

Technical Notes for Interactive Summary Health Statistics — 2019–2023: National Health Interview Survey

Introduction

Interactive Summary Health Statistics – 2019–2023 are based on the National Health Interview Survey (NHIS) and provide selected point estimates of health outcomes and their variance estimates. Annual Interactive Summary Health Statistics — 2019–2023 include estimates for adults and children that are produced each year and presented in tables and charts. In 2019, the NHIS questionnaire was redesigned to better meet the needs of data users. Due to changes in weighting and design methodology, direct comparisons between estimates for 2019 and beyond to earlier years should be made with caution, as the impact of these changes has not been fully evaluated at this time. Thus, estimates based on the 2019 NHIS and beyond are shown separately from estimates based on the 2015–2018 NHIS (<https://www.cdc.gov/nchs/nhis/KIDS/www/index.htm>, <https://www.cdc.gov/nchs/nhis/ADULTS/www/index.htm>).

All data used to produce the estimates are also available from the public use data files except for detailed information on race, Hispanic or Latino origin, and metropolitan statistical area status and Social Vulnerability Index. This information cannot be made available on the public use files due to potential disclosure of confidential information. In addition, the variance estimates are produced using sample design information that is more detailed than available on the public use files. Analysts should be aware that variances may differ depending on the sample design information used.

The annual Adult and Child Interactive Summary Health Statistics — 2019–2023 summarize data from the NHIS, a multipurpose health survey conducted by the National Center for Health Statistics (NCHS). National estimates are provided for a broad range of health measures for the U.S. civilian noninstitutionalized population. Estimates are shown for U.S. adults aged 18 years and over and U.S. children under age 18 years. Tables of Summary Health Statistics were initially published annually in a single volume of Vital and Health Statistics (VHS), Series 10, entitled “Current Estimates from the National Health Interview Survey” for survey years 1962–1996 (1). This was replaced with a three-volume set of VHS reports (Population, Adult, and Child) for survey years 1997 through 2012 (2–4). For data years 2013–2018, tables were published only online at the NCHS website, at: <https://www.cdc.gov/nchs/nhis/SHS/tables.htm>.

For NHIS data years 2015–2018, dynamic tables and corresponding charts of selected crude percentages based on U.S. children and U.S. adults are also available via a data query system in addition to the static tables provided for NHIS data years 2013–2018. This system contains only some of the health outcomes contained in the static tables.

For 2019 and forward, the estimates are published in a data query system similar to the one used for 2015–2018 (<https://www.cdc.gov/nchs/nhis/KIDS/www/index.htm>, <https://www.cdc.gov/nchs/nhis/ADULTS/www/index.htm>). Annual Adult and Child Interactive Summary Health Statistics — 2019–2023 are presented for selected diseases and conditions, mental health, health status, difficulties in functioning, health behaviors, health insurance coverage, cost-related problems accessing health care in the past 12 months, health care use in the past 12 months, and other health care. Estimates are based on

data from the Sample Adult and Sample Child files, which are derived from the Household Roster, Sample Adult, and Sample Child components of the NHIS. Unadjusted (crude) percentages are shown by selected population subgroups including those defined by sex, age, race and Hispanic origin, sexual orientation, education (for adults aged 25 and over), current employment status, family income, health insurance coverage, marital status, disability status, nativity, veteran status, urbanization level, metropolitan statistical area (MSA) status, Social Vulnerability Index and region of residence, and for children, family structure, parental education and employment status.

Methods

Data Source

The NHIS is the principal source of information on the health of the civilian noninstitutionalized population of the United States and is one of the major data collection programs of NCHS which is part of the Centers for Disease Control and Prevention (CDC). The National Health Survey Act of 1956 provided for a continuing survey and special studies to secure accurate and current statistical information on the amount, distribution, and effects of illness and disability in the United States and the services rendered for or because of such conditions. The survey referred to in the Act, now called the National Health Interview Survey, was initiated in July 1957. Since 1960, the survey has been conducted by NCHS, which was formed when the National Health Survey and the National Vital Statistics Division were combined.

A major strength of the NHIS lies in the ability to categorize these health characteristics by many demographic and socioeconomic characteristics. NHIS data are used widely throughout the Department of Health and Human Services (HHS) to monitor trends in illness and disability and to track progress toward achieving national health objectives. The data are also used by the public health research community for epidemiologic and policy analysis of such timely issues as characterizing those with various health problems, determining barriers to accessing and using appropriate health care, and evaluating Federal health programs.

While the NHIS has been conducted continuously since 1957, the content of the survey has been updated about every 15–20 years to incorporate advances in survey methodology and coverage of health topics. In January 2019, NHIS launched a redesigned content and structure that differs from its previous questionnaire design (1997–2018) to better meet the needs of data users. The aims of the redesign were to improve the measurement of covered health topics, reduce respondent burden by shortening the length of the questionnaire, harmonize overlapping content with other federal surveys, establish a long-term structure of ongoing and periodic topics, and incorporate advances in survey methodology and measurement. For more information about the redesigned NHIS visit the website at:

https://www.cdc.gov/nchs/nhis/2019_quest_redesign.htm. Following the redesign, the original set of Summary Health Statistics indicators published based on the 1997–2018 NHIS were reevaluated, and a new set was chosen. A previous redesign occurred in 1997. Comparisons of the 2019 and beyond NHIS data with data from earlier survey designs should not be undertaken without a careful examination of the changes across survey instruments.

The revised NHIS questionnaire, which is administered annually, consists of three main components: Household Roster, Sample Adult, and Sample Child. The Household Roster of the questionnaire collects some basic demographic and family identification information about all persons in the household. An adult aged 18 years

and over living in the household provides this information. The Sample Adult questionnaire obtains information on the health of one randomly selected adult aged 18 years and over (the “sample adult”) in the household. The sample adult responds for himself or herself, but in rare instances when the sample adult is mentally or physically incapable of responding, proxy responses are accepted. The Sample Adult questionnaire collects information on health status and conditions, functioning and disability, pain and pain management, health-related behaviors, access to and use of health care services, mental health, preventive care, and additional demographic information. The Sample Child questionnaire obtains information on the health of one randomly selected child aged 17 years or younger (the “sample child”) in the household. The sample child does not have to be from the same family as the sample adult. An adult knowledgeable and responsible for the health of the child provides responses about the sample child. The Sample Child questionnaire collects information on health status and conditions, functioning and disability, behavioral and mental health, and access to and use of health care services.

