Technical Notes for Summary Health Statistics Tables: National Health Interview Survey

Introduction

All Summary Health Statistics tables are based on the National Health Interview Survey and provide selected point estimates of health outcomes and their variance estimates. Annual Summary Health Statistics tables include adult, child, and population tables that are produced each year. Periodic Adult Health Behaviors tables are produced every three to four years.

All data used to produce the estimates in the tables are also available from the public-use data files with the exception of detailed information on race, Hispanic or Latino origin, and place of residence. 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.

Adult, Child, and Population Summary Health Statistic Tables (Annual)

The annual Adult, Child, and Population Summary Health Statistics tables summarize data from the National Health Interview Survey (NHIS), a multipurpose health survey conducted by the Centers for Disease Control and Prevention's (CDC) National Center for Health Statistics (NCHS). These tables provide national estimates for a broad range of health measures for the U.S. civilian noninstitutionalized population. Tables show estimates for U.S. adults aged 18 years and over, U.S. children under age 18 years, and for the entire U.S. population (all ages). Tables of summary health statistics were initially published annually in a single volume of Vital and Health Statistics (VHS), Series 10, entitled "Current Estimate from the National Health Interview Survey" for survey years 1962–1996 (1). This was replaced with a three-volume set of VHS reports (Adult, Child and Population) for survey years 1997 through 2012 (2–4). Beginning with the 2013 data year, these tables are being published only online at the NCHS website, and can be found at: http://www.cdc.gov/nchs/nhis/SHS/tables.htm.

Annual Adult, Child, and Population Summary Health Statistics tables are presented here for selected health conditions, respondent-assessed health status, limitations in activities, injury and poisoning episodes, health insurance coverage, and access to and utilization of health care. Estimates are based on data from the Household, Family, Person, Sample Adult, Sample Child, and Injury Episode files, which are derived from the Household Composition Section and the Family, Sample Adult, and Sample Child Core components of the NHIS. Age-adjusted percentages, rates, or means, crude frequencies, and crude percentages, rates, or means, and are all shown by selected population subgroups including those defined by sex, age, race and Hispanic origin, education (for adults aged 25 and over), current employment status, family income, poverty status, health insurance coverage, marital status, and place and region of residence, and for children under age 18, family structure, parent's education, and current health status. Two tables based on the U.S. population also include current health status.

Adult Health Behaviors Tables (Periodic)

The periodic Adult Health Behaviors tables summarize data from the NHIS for adults aged 18 years and over, combining multiple years of data and focusing exclusively on adult health behaviors—alcohol use, body weight,

leisure-time physical activity, sleep, and tobacco use. NHIS data on adult health behaviors were initially published as separate advance data reports for data years 1997–1998, the first two years of the NHIS questionnaire redesign (5–8). The next sets of tables were published in Series 10 reports, each based on three years of data (1999–2001, 2002–2004, 2005–2007, 2008–2010) (9). Beginning with the latest set of tables, for data years 2011–2014, the adult health behaviors tables are being published only online and can be found at: http://www.cdc.gov/nchs/nhis/SHS/tables.htm. Except in a few tables for which data were not available for all years, these tables are based on four years of data. The change from a three-year to a four-year cycle was due to a lag in the transition to the online table format and the goal of publishing the latest estimates.

Adult Health Behaviors tables are presented here for alcohol use, body weight status, leisure-time physical activity, sleep, and tobacco use. The NHIS questionnaire section on adult health behaviors was expanded in 2012 to include non-cigarette tobacco products. All estimates are based on data from the Sample Adult files, which are derived from the Sample Adult component of the NHIS. Age-adjusted percentages or means, crude frequencies, and crude percentages or means, are all shown for both sexes, men, and women, by selected population subgroups including those defined by age, race and Hispanic origin, education (for adults aged 25 and over), poverty status, marital status, region, and place of residence.

