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Appendix I. Data Sources

Health, United States consolidates the most current data on the health of the population of the United States, the availability and use of health care resources, and health care expenditures. Information was obtained from the data files and published reports of many federal government, private, and global agencies and organizations. In each case, the sponsoring agency or organization collected data using its own methods and procedures. Therefore, data in this report may vary considerably with respect to source, method of collection, definitions, and reference period.

Although a detailed description and comprehensive evaluation of each data source are beyond the scope of this appendix, readers should be aware of the general strengths and weaknesses of the different data collection systems shown in *Health, United States*. For example, population-based surveys are able to collect socioeconomic data and information on the impact of an illness, such as limitation of activity. These data are limited by the amount of information a respondent remembers or is willing to report. For example, a respondent may not know detailed medical information, such as a precise diagnosis or the type of medical procedure performed, and therefore cannot report that information. In contrast, records-based surveys, which collect data from physician and hospital records, usually contain good diagnostic information but little or no information about the socioeconomic characteristics of individuals or the impact of illnesses on individuals.

Different data collection systems may cover different populations, and understanding these differences is critical to interpreting the resulting data. Data on vital statistics and national expenditures cover the entire population. However, most data on morbidity cover only the civilian noninstitutionalized population, so may not include data for military personnel, who are usually young; for institutionalized people, including the prison population, who may be of any age; or for nursing home residents, who are usually older.

All data collection systems are subject to error, and records may be incomplete or contain inaccurate information. Respondents may not remember essential information, a question may not mean the same thing to different respondents, and some institutions or individuals may not respond at all. It is not always possible to measure the magnitude of these errors or their effect on the data. Where possible, table notes describe the universe and method of data collection, to assist users in evaluating data quality.

Some information is collected in more than one survey, and estimates of the same statistic may vary among surveys because of different survey methodologies, sampling frames, questionnaires, definitions, and tabulation categories. For example, cigarette use is measured by the National Health Interview Survey, the National Survey on Drug Use and Health, the Monitoring the Future Study, and the Youth Risk Behavior Surveillance System. These surveys use slightly different questions, cover persons of differing ages, and interview in diverse settings (e.g., at school compared with at home), so estimates may differ.

Overall estimates generally have relatively small sampling errors, but estimates for certain population subgroups may be based on a small sample size and have relatively large sampling errors. Numbers of births and deaths from the National Vital Statistics System represent complete counts (except for births in those states where data are based on a 50% sample for certain years). Therefore, these data are not subject to sampling error. However, when the figures are used for analytical purposes, such as the comparison of rates over a period, the number of events that actually occurred may be considered as one of a large series of possible results that could have arisen under the same circumstances. When the number of events is small and the probability of such an event is rare, estimates may be unstable, and considerable caution must be used in interpreting the statistics. Estimates that are unreliable because of large sampling errors or small numbers of events are noted with asterisks in tables, and the criteria used to determine unreliable estimates are indicated in an accompanying footnote.

In this appendix, government data sources are listed alphabetically by data set name, and private and global sources are listed separately. To the extent possible, government data systems are described using a standard format. The "Overview" section is a brief, general statement about the purpose or objectives of the data system. "Coverage" describes the population or events that the data system covers: for example, residents of the United States, the noninstitutionalized population, persons in specific population groups, or other entities that are included in the survey or data system. "Methodology" presents a short description of the methods used to collect the data. "Sample Size and Response Rate" provides these statistics for surveys. "Issues Affecting Interpretation" describes major changes in the data collection methodology or other factors that must be considered when analyzing trends shown in *Health, United States*: for example, a major survey redesign that may introduce a discontinuity in the trend. For additional information about the methodology, data files, and history of a data source, consult the "References" and "For More Information" sections that follow each summary.

Government Sources

Abortion Surveillance System

Centers for Disease Control and Prevention (CDC), National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP)

Overview. The Abortion Surveillance System documents the number and characteristics of women obtaining legal induced abortions in the United States.

Coverage. The system includes women of all ages, including adolescents, who obtain legal induced abortions.

Methodology. Each year, CDC requests tabulated data from the central health agencies of 52 reporting areas (the 50 states, the District of Columbia [D.C.], and New York City) to document the number and characteristics of women obtaining abortions in the United States. For the purpose of surveillance, a legal induced abortion is defined as an intervention performed within the limits of state law by a licensed clinician (e.g., a physician, nurse-midwife, nurse practitioner, or physician assistant) that is intended to terminate a suspected or known ongoing intrauterine pregnancy and produce a nonviable fetus.

In most states, collection of abortion data is facilitated by the legal requirement for hospitals, facilities, and physicians to report abortions to a central health agency. These central health agencies voluntarily report abortion data to CDC and provide only the aggregate numbers for the abortion data they have collected through their independent surveillance systems. Although reporting to CDC is voluntary, most reporting areas provide aggregate abortion numbers; during 2005–2014, a total of 48 reporting areas provided CDC a continuous annual record of abortion numbers.

Issues Affecting Interpretation. Because reporting areas establish their own reporting requirements for abortion and send their data to CDC voluntarily, CDC is unable to obtain the total number of abortions performed in the United States. Although most states legally require medical providers to submit a report for all the abortions they perform, enforcement of this requirement varies. Additionally, although most reporting areas collect and send abortion data to CDC, during 2005–2014, 4 of the 52 reporting areas did not provide CDC with data on a consistent annual basis (the four states that did not report continuously for the period 2005–2014 were California, Louisiana, Maryland, and New Hampshire). Because of these limitations, during the period covered by this report, the total annual number of abortions recorded by CDC was consistently approximately 71% of the number recorded by the Guttmacher Institute, which uses numerous active follow-up techniques to increase the completeness of the data obtained through its periodic national census of abortion providers. (See Appendix I, Guttmacher Institute Abortion Provider Census.)

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For More Information. See the NCCDPHP surveillance and research website at: https://www.cdc.gov/reproductivehealth/Data_Stats/index.htm.

American Community Survey (ACS)

U.S. Census Bureau

Overview. ACS provides annual estimates of income, education, employment, health insurance coverage, and housing costs and conditions for U.S. residents. Estimates from ACS complement population data collected by the U.S. Census Bureau during the decennial census. Topics currently included annually in ACS were previously collected once a decade through the decennial census long form.

Coverage. Since full implementation began in 2005, ACS covers U.S. residents residing in all 3,141 counties in the 50 states and the District of Columbia, and all 78 municipalities in Puerto Rico. ACS began data collection for U.S. residents residing in housing units in January 2005 and for residents residing in group quarters facilities in January 2006. Annual ACS estimates are available every year for states and for specific geographic areas with populations of 65,000 or more.

Methodology. Starting with 2013 data, the ACS data collection operation uses up to four modes to collect information: Internet, mail, telephone, and personal visit interviews. The first mode includes a mailed request to respond to the ACS questionnaire via Internet, followed by an option to complete a paper questionnaire and return it by mail. If neither an Internet nor mail questionnaire is received, a follow-up interview by phone or personal visit is attempted for a sample of nonrespondents. Prior to 2013, Internet collection was not used and only three modes of collection were used. Each month, a sample of housing unit addresses and residents of group quarters facilities receive questionnaires. Housing units include a house; apartment; mobile home or trailer; a group of rooms; and a single room occupied as separate living quarters, or if vacant, intended for occupancy as separate living quarters. Group quarters are places where people live or stay that are normally owned or managed by an entity or organization providing housing and services for residents. These services may include custodial or medical care as well as other types of assistance, and residency is commonly restricted to persons receiving these services. The group quarters population comprises both the institutional and noninstitutional group quarters populations. The institutional group quarters population includes residents under formally authorized supervised care, such as those in skilled nursing facilities, adult correctional facilities, and psychiatric hospitals.

The noninstitutional group quarters population includes residents of colleges or university housing, military barracks, and group homes.

ACS creates two sets of weights: a weight for each sample person record (both household and group-quarters persons) and a weight for each sample housing unit record. For information on the weighting procedure, see the ACS methodology website at: https://www.census.gov/programs-surveys/acs/methodology.html.

Sample Size and Response Rate. Each year from 2005 through 2010, approximately 2.9 million housing unit addresses in the United States and 36,000 in Puerto Rico were selected to participate in ACS. Starting in 2011, the housing unit sample was increased to 3.54 million addresses per year. For 2005–2012, the housing unit response rate was 97%–98%; in 2013, the housing unit response rate was 90%; in 2014–2016, it was 94%–97%. Beginning in 2006, the ACS sample was expanded to include 2.5% of the population living in group quarters, which included approximately 20,000 group quarters facilities and 195,000 residents of group quarters in the United States and Puerto Rico. In 2013, the group quarters sample for college dormitories was restricted to the nonsummer months. The group quarters response rate ranged between 95% and 98% for 2006–2016. For year-specific response rates, see: https://www.census.gov/acs/www/methodology/sample-size-and-data-quality/response-rates/index.php.

Issues Affecting Interpretation. Several changes were made to the ACS questionnaire at the beginning of 2008, including the introduction of new questions on health insurance coverage. Health insurance coverage estimates are methodologically consistent for data year 2009 and subsequent years (O'Hara and Medalia). In addition, the methodology for weighting the group quarters survey changed starting in 2011.

*Reference*s

O'Hara B, Medalia C. CPS and ACS health insurance estimates: Consistent trends from 2009–2012. SEHSD working paper 2014-29. U.S. Census Bureau, Social, Economic, and Housing Statistics Division. 2014. Available from: https://www.census.gov/content/dam/Census/library/working-papers/2014/demo/sehsd_wp_2014-29.pdf.

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For More Information. See the ACS website at: https://www.census.gov/programs-surveys/acs/.

Census of Fatal Occupational Injuries (CFOI)

Bureau of Labor Statistics (BLS)

Overview. CFOI compiles comprehensive and timely information on fatal work injuries to monitor workplace safety and to inform private and public health efforts to improve workplace safety.

Coverage. The data cover all 50 states and the District of Columbia. In selected years, data are available for Puerto Rico, the Virgin Islands, and Guam but are not included in *Health, United States* because of data comparability issues.

Methodology. CFOI is administered by BLS, in conjunction with participating state agencies, to compile counts that are as complete as possible to identify, verify, and profile fatal work injuries. Key information about each workplace fatal injury (occupation and other worker characteristics, equipment or machinery involved, and circumstances of the event) is obtained by cross-referencing source documents. For a fatal occupational injury to be included in the census, decedents must have been employed (i.e., self-employed, working for pay, or volunteering) at the time of the event, engaged in a legal work activity, or present at the site of the incident as a requirement of their job. These criteria are generally broader than those used by federal and state agencies administering specific laws and regulations. Fatal work injuries that occur during a person's commute to or from work are excluded from the census counts. Fatal work injuries to volunteer workers who are exposed to the same work hazards and perform the same duties or functions as paid employees and who meet the CFOI work relationship criteria are included. For more information on workplace fatalities included in CFOI, see: https://www.bls.gov/iif/cfoiscope.htm.

Data for CFOI are compiled from various federal, state, and local administrative sources, including death certificates, workers' compensation reports and claims, reports to various regulatory agencies, medical examiner reports, police reports, and news reports. Diverse sources are used because studies have shown that no single source captures all job-related fatal injuries. Source documents are matched so that each fatal work injury is counted only once. To ensure that a fatal work injury occurred while the decedent was at work, information is verified from two or more independent source documents or from a source document and a follow-up questionnaire.

Issues Affecting Interpretation. Prior to the release of 2015 data, the number of fatal occupational injuries was revised once after the initial preliminary release. States had up to 8 months to identify additional cases following their initial published counts before data collection closed for a reference year. Fatal work injuries initially excluded from the published count due to insufficient information may have been subsequently verified as work-related and included

in the revised counts. Increases in the published counts from 2010 through 2014 based on additional information averaged 159 fatal occupational injuries per year, or less than 4% of the annual total. Beginning with 2015 data, preliminary releases were no longer produced, and only final CFOI data were produced.

CFOI classifies industries by the North American Industry Classification System (NAICS), which is revised periodically. Industry data for the reference years 2003–2008 were classified based on the 2002 NAICS, while industry data for reference years 2009–2013 were classified based on the 2007 NAICS. For reference year 2014 onwards, CFOI used the 2012 NAICS. In *Health, United States*, industry data are presented at the two-digit level. Most of the differences between the versions of NAICS were at a more detailed level; therefore, changes in NAICS over time are unlikely to affect the trend of CFOI data presented in *Health, United States*. (See Appendix II, Industry of employment; Table IX.)

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For More Information. See the CFOI website at: https://www.bls.gov/iif/oshcfoi1.htm and the CFOI section of the BLS Handbook of Methods at: https://www.bls.gov/opub/hom/pdf/homch9.pdf.

Current Population Survey (CPS)

Bureau of Labor Statistics (BLS) and U.S. Census Bureau

Overview. CPS provides current estimates and trends in employment, unemployment, and other characteristics of the general labor force. The Annual Social and Economic (ASEC) Supplement—commonly called the March CPS supplement—of CPS provides supplemental data on work experience, income, noncash benefits, and migration, and is the source of the poverty estimates presented in *Health, United States*.

Coverage. The CPS sample, referred to as the basic CPS, is based on the results of the decennial census, with coverage in all 50 states and the District of Columbia (D.C.). When files from the most recent decennial census become available, the U.S. Census Bureau gradually introduces a new sample design for CPS. The CPS sample based on Census 2000 was introduced in April 2004 and implemented by July 2005. The CPS sample based on Census 2010 was introduced in April 2014 and implemented by July 2015.

For the basic CPS, persons aged 15 and over in the civilian noninstitutionalized population are eligible to participate; persons living in institutions such as prisons, long-term care hospitals, and nursing homes are not eligible for the survey. The CPS ASEC sample size is slightly larger than that of the basic CPS because it includes members of the Armed Forces living in civilian housing units on a military base or in households not on a military base. The CPS ASEC sample also includes additional Hispanic households that are not included in the monthly CPS estimates.

Methodology. The basic CPS sample is selected from multiple frames using multiple stages of selection. Each unit is selected with a known probability to represent similar units in the universe. The sample design is state-based, with the sample in each state being independent of the others. One person generally responds for all eligible members of a household.

The CPS interview is divided into three parts: (a) household and demographic information, (b) labor force information, and (c) supplemental information for months that include supplements.

Estimates of poverty presented in *Health, United States* from CPS are derived from ASEC. ASEC collects the usual monthly labor force data in addition to data on migration, longest held job during the year, weeks worked, time spent looking for work or on layoff from a job, and income from all sources including noncash sources (e.g., food stamps, school lunch program, employer-provided group health insurance plan, personal health insurance, Medicaid, Medicare, TRICARE or military health care, and energy assistance).

The additional Hispanic sample in CPS ASEC is based on the previous November's basic CPS sample. If a person is identified as being of Hispanic origin from the November interview and is still residing at the same address in March, that housing unit is eligible for the March survey. This amounts to a near-doubling of the Hispanic sample because there is no overlap of housing units between the basic CPS samples in November and March.

The ASEC sample weight is an adjusted version of the final CPS sample weight. The final CPS sample weight is the product of the basic weight, the adjustments for special weighting, the noninterview adjustment, the first-stage ratio adjustment factor, and the second-stage ratio adjustment factor. Due to differences in the questionnaire, sample, and data uses for the ASEC supplement, the ASEC sample weight should be used for poverty estimates.

Sample Size and Response Rate. The 2016 data from the 2017 CPS ASEC were based on a sample of about 95,000 addresses collected in the 50 states and D.C. The basic CPS household-level nonresponse rate was 13.5%, while the household-level CPS ASEC nonresponse rate was an additional 14.0%. These two nonresponse rates resulted in a combined supplement nonresponse rate of 25.6%.

Beginning with 2001, the Children's Health Insurance Program (CHIP) sample expansion was introduced. This included an increase in the basic CPS sample to about 60,000 households per month in 2001. Prior to 2001, estimates were based on about 50,000 households per month. The expansion also included an additional 12,000 households that were allocated differentially across states based on prior information about the low-income, uninsured children in each state. This expansion was made to improve the reliability of state estimates on the number of children who lived in low-income families and lacked health insurance coverage.

Issues Affecting Interpretation. Over the years, the number of income questions has expanded, questions on work experience and other characteristics have been added, and the month of interview was moved to March. In 2002, an ASEC sample increase was implemented, requiring more time for data collection. Thus, additional ASEC interviews are now taking place in February and April. However, even with this sample increase, most of the data collection still occurs in March.

In 1994, major changes were introduced that included a complete redesign of the questionnaire and the introduction of computer-assisted interviewing for the entire survey. In addition, some of the labor force concepts and definitions were revised. Prior to this redesign, CPS data were primarily collected using a paper-and-pencil form. Beginning in 1994, population controls were based on the 1990 Census and adjusted for the estimated population undercount. Starting with *Health, United States*, *2003,* poverty estimates for data years 2000 and beyond were recalculated based on the expanded CHIP sample, and Census 2000-based population controls were implemented. Starting with 2002 data, race-specific estimates are tabulated according to the 1997 *Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity* and are not strictly comparable with estimates for earlier years. Starting with *Health, United States*, *2012,* Census 2010-based population controls were implemented for poverty estimates for 2010 and beyond. For a discussion of the impact of the implementation of the Census 2010-based controls on poverty estimate trends, see DeNavas-Walt *et al*.

For 2013 data, the CPS ASEC used a split panel to test a new set of income questions. Starting with *Health, United States*, *2015,* estimates for 2013 are presented two ways: using questions consistent with previous ASEC surveys and using the new set of income questions. Because data for 2013 (using the new income questions) and data for 2014 and beyond are based on the new set of income questions from the redesigned questionnaire, data trends need to be interpreted with caution.