NHIS is a cross-sectional household interview survey. The target population for the NHIS is the civilian noninstitutionalized population residing within the 50 states and the District of Columbia at the time of the interview. The NHIS universe includes residents of households and noninstitutional group quarters (e.g., homeless shelters, rooming houses, and group homes). Persons residing temporarily in student dormitories or temporary housing are sampled within the households that they reside in permanently. Persons excluded from the universe are those with no fixed household address (e.g., homeless and/or transient persons not residing in shelters), active duty military personnel and civilians living on military bases, persons in long-term care institutions (e.g., nursing homes for the elderly, hospitals for the chronically ill or physically or intellectually disabled, and wards for abused or neglected children), persons in correctional facilities (e.g., prisons or jails, juvenile detention centers, and halfway houses), and U.S. nationals living in foreign countries. While active-duty Armed Forces personnel cannot be sampled for inclusion in the survey, any civilians residing with Armed Forces personnel in non-military housing are eligible to be sampled.

Because the NHIS is conducted in a face-to-face interview format, the costs of interviewing a large simple random sample of households and noninstitutional group quarters would be prohibitive; randomly sampled dwelling units would be too dispersed throughout the nation for cost-effective interviewing. To keep survey operations manageable, cost-effective, and timely, the NHIS uses geographically clustered sampling techniques to select the sample of dwelling units for the NHIS. The sample is designed in such a way that each month’s sample is nationally representative. Data collection on the NHIS is continuous, i.e., from January to December each year.

The sampling plan is redesigned after every decennial census. A new sampling plan for the 2016–2025 NHIS was designed with results of the 2010 decennial census. Commercial address lists are used as the main source of addresses, supplemented by field listing. As a result, for data collected in 2019 and beyond, the sample is expected to yield 27,000 sample adult and 9,000 sample child completed interviews. The annual sample size can be reduced for budgetary reasons or increased when supplementary funding is available.

The U.S. Census Bureau, under a contractual agreement, is the data collection agent for the National Health Interview Survey. NHIS data are collected continuously throughout the year by Census interviewers. Nationally, about 750 interviewers (also called “Field Representatives” or “FRs”) are trained and directed by health survey supervisors in the U.S. Census Bureau Regional Offices to conduct interviews for NHIS.

The NHIS is conducted using computer-assisted personal interviewing. Face-to-face interviews are conducted in respondents' homes, but follow-ups to complete interviews may be conducted over the telephone. A telephone interview may also be conducted when the respondent requests a telephone interview or when road conditions or travel distances would make it difficult to schedule a personal visit before the required completion date. In 2019, 34.3% of the Sample Adult interviews and 31.7% of the Sample Child interviews were conducted at least partially by telephone. Due to the COVID-19 pandemic, NHIS data collection switched to a telephone-only mode beginning March 19, 2020. Personal visits resumed in all areas in September 2020, but cases were still attempted by telephone first. As a result, in 2020, 70.7% of the Sample Adult interviews and 68.0% of the Sample Child interviews were conducted at least partially by telephone. In 2021, due to ongoing data collection difficulties posed by the COVID-19 pandemic, NHIS cases continued to be attempted by telephone first from January to April 2021. Personal visits were used only to follow-up on nonresponse, deliver recruitment materials, and conduct interviews when telephone numbers were unknown. Starting in May 2021, interviewers were instructed to return to regular survey interviewing procedures, whereby first contact attempts to households were made in person, with follow-up allowed by telephone. Interviewers were given flexibility to continue using telephone first contact attempts based on local COVID-19 conditions. In 2021, 62.8% of the Sample Adult interviews and 61.4% of the Sample Child interviews were conducted at least partially by telephone. For 2022, interviewers fully returned to regular survey interviewing procedures, whereby first contact attempts to households were made in person, with follow-up allowed by telephone. As such, 55.7% of the Sample Adult interviews and 56.1% of the Sample Child interviews were conducted at least partially by telephone. Similarly, in 2023 54.5% of the Sample Adult interviews and 54.5% of the Sample Child interviews were conducted at least partially by telephone.

Estimation Procedures

NHIS is a sample survey. That is, only a sample (subset) of the civilian noninstitutionalized population is selected to participate in the survey. Additionally, not everyone selected to participate agrees to participate, which can affect the representativeness of the sample. In order to account for these two factors, sampling weights are created. These sampling weights are used to produce representative national estimates. The data must be weighted to obtain population estimates for survey outcomes in the population represented by the NHIS. The value of the weight for a given respondent can be interpreted as the number of persons in the NHIS target population represented by that respondent. The sum of the weights over all respondents is used to estimate the size of the total target population. The weights reflect several steps of adjustments starting with a base weight, which is inverse to the probability of selection. Households and persons that are more likely to be selected are given lower weights so that the final estimates are not biased by their increased likelihood of being selected. The base weights are then adjusted for nonresponse patterns, that is, the different response rates among different household and person-level subgroups.

The 2019 questionnaire redesign provided an opportunity to evaluate the adjustment approach that had been in place since 1997. For 1997–2018, the adjustment approach was based on geography; the weights for households and persons in geographic areas with lower response rates were increased more than for those in areas with higher response rates. That way, final estimates were not biased by the latter group's increased likelihood of participation. More sophisticated methods to decrease potential nonresponse bias are now available (5,6), and based on the evaluation, the weighting process for 2019 and beyond was updated. The updated approach for nonresponse adjustment uses multilevel regression models that include paradata

variables that are predictive of both survey response and selected key health outcomes, the key criteria for effective bias reduction.

Finally, the nonresponse adjusted weights are typically calibrated to U.S. Census Bureau population projections and American Community Survey (ACS) one-year estimates for age, sex, race and ethnicity, educational attainment, Census division or region, and MSA status. In 2020, housing tenure was added to the calibration step. For the 2021 survey year, the U.S. Census Bureau did not release single-year ACS estimates by housing tenure, education level, and MSA by Division. Therefore, substitute calibration totals for these variables were obtained from the 2021 Current Population Survey (CPS) March Annual Social and Economic (ASEC) Supplement. Prior to 2019, calibration was only to age, sex, and race and ethnicity population projections. These changes to the nonresponse adjustment approach and the calibration methods have the potential to impact comparisons of the weighted survey estimates over time.