Methods

Data Source

The main objective of NHIS is to monitor the health of the U.S. population through the collection and analysis of data on a broad range of health topics. The target population for NHIS is the civilian noninstitutionalized population of the United States. Persons excluded are patients 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); inmates of correctional facilities (e.g., prisons or jails, juvenile detention centers, and halfway houses); active-duty Armed Forces personnel (although their civilian family members are included); and U.S. nationals living in foreign countries. Each year, a representative sample of households across the country is selected for NHIS using a multistage cluster sample design. Trained interviewers from the U.S. Census Bureau visit each selected household and administer the NHIS in person. Detailed interviewer instructions can be found in the NHIS field representative's manual (10).

In 1997, the NHIS questionnaire was substantially revised and the administration of the survey was changed to computer-assisted personal interviewing. This new design improved the ability of NHIS to provide important health information; however, comparisons of the NHIS data collected before and after the beginning of 1997 should not be undertaken without a careful examination of the changes across survey instruments (1, 11). The revised NHIS questionnaire, which is administered annually, consists of four main components: Household Composition Section, Family Core, Sample Adult Core, and Sample Child Core. The Household Composition Section of the questionnaire collects some basic demographic and relationship information about all persons in the household. The Family Core, which is administered separately for each family in the household, collects information for all family members. Topics on the Family Core include sociodemographic characteristics, basic indicators of health status, limitations in activities, injuries, health insurance coverage, and access to and use of health care services. At least one family member whose age is equal to or over the age of majority for the given state responds to questions about all family members in the Family Core. In most states, this age is 18 years, but in Alabama and Nebraska it is 19 years, and in Mississippi it is 21 years. Although considerable effort is made to

ensure accurate reporting, information from both proxies and self-respondents may be inaccurate because the respondent is unaware of relevant information, has forgotten it, does not wish to reveal it to an interviewer, or does not understand the intended meaning of the question.

The Sample Adult Core obtains additional information on the health of one randomly selected adult (the "sample adult") in the family. 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 Core collects information on health conditions, functional limitations, health behaviors, and access to and use of health care services from one randomly selected adult per family. Estimates of these health outcomes for adults are obtained from the Sample Adult Core, while information regarding demographic characteristics is obtained from the Family Core.

The Sample Child Core obtains additional information on the health of one randomly selected child (the "sample child") in the family. A knowledgeable adult in the family, usually a parent, provides responses about the sample child. The Sample Child Core, the primary source of data for tables based on children, collects information on health conditions, access to and use of health care services, and school days missed due to illness or injury. Information regarding demographic characteristics and special education or early intervention services is obtained from the Family Core.

The NHIS sample is redesigned and redrawn approximately every 10 years to better measure the changing U.S. population and to meet new survey objectives. The sample design for NHIS that was first implemented in 2006 will remain in use through 2015 (12). Its fundamental structure is very similar to the previous 1995–2005 NHIS sample design. Oversampling of black and Hispanic populations allows for more precise estimation of health characteristics in these growing minority populations. The current sample design also oversamples the Asian population. In addition, when black, Hispanic, or Asian adults aged 65 and over are in the family, they have an increased chance of being selected as the sample adult.

The NHIS sample design includes state-level stratification. Moreover, starting in 2011, the NHIS sample size was augmented in 32 states and the District of Columbia to increase the number of reliable state-level estimates that can be made for all persons. However, the sample size was still not sufficient for reliable annual estimates for persons in many states. Therefore, only national and regional estimates are included in these tables. Detailed information about annual sample sizes and response rates are available in the annual NHIS Survey Description documents (13), available at http://www.cdc.gov/nchs/nhis/quest_data_related_1997_forward.htm.

Estimation Procedures

The Person, Sample Adult, and Sample Child weights were used to produce the national estimates contained in these tables. Beginning with 2012 NHIS data, the NHIS sample weights were calibrated to 2010 Census-based population estimates for age, sex, and race/ethnicity of the U.S. civilian noninstitutionalized population. NHIS weights were calibrated to 2000-census-based population estimates for NHIS data between 2003 and 2011. The NHIS data weighting procedure is described in more detail at:
http://www.cdc.gov/nchs/data/series/sr_02/sr02_165.pdf. For each health measure, both weighted frequencies and percentages (or rates or means, in a small number of tables) for all persons, all adults, or all children and for various subgroups of these populations are shown. All counts are expressed in thousands.