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For More Information. See the CPS website at: https://www.census.gov/programs-surveys/cps.html.

Department of Veterans Affairs National Enrollment and Patient Databases

Department of Veterans Affairs (VA)

Overview. The VA compiles and analyzes multiple data sets on the health and health care of its clients and other veterans. Monitoring access and quality of care enables the VA to conduct program and policy evaluations. The VA maintains nationwide systems that contain a statistical record for each episode of care provided under VA auspices, as well as in VA and non-VA hospitals, nursing homes, VA residential rehabilitation treatment programs (formerly called domiciliaries), and VA outpatient clinics. The VA also maintains enrollment information for each veteran enrolled in the VA health care system.

Coverage. U.S. veterans who receive services within the VA medical system are included. Data are available for some nonveterans who receive care at VA facilities.

Methodology. Encounter data from VA clinical information systems are collected locally at each VA medical center and transmitted electronically to the VA's Austin Automation Center for use in providing nationwide statistics, reports, and comparisons.

Issues Affecting Interpretation. The databases include users of the VA health care system. VA eligibility is a hierarchy based on service-connected disabilities, income, age, and availability of services. Therefore, the population served by VA programs may have sociodemographic characteristics that differ from populations served by other health care systems.

For More Information. See the VA Information Resource Center website at: https://www.virec.research.va.gov/.

Employee Benefits Survey–See

Appendix I, National Compensation Survey (NCS).

Healthcare Cost and Utilization Project (HCUP), National (Nationwide) Inpatient Sample

Agency for Healthcare Research and Quality (AHRQ)

Overview. HCUP is a family of health care databases and related software tools developed through a federal-state-industry partnership to build a multistate health data system for health care research and decision making. The National (Nationwide) Inpatient Sample (HCUP–NIS), a component of HCUP, is the largest all-payer inpatient care database that is publicly available in the United States.

HCUP–NIS contains a core set of clinical and nonclinical information found in a typical discharge abstract, including all-listed diagnoses and procedures, discharge status, patient demographics, and charges for all patients regardless of payer (e.g., persons covered by Medicare, Medicaid, and private insurance, as well as those without insurance coverage).

Coverage. In 2014, HCUP–NIS covered about 95% of all U.S. community hospital discharges (excluding discharges from rehabilitation or long-term acute care hospitals) from 44 states and the District of Columbia (D.C.). Community hospitals are defined by the American Hospital Association as nonfederal, short-term, general, and other specialty hospitals, excluding hospital units of institutions.

The number of states participating in HCUP–NIS has generally increased each year. In the years of data presented in *Health, United States*, the number of states participating was 28 in 2000, 37 in 2005, 45 in 2010, 46 in 2011, 44 in 2012, 43 states and D.C. in 2013, and 44 states and D.C. in 2014. In 2014, all states except Alabama, Alaska, Delaware, Idaho, Mississippi, and New Hampshire were included.

Methodology. On October 1, 2015, the United States transitioned to the *International Classification of Diseases, 10th Revision, Clinical Modification* (ICD–10–CM) diagnosis coding system for most inpatient and outpatient medical encounters and the *International Classification of Diseases, 10th Revision, Procedure Coding System* (ICD–10–PCS) for inpatient hospital procedures. Because of the impact of this transition to ICD–10–CM/PCS, and because full calendar year data for 2015 are not available using one ICD system, the *Health, United States* Table 96 has not been updated with 2015 data.

In 2012, HCUP–NIS was redesigned to improve national estimates. To highlight the design change, beginning with 2012 data, AHRQ renamed HCUP–NIS from "Nationwide Inpatient Sample" to the "National Inpatient Sample." The redesigned HCUP–NIS is now a sample of discharge records from all HCUP-participating hospitals. It approximates a 20% stratified sample of discharges from U.S. community hospitals, excluding rehabilitation and long-term acute care hospitals. The information abstracted from hospital discharge records is translated into a uniform format to facilitate both multistate and national-state comparisons and analyses.

Prior to 2012, HCUP–NIS was designed to approximate a 20% stratified sample of U.S. community hospitals, rather than a sample of discharges. The pre-2012 HCUP–NIS was a stratified probability sample of hospitals in the frame, with sampling probabilities proportional to the number of U.S. community hospitals in each stratum (ownership and control, bed size, teaching status, urban or rural location, and U.S. region). Discharge records for all patients in the sampled hospitals were included in the pre-2012 HCUP–NIS. To permit longitudinal analysis, the statistics for years prior to 2012 presented in *Health, United States* were regenerated using new trend weights taking into account the redesign.

Hospital costs are derived from total hospital charges using hospital-specific cost-to-charge ratios based on hospital cost reports from the Centers for Medicare & Medicaid Services. Hospital charges reflect the amount the hospital billed for the entire hospital stay and do not include professional (physician) fees. Costs will tend to reflect the actual costs to produce hospital services, whereas charges represent what the hospital billed for the care. Costs are adjusted for economy-wide inflation using the Bureau of Economic Analysis Gross Domestic Product Price Index to remove economy-wide inflation that reflects the effect of changing average prices for the same goods and services. Additional inflation that is specific to the hospital sector is not removed in this calculation.

Sample Size and Response Rate. The 2014 HCUP–NIS contains data from 7.1 million hospital stays sampled from 4,411 hospitals.

Issues Affecting Interpretation. Weights are produced to create national estimates, but because the number of participating states has increased over time, estimates from earlier years may be biased if omitted states have substantially different hospitalization patterns than states that provided data. In 2012, the survey was redesigned. HCUP–NIS is now a sample of discharge records from all HCUP-participating hospitals, rather than a sample of hospitals from which all discharges were retained. The statistics for years prior to 2012 presented in *Health, United States* were regenerated using new trend weights taking into account the redesign.

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For More Information. See the HCUP website at: https://www.hcup-us.ahrq.gov/.

Medicaid Statistical Information System (MSIS)

Centers for Medicare & Medicaid Services (CMS)

Overview. CMS works with its state partners to collect data on each person served by the Medicaid program in order to monitor and evaluate access to and quality of care, trends in program eligibility, characteristics of enrollees, changes in payment policy, and other program-related issues. MSIS is the primary data source for Medicaid statistical information. Data collected include claims for services and their associated payments for each Medicaid beneficiary by type of service. MSIS also collects information on the characteristics of every Medicaid-eligible individual, including eligibility and demographic information.

Coverage. Medicaid data for all 50 states and the District of Columbia are available starting from 1999. The data include information about all individuals enrolled in the Medicaid program, the services they receive, and the payments made for those services.

Methodology. Beginning in fiscal year (FY) 1999, as a result of legislation enacted from the Balanced Budget Act of 1997, states were required to submit individual eligibility and claims data tapes to CMS quarterly through MSIS. Prior to FY 1999, states were required to submit an annual Health Care Financing Administration–2082 report, designed to collect aggregated statistical data on eligibles, recipients, services, and expenditures during a federal fiscal year (October 1 through September 30), or at state option, to submit eligibility data and claims through MSIS. The claims data reflect bills resolved or processed during the year, rather than services used during the year.

Issues Affecting Interpretation. Starting with 2011 data, estimates were derived from Medicaid claims files and a new methodology was used to obtain estimates. Therefore, caution should be used when comparing data for 2010 and earlier with more recent data. Not all states had reported data as of the date the statistics were obtained. States not reporting are listed in the table notes. For more information on data and analytic issues, see: https://www.cms.gov/Research-Statistics-Data-and-Systems/Computer-Data-and-Systems/MedicaidDataSourcesGenInfo/MSIS-Tables.html.

For More Information. See the CMS website at: https://www.medicaid.gov/index.html and the Research Data Assistance Center website at: https://www.cms.gov/Research-Statistics-Data-and-Systems/Research/ResearchGenInfo/ResearchDataAssistanceCenter.html. (Also see Appendix II, Medicaid.)

Medical Expenditure Panel Survey (MEPS)

Agency for Healthcare Research and Quality (AHRQ)

Overview. MEPS produces nationally representative estimates of health care use, expenditures, sources of payment, insurance coverage, and quality of care. MEPS consists of three components: the Household Component (HC), the Medical Provider Component (MPC), and the Insurance Component. Data from MEPS–HC and MEPS–MPC are used in *Health, United States.*

Coverage. The U.S. civilian noninstitutionalized population is represented.

Methodology. MEPS–HC is a national probability survey conducted annually since 1996. The panel design of the survey features five rounds of interviewing covering 2 full calendar years. The HC is a nationally representative survey of the civilian noninstitutionalized population drawn from a subsample of households that participated in the prior year's National Health Interview Survey. Missing expenditure data in the HC are imputed largely from data collected in the MPC.

The MPC collects data from hospitals, physicians, home health care providers, and pharmacies that were reported in the HC as providing care to MEPS sample persons. Data are collected in the MPC to improve the accuracy of the expenditure estimates that would be obtained if derived solely from the HC. The MPC is particularly useful in obtaining expenditure information for persons enrolled in managed care plans and Medicaid recipients. Sample sizes for the MPC vary from year to year depending on the HC sample size and the MPC sampling rates for providers.

The MEPS predecessor, the 1987 National Medical Expenditure Survey (NMES), consisted of two components: the Household Survey (HS) and the Medical Provider Survey (MPS). The NMES–HS component was designed to provide nationally representative estimates for the U.S. civilian noninstitutionalized population for the calendar year 1987. Data from the NMES–MPS component were used in conjunction with HS data to produce estimates of health care expenditures. NMES–HS consisted of four rounds of household interviews. Income information was collected in a special supplement administered early in 1988. Events under the scope of NMES–MPS included medical services provided by or under the direction of a physician, all hospital events, and home health care.

Sample Size and Response Rate. In the 2014 MEPS, 13,421 families were covered, and 33,162 respondents over the course of the year. For the same year, the overall annual response rate was 48.5%, reflecting nonresponse to the National Health Interview Survey from which the MEPS sample was selected, as well as nonresponse and attrition in MEPS.

Issues Affecting Interpretation. The 1987 estimates are based on NMES, and 1996 and later years' estimates are based

on MEPS. Because expenditures in NMES were based primarily on charges, whereas those for MEPS were based on payments, data for NMES were adjusted to be more comparable with MEPS by using estimated charge-to-payment ratios for 1987. For a detailed explanation of this adjustment, see Zuvekas and Cohen.

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For More Information. See the MEPS website at: https://meps.ahrq.gov/mepsweb/.

Medicare Administrative Data

Centers for Medicare & Medicaid Services (CMS)

Overview. CMS collects and synthesizes Medicare enrollment, spending, and claims data to monitor and evaluate access to and quality of care, trends in utilization, changes in payment policy, and other program-related issues. Data include claims information for services furnished to Medicare fee-for-service beneficiaries and Medicare enrollment data. Claims data include type of service, procedures, diagnoses, dates of service, charge amounts, and payment amounts. Enrollment data include date of birth, sex, race, and reason for entitlement.

Coverage. Enrollment data are for all persons enrolled in the Medicare program. Claims data include data for Medicare fee-for-service beneficiaries who received services and for whom claims were filed. Claims data are not included for beneficiaries enrolled in managed care plans.

Methodology. The claims and utilization data files contain extensive utilization information at various levels of summarization for a variety of providers and services. There are many types and levels of these files: National Claims History (NCH) files, Standard Analytic files (SAFs), Medicare Provider and Analysis Review (MedPAR) files, Medicare enrollment files, and various other files.

The NCH files contain all institutional and noninstitutional claims submitted during a calendar year, including adjustment claims. SAFs contain "final action" claims data in which all adjustments have been resolved. Both the NCH and SAF files contain information collected by Medicare to pay for health care services provided to a Medicare beneficiary. SAFs are available for each institutional (inpatient, outpatient, skilled nursing facility, hospice, or home health agency) and noninstitutional (physician and durable medical equipment providers) claim type. The record unit of SAFs is the claim (some episodes of care may have more than one claim).

MedPAR files contain inpatient hospital and skilled nursing facility (SNF) final action stay records. Each MedPAR record represents a stay in an inpatient hospital or SNF. An inpatient stay record summarizes all services rendered to a beneficiary from the time of admission to a facility, through discharge. Each MedPAR record may represent one claim or multiple claims, depending on the length of a beneficiary's stay and the amount of inpatient services used throughout the stay.

The Denominator file contains demographic and enrollment information about each beneficiary enrolled in Medicare during a calendar year. The information in the Denominator file is frozen in March of the following calendar year. Some of the information contained in this file includes the beneficiary unique identifier, state and county codes, ZIP code, date of birth, date of death, sex, race, age, monthly entitlement indicators (for Medicare Part A, Medicare Part B, or Part A and Part B), reasons for entitlement, state buy-in indicators, and monthly managed care indicators (yes or no). The Denominator file is used to determine beneficiary demographic characteristics, entitlement, and beneficiary participation in Medicare managed care organizations (MCOs).

The Chronic Conditions Data Warehouse (CCW) includes files with 100% of Medicare enrollment and fee-for-service claims data. Detailed information on the CCW is available from the CCW website: https://www.ccwdata.org.

Issues Affecting Interpretation. Because Medicare MCOs might not file claims, files based only on claims data will exclude care for persons enrolled in Medicare MCOs. In addition, to maintain a manageable file size, some files are based on a sample of enrollees rather than on all Medicare enrollees. Coding and the interpretation of Medicare coverage rules have also changed over the life of the Medicare program.

For More Information. See the CMS Research Data Assistance Center website at: https://www.resdac.org and the CMS website at: https://www.cms.gov/Research-Statistics-Data-and-Systems/Research-Statistics-Data-and-Systems.html. (Also see Appendix II, Medicare.)

Medicare Current Beneficiary Survey (MCBS)

Centers for Medicare & Medicaid Services (CMS)

Overview. MCBS produces nationally representative estimates of health and functional status, health care use and expenditures, health insurance coverage, and socioeconomic and demographic characteristics of Medicare beneficiaries. It is used to estimate expenditures and sources of payment for all services used by Medicare beneficiaries, including copayments, deductibles, and noncovered services; to determine all types of health

insurance coverage and relate coverage to sources of payment; and to trace outcomes over time, such as changes in health status and the effects of program changes.

Coverage. MCBS is a continuous survey of a nationally representative sample of aged, institutionalized, and disabled Medicare beneficiaries.

Methodology. The overlapping panel design of the survey allows each sample person (or his or her proxy) to be interviewed three times a year for 4 years, regardless of whether he or she resides in the community, resides in a facility, or moves between the two settings—the version of the questionnaire appropriate to the setting is used. Sampled people are interviewed using computer-assisted personal interviewing (CAPI) survey instruments. Because residents of long-term care facilities are often in poor health, information about institutionalized residents is collected from proxy respondents such as nurses and other primary caregivers affiliated with the facility. The sample is selected from the Medicare enrollment files, with oversampling among disabled persons under age 65 and among persons aged 85 and over.

MCBS has two components: the Cost supplement (formerly known as the Cost and Use file) and the Survey file (formerly known as the Access to Care file). Medicare claims are linked to survey-reported events to produce the Cost supplement, which provides complete expenditure and source-of-payment data on all health care services, including those not covered by Medicare. The Survey file contains information on beneficiaries' access to health care, satisfaction with care, and usual source of care. The sample for both files represents the ever-enrolled population, including those who entered Medicare and those who died during the year. Additionally, the Survey file provides survey weights that represent the always-enrolled population—those who participated in the Medicare program for the entire year.

Sample Size and Response Rate. Each fall, about one-third of the MCBS sample is retired, and roughly 6,000 new sample persons are included in the survey; the exact number chosen is based on projections of target samples of 14,000 persons with 3 years of cost and use information distributed appropriately across the sample cells. In the community, response rates for initial interviews are approximately 60%; once respondents have completed the first interview, their participation in subsequent rounds is 80% or more. In recent rounds, data have been collected from approximately 16,000 beneficiaries. Roughly 90% of the sample is made up of persons who live in the community, with the remaining made up of persons living in long-term care facilities. Response rates for facility interviews approach 100%.

Issues Affecting Interpretation. Because only Medicare beneficiaries are included in MCBS, the survey excludes a small proportion of persons aged 65 and over who are not enrolled in Medicare. This should be noted when using MCBS to make estimates of the entire population aged 65 and over in the United States. Starting with 2012

data, the Cost supplement estimates were created with a new imputation methodology; therefore some utilization estimates may not be comparable with previous years. Due to changes in sampling and data collection methodologies, 2014 data are not available.

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For More Information. See the MCBS website at: https://www.cms.hhs.gov/MCBS.

Monitoring the Future (MTF) Study

University of Michigan, supported by the National Institute on Drug Abuse (NIDA)

Overview. MTF is an ongoing study that uses annual surveys to track the behaviors, attitudes, and values of U.S. secondary school students, college students, and adults through age 55. Data collected include lifetime, annual, and 30-day prevalence of use of many illegal drugs, inhalants, tobacco, and alcohol.

Coverage. MTF surveys a sample of 12th, 10th, and 8th graders in public and private high schools in the coterminous United States. Follow-up questionnaires are mailed to a randomly selected sample from each graduating class for a number of years after their initial participation, to gather information on college students, young adults, and older adults.

Methodology. The survey design is a multistage random sample, with stage 1 being the selection of particular geographic areas, stage 2 being the selection of one or more high schools in each area, and stage 3 being the selection of students within each school. Data are collected using self-administered questionnaires conducted in the classroom by representatives of the University of Michigan's Institute for Social Research. Dropouts and students who are absent from school or class at the time of data collection are excluded. Recognizing that the dropout population is at higher risk for drug use, MTF was expanded in 1991 to include two nationally representative samples of 8th and 10th graders, who have lower dropout rates than 12th graders, and to include future high-risk 12th grade dropouts. Separate samples of schools and students are drawn at each grade level, and the survey procedures used for the 8th and 10th grade students closely parallel those used for the 12th grade students. For more information on MTF adjustments for absentees and dropouts, see Johnston *et al.* (data years 2014 and preceding); and Miech RA *et al.* (data years 2015 onward).