The Sample Adult and Sample Child weights were used to produce the national estimates contained in tables and charts. Reports with further information about NHIS sampling weights is available on the 2019, 2020, 2021, 2022 and 2023 data release pages at <https://www.cdc.gov/nchs/nhis/2019nhs.htm>, <https://www.cdc.gov/nchs/nhis/2020nhs.htm>, <https://www.cdc.gov/nchs/nhis/2021nhs.htm> <https://www.cdc.gov/nchs/nhis/2022nhs.htm> and <https://www.cdc.gov/nchs/nhis/2023nhs.htm> respectively. Counts for persons of unknown status (responses coded as “refused,” “don’t know,” or “not ascertained”) with respect to health characteristics of interest are not included in the calculation of percentages (as part of either the denominator or the numerator), to provide a more straightforward presentation of the data. For most health measures in these tables, the percentages with unknown values are typically small (generally less than 1%) and would not support disaggregation by the demographic characteristics included in the table. Estimates based on health characteristics with unknown percentages ranging from 2% to 5% include obesity and receipt of influenza vaccination.

In addition, some of the sociodemographic variables that are used to delineate various population subgroups have unknown values. For most of these variables, the percentage unknown is small (generally less than 1%). However, in the case of parents’ education, nonresponse rates are generally higher. Because it is difficult to interpret the relationship between “unknown” parents’ education and the health outcomes displayed in the tables, percentages of children in these unknown categories are not shown in the tables or figures. Because of higher nonresponse, poverty estimates are imputed and there are no unknowns for income. The Imputed Income files for the sample adult and sample child contain 10 imputations of family income and poverty ratio as both continuous and categorical top-coded variables.

Data Limitations that Impact Comparisons across Years

Interpretation of estimates and comparisons across years should only be made after reviewing the methods used to obtain the estimates, changes in the survey instrument, and measurement issues currently being evaluated. Listed below are some important considerations.

In 2019, the content and weighting methodology were changed relative to earlier versions of the survey. These changes can make it complex to compare NHIS estimates for 2019 and beyond with those from earlier years. A working paper entitled “Preliminary Evaluation of the Impact of the 2019 National Health Interview Survey Questionnaire Redesign and Weighting Adjustments on Early Release Program Estimates,” available from

<https://www.cdc.gov/nchs/nhis/releases.htm>, discusses these issues in greater detail for several of the health outcomes included in Interactive Summary Health Statistics — 2019–2023.

In 1997, the content, format, and mode of data collection were changed relative to earlier versions of the survey. These changes can make it complex to compare NHIS estimates from 1997–2018 with those from other survey designs.

Changes in the sample design were implemented in 2006 and 2016 and should also be considered when comparing estimates across different sample designs (1997–2005, 2006–2015, and 2016 and later).

From 2003–2011, NHIS used weights derived from 2000 Census-based population estimates and beginning in 2012 NHIS weights were derived from 2010 Census-based population estimates. Analysts who compare estimates from 2012 and beyond with estimates from 2003–2011 need to recognize that some of the observed differences may be due to underlying changes in population estimates.

Summary Health Statistics reports of 1997–2001 and Interactive Summary Health Statistics — 2019–2023 do not contain age-adjusted estimates. The crude (or unadjusted) estimates from those reports should not be compared with age-adjusted estimates in tables from reports and tables from 2002–2018 unless it can be demonstrated that the effect of age adjustment is minimal.

As previously described, due to the COVID-19 pandemic, NHIS data collection switched to a telephone-only mode beginning March 19, 2020. Personal visits resumed in all areas in September 2020, but cases were still attempted by telephone first. These changes resulted in lower response rates and differences in respondent characteristics for April–December 2020. Additionally, for August–December 2020, a subsample of adult respondents who completed the NHIS in 2019 were recontacted by telephone and asked to participate again, completing the 2020 NHIS questionnaire. Estimates for 2020 provided in the interactive data query tool are based on data from both the re-interviewed and 2020 interviewed-only adult samples. Response rates were lower and respondent characteristics were different in April–December 2020 as compared to January–March 2020. Survey weights were adjusted to account for these changes in respondent characteristics. An evaluation of nonresponse bias following survey weighting is available online (https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Dataset_Documentation/NHIS/2020/nonresponse-report508.pdf). This report showed that the weighted sample still underrepresented adults living alone and adults with family income below the federal poverty level. Although survey weighting accounted for most of the difference in the change in sample characteristics, it is possible that some residual effects of the sample change may contribute to differences in estimates between 2020 and other time periods. In the past, differences between estimates in Summary Health Statistics (based on final data files) and those found in NHIS Early Release products (based on preliminary data files) were typically less than 0.3 percentage points. As a result of the impact of the COVID-19 pandemic on data collection, differences between 2021 NHIS estimates in these products may be greater.

Variance Estimation, Statistical Reliability, and Hypothesis Tests

All estimates shown meet the NCHS standards of reliability as specified in *National Center for Health Statistics Data Presentation Standards for Proportions* (7). Unreliable estimates are indicated with an asterisk (*) and are not shown. Reliable estimates with an unreliable complement are shown but are indicated with two asterisks (**). Complements are calculated as 100 minus the percentage. The standards are applied directly for

percentages. Two-sided 95% confidence intervals are calculated using the Clopper-Pearson method adapted for complex surveys by Korn and Graubard (7). Standard errors used in this calculation were obtained using SUDAAN software, which takes into account the complex sampling design of NHIS. The Taylor series linearization method was used for variance estimation in SUDAAN (8).

Definitions of Selected Terms

Demographic Characteristics

Age—Recorded for each person at the last birthday. Age is recorded in single years and grouped into categories depending on the purpose of the table or chart. Additionally, age in months is calculated for children in order to restrict analyses of influenza vaccination to children aged 6 months and over.

Disability status—For adults, disability is defined by the reported level of difficulty (no difficulty, some difficulty, a lot of difficulty, or cannot do at all) in six functioning domains: seeing (even if wearing glasses), hearing (even if wearing hearing aids), mobility (walking or climbing stairs), communication (understanding or being understood by others), cognition (remembering or concentrating), and self-care (such as washing all over or dressing). Adults who responded "a lot of difficulty" or "cannot do at all" to at least one question were considered to have a disability. Prior research has shown that disability status is strongly associated with age. Differences in estimates of health measures shown by disability status may therefore reflect differences in age

For children aged 2-4, those with "a lot of difficulty" or with responses of "cannot do at all" for at least one of the questions asking about difficulty seeing, hearing, walking, dexterity, communication, learning, and playing, or who could not control behavior at all are considered with disability. For children aged 5-17, those with "a lot of difficulty" or with responses of "cannot do at all" for at least one of the questions asking about difficulty seeing, hearing, walking, self-care, communication, learning, remembering, concentrating, accepting change, controlling behavior, making friends or who had a response of "daily" to questions asking how often the sample child feels anxious, nervous, or worried or feels depressed are considered with disability. The remaining sample children, that is those with "some difficulty" or "no difficulty" for at least one question (and did not have responses of "a lot of difficulty" or "cannot do at all" for any of the questions) are classified as without disability. Those with responses of "don't know" or "refused" to all questions are excluded.

