{m}_{\delta,seg}\left(1+CV_{m\delta,seg}^2\right)+\sigma_{DU}^2\bar{m}_{\delta,DU}\left(1+CV_{\delta,DU}^2\right)+\sigma_{person}^2\right\},$$

where

a = an age group (e.g., *relevant a* means that the 26 or older age group is excluded when the domain is 18- to 25-year-olds);

p_a = the estimated (domain) proportion of interest within age group a;

$W_{a\delta}$ = the (estimated) population share of age group a within domain δ, that is, $\sum_{i \in a \cap \delta} w_i / \sum_{i \in \delta} w_i$;

f_a = the proposed sampling fraction for age group a; and

$c_{a\delta}$ = the fraction of the sample in age group a that is also in domain δ, that is, $\sum_{i \in a \cap \delta} 1 / \sum_{i \in a} 1$.

The value of $c_{a\delta}$ is 1 except when the domain is API, American Indian or Alaska Native (AIAN), pregnant women, or 12- to 20-year-olds. For the 12 to 20 domain, .375 is used as the fraction of 18- to 20-year-olds within the 18 to 25 age group. Table A.6 displays the other needed sample fractions from the 2021 NSDUH sample.

Table A.6 2021 Sample Fraction of an Age Group Originating in Selected Domains

	Domain		
Age Group	**Pregnant Women**	**AIAN**	**API**
12-17	0.0014	0.0101	0.0483
18-25	0.0173	0.0103	0.0630
26-34	0.0335	0.0098	0.0615
35-49	0.0085	0.0084	0.0694
50+	0.0000	0.0066	0.0436

AIAN = American Indian or Alaska Native; API = Asian or Pacific Islander.

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