Sample Size and Response Rate. In 2016, a total of 45,473 students in 372 public and private schools in the coterminous United States participated. The annual 12th grade sample comprised 12,600 12th graders in 120 public and private high schools nationwide. The 10th grade sample comprised 15,230 students in 110 schools, while the 8th grade sample comprised 17,643 students in 142 schools. Response rates were 80% for the 12th grade, 88% for the 10th grade, and 90% for the 8th grade sample and have been relatively constant across time. Absentees constitute virtually all of the nonresponding students.

Issues Affecting Interpretation. Estimates of substance use among youth based on the National Survey on Drug Use and Health (NSDUH) are not directly comparable with estimates based on MTF and the Youth Risk Behavior Surveillance System (YRBSS). In addition to the fact that MTF excludes dropouts and absentees, rates are not directly comparable across these surveys because of differences in populations covered, sample design, questionnaires, interview setting, and data-cleaning procedures. NSDUH collects data in residences, whereas MTF and YRBSS collect data in school classrooms. In addition, NSDUH estimates are tabulated by age, whereas MTF and YRBSS estimates are tabulated by grade, representing different ages as well as different populations.

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For More Information. See the NIDA website at: https://www.drugabuse.gov/publications/drugfacts/monitoring-future-survey-high-school-youth-trends, and the MTF website at: http://www.monitoringthefuture.org.

National Ambulatory Medical Care Survey (NAMCS)

National Center for Health Statistics (NCHS)

Overview. NAMCS provides national data about the provision and use of medical care services in office-based physician practices in the United States, using information collected from medical records. Data are collected on type of providers seen; reason for visit; diagnoses; drugs ordered, provided, or continued; and selected procedures and tests ordered or performed during the visit. Patient data include age, sex, race, and expected source of payment. Data are also collected on selected characteristics of physician practices, including the adoption and use of electronic health record (EHR) systems.

Coverage. NAMCS covers patient visits to the offices of nonfederally employed physicians classified by the American Medical Association (AMA) or American Osteopathic Association (AOA) as "office-based, patient care" physicians in the United States. Physicians in the specialties of anesthesiology, pathology, and radiology, as well as physicians who are principally engaged in teaching, research, or administration, are excluded from the physician universe. Patient visits with physicians engaged in prepaid practices (health maintenance organizations, independent practice organizations, and other prepaid practices) are included in NAMCS, while telephone contacts and nonoffice visits are excluded. In 2006, a separate sample of community health centers (CHCs) was added to NAMCS. The CHC component samples visits to physicians and nonphysician clinicians. Starting with 2014 data, the sample was expanded to include hospital-based physicians. In 2012, the NAMCS survey sample size was temporarily increased to allow for state-level estimates in the 34 most populous states and the U.S. Census Bureau divisions. In 2014, the state-based sample included 18 states. In 2015, the sample size was refined to include the 16 most populous states.

Methodology. A multistage probability design is employed. In 1989–2011, the first-stage sample consisted of 112 primary sampling units (PSUs) that were selected from about 1,900 such units into which the United States had been divided. In each sample PSU, a sample of practicing nonfederal, office-based physicians was selected from master files maintained by AMA and AOA. The final stage involved systematic random samples of office visits during randomly assigned 7-day reporting periods. Starting with the 2012 survey, the sampling design was changed to a list sample of physicians, instead of an area sample, to ensure adequate representation for state-level estimates. Another major change, which began in 2012, was in the mode of data collection, which changed from in-person interviews with a paper questionnaire to laptop-assisted data collection by Census field representatives using automated survey instruments.

To sample CHC physicians and nonphysician clinicians, a dual-sampling procedure was used. First, the traditional NAMCS sample was selected using the methods described above. Second, information from the Health Resources and Services Administration and the Indian Health Service was used to select a sample of CHCs. Within CHCs, a maximum of three health care providers—which included physicians as well as nonphysician practitioners—were selected. Nonphysician practitioners included physicians, physician assistants, nurse practitioners, or nurse midwives. After selection, CHC providers followed traditional NAMCS methods for selecting patient visits.

In 2008, a supplemental mail survey on EHR systems was conducted in addition to the core NAMCS. This supplement was known as the National Ambulatory Medical Care Survey–Electronic Medical Records Supplement. Starting in 2010, the mail survey sample size was increased fivefold to allow for state-level estimates. Starting in 2012, the survey was changed from a supplement to become the National Electronic Health Records Survey (NEHRS). Survey questions have been added since the introduction of NEHRS.

Sample data are weighted to produce national estimates. The estimation procedure used in NAMCS has four basic components: inflation by the reciprocal of the probability of selection, adjustment for nonresponse, ratio adjustment to fixed totals, and weight smoothing.

Sample Size and Response Rate. The physician and visit sample sizes have varied over the years. Most recently, the numbers of eligible physicians were 6,999 in 2013, 6,016 in 2014, and 4,910 in 2015. The numbers of visits included were 54,360 in 2013, 45,710 in 2014, and 28,332 in 2015. The unweighted response rates in the past 3 years were 41%, 39%, and 29%, respectively.

Issues Affecting Interpretation. The NAMCS patient record form is modified approximately every 2 to 4 years to reflect changes in physician practice characteristics, patterns of care, and technological innovations. Examples of recent changes include increasing the number of drugs recorded on the patient record form and adding checkboxes for specific tests or procedures performed. Sample sizes vary by survey year. For some years it is suggested that analysts combine 2 or more years of data if they wish to examine relatively rare populations or events. The 2012 sampling design change may affect trending 2012 and subsequent data with earlier data. For more information on the new sampling design, see Hing E *et al*.

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National Compensation Survey (NCS)

Bureau of Labor Statistics (BLS)

Overview. NCS provides comprehensive measures of occupational earnings, compensation cost trends, benefit incidence, and detailed health and retirement plan provisions based on surveys of a sample of employers.

Coverage. NCS provides information for the country on both full- and part-time workers who are paid a wage or salary and includes data for the civilian economy, including both private industry and state and local government. It excludes agriculture, private household workers, the self-employed, and the federal government.

Methodology. NCS is conducted quarterly by BLS' Office of Compensation and Working Conditions. The sample is selected using a three-stage design. The first stage is the selection of geographic areas for the state and local government sample and the private industry sample. In the second stage, establishments are selected systematically, with the probability of selection proportionate to their relative employment size within sampled areas. Use of this technique means that the larger an establishment's employment, the greater its chance of selection. The third stage of sampling is a probability sample of occupations within a sampled establishment. This step is performed by the BLS field economist during an interview with the respondent establishment in which selection of an occupation is based on probability of selection proportionate to employment in the establishment, and each occupation is classified under its corresponding major occupational group.

Data collection is conducted by BLS field economists. Data are gathered from each establishment on the primary business activity of the establishment; types of occupations; number of employees; wages, salaries, and benefits; hours of work; and duties and responsibilities. Data are collected for the pay period including the 12th day of the survey months of March, June, September, and December.

Sample Size and Response Rate. The March 2017 sample consists of about 6,700 establishments in private industry and about 1,400 establishments in state and local government.

Issues Affecting Interpretation. Prior to 1999, estimates were based on multiple surveys that were replaced by NCS; therefore, trend analyses based on estimates prior to 1999 should be interpreted with care.

The state and local government sample is revised every 10 years and was replaced in its entirety in December 2007. As a result of this update, the number of state and local government occupations and establishments increased substantially. The private industry sample is fully replaced over an approximately 5-year period, which makes the sample more representative of the economy and reduces respondent burden. The sample is replaced on a cross-area, cross-establishment basis.

Compensation cost levels in state and local government should not be directly compared with levels in private industry. Differences between these sectors stem from factors such as variation in work activities and occupational structures.

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For More Information. See the NCS website at: https://www.bls.gov/ncs/.

National Health and Nutrition Examination Survey (NHANES)

National Center for Health Statistics (NCHS)

Overview. NHANES is designed to assess the health and nutritional status of adults and children in the United States. The survey is unique in that it combines interviews and physical examinations. NHANES collects data on the prevalence of chronic diseases and conditions (including undiagnosed conditions) and on risk factors such as obesity, elevated serum cholesterol levels, hypertension, diet and nutritional status, and numerous other measures.

Coverage. NHANES III, conducted during 1988–1994, and the continuous NHANES, which began in 1999, target the civilian noninstitutionalized U.S. population.

Methodology. NHANES includes clinical examinations, selected medical and laboratory tests, and self-reported data. NHANES interviews persons in their homes and conducts medical examinations in a mobile examination center (MEC), including laboratory analysis of blood, urine, and other tissue samples. Medical examinations and laboratory tests follow very specific protocols and are standardized as much as possible to ensure comparability across sites and providers. During 1988–1994, as a substitute for the MEC examinations, a small number of survey participants received an abbreviated health examination in their homes if they were unable to come to the MEC.

The survey for NHANES III was conducted from 1988 to 1994 using a stratified, multistage probability design to sample the civilian noninstitutionalized U.S. population. About 40,000 persons aged 2 months and over were selected and asked to complete an extensive interview and a physical examination. Participants were selected from households in 81 survey units across the United States. Children aged 2 months to 5 years, persons aged 60 and over, black persons, and persons of Mexican origin were oversampled to provide precise descriptive information on the health status of selected population groups in the United States.

Beginning in 1999, NHANES became a continuous annual survey, collecting data every year from a representative sample of the civilian noninstitutionalized U.S. population, newborns and older, through in-home personal interviews and physical examinations in the MEC. The sample design is a complex, multistage, clustered design using unequal probabilities of selection. The first-stage sample frame for continuous NHANES during 1999–2001 was the list of primary sampling units (PSUs) selected for the design of the National Health Interview Survey. Typically, an NHANES PSU is a county. For 2002, an independent sample of PSUs (based on current census data) was selected. This independent design was used for the period 2002–2006. In 2007–2010 and 2011–2014, the sample was redesigned. For 1999, because of a delay in the start of data collection, 12 distinct PSUs were in the annual sample. For each year during 2000–2016, 15 PSUs were selected. The within-PSU design involves forming secondary sampling units that are nested within census tracts, selecting dwelling units within secondary units, and then selecting sample persons within dwelling units. Selection of the final sample person involves differential probabilities of selection according to the demographic variables of sex (male or female), race and ethnicity, and age. Because of the differential probabilities of selection, dwelling units are screened for potential sample persons.

Beginning in 1999, NHANES oversampled low-income persons, adolescents aged 12–19, persons aged 60 and over, African-American persons, and persons of Mexican origin. The sample for data years 1999–2006 was not designed to give a nationally representative sample for the total Hispanic population residing in the United States. Starting with 2007–2010 data collection, all Hispanic persons were oversampled, not just persons of Mexican origin, and adolescents were no longer oversampled. In 2011–2014, the sampling design was changed and the following groups were oversampled: Hispanic persons; non-Hispanic black persons; non-Hispanic Asian persons; non-Hispanic white and other persons at or below 130% of poverty; and non-Hispanic white and other persons aged 80 and over. In 2015–2016, the sampling design was revised again, changing the cut-point for low-income oversampling from at or below 130% of poverty to at or below 185% of poverty. For more information on the sample design for 1999–2006, see: https://www.cdc.gov/nchs/data/series/sr_02/sr02_155.pdf; for 2007–2010, see: https://www.cdc.gov/nchs/data/series/sr_02/sr02_160.pdf; for 2011–2014, see: https://www.cdc.gov/nchs/data/series/sr_02/sr02_162.pdf; and for 2015–2016, see: https://wwwn.cdc.gov/nchs/nhanes/continuousnhanes/Overview.aspx?BeginYear=2015.

The estimation procedure used to produce national statistics for all NHANES involved inflation by the reciprocal of the probability of selection, adjustment for nonresponse, and poststratified ratio adjustment to population totals. Sampling errors also were estimated, to measure the reliability of the statistics.

Sample Size and Response Rate. Over the 6-year survey period of NHANES III, 39,695 persons were selected; the household interview response rate was 86% (33,994), and the medical examination response rate was 78% (30,818). For NHANES 1999–2000 to NHANES 2011–2012, the number of persons selected ranged from 12,160 to 13,431. The percentage who were interviewed ranged from 73% to 84%, while the percentage who were examined ranged from 70% to 80%. For NHANES 2013–2014, a total of 14,332 persons were eligible, of which 71% (10,175) were interviewed and 68% (9,813) completed the health examination component. For NHANES 2015–2016, a total of 15,327 persons were eligible, of which 61% (9,971) were interviewed and 59% (9,544) completed the health examination component. For more detailed information on unweighted NHANES response rates and response weights using sample size weighted to Current Population Survey population totals, see: https://wwwn.cdc.gov/nchs/nhanes/ResponseRates.aspx.

Issues Affecting Interpretation. Data elements, laboratory tests performed, and the technological sophistication of medical examination and laboratory equipment have changed over time. Therefore, trend analyses should carefully examine how specific data elements were collected across the various survey years. Data files are revised periodically. If the file changes are minor and the impact on estimates is small, then the data are not revised in *Health, United States*. Major data changes are incorporated.

Periodically, NHANES changes its sampling design to oversample different groups. Because the total sample size in any year is fixed due to operational constraints, sample sizes for the other oversampled groups (including Hispanic persons and non-low-income white and other persons) were decreased. Therefore, trend analyses on demographic subpopulations should be carefully evaluated to determine if the sample sizes meet the NHANES Analytic Guidelines. In general, any 2-year data cycle in NHANES can be combined with adjacent 2-year data cycles to create analytic data files based on 4 or more years of data, in order to improve precision. However, because of the sample design change in 2011–2012, the data user should be aware of the implications if these data are combined with data from earlier survey cycles. Users are advised to examine their estimates carefully to see if the 4-year estimates (and sampling errors) are consistent with each set of 2-year estimates.

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For More Information. See the NHANES website at: https://www.cdc.gov/nchs/nhanes/index.htm.

National Health Expenditure Accounts (NHEA)

Centers for Medicare & Medicaid Services (CMS)

Overview. NHEA provides estimates of aggregate health care expenditures in the United States from 1960 onward. NHEA contains all of the main components of the health care system within a unified, mutually exclusive, and exhaustive structure. The accounts measure spending for health care in the United States by type of good or service delivered (e.g., hospital care, physician and clinical services, or retail prescription drugs) and by the source of funds that pay for that care (e.g., private health insurance, Medicare, Medicaid, or out of pocket). A consistent set of definitions is used for health care goods and services and for sources of funds that finance health care expenditures, allowing for comparisons over time.

Methodology. NHEA estimates health care spending using an expenditures approach to national economic accounting. NHEA includes all of the main components of the health care system within a comprehensive and mutually exclusive structure. Expenditures are estimated for the payers, as well as the categories of medical goods and services. A common set of definitions allows comparison among categories and over time. In addition, estimates are benchmarked to revenue estimates from the Census Bureau's quinquennial Economic Census.

An assortment of government and private sources are used to create NHEA. In addition to the Economic Census, government sources include data from the Census Bureau's Services Annual Survey, the Bureau of Economic Analysis, the National Income and Product Accounts, and Medicare claims data. Private data sources include the American

Hospital Association's Annual Survey and the Kaiser Health Research and Educational Trust Employer Health Benefits Survey.

For example, private health insurance spending for health care goods and services is derived using data from the Census Bureau, the American Medical Association, the American Hospital Association, IQVIA (formerly IMS Health), and the Medical Expenditure Panel Surveys (MEPS) data from the Agency for Healthcare Research and Quality. For a matrix of data sources used for NHEA, see Exhibit 4 of "National Health Expenditure Accounts: Methodology Paper, 2016."

Issues Affecting Interpretation. Every 5 years, NHEA undergoes a comprehensive revision that includes the incorporation of newly available source data, methodological and definitional changes, and benchmark estimates from the Economic Census. During these comprehensive revisions, the entire NHEA time series is opened for revision.

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National Health Interview Survey (NHIS)

National Center for Health Statistics (NCHS)

Overview. NHIS monitors the health of the U.S. population through the collection and analysis of data on a broad range of health topics. A major strength of this survey lies in its ability to analyze health measures by many demographic and socioeconomic characteristics. During household interviews, NHIS obtains information on activity limitation, illnesses, injuries, chronic conditions, health insurance coverage (or lack thereof), utilization of health care, and other health topics.

Coverage. The survey covers the civilian noninstitutionalized population of the United States. Among those excluded are patients in long-term care facilities, persons on active duty with the Armed Forces (although their dependents are included), incarcerated persons, and U.S. nationals living in foreign countries.

Methodology. NHIS is a cross-sectional household interview survey. Sampling and interviewing are continuous throughout each year. The sample design follows a multistage area probability design that permits the representative sampling of households and noninstitutional group quarters (e.g., college dormitories). The sample design for NHIS is redesigned approximately every 10 years to better measure the changing U.S. population and to meet new survey objectives. A new sample design was implemented in 2016.

The current sample design has many similarities to the design that was in place from 2006 to 2015, but there are some key differences. Sample areas were reselected to take into account changes in the distribution of the U.S. population since 2006, when the previous sample design was first implemented. Commercial address lists were used as the main source of addresses, rather than field listing; and the oversampling procedures for black, Hispanic, and Asian persons that were a feature of the previous sample design were not implemented in 2016. However, persons aged 65 or over who are black, Hispanic, or Asian continue to have a higher chance of being selected for the sample adult selection stage.