Annual tables of Adult, Child, and Population Summary Health Statistics are based on a single year of data and the weighted frequencies reflect the number of persons in the U.S. population for the data year described. In contrast, the weighted frequencies shown in the tables of Adult Health Behaviors are annualized estimates, generally based on four years of data (2011–2014); a few tables are based on three years (2011–2013 or 2012–2014). Although close to the annual estimates for a single year, they will not match exactly.

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 shown separately in the tables, nor are they included in the calculation of means (in the case of one Adult table) or percentages or rates (as part of either the denominator or the numerator), to provide a more straightforward presentation of the data. In addition, frequencies presented in the tables may be underestimated due to item nonresponse and unknowns. For all 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 greater than 2% are indicated in the footnotes for the appropriate tables. Unknown cases are included in the total counts of all persons, all adults, or all children typically shown in the first column of estimates in each frequency table. Therefore, slightly different percentages or rates than those shown in the tables may be obtained if percentages or rates are calculated based on the frequencies and population counts presented in the tables.

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 family income, poverty status, and parents' education, nonresponse rates are generally higher. Because it is difficult to interpret the relationship between "unknown" income (or poverty status or parents' education) and the health outcomes displayed in the tables, counts of persons, adults, or children in these unknown categories are not shown in the tables. Also, in the annual Adult, Child, and Population Summary Health Statistics tables, income and poverty estimates are not imputed and are based on reported income only; thus, these estimates may differ from measures published elsewhere based on imputed income data. In the Adult Health Behaviors tables, poverty status was based on the imputed income files and there are no unknowns for income.

Age Adjustment

Beginning with the 2002 annual Adult, Child, and Population Summary Health Statistics reports and continuing in these tables, both age-adjusted and crude percentage or rate estimates are provided for all tables (frequencies are not age-adjusted). For Adult Health Behaviors reports, both age-adjusted and crude percentages have been presented in all reports dating back to 2002–2004 and as online companion tables for 1999–2001. All percentages or rates were age-adjusted to the projected 2000 U.S. standard population. When assessing changes in prevalence over time, age-adjusted percentages or rates are more appropriate than unadjusted or crude percentages or rates if the age distribution of the population is changing. Thus, age-adjusted percentages or rates from these tables can be compared to the same age-adjusted percentages or rates from earlier Summary Health Statistics reports. Age-adjusted percentages or rates also permit comparison among various sociodemographic subgroups that may have different age structures (14–15). This is particularly important for demographic characteristics such as race and ethnicity, education, and marital status. The age groups used for age adjustment in each table are specified in the table's footnotes. Tables showing education among adults are restricted to those aged 25 and over and are adjusted accordingly (see relevant table footnotes for age groups).

Age-adjusted percentages or rates shown in the tables may not match age-adjusted percentages or rates for the same health characteristic in other reports if different age groups were used for age adjustment.

Age-adjusted percentages or rates should be viewed as relative indexes rather than actual measures of risk. Unadjusted or crude rates are more appropriate when actual risk or "burden" of illness is of interest. Annual Adult, Child, and Population Summary Health Statistics tables providing these unadjusted estimates may be compared with those published in the 1997–2001 Summary Health Statistics reports. These tables also allow readers to see the effect of age adjustment on the estimates.

Age-adjusted rates are calculated by the direct method. For more information on the derivation of age-adjustment weights for use with NCHS survey data, see Klein and Schoenborn (15), which is available through NCHS at http://www.cdc.gov/nchs/data/statnt/statnt20.pdf. The projected year 2000 U.S. resident population is available from the Census Bureau at http://www.census.gov/prod/1/pop/p25-1130/p251130.pdf.

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 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 since 1997 with those from earlier years.

A change in the sample design was implemented in 2006 and should also be considered when comparing estimates since 2006 with those from 2005 and earlier.

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 did not contain age-adjusted estimates. The crude (or unadjusted) estimates from those reports should not be compared with age-adjusted estimates in these tables unless it can be demonstrated that the effect of age adjustment is minimal.

Injuries and Poisonings

Estimates of injury and poisoning episodes by their cause are derived from the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD-9-CM) external cause codes (E codes) that describe the cause of the episode. A person may experience multiple injury or poisoning episodes.