Family structure—Refers to parents living in the household. "Parent" can include biological, adoptive, or step. Legal guardians and foster relationships are classified in "At least 1 related or unrelated adult (not a parent)."

Hispanic or Latino origin and race—Hispanic origin and race are two separate and distinct concepts. Thus, Hispanic persons may be of any race. Hispanic includes persons of Mexican, Puerto Rican, Cuban, Central and South American, or Spanish origins. All tables show Mexican or Mexican-American persons as a subset of Hispanic persons. Other groups are not shown for reasons of confidentiality or statistical reliability.

Hispanic or Latino origin and race is divided into "Hispanic" and "Not Hispanic". "Hispanic" includes the subset "Mexican or Mexican American." "Not Hispanic" is further divided into "White only, non-Hispanic," "Black only, non-Hispanic," and "Other race, non-Hispanic." Estimates for non-Hispanic people of races other than "White only, non-Hispanic" and "Black only, non-Hispanic" are combined in the "Other race, non-Hispanic" category.

Marital status—A series of questions collects information regarding the marital status of sample adults. Sample adults are first asked if they are “now married, living with a partner together as an unmarried couple, or neither.” Married sample adults are asked if their spouse lives in the same residence; if not, they are asked if this is because the sample adult and his or her spouse are legally separated. Sample adults are also asked to verify the sex of their spouse or partner that was obtained during rostering, and to correct it, if necessary. Sample adults who are living with an unmarried partner or who are neither married nor living with a partner or don’t know or refuse to state their marital status are asked if they have ever been married. Sample adults who are currently living with a partner and have been married are asked their current legal marital status—that is, whether they are currently married, widowed, divorced, or separated. Sample adults who are neither living with a partner nor married but have been married are asked if they are widowed, divorced, or separated. Five marital status categories are possible:

Married—Includes all persons who identify themselves as married and who are not separated from their spouses. Married persons living apart because of circumstances of their employment are considered married. Persons may identify themselves as married regardless of the legal status of the marriage or sex of the spouse.

Widowed—Includes persons who have lost their spouse due to death.

Divorced or separated—Includes persons who are legally separated from their spouse or living apart for reasons of marital discord, and those who are divorced.

Never married—Includes persons who were never married (or who were married and then had that marriage legally annulled).

Living with partner—Includes unmarried persons regardless of sex who are living together as a couple, but do not identify themselves as married. Adults who are living with a partner (or cohabiting) are considered to be members of the same family.

Nativity—Respondents were asked if they were born in the United States or a U.S. territory.

Race—Race is based on a respondent’s description of the sampled persons’ racial background, regardless of Hispanic or Latino origin. In addition to single race categories, “American Indian or Alaska Native,” “Asian,” “Black,” Native Hawaiian or Other Pacific Islander,” and “White,” estimates for two multiple-race categories—“American Indian and Alaska Native and White” and “Black and White” are provided. Other combinations are not shown separately due to statistical unreliability.

Sexual orientation—Male respondents were asked if they think of themselves as gay; straight, that is, not gay; bisexual; something else; or if they don’t know the answer. Female respondents and respondents who refused or didn’t know their sex were asked if they think of themselves as lesbian or gay; straight, that is, not lesbian or gay; bisexual; something else; or if they don’t know the answer.

Veteran status—Adults aged 18 and over were classified as veterans if they ever served on active duty in the U.S. Armed Forces, military reserves, or National Guard and were not currently on full-time active duty with the Armed Forces. Prior research has shown that veteran status is strongly associated with age and sex.

Differences in estimates of health measures shown by veteran status may therefore reflect differences in age and sex.

Socio-economic Status

Education—Categories of education are based on years of school completed or highest degree obtained for adults aged 25 and over. GED is General Educational Development high school equivalency diploma.

Employment status—Adults aged 18 and over were classified as currently employed if they reported that they either worked at or had a job or business at any time during the 1-week period preceding the interview. Current employment includes paid work as an employee in business, farming, or a professional practice, and unpaid work in a family business or farm. "Full-time" employment is 35 or more hours per week. "Part-time" employment is 34 or fewer hours per week.

Excluded from the currently employed population are adults who were actively looking for work and adults who were not working at a job or business and not looking for work.

Family income—Presented as percentage of the federal poverty level (FPL), which was derived from the family's income in the previous calendar year, family size, and number of children using the U.S. Census Bureau's poverty thresholds (9). These thresholds were used in creating the poverty ratios for NHIS respondents who provided a dollar amount or supplied sufficient income information in the follow-up income bracketing questions. Family income was imputed when missing using a multiple imputation methodology. Multiple imputation accounts for the extra variability due to imputation in statistical analyses. For technical information about the imputation model, data users can refer to the "Imputed Income Technical Document" available with the 2019–2023 file releases on the NHIS website, under "Using the NHIS." Categories presented are "Less than 100% FPL," "100% to less than 200% FPL," and "200% and greater FPL."

Health insurance coverage—Describes health insurance coverage at the time of interview. Respondents reported whether they were covered by private insurance (obtained from their employer or workplace, purchased directly, or purchased through a local or community program), Medicare (including Medicare Advantage plans), Medigap (supplemental Medicare coverage), Medicaid, Children's Health Insurance Program (CHIP), Indian Health Service (IHS), military coverage (including VA, TRICARE, or CHAMP-VA), a state-sponsored health plan, another government program, or single-service plans.

For persons under age 65, health insurance coverage is based on a hierarchy of mutually exclusive categories. Persons with more than one type of health insurance were assigned to the first appropriate category in the following hierarchy: private, Medicaid or other public, other coverage, or uninsured:

Private coverage—Includes persons who had any comprehensive private insurance plan (including health maintenance organizations and preferred provider organizations). These plans include those obtained through an employer, purchased directly, purchased through local or community programs, or purchased through the Health Insurance Marketplace or a state-based exchange, which were established as part of the Affordable Care Act (ACA) of 2010 (P.L. 111–148, P.L. 111–152).