The first stage of the current 2016 sample design consists of a sample of 319 primary sampling units (PSUs) drawn from approximately 1,700 geographically defined PSUs, with some PSUs in each of the 50 states and the District of Columbia.

In the current 2016 sample design, PSUs with the largest populations (e.g., the New York City metropolitan area), also called self-representing (SR) PSUs, are sampled with certainty. The set of PSUs with smaller populations, called nonself-representing (NSR) PSUs, is stratified geographically by state. Independently within each state, a systematic sample of address clusters was selected. The NSR PSUs where these address clusters were located were then considered to be in the sample. Similarly, independently within each state, a systematic sample of address clusters was selected from the state's SR PSUs.

The 2016 NHIS sampling frame consists of three nonoverlapping parts: the unit frame (a list of addresses); the area frame (geographic areas without addresses or where the unit frame did not sample sufficiently); and the college dormitory frame.

The total NHIS sample is subdivided into four separate panels such that each panel (and any combination

of the panels) is representative of the U.S. civilian noninstitutionalized population. This design feature has a number of advantages, including flexibility for the total sample size.

The current NHIS questionnaire, implemented in 1997, has two basic parts: a Basic Module or Core and one or more supplements that vary by year. The Core remains largely unchanged from year to year and allows for trend analysis and for data from more than 1 year to be pooled to increase the sample size for analytic purposes. The Core contains three components: the Family, the Sample Adult, and the Sample Child. The Family component collects information on everyone in the family. From each family participating in NHIS, one adult is randomly selected to participate in the Sample Adult questionnaire. For families with children under age 18, one child is randomly selected to participate in the Sample Child questionnaire. For children, information is provided by a knowledgeable family member aged 18 or over residing in the household. Because some health issues are different for children and adults, these two questionnaires differ in some items, but both collect basic information on health status, use of health care services, health conditions, and health behaviors.

NHIS will implement a redesigned survey in January 2019. The redesign is intended to improve the measurement of covered health topics, reduce respondent burden by shortening the length of the questionnaire, harmonize overlapping content with other federal health surveys, establish a long-term structure of ongoing and periodic topics, and incorporate advances in survey methodology and measurement.

Sample Size and Response Rate. The NHIS sample size varies from year to year. It may be reduced for budgetary reasons or may be augmented if supplementary funding is available. The normal annual sample size (i.e., the number of households or persons for whom data are collected and publicly released) for the previous 2006–2015 sample design and for the new 2016 sample design is about 35,000 households containing about 87,500 persons.

In 2011–2016, the NHIS sample size was augmented in 32 states and the District of Columbia to increase the number of states for which reliable state-level estimates can be produced. Each year during 2011–2016, the sample size was augmented between 13% and 28%. In 2016, the sample size was augmented by approximately 15%: the sample numbered 97,169 persons, with 33,028 persons participating in the Sample Adult questionnaire and 11,107 participating in the Sample Child questionnaire. In 2016, the total household response rate was 68%. The final response rate in 2016 was 54% for the Sample Adult file and 62% for the Sample Child file.

Issues Affecting Interpretation. As part of the 1997 questionnaire redesign, some basic concepts were changed, and other concepts were measured in different ways. For some questions, there was a change in the reference period.

Also in 1997, the collection methodology changed from paper-and-pencil questionnaires to computer-assisted personal interviewing. Some indicators presented in *Health, United States* begin with 1997 data because the redesign caused a break in the trend. Also, starting with *Health, United States, 2005*, estimates for 2000–2002 were revised to use 2000-based weights and differ from previous editions of *Health, United States* that used 1990-based weights for those data years. The weights available in the public-use NHIS files for 2000–2002 are 1990-based. Data for 2003–2011 use weights derived from the 2000 Census. Data for 2012 and beyond use weights derived from the 2010 Census. In 2006–2010, the sample size was reduced, and this is associated with slightly larger variance estimates than in other years when a larger sample was fielded. Starting in 2010, a geographic nonresponse adjustment was made to both the sample adult weight and the sample child weight; see Moriarity.

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National HIV Surveillance System

Centers for Disease Control and Prevention (CDC), National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention (NCHHSTP)

Overview. Human immunodeficiency virus (HIV) surveillance data are used to detect and monitor cases of HIV infection in the United States, evaluate epidemiologic trends, identify unusual cases requiring follow-up, and inform public health efforts to prevent and control the disease. Data collected on persons with diagnosed HIV infection include age, sex, race, ethnicity, mode of exposure, and geographic region.

Coverage. All 50 states, the District of Columbia (D.C.), and 6 U.S. dependent areas (American Samoa, Guam, Northern Mariana Islands, Puerto Rico, Republic of Palau, and the U.S. Virgin Islands) report confirmed diagnoses of HIV infection to CDC using a uniform surveillance case definition and case report form. As of April 2008, all reporting areas had implemented confidential, name-based HIV infection reporting and agreed to participate in CDC's National HIV Surveillance System. *Health, United States* only presents data for the 50 states and D.C.

Methodology. HIV surveillance includes case report data from 50 states, D.C., and 6 dependent areas. Using a standard confidential case report form, the health departments collect information that is then transmitted electronically, without personal identifiers, to CDC.

Issues Affecting Interpretation. Although the completeness of reporting of cases of HIV infection to state and local health departments differs by geographic region and patient population, studies conducted by state and local health departments indicate that the reporting of cases of HIV infection in most areas of the United States is more than 80% complete.

In 2014, the criteria used to define HIV diagnoses changed. Because of the change in case definition, HIV diagnoses prior to 2014 are not strictly comparable with HIV diagnoses for 2014. See Appendix II, Human immunodeficiency virus (HIV) disease and Acquired immunodeficiency syndrome (AIDS), for discussion of HIV diagnoses reporting definitions and other issues affecting interpretation of trends.

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For More Information. See the NCHHSTP website at: https://www.cdc.gov/nchhstp.

National Hospital Ambulatory Medical Care Survey (NHAMCS)

National Center for Health Statistics (NCHS)

Overview. NHAMCS provides national data on the provision and use of medical care services in hospital emergency and outpatient departments, using information collected from medical records. Data are collected on types of providers seen; reason for visit; diagnoses; drugs ordered, provided, or continued; and selected procedures and tests performed during the visit. Patient data include age, sex, race, and expected source of payment. Data are also collected on selected characteristics of the hospitals included in the survey.

Coverage. NHAMCS covers visits to emergency departments (EDs) and outpatient departments (OPDs) of nonfederal, short-stay, or general hospitals in the United States. Visits to federal, military, and Veterans Administration hospitals, as well as telephone contacts, are excluded. Starting in 2009, the survey includes visits to hospital-based ambulatory surgery centers (ASCs). Starting in 2010, visits to freestanding ASCs are included in the survey. In 2012 only, there was an oversample of hospitals in the five most populous states, which permits state-level estimates for these states.

Methodology. The four-stage probability sample design used in NHAMCS involves samples of (a) geographically defined primary sampling units (PSUs), (b) hospitals within PSUs, (c) clinics or emergency service areas within OPDs or EDs, and (d) patient visits within clinics or emergency service areas. EDs are treated as their own stratum, and all service areas within EDs are included. The first-stage sample of NHAMCS consists of 112 PSUs selected from 1,900 such units that make up the United States.

These PSUs were stratified by socioeconomic and demographic variables and then selected with a probability proportional to their 1980 population size. Stratification was done within four geographical regions by metropolitan statistical area (MSA) or non-MSA status using 1980 Census of Population data. The NHAMCS PSU sample included with certainty the 26 National Health Interview Survey (NHIS) PSUs with the largest populations. In addition, the NHAMCS sample included one-half of the next 26 largest PSUs, and 1 PSU from each of the 73 PSU strata formed from the remaining PSUs for the NHIS sample.

In 2013, the hospital universe and national sample were updated using data from IQVIA's (formerly IMS Health) annual data product. Nonfederal and noninstitutional hospitals with six or more beds staffed for inpatient use and with an average length of stay of less than 30 days (short-stay), hospitals whose specialty was general (medical or surgical), or children's general were eligible for NHAMCS. Hospitals were then classified into four groups on the basis of information in the hospital file: those with only an ED; those with an ED and an OPD; those with only an OPD; and those with neither an ED nor an OPD. Hospitals in the last class were considered as a separate stratum, and a sample of 50 hospitals was selected from this stratum to allow for estimation to the total universe of eligible hospitals. All hospitals with EDs or OPDs in noncertainty sample PSUs with five or fewer hospitals were selected with certainty. In the original sample selected in 1991, there were 149 hospitals in 55 PSUs in this category. In noncertainty sample PSUs with more than five hospitals, hospitals were arrayed by hospital class; type of ownership (not for profit, nonfederal government, and for profit); and hospital size. Hospital size was measured by the combined volume of ED and OPD visits. From the arrayed hospitals, five hospitals were selected using systematic random sampling with probability proportional to size from this group.

The hospital selections were made so that each hospital would be chosen only once to avoid multiple inclusions of very large hospitals. A fixed panel of 600 hospitals was initially selected for the NHAMCS sample; 550 hospitals had an ED, an OPD, or both; and 50 hospitals had neither an ED nor an OPD. To preclude hospitals participating during the same time period each year, the sample of 600 hospitals was randomly divided into 16 subsets of approximately equal size. Each subset was assigned to 1 of the 16 4-week reporting periods beginning December 2, 1991, which continues to rotate across each survey year. Therefore, the entire sample does not participate in a given year, and each hospital is inducted approximately once every 15 months.

Starting with the 2012 survey, the mode of data collection was changed from paper-and-pencil to computer-assisted. The U.S. Census Bureau field representatives use laptops containing an automated version of each survey instrument to 1) conduct the induction interviews with hospital staff; 2) determine the number of emergency department service areas to include; and 3) abstract and record data from medical charts. Another major change was the addition of questions on electronic health records to the hospital induction form.

Sample data are weighted to produce national estimates. The estimation procedure used in NHAMCS has three basic components: inflation by the reciprocal of the probability of selection, adjustment for nonresponse, and population weighting ratio adjustment.

Sample Size and Response Rate. In any given year when the sample is not supplemented (as done in 2012), the hospital sample consists of approximately 450 hospitals, of which 80% have EDs and about one-half have eligible OPDs. Typically, about 800 to 1,000 clinics are selected from participating hospital OPDs.

In 2011, the number of patient record forms (PRFs) completed for EDs was 31,084 and for OPDs was 32,233, and the overall unweighted response rate was 80% for EDs and 67% for OPDs. OPD data for years after 2011 are not currently available, and at present, there is no timeline for their release. In 2012, the number of PRFs completed for EDs was 29,453, and the overall unweighted ED response rate was 64%. In 2013, 24,777 ED PRFs were completed for an ED response rate of 65%. In 2014, 23,844 ED PRFs were completed for an overall ED response rate of 61%. In 2015, 21,061 ED PRFs were completed for an overall ED response rate of 55%.

Issues Affecting Interpretation. The NHAMCS PRF is modified approximately every 2 to 4 years to reflect changes in physician practice characteristics, patterns of care, and technological innovations. Examples of recent changes include an increase in the number of drugs recorded on the PRF and adding checkboxes for specific tests or procedures performed.

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National Immunization Survey (NIS)

Centers for Disease Control and Prevention (CDC), National Center for Immunization and Respiratory Diseases (NCIRD)

Overview. NIS is a continuing nationwide telephone sample survey to monitor vaccination coverage rates among children aged 19–35 months and among teenagers aged 13–17 (NIS–Teen). Data collection for children aged 19–35 months started in 1994, and data collection for teenagers aged 13–17 started in 2006.

Coverage. Children aged 19–35 months and adolescents aged 13–17 in the civilian noninstitutionalized population are represented in this survey. Estimates of vaccine-specific coverage are available for the country, the 50 states, the District of Columbia, and some U.S. territories.

Methodology. NIS is a nationwide telephone sample survey of households with age-eligible children. The survey uses a two-phase sample design. First, a random-digit-dialing sample of telephone numbers is drawn. When households with at least one age-eligible child are contacted, the interviewer collects demographic and access-related information on all age-eligible children, the mother, and the household, and obtains permission to contact the children's vaccination providers. Second, identified providers are sent vaccination history questionnaires by mail. Final weighted estimates are adjusted for households without telephones and for nonresponse. All vaccination coverage estimates are based on provider-reported vaccination histories. NIS–Teen followed the same sample design and data collection procedures as NIS, except that only one age-eligible adolescent was selected from each screened household for data collection.

Starting in 2011, the NIS sampling frame was expanded from a single-landline frame to dual-landline and cellular telephone sampling frames. This change increased the representativeness of the sample characteristics but had little effect on the final 2011 NIS and NIS–Teen national estimates of vaccination coverage overall and when stratified by poverty status. See details of the dual-frame sample design in the annual NIS data user's guide on the NIS website, available from: https://www.cdc.gov/vaccines/imz-managers/nis/datasets.html.

Sample Size and Response Rate. In 2016, the overall Council of American Survey Research Organizations (CASRO) response rate for NIS was 33.9%. Response rates for the landline and cellular telephone samples were 55.7% and 32.1%, respectively. Of the 3,385 age-eligible children with completed household interviews from the landline sample, 1,983 (58.6%) had adequate provider data. From the cellular telephone sample, 13,005 of the 24,070 eligible children with completed household interviews had adequate provider data (54.0%).

The overall CASRO response rate for the 2016 NIS–Teen was 32.7%. Response rates for the landline and cellular telephone samples were 55.5% and 29.5%, respectively. Of the 8,690 age-eligible adolescents with completed household interviews from the landline sample, 4,684 (23%) had adequate provider data. From the cellular telephone sample, 15,791 of the 33,304 (77%) eligible adolescents with completed household interviews had adequate provider data.

Issues Affecting Interpretation. The findings in recent years are subject to several limitations. Data year 2011 was the first year that NIS and NIS–Teen used a dual-frame sampling scheme that included landline and cellular telephone households. Estimates from 2011 and subsequent years might not be comparable with those from prior to 2011, when surveys were conducted via landline telephone only. NIS is a telephone survey, and statistical adjustments might not compensate fully for nonresponse and for households without landline telephones prior to 2011. Underestimates of vaccination coverage might have resulted in exclusive use of provider-reported vaccination histories because completeness of records is unknown. Finally, although national coverage estimates are precise, annual estimates and trends for state and local areas should be interpreted with caution because of smaller sample sizes and wider confidence intervals.

Before January 2009, NIS did not distinguish between Hib vaccine production types; therefore, children who received 3 doses of a vaccine product that requires 4 doses were misclassified as fully vaccinated. For more information, see: CDC. Changes in measurement of *Haemophilus influenzae* serotype b (Hib) vaccination coverage–National Immunization Survey, United States, 2009. MMWR Morb Mortal Wkly Rep 59(33):1069–72. 2010.

Starting in 2014, NIS–Teen defined an adolescent's vaccination record as having adequate provider data if that adolescent had vaccination history data from one or more of the named vaccination providers, or if the parent reported that the adolescent was completely unvaccinated. Prior to 2014, the adequate provider data definition had more criteria, and it was based on a comparison of provider report of vaccination history with parental report of vaccination history, either by shot card report or recall.

To assess the effect of the change in the adequate provider definition criteria on vaccination coverage estimates, NIS recomputed estimates from the 2006–2013 survey. In general, 2013 NIS–Teen vaccination coverage estimates using the revised adequate provider data definition were different, and generally lower, than original 2013 NIS–Teen estimates. Differences between revised and original 2013 national vaccination estimates ranged from –0.1 percentage point to –2.2 percentage points. For more information on the revised adequate provider data criteria, see: https://www.cdc.gov/vaccines/imz-managers/coverage/nis/teen/apd-report.html, and for revised 2013 estimates based on the 2014 criteria, see: Reagan-Steiner S, Yankey D, Jeyarajah

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For More Information. See the NIS website at: https://www.cdc.gov/vaccines/imz-managers/index.html.

National Income and Product Accounts (NIPA)

Bureau of Economic Analysis (BEA)

Overview. NIPA are a set of economic accounts that provide detailed measures of the value and composition of national output and the incomes generated in the production of that output. Essentially, NIPA provides a detailed snapshot of the myriad transactions that make up the economy, such as buying and selling goods and services, hiring of labor, investing, renting property, and paying taxes. NIPA estimates show U.S. production, distribution, consumption, investment, and saving.

The best-known NIPA measure is the gross domestic product (GDP), which is defined as the market value of the goods, services, and structures produced by the economy in a given period. NIPA calculates GDP as the sum of the final expenditure components: personal consumption expenditures, private fixed investment, change in private inventories, net exports of goods and services, government spending, and government investment. However, GDP is just one of many economic measures presented in NIPA. Another key NIPA indicator presented in *Health, United States* is the implicit price deflator for GDP.

The conceptual framework of NIPA is illustrated by seven summary accounts: the domestic income and product account, the private enterprise income account, the personal income and outlay account, the government receipts and expenditures account, the foreign transactions current account, the domestic capital account, and the foreign transactions capital account. These summary accounts record a use (or expenditure) in one account for one sector and a corresponding source (or receipt) in an account of another sector or of the same sector. This integrated system provides a comprehensive measure of economic activity in a consistently defined framework without double counting.

Coverage. Source data for NIPA domestic estimates cover all 50 states and the District of Columbia. The U.S. national income and product statistics were first presented as part of a complete and consistent double-entry accounting system in the summer of 1947.

Methodology. NIPA estimates are revised quarterly, annually, and quinquennially. For GDP and most other NIPA series, a set of three current quarterly estimates is released each year. Quarterly estimates provide the first look at the path of U.S. economic activity. Annual revisions of NIPA are usually carried out each summer. These revisions incorporate source data that are based on more extensive annual surveys, on annual data from other sources, and on later revisions to the monthly and quarterly source data, and they generally cover the 3 previous calendar years. Comprehensive revisions are carried out at about 5-year intervals and may result in revisions that extend back many years. These estimates incorporate all of the best available source data, such as data from the quinquennial U.S. Economic Census.