From 1997 through 2003, injury and poisoning estimates were calculated using the full 3-month recall period to which the questions referred. A study by Warner et al. (16) showed that as the recall period increases, the annualized number of injuries and poisonings reported decreases because respondents tend to forget less serious injuries and poisonings. Based on recommendations from this study, beginning in 2004, imputation has been performed for injury and poisoning episodes for which the respondent did not provide sufficient information to determine a month, day, and year of occurrence. Imputation was done so that for all episodes it

was possible to calculate a specific elapsed time, in days, between the date of the injury or poisoning episode and the date the injury or poisoning questions were asked. Injury and poisoning estimates have been calculated using only those injuries and poisonings that occurred 5 weeks or less before the date the injury and poisoning questions were asked.

Because of changes in the injury and poisoning section, imputation of unknown dates of injury and poisoning episodes, and the use of a 5-week reference period rather than a 3-month recall period to calculate annualized estimates used in the tables, estimates for 2004 and subsequent years are not comparable with estimates from prior years. For further details about changes to the injury and poisoning questions and analytic methods, effective with 2004, see Appendix I of the 2004 Summary Health Statistics report for the U.S. population (17).

Frequencies were annualized by multiplying the counts for the 5-week reference period by 10.4 to produce annualized frequencies. Rates were calculated using the annualized frequencies.

Variance Estimation, Statistical Reliability, and Hypothesis Tests

Because NHIS data are based on a sample of the population, the data are subject to sampling error. Standard errors are reported to indicate the reliability of the estimates. Estimates and standard errors were calculated 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 (18).

Standard errors are shown for all percentages, rates, means, and ratios in the tables (but not for the frequencies). Estimates with a relative standard error (RSE) greater than 30% and less than or equal to 50% are indicated with an asterisk (*) and should be used with caution because they do not meet standards of reliability or precision. Estimates with an RSE greater than 50% are indicated with an asterisk (*) and are not shown. Estimates for population subgroups with small sample sizes may fluctuate considerably from year to year due to sampling variability.

RSEs are calculated as the standard error of the estimate divided by the estimate itself (percentage or rate), and the result is then converted to a percentage value by multiplying the decimal value by 100. The reliability of frequencies and their corresponding percentages (or rates) are determined independently, so it is possible for a particular frequency to be reliable and its associated percentage (or rate) unreliable, and vice versa. In most instances, however, both estimates were reliable (or unreliable) simultaneously.

Definitions of Selected Terms

Sociodemographic Terms

Text inside parentheses following terms indicates which tables include the category defined by the term. “SHS” indicates annual Summary Health Statistics tables (Adult, Child, Population) and “HB” indicates Adult Health Behaviors tables.

Age (annual Adult, Population, Child SHS tables; Adult HB tables)—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.

Education (annual Adult, Population SHS tables; Adult HB tables)—Categories of education are based on years of school completed or highest degree obtained for adults aged 25 and over.

Current employment status (annual Adult SHS tables)—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.

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.

The number of currently employed persons estimated from NHIS will differ from the estimates prepared from the Current Population Survey (CPS) of the U.S. Census Bureau for several reasons. In addition to sampling variability, the two surveys have the following primary conceptual differences:

1. NHIS employment estimates are for persons aged 18 and over; CPS estimates are for persons aged 16 and over.

2. NHIS is a continuous survey with separate samples taken weekly; CPS is a monthly sample taken for the survey week that includes the 19th of the month.

With the exception of Table A-9, the Adult tables distinguish between adults who were employed full-time (worked 35 or more hours per week) and part-time (worked 34 or fewer hours per week). Additionally, unemployed adults include those who have worked previously as well as those who have never worked.

Table A-9 combines adults currently employed, as defined previously, with those who were not employed in the week preceding the interview but who were employed within the past 12 months, in order to estimate the number of employed and unemployed adults for the year.

Family income (annual Adult, Child, Population SHS tables)—Each member of a family is classified according to the total income of all family members. Family members are all persons within the household related to each other by blood, marriage, cohabitation, or adoption. The income recorded is the total income received by all family members in the previous calendar year. Income from all sources includes wages, salaries, military pay (when an Armed Forces member lived in the family), pensions, government payments, child support or alimony, dividends, and help from relatives. Unrelated individuals living in the same household (e.g., roommates) are considered to be separate families and are classified according to their own incomes.