Medicaid or other public—Includes persons who do not have private coverage, but who have Medicaid or other state-sponsored health plans including CHIP.

Other coverage—Includes persons who do not have private insurance, Medicaid, or other public coverage, but who have any type of military coverage or Medicare. This category also includes persons who are covered by other government programs.

Uninsured—Includes persons who had no coverage as well as those who had only Indian Health Service coverage or had only a private plan that paid for one type of service such as accidents or dental or vision care.

For adults aged 65 and over, health insurance coverage is based on a hierarchy of mutually exclusive categories. Adults aged 65 and over with more than one type of health insurance were assigned to the first appropriate category in the following hierarchy: private, Medicare and Medicaid, Medicare Advantage, Medicare only (no Advantage), other coverage, or uninsured. When there is a report of both private and Medicare Advantage, preference to Medicare Advantage is given in the hierarchy.

Private coverage—Includes older adults who have both Medicare and any comprehensive private health insurance plan (including health maintenance organizations, preferred provider organizations, and Medigap plans). This category also includes older adults with private insurance only but excludes those with a Medicare Advantage plan.

Medicare and Medicaid—Includes older adults who do not have any private coverage but have Medicare and Medicaid or other state-sponsored health plans including CHIP.

Medicare Advantage—Includes older adults who only have Medicare coverage received through a Medicare Advantage plan.

Medicare only (no Advantage)—Includes older adults who only have Medicare coverage but do not receive their coverage through a Medicare Advantage plan.

Other coverage—Includes older adults who have not been previously classified as having private, Medicare and Medicaid, Medicare Advantage, or Medicare only (no Advantage) coverage. This category also includes older persons who have only Medicaid, other state-sponsored health plans, or CHIP, as well as persons who have any type of military coverage with or without Medicare.

Uninsured—Includes adults who had no coverage as well as those who had only Indian Health Service coverage or had only a private plan that paid for one type of service such as accidents or dental or vision care.

Parental education—Reflects highest grade in school completed by the sample child's mother and/or father who are living in the household, regardless of that parent's age. NHIS does not obtain information pertaining to parents not living in the household. If both parents reside in the household, but information on one parent's education is unknown, then the other parent's education is used. If both parents reside in the household and education is unknown for both, then parent education is unknown. Parent's education information is missing for 2% of sample children (unweighted).

Parental employment status—Reflects number of parents living in the household and their working status (full- or part-time). NHIS does not obtain information pertaining to parents not living in the household.

Geographic Characteristics

Metropolitan statistical area (MSA) status—Classified in three categories: large MSA of 1 million or more persons, small MSA of less than 1 million persons, and not in an MSA. Generally, an MSA consists of a county or group of counties containing at least one urbanized area of 50,000 or more population. In addition to the county or counties that contain all or part of the urbanized area, an MSA may contain other adjacent counties that are economically and socially integrated with the central city. The number of adjacent counties included in an MSA is not limited, and boundaries may cross state lines.

The Office of Management and Budget (OMB) defines MSAs according to published standards that are applied to U.S. Census Bureau data. The definition of an MSA is periodically reviewed. Beginning in 2016, the February 2013 metropolitan and micropolitan statistical area delineations, which resulted from application of the 2010 OMB standards to U.S. Census 2010, are used for NHIS data. MSA status is based on variables in restricted data files indicating MSA status and MSA size. These variables are collapsed into three categories based on U.S. Census 2000 population: MSAs with a population of 1 million or more, MSAs with a population of less than 1 million, and areas that are not within an MSA. Areas not in an MSA include both micropolitan areas and areas outside the core-based statistical areas. For additional information about MSAs, see the Census Bureau's website at: <https://www.census.gov/population/metro/>.

Region—In the geographic classification of the U.S. population, states are grouped into four regions used by the U.S. Census Bureau:

<i>Region</i>	<i>States included</i>
Northeast	Maine, Vermont, New Hampshire, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, and Pennsylvania
Midwest	Ohio, Illinois, Indiana, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Kansas, and Nebraska
South	Delaware, Maryland, District of Columbia, West Virginia, Virginia, Kentucky, Tennessee, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Oklahoma, Arkansas, and Texas
West	Washington, Oregon, California, Nevada, New Mexico, Arizona, Idaho, Utah, Colorado, Montana, Wyoming, Alaska, and Hawaii

Social Vulnerability Index (SVI)— Developed at CDC by the Agency for Toxic Substance and Disease Registry's Geospatial Research, Analysis and Services Program (GRASP), the SVI uses Census data to determine social vulnerability and was designed to help emergency managers identify and map communities that may most likely need support before, during, and after a disaster. SVI indicates the relative vulnerability of every U.S. Census tract or county. The SVI ranks each tract or county on 15 social factors, the factors are then grouped into four related themes as a percentile ranking ranging from 0 to 1, with higher values indicating greater vulnerability. The overall summary ranking variable was used to categorize four quartiles of vulnerability: scores from 0 to 0.2500 are categorized as "little to no social vulnerability;" scores from 0.2501 to 0.5000 are "low social vulnerability;" scores from 0.5001 to 0.7500 are "medium social vulnerability;" and scores from 0.7501 to 1 are "high social vulnerability." The overall summary ranking is based on four ranking variable themes of:

socioeconomic, household composition and disability, minority status and language, and housing type and transportation, as well as an overall ranking derived from the American Community Survey (ACS) and estimated at the Census tract level or county level. The SVI indicates the relative vulnerability of every U.S. Census tract or county. SVI values are updated periodically and the most recent release is incorporated into Interactive Summary Health Statistics. For this reason, Interactive Summary Health Statistics estimates based on 2019–2021 data use 2018 SVI values, estimates based on 2022 data use 2020 SVI values, and estimates based on 2023 data use 2022 SVI values. For more information on SVI, please visit the CDC/ATSDR's Geospatial Research, Analysis & Service Program website (<https://www.atsdr.cdc.gov/placeandhealth/svi/index.html>).

Urbanicity—Based on the 2013 NCHS Urban-Rural Classification Scheme for Counties which groups U.S. counties and county-equivalent entities into six urban-rural categories: large central metro, large fringe metro, medium metro, small metro, micropolitan, and non-core. For Interactive Summary Health Statistics, medium and small metro are collapsed into a single group and micropolitan and non-core are collapsed into a single group (nonmetropolitan).