NIPA measures are built up from a wide range of source data using a variety of estimating methods. To ensure consistency and accuracy, NIPA uses various adjustment and estimation techniques to estimate data. Three general types of adjustments are made to the source data that are incorporated into the NIPA estimates. The first consists of adjustments that are needed so that the data conform to appropriate NIPA concepts and definitions. The second type of adjustment involves filling gaps in coverage. The third type of adjustment involves time of recording and valuation. Source data must be adjusted occasionally to account for special circumstances that affect the accuracy of the data. For example, quarterly and monthly NIPA estimates are adjusted seasonally at the detailed-series level when the series demonstrate statistically significant seasonal patterns. Source data may also be used as indicators to extrapolate annual estimates. For more information, see "An Introduction to the National Income and Product Accounts. Methodology Papers: U.S. National Income and Product Accounts," available from: https://www.bea.gov/scb/pdf/national/nipa/methpap/mpi1_0907.pdf; and "Concepts and Methods of the U.S. National Income and Product Accounts," available from: https://www.bea.gov/national/pdf/NIPAhandbookch1-4.pdf.

Issues Affecting Interpretation. NIPA source data and estimates are revised frequently. Data are released at different times, estimates are updated as they become available, new concepts and definitions are incorporated, and source data may change due to improvements in collection and new methodologies. As a result, major estimates, such as GDP and its major components, undergo frequent revision, and historical data are changed. For more information, see the BEA (NIPA) website at: https://www.bea.gov/scb/pdf/2013/03%20March/0313_nipa_comprehensive_revision_preview.pdf.

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National Medical Expenditure Survey (NMES)—See Appendix I, Medical Expenditure Panel Survey (MEPS).

National Notifiable Diseases Surveillance System (NNDSS)

Centers for Disease Control and Prevention (CDC)

Overview. NNDSS is a nationwide collaboration that enables all levels of public health (local, state, territorial, federal, and international) to share health information to monitor, control, and prevent the occurrence and spread of state-reportable and nationally notifiable infectious and some noninfectious diseases and conditions. NNDSS is a multifaceted program that includes the surveillance system for collection, analysis, and sharing of health data, resources, and information about policies and standards, at the local, state, and national levels. NNDSS provides weekly provisional and annual finalized information on the occurrence of diseases defined as notifiable by the Council of State and Territorial Epidemiologists (CSTE). Data include incidence of nationally notifiable reportable diseases, which are reported using uniform surveillance case definitions.

Coverage. Notifiable disease reports are received from health departments in the 50 states, 5 territories, the District of Columbia, and New York City. Policies for reporting notifiable disease cases can vary by disease or reporting jurisdiction, depending on case status classification (i.e., confirmed, probable, or suspect).

Methodology. CDC, in partnership with CSTE, administers NNDSS. Reportable disease surveillance is conducted by public health practitioners at local, state, and national levels to support disease prevention and control. Data on a subset of reportable conditions that have been designated nationally notifiable are then submitted to CDC. The system also provides annual summaries of the finalized data. CSTE and CDC annually review the status of national notifiable disease surveillance and recommend additions or deletions to the list of nationally notifiable diseases, based on the need to respond to emerging priorities. For example, Zika virus disease and Zika virus infection became nationally notifiable in 2016. However, reporting nationally notifiable diseases to CDC is voluntary. Because reporting is currently mandated by law or regulation only at the local and state levels, the list of diseases that are considered reportable varies by state. For example, reporting of coccidioidomycosis to CDC is not done by some states in which this disease is not reportable to local or state authorities.

State epidemiologists report cases of nationally notifiable diseases to CDC, which tabulates and publishes these data in *Morbidity and Mortality Weekly Reports* (MMWR) and in *Summary of Notifiable Diseases, United States* (titled *Annual Summary* before 1985). Beginning in 2016, national notifiable disease data are released via the NNDSS website, available from: www.cdc.gov/nndss/infectious-tables.html.

Issues Affecting Interpretation. NNDSS data must be interpreted in light of reporting practices. Some diseases that cause severe clinical illness (e.g., meningococcal disease, plague, and rabies) are likely reported accurately if diagnosed by a clinician. However, persons who have diseases that are clinically mild and infrequently associated with serious consequences (e.g., salmonellosis) may not seek medical care from a health care provider. Even if these less-severe diseases are diagnosed, they are less likely to be reported.

The degree of completeness of data reporting is also influenced by the diagnostic facilities available, the control measures in effect, public awareness of a specific disease, and the interests, resources, and priorities of state and local officials responsible for disease control and public health surveillance. Finally, factors such as changes in case definitions for public health surveillance, introduction of new diagnostic tests, or discovery of new disease entities can cause changes in disease reporting that are independent of the true incidence of disease.

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National Survey of Family Growth (NSFG)

National Center for Health Statistics (NCHS)

Overview. NSFG gathers information on family life, marriage and divorce, pregnancy, infertility, use of contraception, and men's and women's health. NSFG provides national data on factors affecting birth and pregnancy rates, adoption, and maternal and infant health. Data collected include sexual activity, marriage, divorce and remarriage, unmarried cohabitation, forced sexual intercourse, contraception and sterilization, infertility, breastfeeding, pregnancy loss, low birthweight, and use of medical care for family planning and infertility.

Coverage. Prior to the 2002 NSFG, the survey population of NSFG included women aged 15–44 in the noninstitutionalized population (household population) of the United States (50 states and the District of Columbia). Starting with the 2002 NSFG, the survey population additionally included men aged 15–44 in the household population. Excluded from the survey population were those living in institutions, such as prisons and long-term psychiatric hospitals, or on military bases. Beginning September 2015, the NSFG survey population was expanded for both men and women from those aged 15–44 to those aged 15–49.

Methodology. NSFG moved from a periodically conducted survey—conducted six times from 1973 to 2002—to a continuous survey design in 2006. NSFG data are currently based on a multistage probability-based, nationally representative sample of the household population aged 15–44, though since September 2015, the sample was expanded to those aged 15–49. Black and Hispanic adults, as well as all persons aged 15–19, are oversampled. Interviews are administered in person by trained female interviewers using a laptop or notebook computer with computer-assisted personal interviewing or audio computer-assisted self-interview programs.

To produce national estimates from the sample for the millions of women aged 15–44 in the United States, data for the interviewed sample women were (a) inflated by the reciprocal of the probability of selection at each stage of sampling, (b) adjusted for nonresponse, and (c) poststratified, or aligned with benchmark population sizes based on data from the U.S. Census Bureau.

For more information on the methodology for prior NSFG surveys, see: https://www.cdc.gov/nchs/nsfg/nsfg_products.htm.

Sample Size and Response Rate. For the 2011–2013 and 2013–2015 NSFG surveys, the sample size for women respondents was 5,601 and 5,699, respectively. The response rate for women respondents was 73% for the 2011–2013 NSFG and 71% for the 2013–2015 NSFG. Sample sizes and response rates for respondents have varied across survey years. For more information on sample size and response rates for past surveys, see the 2013–2015 NSFG user's guide at: https://www.cdc.gov/nchs/data/nsfg/nsfg_2013_2015_userguide_maintext.pdf.

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National Survey on Drug Use and Health (NSDUH)

Substance Abuse and Mental Health Services Administration (SAMHSA)

Overview. NSDUH reports on the prevalence, incidence, and patterns of illicit drug use and alcohol use among the U.S. civilian noninstitutionalized population aged 12 and over. NSDUH also reports on substance use disorders, substance use treatment, mental health problems, and mental health care.

Coverage. NSDUH is representative of persons aged 12 and over in the civilian noninstitutionalized population of the United States, and in each state and the District of Columbia (D.C.).

The survey covers residents of households (including those living in houses, townhouses, apartments, and condominiums), persons in noninstitutional group quarters (including those in shelters, boarding houses, college dormitories, migratory work camps, and halfway houses), and civilians living on military bases. Persons excluded from the survey include people experiencing homelessness who do not use shelters, active military personnel, and residents of institutional group quarters such as jails, nursing homes, mental institutions, and long-term care hospitals.

Methodology. Data are collected via in-person interviews conducted with a sample of individuals at their place of residence. Computer-assisted interviewing methods, including audio computer-assisted self-interviewing, are used to provide a private and confidential setting to complete the interview.

NSDUH uses a 50-state (and D.C.) sample design that is revised periodically. In 2014, NSDUH introduced an independent multistage area probability sample within each state and D.C. States are the first level of stratification, and each state was then stratified into approximately equally populated state sampling regions (SSRs). Census tracts within each SSR were then selected, followed by census block groups within census tracts and area segments (i.e., a collection of census blocks) within census block groups. Finally, dwelling units (DUs) were selected within segments, and within each selected DU, up to two residents who were at least 12 years old were selected for the interview.

Also starting in 2014, changes were made in the sample sizes allocated to each state and to different age groups, in order to increase the precision of national estimates, many state estimates, and estimates for older adults. In particular, samples sizes were increased in the 12 most populous states. States with sample increases will have more precise estimates than in previous years, whereas states with smaller sample sizes will have some reductions in precision. However, all states will still have reasonable levels of precision. This allocation of sample to states is also thought to be more cost efficient. Starting in 2014, the sample size

was redistributed by age group so that 25% of the sample is allocated to those aged 12–17, 25% to those aged 18–25, and 50% to those aged 26 and over. Although the sample sizes for age groups 12–17 and 18–25 were reduced, these two groups are still considered to be oversampled since they represent approximately 10% and 13% of the total population, respectively.

Sample Size and Response Rate. In 2016, screening was completed at 135,188 addresses, and 67,942 completed interviews were obtained, including 17,109 interviews from adolescents aged 12–17 and 50,833 interviews from adults aged 18 and over. Weighted response rates for household screening and for interviewing were 77.9% and 68.4%, respectively, for an overall response rate of 53.3% for people aged 12 and over. The weighted interview response rates were 77.0% for adolescents and 67.6% for adults.

Issues Affecting Interpretation. Several improvements to NSDUH were implemented in 2002. The data collected in 2002 represent a new baseline for tracking trends in substance use and other measures. Special questions on methamphetamine were added in 2005 and 2006. Data for years prior to 2007 were adjusted for comparability. Starting with 2011 data, 2010 Census-based control totals were used in the weighting process. Analysis weights in the 2002 through 2010 NSDUHs were derived from the 2000 Census data. This reweighting to the 2010 Census data could affect comparisons between estimates for 2011 and subsequent years and those from prior years. However, an analysis of the impact of reweighting showed that the percentages of substance users were largely unaffected. For more information, see: https://archive.samhsa.gov/data/NSDUH/NSDUHCensusEffects/Index.aspx.

The NSDUH questionnaire underwent a partial redesign in 2015 to improve the quality of data and to address the changing needs of policymakers and researchers with regard to substance use and mental health issues. Due to the changes, only 2015 and 2016 data are presented for certain estimates until comparability with prior years can be established. Trends continue to be presented for estimates that are assumed to have remained comparable with those in earlier years. For more information, see: https://www.samhsa.gov/data/sites/default/files/NSDUH-TrendBreak-2015.pdf.

Estimates of substance use for youth based on NSDUH are not directly comparable with estimates based on the Monitoring the Future (MTF) Study and the Youth Risk Behavior Surveillance System (YRBSS). In addition to the fact that MTF excludes dropouts and absentees, rates are not directly comparable across these surveys because of differences in the populations covered, sample design, questionnaires, and interview setting. NSDUH collects data in residences, whereas MTF and YRBSS collect data in school classrooms. Furthermore, NSDUH estimates are tabulated by age, whereas MTF and YRBSS estimates are tabulated by grade, representing different ages as well as different populations.

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For More Information. See the NSDUH website at: https://www.samhsa.gov/data/data-we-collect/nsduh-national-survey-drug-use-and-health, and the Center for Behavioral Health Statistics and Quality (the data collection agency) website at: https://www.samhsa.gov/about-us/who-we-are/offices-centers/cbhsq.

National Vital Statistics System (NVSS)

National Center for Health Statistics (NCHS)

Overview. NVSS collects and publishes official national statistics on births, deaths, fetal deaths, and, prior to 1996, marriages and divorces occurring in the United States, based on U.S. Standard Certificates. Fetal deaths are classified and tabulated separately from other deaths. The vital statistics files—Birth, Fetal Death, Mortality Multiple Cause-of-Death, Linked Birth/Infant Death, and Compressed Mortality—are described in detail below.

Coverage. NVSS collects and presents U.S. resident data for the aggregate of 50 states, New York City, and the District of Columbia (D.C.), as well as for each individual state, D.C., and the U.S. dependent areas of Puerto Rico, Virgin Islands, Guam, American Samoa, and Northern Marianas. Vital events occurring in the United States to non-U.S. residents and vital events occurring abroad to U.S. residents are excluded. Starting with *Health, United States, 2013*, information on vital events for Puerto Rico, Virgin Islands, Guam, American Samoa, and Northern Marianas is shown in selected state tables but is not included in U.S. totals.

Methodology. NCHS' Division of Vital Statistics obtains information on births and deaths from the registration offices of each of the 50 states, New York City, D.C., Puerto Rico, Virgin Islands, Guam, American Samoa, and Northern Marianas. Until 1972, microfilm copies of all death certificates and a 50% sample of birth certificates were received from all registration areas and processed by NCHS. In 1972, some states began sending their data to NCHS through the Cooperative Health Statistics System (CHSS). States that participated in the CHSS program processed 100% of their death and birth records and sent the entire data file to NCHS on computer tapes. Currently, data are sent to NCHS following procedures similar to those under CHSS. The number of participating states grew from 6 in 1972 to 46

in 1984. Starting in 1985, all 50 states and D.C. participated in the Vital Statistics Cooperative Program.

U.S. Standard Certificates. U.S. Standard Certificates of Live Birth and Death and Fetal Death Reports are revised periodically, allowing evaluation and addition, modification, and deletion of items. Beginning with 1989, revised Standard Certificates replaced the 1978 versions. The 1989 revision of the death certificate included items on educational attainment and Hispanic origin of decedents, as well as changes to improve the medical certification of cause of death. Standard Certificates recommended by NCHS are modified in each registration area to serve the area's needs. However, most certificates conform closely in content and arrangement to the Standard Certificate, and all certificates contain a minimum data set specified by NCHS. The 2003 revision of vital records went into effect in some states and territories beginning in 2003; full implementation in all states, D.C., and territories (other than American Samoa) was achieved with 2016 data. The 2003 revision of the death certificate included changes in the determination of multiple races, education level, prenatal care, tobacco use, and maternal mortality.

Birth File

Overview. Vital statistics natality data are a fundamental source of demographic, geographic, and medical and health information on all births occurring in the United States. This is one of the few sources of comparable health-related data for small geographic areas over an extended time period. The data are used to present the characteristics of babies and their mothers, track trends such as birth rates for teenagers, and compare natality trends with those in other countries.

The Birth file includes characteristics of the baby, such as sex, birthweight, and weeks of gestation; demographic information about the parents, such as age, race, Hispanic origin, parity, educational attainment, marital status, and state of residence; medical and health information, such as prenatal care, based on hospital records; and behavioral risk factors for the birth, such as mother's tobacco use during pregnancy.

Coverage. Birth data presented in *Health, United States* are based on reporting from all 50 states and D.C. Data for Puerto Rico, Virgin Islands, Guam, American Samoa, and Northern Marianas are shown in selected state tables but are not included in U.S. totals. Beginning with 1970, births to nonresidents of the United States are excluded.

Methodology. In the United States, state laws require birth certificates to be completed for all births. The registration of births is the responsibility of the professional attendant at birth, generally a physician or midwife. The birth certificate must be filed with the local registrar of the district in which the birth occurs. Each birth must be reported promptly; the reporting requirements vary from state to state, ranging from 24 hours to as much as 10 days after the birth.

Federal law mandates national collection and publication of birth and other vital statistics data. NVSS is the result of cooperation between NCHS and the states to provide access to statistical information from birth certificates. Standard forms for the collection of the data, and model procedures for the uniform registration of the events, are developed and recommended for state use through cooperative activities of the states and NCHS. NCHS shares the costs incurred by the states in providing vital statistics data for national use.

Issues Affecting Interpretation. The 2003 revision of the birth certificate was phased in from 2003 to 2016. As of January 1, 2016, all states, territories (except American Samoa), and reporting areas had adopted the 2003 revision of the U.S. Standard Certificate of Live Birth. The 2003 certificate uses revised race and ethnicity sections conforming to the 1997 *Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity*. However, to provide uniformity and comparability of data for trend comparison, bridged single-race categories are still presented in *Health, United States*. Interpretation of trend data should take into consideration changes to reporting areas. For methodological and reporting area changes for the following birth certificate items, see Appendix II, Age; Hispanic origin; Marital status; Race.

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For More Information. See the NVSS Birth Data website at: https://www.cdc.gov/nchs/nvss/births.htm, and Vitalstats at: https://www.cdc.gov/nchs/data_access/Vitalstatsonline.htm.

Fetal Death Data Set

Overview. Fetal mortality refers to the intrauterine death of a fetus at any gestational age. In *Health, United States*, data are presented for fetal deaths at 20 weeks or more. The Fetal Death data set includes characteristics of the fetus, such as sex, birthweight, and weeks of gestation; demographic information about the mother, such as age, race, Hispanic origin, and live-birth order; and medical and health information, such as maternal diabetes and hypertension.