Family structure (annual Child SHS tables) –Describes the parent(s) living in the household with the sample child. Mother and father can include biological, adoptive, step, in-law, or foster parents. Legal guardians are not classified as parents.

Health insurance coverage (annual Adult, Child, Population SHS tables)—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 adults under age 65 *(annual Adult, Population SHS tables)*, a health insurance hierarchy of four mutually exclusive categories was developed (19). Adults with more than one type of health insurance were assigned to the first appropriate category in the following hierarchy:

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

Other coverage—Includes adults 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 adults who are covered by other government programs.

Uninsured—Includes adults who have not indicated that they are covered at the time of the interview under private health insurance, Medicare, Medicaid, CHIP, a state-sponsored health plan, other government programs, or military coverage . This category also includes adults who are covered by IHS only or who only have a plan that pays for one type of service such as accidents or dental care.

For adults aged 65 and over *(annual Adult, Population SHS tables)*, a health insurance hierarchy of six mutually exclusive categories was developed (cite SDD for 2015). This replaces a health insurance hierarchy of five mutually exclusive categories (20) that was used for tabulations based NHIS prior to 2015. Due to an increase in older adults covered by Medicare Advantage plans and the increase in the duplication of reporting of a Medicare Advantage plan and private health insurance a new hierarchy was developed for persons 65 and over beginning with tabulations based on the 2015 NHIS. This hierarchy below de-duplicates the report of private health insurance and Medicare Advantage. Adults with more than one type of health insurance were assigned to the first appropriate category in the following 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 who receive that coverage 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 older adults who have not indicated that they are covered at the time of the interview under private health insurance, Medicare, Medicaid, CHIP, a state-sponsored health plan, other government programs, or military coverage. This category also includes older adults who are covered by IHS only or who have only a plan that pays for one type of service such as accidents or dental care.

Hispanic or Latino origin and race (annual Adult, Child, Population SHS tables; Adult HB tables)—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 or Latino" and "Not Hispanic or Latino." "Hispanic or Latino" includes the subset "Mexican or Mexican American." "Not Hispanic or Latino" is further divided into "White, single race" and "Black or African American, single race" for Summary Health Statistics tables. The Adult Health Behaviors tables have an additional non-Hispanic category, "American Indian or Alaska Native, single race." Persons in these categories were reported to be of only a single race group (see the definition of race for more information). Estimates are not shown for other "Not Hispanic or Latino, single race" persons or for multiple-race persons due to statistical unreliability as measured by the relative standard errors of the estimates (but are included in the total for "Not Hispanic or Latino").

Marital status (annual Adult SHS tables; Adult HB tables)—marital status at the time of interview is obtained for all respondents aged 14 and over. Five 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.

Parent's education (annual Child SHS tables)–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 4% of sample children (unweighted).

Place of residence (annual Adult, Child, Population SHS tables; Adult HB tables)—Classified in these tables in three categories: large metropolitan statistical area (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. For 1995–2005 NHIS data, MSA definitions were based on the June 1993 MSA definitions that resulted from application of the 1990 OMB standards to the 1990 census. Beginning in 2006, the June 2003 metropolitan and micropolitan statistical area definitions, which resulted from application of the 2000 OMB standards to U.S. Census 2000, are used for NCHS data. The 2000 criteria for designating MSAs differ from the 1990 criteria in substantial ways, including simplification of the MSA classification criteria as well as addition of a new category—micropolitan statistical area—for some nonmetropolitan counties. These changes may lessen the comparability of estimates by place of residence in 2006–2013 with estimates from earlier years. Those who compare NHIS frequencies across this transition in OMB standards should recognize that some of the differences may be due to the change in definitions of metropolitan areas. In these tables, place of residence is based on variables in the 2013 in-house Household data file 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: http://www.census.gov/population/metro/.

Poverty status (annual Adult, Child, Population SHS tables; Adult HB tables)—The ratio of the family income in the previous calendar year to the appropriate poverty threshold (given family size and number of children) defined by the U.S. Census Bureau for the previous calendar year (21). These poverty 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 questions.