Adult Health Outcomes

Selected Circulatory Conditions:

Angina/angina pectoris—Respondents were asked if they had ever been told by a doctor or other health professional that they had angina (or angina pectoris).

Coronary heart disease—Respondents were asked if they had ever been told by a doctor or other health professional that they had coronary heart disease.

High cholesterol—In separate questions, respondents were asked if they had ever been told by a doctor or other health professional that they had high cholesterol. Respondents who answered affirmatively were asked in separate questions if they had been told by a doctor or other health professional that they had high cholesterol during the past 12 months, and if they were taking prescribed medicine to help lower their cholesterol. Respondents had to have been taking those medications or had high cholesterol during the past 12 months to be classified as having high cholesterol.

Diagnosed hypertension—Respondents were asked if they had ever been told by a doctor or other health professional that they had hypertension (or high blood pressure), and if so, if they had been told on two or more different visits. Respondents who answered affirmatively were asked if they had been told they had hypertension (or high blood pressure) during the past 12 months. Respondents who ever had hypertension were also asked if they were taking prescribed medication for high blood pressure. Respondents had to have been taking those medications or had hypertension or high blood pressure during the past 12 months to be classified as having diagnosed hypertension.

Heart attack/myocardial infarction—Respondents were asked if they had ever been told by a doctor or other health professional that they had a heart attack (or myocardial infarction).

Selected Respiratory Conditions:

COPD, emphysema, chronic bronchitis—Respondents were asked if they had ever been told by a doctor or other health professional that they had chronic obstructive pulmonary disease, COPD, emphysema, or chronic bronchitis.

Asthma episode/attack—Respondents were asked if they had ever been told by a doctor or other health professional that they had asthma. Respondents who had been told they had asthma were asked if they had an episode of asthma or an asthma attack during the past 12 months.

Current asthma—Respondents were asked if they had ever been told by a doctor or other health professional that they had asthma. Respondents who had been told they had asthma were asked if they still had asthma.

Cancer:

Any type of cancer—Respondents were asked if they had ever been told by a doctor or other health professional that they had a cancer or malignancy of any kind.

Breast cancer—Respondents were asked if they had ever been told by a doctor or other health professional that they had a cancer or malignancy of any kind. They were then asked to name the kind of cancer they had.

Cervical cancer—Respondents were asked if they had ever been told by a doctor or other health professional that they had a cancer or malignancy of any kind. They were then asked to name the kind of cancer they had.

Prostate cancer—Respondents were asked if they had ever been told by a doctor or other health professional that they had a cancer or malignancy of any kind. They were then asked to name the kind of cancer they had.

Any skin cancer—Respondents were asked if they had ever been told by a doctor or other health professional that they had a cancer or malignancy of any kind. They were then asked to name the kind of cancer they had. Respondents who had skin (melanoma), skin (non-melanoma), or skin cancer (unknown kind) were classified as having any skin cancer.

Selected Diseases and Conditions:

Arthritis diagnosis—Respondents were asked if they had ever been told by a doctor or other health professional that they had some form of arthritis, rheumatoid arthritis, gout, lupus, or fibromyalgia. Those who answered yes were classified as having an arthritis diagnosis.

Regularly experienced pain—Respondents were asked how often they had pain in the past three months. Respondents who reported having pain on most days or every day were classified as regularly experiencing chronic pain.

Diagnosed diabetes—Respondents were asked if they had ever been told by a doctor or other health professional that they had diabetes. Respondents who had reported having prediabetes, borderline diabetes or gestational diabetes in previous questions were instructed not to include these conditions.

Obesity—Calculated from information that respondents supplied in response to survey questions regarding height and weight. For both men and women, obesity is indicated by body mass index (BMI) of 30.0 or higher. Note that self-reported height and weight may differ from actual measurements.

Mental Health:

Regularly had feelings of worry, nervousness, or anxiety—In separate questions, respondents were asked how often they feel worried, nervous, or anxious and then, thinking about the last time they felt that way, to describe the level of those feelings. Respondents who reported a) feeling worried, nervous, or anxious daily and described the level of those feelings as "somewhere in between a little and a lot" or "a lot" or b) feeling worried, nervous, or anxious weekly and described the level of those feelings as "a lot" were classified as regularly had feelings of worry, nervousness, or anxiety.

Taking prescription medication for feelings of worry, nervousness, or anxiety—Respondents were asked if they take prescription medication for feelings of worry, nervousness, or anxiety.

Regularly had feelings of depression—In separate questions, respondents were asked how often they feel depressed and then, thinking about the last time they felt that way, to describe the level of those feelings. Respondents who reported a) feeling depressed daily and described the level of those feelings as "somewhere in between a little and a lot" or "a lot" or b) feeling depressed weekly and described the level of those feelings as "a lot" were classified as regularly had feelings of depression.

Taking prescription medication for feelings of depression—Respondents were asked if they take prescription medication for feelings of depression.

C counseled by a mental health professional—Respondents were asked if they received counseling or therapy from a mental health professional such as a psychiatrist, psychologist, psychiatric nurse, or clinical social worker during the past 12 months.

Health Status:

Fair or poor health status—Respondents were asked if they would say their health was in general excellent, very good, good, fair, or poor.

Six or more workdays missed due to illness, injury, or disability—Respondents who a) worked for pay in the week prior to the interview, b) had a job or business in the week prior to the interview, but were temporarily absent, c) had seasonal or contract work for at least a few days in the past 12 months, or d) worked at a job or business but not for pay for at least a few days in the past 12 months were asked how many days during the past 12 months they missed because of illness, injury, or disability.

Difficulties in Functioning:

Disability status (composite)— Disability is defined by the reported level of difficulty (no difficulty, some difficulty, a lot of difficulty, or cannot do at all) in six functioning domains: seeing (even if wearing glasses), hearing (even if wearing hearing aids), mobility (walking or climbing stairs), communication (understanding or being understood by others), cognition (remembering or concentrating), and self-care (such as washing all over or dressing). Adults who responded "a lot of difficulty" or "cannot do at all" to at least one question were considered to have a disability.

Difficulty hearing—Respondents were asked if they had difficulty hearing (even with hearing aids, for those who use them). Respondents who reported "some" or "a lot" of difficulty or who could not hear at all were classified as having hearing difficulty.