Coverage. Data presented in *Health, United States* are based on reporting from all 50 states and D.C. Data for Puerto Rico, Virgin Islands, Guam, American Samoa, and Northern Marianas are not included in U.S. totals but are included in the fetal death user's guides, available from the NCHS website at: https://www.cdc.gov/nchs/data_access/VitalStatsOnline.htm, and in periodic reports.

Methodology. Fetal death means the death of a fetus prior to delivery from the mother, irrespective of the duration of pregnancy. Fetal deaths do not include induced

terminations of pregnancy. This definition of fetal death, adopted by NCHS as the nationally recommended standard, is based on the definition published by the World Health Organization (WHO) in 1950 and revised in 1988. The term fetal death encompasses other commonly used terms, including stillbirth, spontaneous abortion, and miscarriage. All U.S. states and registration areas have definitions similar to the standard definition, except for Puerto Rico and Wisconsin, which have no formal definition.

State laws require the reporting of fetal deaths, and federal law mandates national collection and publication of fetal death data. States and reporting areas submit fetal mortality data to NCHS as part of a cooperative agreement. Standard forms and procedures for the collection of the data are developed and recommended for state use through cooperative activities of the states and NCHS. NCHS shares the costs incurred by the states in providing vital statistics data for national use.

In addition to fetal mortality rates, perinatal mortality rates are also presented in *Health, United States*. Perinatal mortality includes both late fetal deaths (of at least 28 weeks of gestation) and early infant (neonatal) deaths (within 7 days of birth). Data on early infant deaths come from the Linked Birth/Infant Death data set.

Issues Affecting Interpretation. Reporting requirements for fetal deaths vary by state, and these differences have important implications for comparisons of fetal mortality rates by state. The majority of states require reporting of fetal deaths at 20 weeks of gestation or more, or a minimum of 350 grams birthweight (roughly equivalent to 20 weeks), or some combination of the two. In 2015, six states required reporting of fetal deaths at all periods of gestation, and one state required reporting beginning at 16 weeks of gestation. Further, one state required the reporting of fetal deaths with birthweights of 500 grams or more (roughly equivalent to 22 weeks of gestation).

Starting with 2014 data, the obstetric estimate of gestation at delivery (OE) is used to determine gestational age, instead of the last normal menses (LMP), which was used for earlier years. The adoption of OE for gestational age had no or negligible impact on total fetal mortality rates. However, late fetal mortality rates based on the OE were lower than those based on the LMP. For more information, see "User Guide to the 2014 Fetal Death Public Use File."

There is substantial evidence that not all fetal deaths for which reporting is required are, in fact, reported. Underreporting of fetal deaths is most likely to occur in the earlier part of the required reporting period for each state. For example, in 2013, for those states requiring reporting of fetal deaths at all periods of gestation, 56.4% of fetal deaths at 20 weeks of gestation or more were at 20–27 weeks, whereas for states requiring reporting of fetal deaths of 500 grams or more, only 33.8% were at 20–27 weeks, thus indicating substantial underreporting of early fetal deaths in some states.

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National Center for Health Statistics. User guide to the 2015 fetal death public use file. Available from: ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Dataset_Documentation/DVS/fetaldeath/2015FetalUserGuide.pdf.

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For More Information. See the NCHS Fetal Deaths data website at: http://www.cdc.gov/nchs/fetal_death.htm.

Mortality Multiple Cause-of-Death File

Overview. Vital statistics mortality data are a fundamental source of demographic, geographic, and underlying and multiple cause-of-death information. Multiple cause-of-death data reflect all medical information reported on death certificates and complement traditional underlying cause-of-death data. Multiple-cause data give information on diseases that are a factor in death, whether or not they are the underlying cause of death; on associations among diseases; and on injuries leading to death.

The Mortality multiple cause-of-death file includes demographic information on age, sex, race, Hispanic origin, state of residence, and educational attainment, as well as medical information on causes of death. This data set is one of the few sources of comparable health-related data for small geographic areas over an extended time period. The data are used to present the characteristics of those dying in the United States, to determine life expectancy, and to compare mortality trends with those in other countries.

Coverage. Mortality data presented in *Health, United States* are based on reporting from all 50 states and D.C. Data for Puerto Rico, Virgin Islands, Guam, American Samoa, and Northern Marianas are shown in selected state tables, but are not included in U.S. totals. Beginning with 1970, mortality statistics for the United States exclude deaths of U.S. nonresidents. Mortality statistics for Puerto Rico, Virgin Islands, American Samoa, and Northern Marianas excluded deaths of nonresidents for each area. For Guam, mortality statistics exclude deaths that occurred to a resident of any place other than Guam or the United States (50 states and D.C.).

Methodology. By law, the registration of deaths is the responsibility of the funeral director. The funeral director obtains demographic data for the death certificate from an informant. The physician in attendance at the death is

required to certify the cause of death. Where cause of death is from other than natural causes, a coroner or medical examiner may be required to examine the body and certify the cause of death.

NCHS is responsible for compiling and publishing annual national statistics on causes of death. In carrying out this responsibility, NCHS adheres to WHO Nomenclature Regulations. These regulations require (a) that cause of death be coded in accordance with the applicable revision of the *International Classification of Diseases* (ICD) (see Appendix II, *International Classification of Diseases* [ICD]; Table III); and (b) that underlying cause of death be selected in accordance with international rules. Traditionally, national mortality statistics have been based on a count of deaths, with one underlying cause assigned for each death.

Prior to 1968, mortality medical data were based on manual coding of an underlying cause of death for each certificate in accordance with WHO rules. Starting with 1968, NCHS converted to computerized coding of the underlying cause and manual coding of all causes (multiple causes) on the death certificate. In this system, called Automated Classification of Medical Entities (ACME), multiple-cause codes serve as inputs to the computer software, which employs WHO rules to select the underlying cause. ACME is used to select the underlying cause of death for all death certificates in the United States, and cause-of-death data in *Health, United States* are coded using ACME.

In addition, NCHS has developed two computer systems as inputs to ACME. Beginning with 1990 data, the Mortality Medical Indexing, Classification, and Retrieval system (MICAR) was introduced to automate coding of multiple causes of death. MICAR provides more detailed information on the conditions reported on death certificates than is available through the ICD code structure. Then, beginning with data year 1993, SuperMICAR, an enhancement of MICAR, was introduced. SuperMICAR allows for literal entry of the multiple cause-of-death text as reported by the certifier. This information is then processed automatically by the MICAR and ACME computer systems. Records that cannot be processed automatically by MICAR or SuperMICAR are multiple-cause-coded manually and then further processed through ACME. Starting in 2003, SuperMICAR was used to process all of the country's death records.

Data for the entire United States refer to events occurring within the 50 states and D.C.; data for geographic areas are by place of residence. For methodological and reporting area changes for the following death certificate items, see Appendix II, Hispanic origin; Race.

Issues Affecting Interpretation. ICD, by which cause of death is coded and classified, is revised approximately every 10 to 20 years. Because revisions of ICD may cause discontinuities in trend data by cause of death, comparison of death rates by cause of death across ICD revisions should be done with caution and with reference to the comparability

ratio (see Appendix II, Comparability ratio). Prior to 1999, modifications to ICD were made only when a new revision of ICD was implemented. A process for updating ICD was introduced with the 10th revision (ICD–10) that allows for midrevision changes. These changes, however, may affect comparability of data between years for select causes of death. Minor changes may be implemented every year, whereas major changes may be implemented every 3 years (e.g., 2003 data year). In data year 2006, major changes were implemented, including the addition and deletion of several ICD codes. For more information, see Heron *et al*.

Multiple-cause data were obtained from all certificates for 1968–1971, 1973–1980, and 1983–present. Data were obtained from a 50% sample of certificates for 1972. Multiple-cause data for 1981 and 1982 were obtained from a 50% sample of certificates from 19 registration areas. For the other states, data were obtained from all certificates.

The death certificate has been revised periodically. A revised U.S. Standard Certificate of Death was recommended for state use beginning January 1, 1989. Among the changes were the addition of a new item on educational attainment and Hispanic origin of the decedent and changes to improve the medical certification of cause of death. The U.S. Standard Certificate of Death was revised again in 2003; states are adopting this new certificate on a rolling basis.

The 2003 revision permits reporting of more than one race (multiple races). This change was implemented to reflect the increasing diversity of the U.S. population and to be consistent with the decennial census. Some states, however, are still using the 1989 revision of the U.S. Standard Certificate of Death, which allows only a single race to be reported. Until all states adopt the new death certificate, the race data reported using the 2003 revision are "bridged" for those for whom more than one race was reported (multiple race) to one single race, to provide comparability with race data reported on the 1989 revision. For more information on the impact of the 2003 certificate revisions on mortality data presented in *Health, United States*, see Appendix II, Race.

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For More Information. See the NCHS Mortality Data website at: https://www.cdc.gov/nchs/deaths.htm.

Linked Birth/Infant Death Data Set

Overview. National linked files of live births and infant deaths are used for research on infant mortality. The Linked Birth/Infant Death data set links information from the birth certificate to information from the death certificate for each infant death in the United States. The purpose of the linkage is to use the many additional variables from the birth certificate, including the more accurate racial and ethnic data, for more detailed analyses of infant mortality patterns. The Linked Birth/Infant Death data set includes all variables on the natality (Birth) file, including racial and ethnic information, birthweight, and maternal smoking, as well as variables on the Mortality file, including cause of death and age at death.

Coverage. To be included in the U.S. linked file, both the birth and death must have occurred in the 50 states, D.C., Puerto Rico, Virgin Islands, or Guam. Data for Puerto Rico, Virgin Islands, and Guam are shown in selected state tables but are not included in U.S. totals. Linked birth/infant death data are not available for American Samoa and Northern Marianas.

Methodology. Infant deaths are defined as a death before the infant's first birthday. About 98%–99% of infant death records can be linked to their corresponding birth certificates. The linkage makes available extensive information from the birth certificate about the pregnancy, maternal risk factors, infant characteristics, and health items at birth that can be used for more detailed analyses of infant mortality. The linked file is used for calculating infant mortality rates by race and ethnicity, which are more accurately measured from the birth certificate.

Starting with 1995 data, linked birth/infant death data files are available in two different formats: period data and birth cohort data. The numerator for the period linked file consists of all infant deaths occurring in a given data year linked to their corresponding birth certificates, whether the birth occurred in that year or the previous year. The numerator for the birth cohort linked file consists of deaths to infants born in a given year. In both cases, the denominator is all births occurring in the year. For example, the 2013 period linked file contains a numerator file that consists of all infant deaths occurring in 2013 that have been linked to their corresponding birth certificates, whether the birth occurred in 2012 or 2013. In contrast, the 2013 birth cohort linked file will contain a numerator file that consists of all infant deaths to babies born in 2013, whether the death occurred in 2013 or 2014. Although the birth cohort format

has methodological advantages, it creates substantial delays in data availability because it is necessary to wait until the close of the following data year to include all infant deaths in the birth cohort. Starting with 1995 data, period linked files are used for infant mortality rate tables in *Health, United States*.

Other changes to the data set starting with 1995 include the addition of record weights to compensate for the 1%–2% of infant death records that could not be linked to their corresponding birth records. In addition, not-stated birthweight was imputed if the period of gestation was known. This imputation was done to improve the accuracy of birthweight-specific infant mortality rates because the percentage of records with not-stated birthweight is generally higher for infant deaths (4.08% in 2015) than for live births (0.09% in 2015). In 2015, not-stated birthweight was imputed for 0.07% of births.

Issues Affecting Interpretation. Period linked file data starting with 1995 are not strictly comparable with birth cohort data for 1983–1991. A new revision of the birth certificate was introduced in 2003, and as of 2016 data, all states and reporting areas (except for American Samoa) had adopted the 2003 version of the birth certificate.

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For More Information. See the NCHS Linked Birth and Infant Death Data website at: http://www.cdc.gov/nchs/linked.htm.

National Youth Tobacco Survey (NYTS)

Centers for Disease Control and Prevention (CDC), Office on Smoking and Health (OSH) and U.S. Food and Drug Administration (FDA)

Overview. NYTS is an annual school-based survey of U.S. middle and high school students that collects data on tobacco use and tobacco-related attitudes, beliefs, and influences. Data collected include use of cigarettes, cigars, smokeless tobacco, e-cigarettes, hookahs, pipe tobacco, and bidis within the past 30 days.

Coverage. Data are nationally representative of 6th through 12th graders in public and private high schools in the United States.

Methodology. Prior to 2011, the survey was biennial. The survey uses a three-stage cluster sampling design to generate a nationally representative sample of U.S. students attending public and private schools in grades 6 through 12. Data are collected using a voluntary, school-based, self-administered, pencil-and-paper questionnaire. Dropouts and students who are absent from school or class at the time of data collection are excluded. Data were weighted to account for the complex survey design and adjusted for nonresponse.

Sample Size and Response Rate. In 2016, a total of 20,675 students in 202 public and private schools in the United States participated, with a response rate of 72%. The 20,675 participants were broken down by grade as follows: 2,692 12th graders, 2,698 11th graders, 2,831 10th graders, 2,751 9th graders, 3,192 8th graders, 3,272 7th graders, and 3,239 6th graders. From 2011 to 2016, sample sizes ranged from 18,866 to 20,675 students, and response rates were 63% to 74%.

Issues Affecting Interpretation. Estimates of substance use among youth based on NYTS are not directly comparable with estimates based on the National Survey on Drug Use and Health (NSDUH), the Monitoring the Future (MTF) Study, and the Youth Risk Behavior Surveillance System (YRBSS). This is because of differences in populations covered, sample design, questionnaires, interview settings, and data cleaning procedures. NSDUH collects data in residences, whereas NYTS, MTF, and YRBSS collect data in school classrooms. In addition, NSDUH estimates are tabulated by age, whereas NYTS, MTF, and YRBSS estimates are tabulated by school level or grade, representing different ages as well as different populations.

Reference

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Occupational Employment Statistics (OES)

Bureau of Labor Statistics (BLS)

Overview. The OES program conducts a semiannual survey designed to produce estimates of employment and wages for specific occupations. The program collects data on wage and salary workers in nonfarm establishments, producing employment and wage estimates for over 800 occupations. The OES program produces these occupational estimates for all industries combined at different geographic levels: for the country; the 50 states and the District of Columbia (D.C.); metropolitan and nonmetropolitan areas; and Guam, Puerto

Rico, and the U.S. Virgin Islands. National occupational employment and wage estimates are also available by industry for more than 430 industry aggregations and by public or private ownership across all industries and for schools and hospitals.

Coverage. The OES survey covers all full-time and part-time wage and salary workers in nonfarm establishments. The survey does not cover the self-employed, owners and partners in unincorporated firms, household workers, or unpaid family workers.

Methodology. The OES program surveys approximately 200,000 establishments per panel (every 6 months), taking 3 years to fully collect the sample of 1.2 million establishments. The estimates for occupations in nonfarm establishments are based on OES data collected for the reference months of May and November. May 2016 employment and wage estimates are based on all data collected from establishments sampled in the May 2016, May 2015, November 2015, May 2014, November 2014, and November 2013 semiannual panels. The overall national response rate for the six panels, based on the 50 states and D.C., is 73% based on establishments and 69% based on weighted sampled employment.

The OES survey is a federal-state cooperative program between BLS and state workforce agencies (SWAs). BLS provides the procedures and technical support, draws the sample, and produces the survey materials, while SWAs collect most of the data. SWAs from all 50 states and D.C., Puerto Rico, Guam, and the U.S. Virgin Islands participate in the survey. Occupational employment and wage rate estimates at the national level are produced by BLS using data from the 50 states and D.C. Employers who respond to states' requests to participate in the OES survey make these estimates possible.

Issues Affecting Interpretation. Over time, OES data have had changes in the occupational, industrial, and geographical classification systems; data collection methods; survey reference period; and mean wage estimation methodology. Because of these changes as well as permanent features of the OES methodology, caution should be used in trend analysis.

OES occupational estimates are based on the Office of Management and Budget's Standard Occupational Classification (SOC) system. The OES survey classifies workers into more than 800 detailed occupations; these detailed occupations are aggregated into 23 SOC major groups. Only 22 SOC major groups are included in OES; major group 55, Military Specific Occupations, is not included. Data on selected health care occupations are presented in *Health, United States*.

OES estimates for 1999 to 2009 classified occupations according to the 2000 SOC system. OES estimates for 2010 and 2011 were based on a hybrid structure using both the 2000 and 2010 SOC systems. For more information about

the hybrid structure, see https://www.bls.gov/oes/oes_ques.htm. OES estimates for 2012 to 2016 classified occupations according to the 2010 SOC system.

Reference

U.S. Bureau of Labor Statistics. Occupational employment and wages, May 2016. 2017. Available from: https://www.bls.gov/OES/.

For More Information. See the OES website at: https://www.bls.gov/OES/.

Population Census and Population Estimates

U.S. Census Bureau

Decennial Census

The census of population (decennial census) has been held in the United States every 10 years since 1790. Since 1930, it has enumerated the resident population as of April 1 of the census year. Data on sex, race, Hispanic origin, age, and marital status are collected from 100% of the enumerated population.

Race Data on the 1990 Census

The question on race on the 1990 Census was based on the Office of Management and Budget's (OMB) 1977 *Race and Ethnic Standards for Federal Statistics and Administrative Reporting* (Statistical Policy Directive 15). This document specified rules for the collection, tabulation, and reporting of racial and ethnic data within the federal statistical system. The 1977 Standards required federal agencies to report race-specific tabulations using four single-race categories: American Indian or Alaska Native, Asian or Pacific Islander, black, and white. Under the 1977 Standards, race and ethnicity were considered to be two separate and distinct concepts. Thus, persons of Hispanic origin may be of any race.