Annual Adult, Child, Population SHS tables: Persons who are categorized as "Poor" had incomes of less than 100% of the poverty threshold; that is, their family income was strictly below the poverty threshold. The "Near poor" category includes persons with family incomes of 100% to less than 200% of the poverty threshold. "Not poor" persons have family incomes that are 200% of the poverty threshold or greater. The remaining groups of respondents—those who did not supply sufficient income information in the follow-up questions to categorize into one of these three poverty status categories, as well as those who did not provide any income information—are, by necessity, coded as "unknown" with respect to poverty status. Family income information is missing for 5% of the NHIS sample, 4% of sample adults and 3% of sample children, and poverty status information is missing for 11% of the NHIS

sample, 9% of sample adults, and 7% of sample children. These percentages for unknown family income and poverty status are unweighted.

Adult HB tables: Adults were categorized according to four poverty thresholds: less than 100% of the poverty threshold; 100% to less than 200% of the poverty threshold; 200% to less than 400% of the poverty threshold, and 400% of the poverty threshold or greater.

Race (annual Adult, Child, Population SHS tables; Adult HB tables)—The category "One race" refers to persons who indicated only a single race group, and it includes subcategories for "White," "Black or African American," "American Indian or Alaska Native," "Asian," and "Native Hawaiian or Other Pacific Islander." The category "Two or more races" refers to persons who indicated more than one race group. Estimates for multiple-race combinations can be reported only to the extent that they meet the requirements for confidentiality and statistical reliability. In these tables, three categories are shown for multiple-race individuals, a summary category and two multiple-race categories—"Black or African American and white" and "American Indian or Alaska Native and white." Other combinations are not shown separately due to statistical unreliability as measured by the RSEs of the estimates (but they are included in the total for "Two or more races").

As a result of changes to NHIS editing procedures that were implemented in 2003, in cases where "other race" was mentioned along with one or more OMB race groups, the "other race" response is dropped, and the OMB race group information is retained on the NHIS data file. In cases where "other race" was the only race response, it is treated as missing and the race is imputed. More information about the race and ethnicity editing procedures used by the Census Bureau can be found at: http://www.census.gov/popest/data/historical/files/MRSF-01-US1.pdf.

Region (annual Adult, Child, Population SHS tables; Adult HB tables)—In the geographic classification of the U.S. population, states are grouped into four regions used by the U.S. Census Bureau:

Region	*States included*
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

Health Characteristics or Outcome Terms

Alcohol use (Adult HB table series ALC-1-ALC-4)—Alcohol use status was based on reports of lifetime history of having had 12 or more drinks in any one year, 12 or more drinks in the respondent's lifetime, and frequency and quantity of alcohol consumption in the past year. Adults were classified as follows: *Lifetime*

abstainer—Had fewer than 12 drinks in entire lifetime; F*ormer infrequent drinker*—Had 12 drinks or more in lifetime, but never as many as 12 drinks in a single year, and had no drinks in the past year; *Former regular drinker*—Had 12 drinks or more in one year, but no drinks in the past year; *Current drinker h*ad at least 12 drinks in lifetime and at least 1 drink in the past year. *Nondrinker had* no drinks in the past year, including former drinkers and lifetime abstainers.

Current drinking level was based on self-reports of the average frequency of alcohol consumption during the past year (could be reported in terms of days per week, per month, or per year), and the number of drinks the respondent drank on the days he or she drank. Neither size nor type of beverage consumed was specified. In calculating current drinking levels, the number of days the respondent drank was converted from the time unit initially reported (days per week, per month, or per year) to number of days per year. Then, average number of drinks per week was calculated as follows:

$$\left(\frac{(\#\ days\ per\ year)\ (\#\ drinks\ per\ day)}{365\ days}\right)7$$

and classified as: *infrequent* (1–11 drinks in the past year); *light* (3 drinks or less per week, on average); *moderate* (for men, more than 3 drinks and up to and including 14 drinks per week, on average; for women, more than 3 drinks and up to and including 7 drinks per week, on average); *heavier* (for men, more than 14 drinks per week, on average (more than 2 per day); for women, more than 7 drinks per week, on average (more than one per day.)