Difficulty seeing—Respondents were asked if they had difficulty seeing (even when wearing glasses or contact lenses, for those who use them). Respondents who reported "some" or "a lot" of difficulty or who could not hear at all were classified as having vision difficulty.

Difficulty walking or climbing steps—Respondents were asked if they had difficulty walking or climbing steps. Respondents who had "some" or "a lot" of difficulty or could not walk or climb steps at all were classified as having difficulty walking or climbing steps.

Difficulty communicating—Respondents were asked if using their usual language, they had difficulty communicating, for example, understanding or being understood. Respondents who had "some" or "a lot" of difficulty or could not communicate at all were classified as having difficulty communicating.

Difficulty with self care—Respondents were asked if they had difficulty with self care, such as washing all over or dressing. Respondents who had "some" or "a lot" of difficulty or could not do these tasks at all were classified as having difficulty with self care.

Difficulty remembering or concentrating—Respondents were asked if they had difficulty remembering or concentrating. Respondents who had "some" or "a lot" of difficulty or could not remember or concentrate at all were classified as having difficulty with remembering or concentrating.

Health Behaviors:

Current cigarette smoking—In separate questions, respondents were asked if they had ever smoked at least 100 cigarettes in their entire life, and if so, do they now smoke every day, some days, or not at all. Respondents who smoke every day or some days were classified as current cigarette smokers.

Current electronic cigarette use—In separate questions, respondents were asked if they had used an e-cigarette or other electronic vaping product, even just one time in their entire life, and if so, do they now use those products every day, some days, or not at all. Respondents who use e-cigarettes or electronic vaping products every day or some days are classified as current electronic cigarette users.

Health Insurance Coverage:

Uninsured at time of interview—A person was defined as uninsured if he or she did not have any private health insurance, Medicare, Medicaid, Children's Health Insurance Program (CHIP), state-sponsored or other government-sponsored health plan, or military plan. A person was also defined as uninsured if he or she had only Indian Health Service coverage or had only a private plan that paid for one type of service, such as dental or vision care.

Private health insurance coverage at time of interview—Private health insurance coverage includes any comprehensive private insurance plan (including health maintenance and preferred provider organizations). These plans include those obtained through an employer, purchased directly, purchased through local or community programs, or purchased through the Health Insurance Marketplace or a state-based exchange. Private coverage excludes plans that pay for only one type of service, such dental or vision care. A small number of persons were covered by both public and private plans and were included in both categories.

Public health plan coverage at time of interview—Public health plan coverage includes Medicaid, CHIP, state-sponsored or other government-sponsored health plan, Medicare, and military plans. A small number of persons were covered by both public and private plans and were included in both categories.

Uninsured for more than one year—A person was defined as uninsured if he or she did not have any private health insurance, Medicare, Medicaid, CHIP, state-sponsored or other government-sponsored health plan, or military plan. A person was also defined as uninsured if he or she had only Indian Health Service coverage or had only a private plan that paid for one type of service, such as dental or vision care. "Year" is defined as the 12 months prior to interview.

Uninsured for at least part of the past year—A person was defined as uninsured if he or she did not have any private health insurance, Medicare, Medicaid, CHIP, state-sponsored or other government-sponsored health plan, or military plan. A person was also defined as uninsured if he or she had only Indian Health Service coverage or had only a private plan that paid for one type of service, such as dental or vision care. "Year" is defined as the 12 months prior to interview.

Exchange-based health insurance coverage - Exchange-based coverage is a private plan purchased through the federal Health Insurance Marketplace or state-based exchanges that were established as part of the ACA (Affordable Care Act of 2010. Pub L No 111–148, Pub L No 111–152.).

Cost-Related Problems Accessing Care in the Past 12 Months:

Did not get needed medical care due to cost—Respondents were asked if there was any time during the past 12 months when they needed medical care but did not get it because of the cost.

Delayed medical care due to cost—Respondents were asked if there was any time during the past 12 months when medical care was delayed because of the cost.

Did not get needed mental health care due to cost—Respondents were asked if there was any time during the past 12 months when they needed mental health care but did not get it because of the cost.

Did not take medication as prescribed to save money—Respondents who reported taking prescribed medicine in the past 12 months were asked in separate questions if during the past 12 months any of the following were true: they skipped medication doses to save money, they took less medication to save money, they delayed filling a prescription to save money.

Health Care Use in the Past 12 Months:

Doctor visit—Respondents were asked how long it had been since they last saw a doctor or other health care professional about their health.

Wellness visit—Based on questions that ascertain among those with a doctor visit in the past 12 months, "Was this a wellness visit, physical, or general purpose check-up? " or a response of "within the past year" to the question "About how long has it been since you last saw a doctor or other health professional for a wellness visit, physical, or general purpose check-up?"

Hospital emergency department visit—Respondents were asked how many times during the past 12 months had they gone to a hospital emergency room about their health. This includes emergency room visits that resulted in a hospital admission.

Urgent care center or retail health clinic visit—Respondents were asked how many times they went to an urgent care center or a clinic in a drug store or grocery store about their health during the past 12 months.

Dental exam or cleaning—Respondents were asked how long it had been since they last had a dental examination or cleaning.

Receipt of influenza vaccination—Respondents were asked if they had a flu vaccination in the past 12 months.

Blood pressure check—Respondents were asked when was the last time they had their blood pressure checked by a doctor, nurse, or other health professional.

Prescription medication use—Respondents were asked if they took prescription medication at any time in the past 12 months.

Other Health Care:

Has a usual place of care—In separate questions, respondents were asked if there is a place that they usually go if they are sick and need health care, and if so (or if more than one place), to indicate the kind of place. Respondents who indicated their place of usual care was a hospital emergency room were not classified as having a usual place of care.

Ever received a pneumococcal vaccine—Respondents were asked if they ever had a pneumonia shot.

Child Health Outcomes

Health Status:

Ever having asthma—Based on the question, "Has a doctor or other health professional ever told you that [child's name] had asthma?"

Current asthma—Based on the question, "Does [child's name] still have asthma?" Question is asked of sample children aged 0-17 years who were told by a doctor or other health professional that they ever had asthma.

Daily feelings of worry, nervousness, or anxiety—Based on the question, "How often does [child's name] seem very anxious, nervous, or worried? Would you say: daily, weekly, monthly, a few times a year, or never?" Question is asked of sample children aged 5-17 years.