Race Data on the 2000 Census

The question on race on the 2000 Census was based on OMB's 1997 *Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity* (see: Federal Register 62(210):58782–90. 1997.). (Also see Appendix II, Race.) The 1997 Standards incorporated two major changes in the collection, tabulation, and presentation of race data. First, the 1997 Standards increased the minimum set of categories to be used by federal agencies for identification of race from four to five: American Indian or Alaska Native, Asian, black or African American, Native Hawaiian or Other Pacific Islander, and white. Second, the 1997 Standards included the requirement that federal data collection programs allow respondents to select one or more race categories when responding to a query on their racial identity. This provision means that there are potentially 31 race groups, depending

on whether an individual selects one, two, three, four, or all five of the race categories. The 1997 Standards continue to call for use, when possible, of a separate question on Hispanic or Latino ethnicity and specify that the ethnicity question should appear before the question on race. Thus, under the 1997 Standards, as under the 1977 Standards, persons of Hispanic origin may be of any race.

Race Data on the 2010 Census

Similar to race data on the 2000 Census, the question on race on the 2010 Census was based on OMB's 1997 *Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity* (see: Federal Register 62(210):58782–90. 1997.). (Also see Appendix II, Race.) The 1997 Standards required a minimum set of categories to be used by federal agencies for identification of race: American Indian or Alaska Native, Asian, black or African American, Native Hawaiian or Other Pacific Islander, and white, and require that federal data collection programs allow respondents to select one or more race categories when responding to a query on their racial identity. The 1997 Standards continue to call for use, when possible, of a separate question on Hispanic or Latino ethnicity and specify that the ethnicity question should appear before the question on race. Thus, under the 1997 Standards, as under the 1977 Standards, persons of Hispanic origin may be of any race.

Modified Decennial Census Files

For several decades, the U.S. Census Bureau has produced Modified Decennial Census files. These modified files incorporate adjustments to the 100% April 1 count data for (a) errors in the census data discovered subsequent to publication, (b) misreported age data, and (c) nonspecified race.

For the 1990 Census, the U.S. Census Bureau modified the age, race, and sex data on the census and produced the Modified Age-Race-Sex (MARS) file. The differences between the population counts in the original census file and the MARS file are primarily due to modification of the race data. Of the 248.7 million persons enumerated in 1990, 9.8 million did not specify their race (more than 95% were of Hispanic origin). For the 1990 MARS file, these persons were assigned the race reported by a nearby person with an identical response to the Hispanic-origin question.

For the 2000 and 2010 Censuses, the U.S. Census Bureau modified the race data and produced the Modified Race Data Summary files. For these files, persons who did not report a race (reported only the category "Some other race") as part of their race response were assigned by imputation to one of the 31 race groups, which are the single- and multiple-race combinations of the five race categories specified in the 1997 OMB race and ethnicity standards. For the 2000 Census, 97% of the 15.4 million persons who did not report a race were of Hispanic origin. Because a large proportion of those identifying their race as "Some other

race" are Hispanic, for the 2010 Census, a new instruction was added that, for the census, Hispanic origins are not races. For the 2010 Census, 97% of the 19.1 million persons who did not report a race (reported only the category "Some other race") were of Hispanic origin.

Postcensal Population Estimates

Postcensal population estimates are estimates made for the years following a census, before the next census is taken. Postcensal population estimates are derived annually by updating the resident population enumerated in the decennial census using a components-of-population-change approach. Each annual series includes estimates for the current data year and revised estimates for the earlier years in the decade. The following formula is used to derive national estimates for a given year from those for the previous year, starting with the decennial census enumerated resident population as the base:

    Resident population estimate

    + births to U.S. resident women

    – deaths to U.S. residents

    + net international migration

The postcensal estimates are consistent with official decennial census figures and do not reflect estimated decennial census under-enumeration.

Estimates for the earlier years in a given series are revised to reflect changes in the components-of-change data sets (for example, births to U.S. resident women from a preliminary natality file are replaced with counts from a final natality file). To help users keep track of which postcensal estimate is being used, each annual series is referred to as "vintage," and the last year in the series is used to name the series. For example, both the vintage 2011 and the vintage 2012 postcensal series have revised estimates for July 1, 2011, but the estimates for July 1, 2011, from the vintage 2011 and vintage 2012 postcensal series differ.

The U.S. Census Bureau also produces postcensal estimates of the resident population of states and counties, using the components-of-population-change method. An additional component of population change—net internal migration—is involved.

Intercensal Population Estimates

Intercensal population estimates are estimates made for the years between two decennial censuses and are produced once the census at the end of the decade has been completed. They replace the postcensal estimates produced prior to the completion of the census at the end of the decade. Intercensal estimates are more accurate than postcensal estimates because they are based on both the census at the beginning and the census at the end of the decade. They are derived by adjusting the final postcensal estimates for the decade to correct for the error of closure (the difference between the estimated population at the end of the decade and the census count for that date). The patterns of population change observed over the decade are preserved. The intercensal estimates for the 1990s were produced using the same methodology used to generate the intercensal estimates for the 1980s. The revised intercensal population estimates for 2000–2009 were produced using a modified version of the methodology used previously. Vital rates calculated using postcensal population estimates are routinely revised when intercensal estimates become available.

Bridged-race Population Estimates

Race data on the 2000 and 2010 Censuses are not comparable with race data on other data systems that are continuing to collect data using the 1977 OMB Standards on race and ethnicity during the transition to full implementation of the 1997 OMB Standards. For example, states are implementing the revised birth and death certificates—which have race and ethnicity items that are compliant with the 1997 OMB Standards—at different times, and to date, some states are still using the 1989 death certificates that collect race and ethnicity data in accordance with the 1977 OMB Standards. Thus, population estimates for 1990 and beyond with race categories comparable with the 1977 OMB categories are needed so that race-specific birth and death rates can be calculated. To meet this need, the National Center for Health Statistics (NCHS), in collaboration with the U.S. Census Bureau, developed methodology to bridge the 31 race groups in Census 2000 and Census 2010 to the four single-race categories specified under the 1977 OMB Standards. As of January 1, 2016, all states and D.C., in addition to Puerto Rico, the U.S. Virgin Islands, Guam, and Northern Marianas, use the 2003 revision of the U.S. Standard Certificate of Live Birth and report race according to the 1997 revised OMB standards. However, to provide uniformity and comparability of data for trend comparison, bridged single-race categories are still presented in *Health, United States*.

The bridging methodology was developed using information from the 1997–2000 National Health Interview Survey (NHIS). NHIS provides a unique opportunity to investigate multiple-race groups because, since 1982, it has allowed respondents to choose more than one race but has also asked respondents reporting multiple races to choose a primary race. The bridging methodology developed by NCHS involved the application of regression models relating person-level and county-level covariates to the selection of a particular primary race by the multiple-race respondents. The bridging proportions derived from these models have been applied by the U.S. Census Bureau to various unbridged resident population files. These applications have resulted in bridged-race population estimates for each of the four single-race categories: American Indian or Alaska Native, Asian or Pacific Islander, black, and white.

In *Health, United States*, vital rates for 1991–1999 were calculated using the July 1, 1991–July 1, 1999, bridged-race intercensal estimates. Vital rates for 2000 were calculated using the bridged-race April 1, 2000, census counts, and those for 2010 were calculated using the bridged-race April 1, 2010, census counts. Starting with *Health, United States, 2012*, vital rates for 2001–2009 have been recalculated using the July 1, 2001–July 1, 2009, revised intercensal bridged-race population estimates. Vital rates for 2011 and beyond are calculated using bridged-race estimates of the July 1 population from the corresponding postcensal vintage.

Reference

Ingram DD, Parker JD, Schenker N, Weed JA, Hamilton B, Arias E, Madans JH. United States Census 2000 population with bridged race categories. National Center for Health Statistics. Vital Health Stat 2(135). 2003. Available from: https://www.cdc.gov/nchs/data/series/sr_02/sr02_135.pdf.

For More Information. See the U.S. Census Bureau website at: https://www.census.gov, and the NCHS website for U.S. census populations with bridged-race categories at: https://www.cdc.gov/nchs/nvss/bridged_race.htm.

Quality Improvement Evaluation System (QIES)

Centers for Medicare & Medicaid Services (CMS)

Overview. This administrative database, referred to in *Health, United States* as QIES, is created from the Certification and Survey Provider Enhanced Reporting (CASPER) and QIES systems. QIES is a CMS database that contains information from the standard annual facility survey data submitted by state survey agencies to CMS for certification to participate in the Medicare and Medicaid programs in the United States and territories. (Data for the territories are not shown in *Health, United States*.) The purpose of the facility survey certification process is to ensure that facilities meet current CMS care requirements and thus can be paid for services furnished to Medicare and Medicaid beneficiaries. In 2012, QIES replaced the Online Survey Certification and Reporting Database (OSCAR). QIES (and OSCAR) contain information on facility and patient characteristics and health deficiencies issued by the government during the survey process.

Coverage. Facilities in the United States that are certified to receive Medicare or Medicaid payments are included.

Methodology. QIES data are compiled by the state survey agency and a facility representative. The data are reviewed during the survey process and then submitted electronically to CMS. The information provided can be audited at any time.

All certified facilities are inspected periodically by representatives of the state survey agency (generally the department of health). Some facilities are inspected twice,

or more often, during any given reporting cycle. To avoid overcounting, the data must be edited, and duplicates removed. Data editing and compilation of nursing home data were performed by Cowles Research Group and published in its *Nursing Home Statistical Yearbook* series.

References

Cowles CM, editor. Nursing home statistical yearbooks for 2003–2016. Anacortes, WA: Cowles Research Group. 2004–2017, respectively. Available from: http://www.longtermcareinfo.com/publications/nursing-home-statistical-yearbook.php.

Centers for Medicare & Medicaid Services. Quality, safety, and oversight: Certification and compliance. 2005. Available from: https://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/CertificationandComplianc/index.html.

For More Information. See the CMS website at: https://www.cms.gov/Research-Statistics-Data-and-Systems/Files-for-Order/NonIdentifiableDataFiles/index.html, and the Cowles Research Group website at: http://www.longtermcareinfo.com/index.html.

Sexually Transmitted Disease (STD) Surveillance

Centers for Disease Control and Prevention (CDC), National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention (NCHHSTP)

Overview. Surveillance information on the incidence and prevalence of STDs is used to inform public and private health efforts to control these diseases. Case reporting data are available for nationally notifiable diseases, including chancroid, chlamydia, gonorrhea, and syphilis. Enhanced surveillance of these conditions and surveillance of other STDs, such as genital herpes simplex virus, genital warts and other human papillomavirus infections, and trichomoniasis use data collected from other sources, including data from sentinel surveillance and national surveys.

Coverage. Case reports of STDs are reported to CDC by STD surveillance systems operated by state and local STD control programs and health departments in 50 states, the District of Columbia, selected cities, all U.S. counties, and outlying areas consisting of U.S. dependencies, possessions, and independent countries in free association with the United States. Data from outlying areas are not included in *Health, United States*.

Methodology. Information is obtained from the following data sources: (a) notifiable disease reporting from state and local STD programs; (b) projects that monitor STD positivity and prevalence in various settings, including the National Job Training Program, the National Notifiable Disease Surveillance System, and the Gonococcal Isolate Surveillance Project; and (c) national sample surveys implemented by

federal and private organizations. STD data are submitted to CDC on a variety of hard-copy summary reporting forms (monthly, quarterly, and annually) and in electronic summary or individual case-specific (line-listed) formats through the National Electronic Telecommunications System for Surveillance.

Issues Affecting Interpretation. Because of incomplete diagnosis and reporting, the number of STD cases reported to CDC undercounts the actual number of infections occurring among the U.S. population.

Reference

Centers for Disease Control and Prevention. Sexually transmitted disease surveillance 2016. 2017. Available from: https://www.cdc.gov/std/stats16/CDC_2016_ STDS_Report-for508WebSep21_2017_1644.pdf.

For More Information. See the CDC website on STD data and statistics at: https://www.cdc.gov/std/stats, and the CDC website on STD diseases and related conditions: https://www.cdc.gov/std/general/default.htm.

Surveillance, Epidemiology, and End Results Program (SEER)

National Cancer Institute (NCI)

Overview. SEER tracks the incidence of new cancers each year and collects follow-up information on all previously diagnosed patients until their death. For each cancer, SEER registries routinely collect data on patient demographics, primary tumor site, morphology, stage at diagnosis, first course of treatment, and follow-up for vital status.

Coverage. The SEER 9 registries (Atlanta, Connecticut, Detroit, Hawaii, Iowa, New Mexico, San Francisco-Oakland, Seattle-Puget Sound, and Utah) have been part of the program continuously since 1975. The SEER 13 registries (the SEER 9 registries plus Los Angeles, San Jose-Monterey, rural Georgia, and the Alaska Native Tumor Registry) have been part of the program continuously since 1992. The SEER 18 registries (the SEER 13 plus Greater Georgia, Kentucky, Greater California, New Jersey, and Louisiana) have been part of the program continuously since 2000. SEER currently collects and publishes cancer incidence and survival data from 18 population-based cancer registries covering approximately 30% of the U.S. population.

Methodology. A cancer registry collects and stores data on cancers diagnosed in a specific hospital or medical facility (hospital-based registry) or in a defined geographic area (population-based registry). A population-based registry includes, but is not limited to, a number of hospital-based registries. In SEER registry areas, trained coders abstract medical records using the *International Classification of Diseases for Oncology, 3rd edition* (ICD–O–3) to classify site and tumor morphology. The ICD–O–3 coding also includes updates for hematopoietic codes based on the World Health

Organization *Classification of Tumours of Haematopoietic and Lymphoid Tissues*. All SEER data in this report were collected with or converted to ICD–O–3.

NCI obtains population counts from the U.S. Census Bureau and uses them to calculate incidence rates. It also uses estimation procedures as needed to obtain estimates for years and races not included in data provided by the U.S. Census Bureau. Life tables used to determine general population life expectancy when calculating relative survival rates were obtained from the National Center for Health Statistics and in-house calculations. Separate life tables are used for each race-sex-specific group included in SEER.

Issues Affecting Interpretation. Because of the addition of registries over time, analysis of long-term incidence and survival trends is limited to those registries that have been in SEER for similar lengths of time. Analysis of Hispanic and American Indian or Alaska Native data is limited to shorter trends. Starting with *Health, United States, 2006*, the North American Association of Central Cancer Registries Hispanic Identification Algorithm was used on a combination of variables to classify cases as Hispanic for analytic purposes. Starting with *Health, United States, 2007*, Hispanic incidence data exclude data for Alaska. Earlier editions of *Health, United States* also excluded Hispanic data for Hawaii and Seattle. Starting with *Health, United States, 2007*, incidence estimates for the American Indian or Alaska Native population are limited to contract health service delivery area counties within SEER reporting areas. This change is believed to produce estimates that more accurately reflect the incidence rates for this population group. For more information on SEER estimates by race and ethnicity, see: https://seer.cancer. gov/seerstat/variables/seer/race_ethnicity/index.html. Rates presented in this report may differ somewhat from those reported previously due to changes in population estimates and the addition and deletion of small numbers of incidence cases.

References

Howlader N, Noone AM, Krapcho M, Miller D, Bishop K, Kosary CL, et al., editors. SEER cancer statistics review (CSR), 1975–2014. Based on November 2016 SEER data submission, posted to the SEER website, April 2017. Available from: https://seer.cancer.gov/csr/1975_2014/.

Jim MA, Arias E, Seneca DS, Hoopes MJ, Jim CC, Johnson NJ, Wiggins CL. Racial misclassification of American Indians and Alaska Natives by Indian Health Service Contract Health Service Delivery Area. Am J Public Health 104(Suppl 3):S295–302.

For More Information. See the SEER website at: https://seer.cancer.gov.

Youth Risk Behavior Surveillance System (YRBSS)

Centers for Disease Control and Prevention (CDC), National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention (NCHHSTP)

Overview. YRBSS monitors health risk behaviors among students in grades 9 to 12 that contribute to morbidity and mortality in both adolescence and adulthood. The six areas monitored are behaviors that contribute to unintentional injuries and violence; tobacco use; alcohol and other drug use; sexual behaviors that contribute to unintended pregnancy and sexually transmitted diseases (STDs), including human immunodeficiency virus (HIV) infection; unhealthy dietary behaviors; and physical inactivity. In addition, YRBSS monitors the prevalence of obesity, asthma, and sleep behaviors.

Coverage. National data are representative of high school students in public and private schools in the United States.

Methodology. The national YRBSS school-based surveys have been conducted biennially since 1991. A three-stage cluster sample design is used to produce a nationally representative sample of students in grades 9 to 12 attending public and private schools. In 2013 and 2015, the first-stage sampling frame comprised primary sampling units (PSUs) consisting of counties, subareas of large counties, or groups of smaller, adjacent counties. PSUs were categorized into strata according to their metropolitan statistical area (MSA) status (e.g., urban city) and the percentages of non-Hispanic black and Hispanic students in the PSUs. PSUs were sampled with probability proportional to overall school enrollment size for the PSU. In the second stage of sampling, schools with any of grades 9 to 12 were sampled with probability proportional to school enrollment size. The third stage of sampling consisted of random sampling in each of grades 9 to 12, one or two classrooms from either a required subject (e.g., English or Social Studies) or a required period (e.g., Homeroom or second period).