Five/four or more drinks in 1 day in the past year—Current drinkers were asked how many days in the past year they had five or more {if male} or 4 or more {if female} alcoholic beverages in 1 day.

Body mass index or BMI (annual Adult SHS table series A-15, Adult HB table series BW-1)—Calculated from the sample adult's responses to survey questions regarding height and weight and defined as BMI = Weight (in kg)/[Height (in m)]^2. BMI is then collapsed into one of four categories: "Underweight (BMI less than 18.5); "Healthy weight" (BMI greater than or equal to 18.5 and less than 25.0); "Overweight" (BMI greater than or equal to 25.0 and less than 30.0); and "Obese" (BMI greater than or equal to 30.0). The same categories are used for both men and women.

Human immunodeficiency virus (HIV) testing status (annual Adult SHS table series A-20)—Based on a survey question that asked whether the respondent has ever had his or her blood tested for HIV. During survey years 1997 through 2010, the question on HIV testing was located in the AIDS Knowledge and Attitudes (ADS) section of the NHIS questionnaire. In 2011, the ADS section was dropped from NHIS, and the HIV testing question was added to the Adult Access to Health Care and Utilization (AAU) section, resulting in slight changes in question wording and noticeable changes in question context (i.e., markedly different lead-in questions). Differences observed in estimates regarding HIV testing status from the 2010-and-earlier NHIS relative to the 2011–2013 NHIS may be partially attributable to this change in placement of the HIV testing question on the NHIS questionnaire.

Leisure-time physical activity (annual Adult SHS table series A-14; Adult HB series PA-1–PA-3)—All survey questions related to leisure-time physical activity were phrased in terms of current behavior and lack a specific prior reference period. Starting with "Summary Health Statistics for U.S. Adults: National Health Interview Survey, 2010," measures of physical activity have reflected the federal "2008 Physical Activity Guidelines for Americans" (available from: http://www.health.gov/PAGuidelines/). The 2008 federal guidelines recommend that for substantial health benefits, adults should perform at least 150 minutes (2 hours and 30 minutes) a week of moderate-intensity or 75 minutes (1 hour and 15 minutes) a week of vigorous-intensity aerobic physical

activity, or an equivalent combination. Aerobic activity should be performed in episodes of at least 10 minutes and preferably should be spread throughout the week. The 2008 federal guidelines also recommend that adults perform muscle-strengthening activities of moderate or high intensity that involve all major muscle groups on 2 or more days a week for additional health benefits.

Adults who met neither the aerobic nor muscle-strengthening 2008 federal guidelines may have engaged in lesser amounts of activity. In addition, estimates presented in these tables are limited to leisure-time physical activity only. The 2008 federal physical activity guidelines refer to any kind of aerobic and muscle-strengthening activities, not just to leisure-time aerobic and muscle-strengthening activities. Therefore, the leisure-time aerobic and muscle-strengthening activity estimates in these tables may underestimate the frequencies and percentages of adults who met the guidelines for aerobic and muscle-strengthening activities.

Serious psychological distress (annual Adult SHS table series A-8)—an indicator of psychological distress based on six separate questions in the Sample Adult Core that asked respondents how often during the preceding 30 days they felt 1) so sad that nothing could cheer them up, 2) nervous, 3) restless or fidgety, 4) hopeless, 5) that everything was an effort, or 6) worthless. Each question had five response categories: all of the time, most of the time, some of the time, a little of the time, or none of the time. For these tables, response values of 0 to 4 were assigned to each of the five response categories (with all of the time assigned 4 and none of the time assigned 0). The response values were then summed to yield a scale with a 0--24 range. A value of 13 or more on this scale was used to identify adults experiencing serious psychological distress (22).

*Sleep (Adult HB table series SLP-1-SLP-2)—Hours of sleep were b*ased on a question that asked "On average, how many hours of sleep do you get in a 24-hour period?" Response options were limited to whole hours. Sufficient sleep is defined according to the Healthy People 2020 criteria: 8 hours or more for adults aged 18-21 and 7 hours or more for adults aged 22 and over, on average, in a 24-hour period (available from: http://www.healthypeople.gov/2020/topics-objectives/topic/sleep-health/objectives/).