Ever having attention-deficit/hyperactivity disorder—Based on the question, "Has a doctor or other health professional ever told you that [child's name] had attention deficit hyperactivity disorder (ADHD) or attention deficit disorder (ADD)?"

Ever having a learning disability—Based on the question, "Has a representative from a school or a health professional ever told you that [child's name] had a learning disability?"

Fair or poor health status—Based on the question, "Would you say [child's name]'s health in general is excellent, very good, good, fair, or poor?"

Missed 11 or more school days due to illness, injury, or disability—Based on the question, "During the past 12 months, about how many days of school did [child's name] miss because of illness, injury, or disability?"

Health Insurance Coverage:

Uninsured at time of interview—Children are considered uninsured if they did not have private health insurance, Medicare, Medicaid, Children's Health Insurance Program (CHIP), a State-sponsored health plan, other government programs, or military health plan (includes TRICARE, VA, and CHAMP-VA) at the time of interview. "Uninsured" includes children who had no coverage as well as those who had only Indian Health Service coverage or had only a private plan that paid for one type of service such as dental or vision care.

Cost-Related Problems Accessing Care in the Past 12 Months:

Delayed medical care due to cost—Based on the question, "During the past 12 months, has medical care been delayed for [child's name] because of the cost?"

Health Care Use in the Past 12 Months:

Doctor visit—Based on the question, "About how long has it been since [child's name] last saw a doctor or other health professional about [his/her] health?"

Well child check-up—Based on questions that ascertain among those with a visit in the past 12 months, "Was this a wellness visit, physical, or general purpose check-up?" or a response of within the past year to the question "About how long has it been since [child's name] last saw a doctor or other health professional for a well baby/child visit, physical, or general purpose check-up?"

Two or more hospital emergency department visits—Based on the question, "During the past 12 months, how many times has [child's name] gone to a hospital emergency room about [his/her] health? (This includes emergency room visits that resulted in a hospital admission.)"

Two or more urgent care center or retail health clinic visits—Based on the question, "During the past 12 months, how many times has [child's name] gone to an urgent care center or clinic in a drug store or grocery store about [his/her] health? (Urgent care centers and clinics in drug stores or grocery stores are places where you do not need to make an appointment ahead of time, and do not usually see the same health care provider at each visit. This is different from a hospital emergency room.)"

Receipt of influenza vaccination—Based on the question, "There are two types of flu vaccinations. One is a shot and the other is a spray, mist, or drop in the nose. During the past 12 months, has [child's name] had a flu vaccination? (A flu vaccination is usually given in the fall and protects against influenza for the flu season.)" Children aged < 6 months are excluded from this estimate.

Prescription medication use—Based on the question, "At any time in the past 12 months, did [child's name] take prescription medication?"

Other Health Care:

Has a usual place of care—Based on the question, "Is there a place that [child's name] usually goes if [he/she] is sick and needs health care?"

Receiving special education or early intervention services—Based on the question, "Does [child's name] currently have a special education or early intervention plan? (Consider special education or early intervention plans received during the past school year.)"

Receiving special education services for mental health problems—Based on the question, "Does [child's name] receive these services to help with [his/her] emotions, concentration, behavior, or mental health?" Question is asked of sample children 0–17 who have received services in the past 12 months.

Further Information

Data users can obtain the latest information about NHIS by periodically checking the website <https://www.cdc.gov/nchs/nhis.htm>. This website features downloadable public use data and documentation for NHIS, as well as important information about any modifications or updates to the data or documentation.

Analysts may also wish to join the NHIS electronic mailing list. To do so, go to <https://www.cdc.gov/subscribe.html>. Complete the appropriate information and click the "National Health Interview Survey (NHIS) researchers" box, followed by the "Subscribe" button at the bottom of the page. The list consists of NHIS data users worldwide who receive e-news about NHIS surveys (e.g., new releases of data or modifications to existing data), publications, conferences, and workshops.

Suggested Citations

Recommended citations for specific tables and charts are included in the notes at the end of each page. The citation for the Technical Notes is as follows but should also include the date accessed as it may be edited periodically when new tables are added.

National Center for Health Statistics. Technical Notes for Interactive Summary Health Statistics — 2019–2023: National Health Interview Survey. Available from: <https://www.cdc.gov/nchs/data/nhis/SHS-Tech-Notes-508.pdf>.

References

1. Adams PF, Hendershot GE, Marano MA. Current estimates from the National Health Interview Survey, 1996. National Center for Health Statistics. Vital Health Stat 10(200). 1999. Available from: https://www.cdc.gov/nchs/data/series/sr_10/sr10_200.pdf
2. Adams PF, Kirzinger WK, Martinez ME. Summary health statistics for the U.S. population: National Health Interview Survey, 2012. National Center for Health Statistics. Vital Health Stat 10(259). 2013. Available from: https://www.cdc.gov/nchs/data/series/sr_10/sr10_259.pdf.
3. Blackwell DL, Lucas JW, Clarke TC. Summary health statistics for U.S. adults: National Health Interview Survey, 2012. National Center for Health Statistics. Vital Health Stat 10(260). 2014. Available from: https://www.cdc.gov/nchs/data/series/sr_10/sr10_260.pdf.
4. Bloom B, Jones LI, Freeman G. Summary health statistics for U.S. children: National Health Interview Survey, 2012. National Center for Health Statistics. Vital Health Stat 10(258). 2013. Available from: https://www.cdc.gov/nchs/data/series/sr_10/sr10_258.pdf.
5. Olson K. Paradata for nonresponse adjustment. The Annals of the American Academy of Political and Social Science 645(1):142-170. 2013.
6. Valliant R, Dever JA, Kreuter F. Practical tools for designing and weighting survey samples. New York: Springer. 2018.
7. Parker JD, Talih M, Malec DJ, et al. National Center for Health Statistics data presentation standards for proportions. National Center for Health Statistics. Vital Health Stat 2(175). 2017. Available from: https://www.cdc.gov/nchs/data/series/sr_02/sr02_175.pdf.
8. RTI International. SUDAAN (Release 11.0.0) [computer software]. 2012.
9. DeNavas-Walt C, Proctor BD, Smith JC. Income, poverty, and health insurance coverage in the United States: 2012. U.S. Census Bureau. Current Population Reports, P60—245. Washington, DC: U.S. Government Printing Office. 2013. Available from: <https://www.census.gov/prod/2013pubs/p60-245.pdf>.