Tobacco use (annual Adult SHS table series A-12; Adult HB tables series TOB-1—TOB-7)—Tobacco use includes use of cigarettes, non-cigarette combustible tobacco products, and smokeless tobacco.

Lifetime cigarette smoking status—Includes both past smoking history and current cigarette smoking practice and is classified as follows: *never smokers (a*dults who never smoked a cigarette or who smoked fewer than 100 cigarettes in their entire lifetime) ; f*ormer smokers (a*dults who had smoked at least 100 cigarettes in their lifetime, but said they currently did not smoke); c*urrent smokers (a*dults who had smoked 100 cigarettes in their lifetime and currently smoked cigarettes every day (daily) or some days (nondaily).

Current cigarette smoking status is based on the same criteria as lifetime smoking status, but shows current every day (daily) and someday (nondaily) smokers separately and combines never smokers and former smokers into a single "nonsmoker" category.

Amount smoked (cigarettes only)—Adults who smoked cigarettes daily and those who smoked less than daily were asked separate questions about the usual number of cigarettes smoked in a day. Daily smokers were asked how many cigarettes, on average, they usually smoked a day. Nondaily smokers were asked to report the usual number smoked "on days that they smoked during the past 30 days." Smokers who said they smoked "some days" (nondaily smokers), but who then said they had not smoked in the past 30 days, were excluded from the analysis of amount smoked. Two indicators for amount smoked are shown. Table TOB-2 shows the mean number of cigarettes smoked on the days the respondent smoked. Table TOB-3 shows percent distributions of usual number of cigarettes smoked on those days the respondent smoked, using the following four categories: less than 15 cigarettes, 15–24 cigarettes, 25–34 cigarettes, and 35 cigarettes or more.

Quit attempt—Current cigarette smokers were asked if they had stopped smoking for more than 1 day in the past 12 months because they were trying to quit. All current smokers (including nondaily smokers) who said they had stopped for more than 1 day because they were trying to quit were classified as having attempted to quit.

Non-cigarette combustible tobacco use status—Sample adults were asked "Have you ever smoked tobacco products other than cigarettes even one time?" and "Do you now smoke tobacco products other than cigarettes every day, some days, rarely, or not at all?" Non-cigarette combustible tobacco includes cigars, pipes, water pipes or hookahs, very small cigars that look like cigarettes, bidis or cigarillos. Non-cigarette combustible tobacco use status was classified as follows: never (never even one time); former (at least once but currently not at all); rarely, some days, or every day.

Smokeless tobacco use status—sample adults were asked "Have you ever used smokeless tobacco products even one time?" and "Do you now use smokeless tobacco products every day, some days, rarely, or not at all?" Smokeless tobacco refers to tobacco products which are placed in the mouth or nose and can include chewing tobacco, snuff, dip, snus, or dissolvable tobacco. They do not include nicotine replacement therapy products (patch, gum, lozenge, spray), which are considered smoking cessation treatments. Smokeless tobacco use status was classified as follows: never (never even one time); former (at least once but currently not at all); rarely, some days, or every day.

Usual place of health care (annual Adult SHS table series A-16)—Based on a survey question that asked whether respondents had a place they usually went to when they were sick or needed advice about their health. If the response was "yes" or "there is more than one place," they were asked, "What kind of place [is it/do you go to most often]—a clinic, a doctor's office, an emergency room, or some other place?" Response choices for this second question are: "clinic or health center," "doctor's office or HMO," "hospital emergency room," "hospital outpatient department," "some other place," or "doesn't go to one place most often." Although "hospital emergency room" is not considered a "usual place of health care" in other publications (e.g., NCHS' *Health United States* and the National Health Interview Survey Early Release reports), in these tables it is combined with "hospital outpatient clinic." As a result, estimates in these tables may differ from tabular results published elsewhere.

Further Information

Data users can obtain the latest information about NHIS by periodically checking the website http://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 http://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 approximately 4,000 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 are included in the notes at the end of each table. 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.

NCHS. Technical Notes for Summary Health Statistics Tables: National Health Interview Survey. Available from: http://www.cdc.gov/nchs/nhis/SHS/tables.htm.

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