All students in sampled classes were eligible to participate. Schools, classes, and students that refused to participate were not replaced. To enable a separate analysis of data for black and Hispanic students, two classes per grade, rather than one, were sampled in schools with a high enrollment of black and Hispanic students. Prior to 2013, three strategies were used to oversample black and Hispanic students: (a) larger sampling rates were used to select PSUs that were in high-black and high-Hispanic strata; (b) a modified measure of size was used to increase the probability of sampling schools with a disproportionately high minority enrollment; and (c) two classes per grade, rather than one, were sampled in schools with a high enrollment of black and Hispanic students. A weighting factor is applied to each student record to adjust for nonresponse and for the varying probabilities of selection, including those resulting from the oversampling of black and Hispanic students.

Sample Size and Response Rate. The sample size for the 2015 YRBSS was 15,624 students in 180 schools. The school response rate was 69%, and the student response rate was 86%, for an overall response rate of 60%.

Issues Affecting Interpretation. National YRBSS data are subject to at least two limitations. First, these data apply only to adolescents who attend regular high school, including some charter, public alternative, special education, and vocational schools. These students may not be representative of all persons in this age group because those who have dropped out of high school are not surveyed. Second, the extent of underreporting or overreporting cannot be determined, although the survey questions demonstrate good test-retest reliability.

Estimates of substance use for youth based on YRBSS differ from the National Survey on Drug Use and Health (NSDUH) and the Monitoring the Future (MTF) Study. Rates are not directly comparable across these surveys because of differences in populations covered, sample designs, questionnaires, and interview settings. NSDUH collects data in residences, whereas MTF and YRBSS collect data in school classrooms. In addition, NSDUH estimates are tabulated by age, whereas MTF and YRBSS estimates are tabulated by grade, representing different ages as well as different populations. All YRBSS data collection is anonymous.

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Kann L, Kinchen S, Shanklin SL, Flint KH, Hawkins J, Harris WA, et al. Youth risk behavior surveillance–United States, 2013. MMWR Suppl 63(4):1–168. 2014. Available from: http://www.cdc.gov/mmwr/pdf/ss/ss6304.pdf.

Kann L, McManus T, Harris WA, Shanklin SL, Flint KH, Hawkins J, et al. Youth risk behavior surveillance–United States, 2015. MMWR Surveill Summ 65(6):1–174. 2016. Available from: https://www.cdc.gov/healthyyouth/data/yrbs/pdf/2015/ss6506_updated.pdf.

Cowan CD. Coverage, sample design, and weighting in three federal surveys. J Drug Issues 31(3):599–614. 2001.

For More Information. See the YRBSS website at: https://www.cdc.gov/healthyyouth/data/yrbs/index.htm.

Private and Global Sources

American Association of Colleges of Osteopathic Medicine (AACOM)

AACOM compiles data on various aspects of osteopathic medical education for distribution to the profession, the government, and the public. Enrollment and graduate data are collected by the Annual Osteopathic Medical School Questionnaire, which is sent to schools of osteopathic medicine annually. The questionnaire requests information on the characteristics of applicants, students and graduates, faculty, curriculum, contract and grant activity, revenues and expenditures, and clinical facilities.

Reference

American Association of Colleges of Osteopathic Medicine. Trends in osteopathic medical school applicants, enrollment, and graduates, 2017.

For More Information. See the AACOM website at: http://www.aacom.org.

American Association of Colleges of Pharmacy (AACP)

AACP compiles data on colleges and schools of pharmacy, including information on student enrollment and types of degrees conferred. Data are collected through five separate online survey instruments issued annually. Data on enrollments were collected using the Enrollment Survey—Fall 2015 Professional Pharmacy Degree Programs, and the response rate was 98.5%. Data on graduates were collected using the Undergraduate and Professional Pharmacy Degrees Conferred Survey 2015–16, and the response rate was 99.3%.

Reference

American Association of Colleges of Pharmacy. Fall 2015 Profile of Pharmacy Students, Fall 2016 Profile of Pharmacy Students. Available from: https://www.aacp.org/research/student-applications-enrollments-and-degrees-conferred.

For More Information. See the AACP website at: https://www.aacp.org.

American Association of Colleges of Podiatric Medicine (AACPM)

AACPM compiles data on colleges of podiatric medicine, including information on the schools and enrollment. Data are collected annually through written questionnaires. The response rate is 100%.

Reference

American Association of Colleges of Podiatric Medicine. Applicant, matriculant, and graduate statistics. Available from: http://www.aacpm.org/statistics/.

For More Information. See the AACPM website at: http://www.aacpm.org.

American Dental Association (ADA)

The ADA Masterfile contains the most up-to-date information on dentists in the United States. The Masterfile is a database of all dentists, both practicing and nonpracticing, in the United States. It is updated through a variety of methods, including reconciliation with state licensure databases, death records, and various surveys and censuses of dentists carried out by ADA.

ADA's Health Policy Institute conducts annual surveys of predoctoral dental educational institutions. A questionnaire, mailed to all dental schools, collects information on academic programs, admissions, enrollment, attrition, graduates, educational expenses and financial assistance, patient care, advanced dental education, and faculty positions.

References

American Dental Association, Health Policy Institute. Tables 1 and 3. In: Supply of dentists in the U.S.: 2001–2017. Available from: https://www.ada.org/en/science-research/health-policy-institute/data-center/supply-and-profile-of-dentists.

American Dental Association, Health Policy Institute. Survey of Dental Education series. Report 1: Academic programs, enrollment and graduates. 2015–2016 report 1. 2016. Available from: https://www.ada.org/~/media/ADA/Science%20and%20Research/HPI/Files/2015-16_SDE1_final.xlsx?la=en.

For More Information. See the ADA website at: https://www.ada.org.

American Hospital Association (AHA) Annual Survey of Hospitals

Data from AHA's annual survey are based on questionnaires sent to all AHA-registered and nonregistered hospitals in the United States and its associated areas: American Samoa, Guam, the Marshall Islands, Puerto Rico, and the Virgin Islands. U.S. government hospitals located outside the United States are excluded. Overall, the average response rate over the past 5 years has been approximately 83%. For nonreporting hospitals and for the survey questionnaires of reporting hospitals on which some information was missing, estimates are made for all data except those on beds, bassinets, facilities, and services. Data for beds and bassinets of nonreporting hospitals are based on the most recent information available from those hospitals. Data for

facilities and services are based only on reporting hospitals. Estimates of other types of missing data are based on data reported the previous year, if available. When unavailable, estimates are based on data furnished by reporting hospitals similar in size, control, major service provided, length of stay, and geographic and demographic characteristics.

Reference

American Hospital Association. AHA hospital statistics, 2017 edition. Chicago, IL: AHA. 2017.

For More Information. See the AHA website at: http://www.aha.org.

American Medical Association (AMA) Physician Masterfile

A master file of physicians has been maintained by AMA since 1906. The Physician Masterfile contains data on all physicians in the United States, both members and nonmembers of AMA, and on those graduates of American medical schools temporarily practicing overseas. The file also includes information on international medical graduates (IMGs) who are graduates of foreign medical schools, who reside in the United States, and who meet U.S. educational standards for primary recognition as physicians.

A file is initiated on each individual upon entry into medical school, or in the case of IMGs, upon entry into the United States. Between 1969 and 1985, a mail questionnaire survey was conducted every 4 years to update the file information on professional activities, self-designated area of specialization, and present employment status. Between 1985 and 2006, approximately one-third to one-fourth of all physicians were surveyed each year. Since then, AMA has employed a more diversified survey approach in which more than 500,000 active physicians are targeted each year through mail, telephone, and web-based surveys.

Reference

American Medical Association. Physician characteristics and distribution in the U.S., 2015. Chicago, IL: AMA Division of Survey and Data Resources. 2015.

For More Information. See the AMA website at: https://www.ama-assn.org.

American Osteopathic Association (AOA)

AOA was established to promote the public health, encourage scientific research, and maintain and improve high standards of medical education in osteopathic colleges. Among its activities, AOA compiles the number of osteopathic physicians (DOs); the number of active DOs by sex, age, specialty, and geography (50 states and the District of Columbia); and the number of osteopathic medical students, by selected characteristics.

Reference

American Osteopathic Association. 2015 osteopathic medical profession report. 2015. Available from: https://osteopathic.org/wp-content/uploads/2018/02/2015-OMP-report.pdf.

For More Information. See the AOA website at: http://www.osteopathic.org.

Association of American Medical Colleges (AAMC)

As part of its mission to serve and lead the academic medicine community to improve the health of all, AAMC collects information on student enrollment in medical schools through a variety of sources. Among the data services and sources offered are the Medical College Admission Test (MCAT), the American Medical College Application Service (AMCAS), the Electronic Residency Application Service (ERAS), and the Student Records System (SRS). The AAMC Data Warehouse stores data relevant to both applicants and students, and from these two source files, the association derives summary statistics about accredited medical schools, applicants, accepted applicants, matriculants, enrollees, and graduates. AAMC has developed policies and procedures to ensure that the privacy of individual and institutional data are protected and meet federal, state, AAMC, and professional standards. Applicant, enrollment, and graduate statistical data are arranged by academic year, which begins July 1 and ends June 30.

References

Association of American Medical Colleges. AAMC data book: Medical schools and teaching hospitals by the numbers, 2017. Washington, D.C.: AAMC. 2017.

Association of American Medical Colleges. AAMC FACTS: Tables. 2017.

For More Information. See the AAMC website at: https://www.aamc.org.

Association of Schools and Colleges of Optometry (ASCO)

ASCO compiles data on various aspects of optometric education, including data on schools and enrollment. Schools and colleges complete an annual questionnaire. The response rate is 100%.

References

Association of Schools and Colleges of Optometry. Annual student data report: Academic year 2015–2016. 2016 (updated 2017). Available from: https://optometriceducation.org/wp-content/uploads/2017/05/ASCO-StuData-Report-15-16-5-9-17-2.pdf.

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For More Information. See the ASCO website at: https://www.optometriceducation.org/.

Association of Schools & Programs of Public Health (ASPPH)

ASPPH compiles data on member schools and programs of public health accredited by the Council on Education for Public Health in the United States, Puerto Rico, Mexico, and Canada. Unlike health professional schools that emphasize specific clinical occupations, schools and programs of public health offer study in specialty areas such as biostatistics, epidemiology, environmental health, occupational health, health administration, health planning, nutrition, maternal and child health, social and behavioral sciences, and other population-based sciences. Data collection is conducted annually from ASPPH member schools and programs and is reported in this report for U.S.-based institutions. The response rate in 2015–2016 was 85%.

Reference

Association of Schools and Programs of Public Health. 2017 [unpublished data].

For More Information. See the ASPPH website at: https://www.aspph.org/connect/data-center/.

Guttmacher Institute Abortion Provider Census

The Guttmacher Institute (previously called the Alan Guttmacher Institute) is a not-for-profit organization for reproductive health research, policy analysis, and public education. Guttmacher has collected or estimated national abortion data since 1973 by conducting surveys every 3 to 4 years and extrapolating estimates for the intervening years. Guttmacher reports the number of legal induced abortions and the number, types, and locations of abortion providers by state and region.

The abortion data reported to Guttmacher contain data on women of all ages, including adolescents who obtain legal induced abortions, and includes both surgical and medical (e.g., using mifepristone, misoprostol, or methotrexate) abortion procedures. Data are collected from three major categories of providers that were identified as potential providers of abortion services: clinics, physicians, and hospitals.

Questionnaires are mailed to all potential providers, with two additional mailings and telephone follow-up for nonresponse. All questionnaires ask the number of induced abortions performed at the provider's location. State health statistics agencies are also contacted, requesting all available data reported by providers to each state health agency on the number of abortions performed in the survey year. For states that provide data to Guttmacher, the health agency figures are used for providers who do not respond to the survey. Estimates of the number of abortions performed by some providers are collected from knowledgeable sources, including other providers of reproductive health services.

In the 2015–2016 survey, respondents were asked to report the number of induced abortions performed in their facilities during 2013 and 2014. Of the 2,313 potential providers surveyed between June 2015 and April 2016, 1,331 responded via the questionnaire or during telephone follow-up; health department data were used to determine caseload for 460 providers. Guttmacher estimated abortion figures for 390 facilities; of those, 265 were based on previous census results and service patterns of other abortion-providing facilities in the community, and knowledgeable sources were used for 125 providers. The level of internal estimation was higher than in the 2012–2013 survey.

Between 2005 and 2014, the total number of abortions reported to Guttmacher has been approximately 30% more than the total estimated by the Centers for Disease Control and Prevention (see Appendix I, Abortion Surveillance System).

Reference

Jones RK, Jerman J. Abortion incidence and service availability in the United States, 2014. Perspect Sex Reprod Health 49(1):17–27. 2017. Available from: https://www.guttmacher.org/sites/default/files/article_files/abortion-incidence-us.pdf.

For More Information. See The Guttmacher Institute website at: https://www.guttmacher.org.

Organisation for Economic Co-operation and Development (OECD) Health Data

OECD provides annual data on statistical indicators for health and health systems collected from 35 member countries, with some time series going back to 1960.

OECD was established in 1961 with a mandate to promote policies to achieve the highest sustainable economic growth and a rising standard of living among member countries. The organization now comprises 35 member countries: Australia, Austria, Belgium, Canada, Chile, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Latvia, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, the United Kingdom, and the United States.

Each year, OECD compiles cross-country data in the OECD Health Data database, one of the most comprehensive sources of comparable health-related statistics.

For More Information. See the OECD website at: http://www.oecd.org/health.

Appendix II. Definitions and Methods

This appendix contains an alphabetical listing of terms used in *Health, United States*, and these definitions are specific to the data presented in this report. The methods used for calculating age-adjusted rates, average annual rates of change, relative standard errors, birth rates, death rates, and years of potential life lost are described. Included are standard populations used for age adjustment (Tables I and II), the years when the revisions for *International Classification of Diseases* (ICD) codes were in effect (Table III), codes for cause of death from the 6th through 10th revisions of ICD (Table IV), comparability ratios between the 9th and 10th revisions (ICD–9 and ICD–10) for selected causes (Table V), a comparison of high blood pressure based on two standards for high blood pressure (Table VI), imputed family income percentages from the National Health Interview Survey (NHIS) (Table VII), an analysis of the effect of added probe questions for Medicare and Medicaid coverage on health insurance rates in NHIS (Table VIII), industry codes from the North American Industry Classification System (Table IX), and ICD–9 Clinical Modification (ICD–9–CM) codes for external causes of injury and procedure categories (Tables X and XI). Standards for presenting federal data on race and ethnicity are described, and sample tabulations of NHIS data comparing the 1977 and 1997 Office of Management and Budget standards for the classification of federal data on race and ethnicity are presented in Tables XII and XIII.

Acquired immunodeficiency syndrome (AIDS)—Human immunodeficiency virus (HIV) is the pathogen that causes AIDS, and HIV disease is the term that encompasses all of the condition's stages—from infection to the deterioration of the immune system and the onset of opportunistic diseases. However, AIDS is still a term commonly used to refer to the immune deficiency caused by HIV. If a person with HIV is diagnosed with at least one of a set of opportunistic illnesses or has laboratory values indicating advanced disease, he or she may be diagnosed as having AIDS. All 50 states, the District of Columbia, and 6 U.S. dependent areas (American Samoa, Guam, Northern Mariana Islands, Puerto Rico, Republic of Palau, and U.S. Virgin Islands) report confirmed diagnoses of HIV infection and AIDS cases to the Centers for Disease Control and Prevention using a uniform surveillance case definition and case report form. The case reporting definitions have changed over time to incorporate a broader range of AIDS-indicator diseases and conditions and use HIV diagnostic tests to improve the sensitivity and specificity of the definition. Because of these case definition changes, caution should be used when interpreting AIDS trends. (Also see Appendix II, Human immunodeficiency virus [HIV] disease.)

Active physician—See Appendix II, Physician.

Activities of daily living (ADL)—Activities related to personal care, including bathing or showering, dressing, getting into or out of bed or a chair, using the toilet, and eating. (Also see Appendix II, Functional limitation; Instrumental activities of daily living [IADL]; Limitation of activity.)

Medicare Current Beneficiary Survey—The following personal care activities are defined as ADLs: bathing or showering, dressing, getting into or out of bed or a chair, using the toilet, and eating. If sample persons had any difficulty performing an activity by themselves and without special equipment, or did not perform the activity at all because of health problems, they were categorized as having a limitation in that activity. The limitation may have been temporary or chronic at the time of interview. Sampled persons who were administered a community interview answered questions about health status and functioning themselves, if able to do so. If the sample persons were not able to respond, a proxy answered the questions. For persons in a long-term care facility, a proxy, such as a nurse, answered questions about their health status and functioning. Starting in 1997, interview questions for people residing in long-term care facilities were changed slightly from those administered to people living in the community in order to differentiate residents who were independent from those who received supervision or assistance with transferring, locomotion on unit, dressing, eating, toileting, and bathing.

National Health Interview Survey (NHIS)—Respondents were asked whether they or family members need the help of another person with personal care activities, such as eating, bathing, dressing, or getting around inside the home because of a physical, mental, or emotional problem.

Admission—The American Hospital Association defines admissions as persons, excluding newborns, accepted for inpatient services during the survey reporting period. (Also see Appendix II, Days of care; Discharge; Inpatient.)

Age—Reported as age at last birthday (i.e., age in completed years), often calculated by subtracting an individual's date of birth from the reference date, with the reference date being the date of the examination, interview, or other contact.

Mother's (maternal) age is reported on the birth certificate by all states. Birth statistics are presented for mothers aged 10–49 through 1996 and aged 10–54 starting in 1997, based on mother's date of birth or age as reported on the birth certificate. The age of the mother is edited for upper and

Table I. United States projected year 2000 standard population and age groups used to age-adjust data

Data system and age	Population
DVS mortality data	
Total.	274,633,642
Under 75 years	258,059,676
Under 1 year.	3,794,901
1–4 years	15,191,619
5–14 years	39,976,619
15–24 years	38,076,743
25–34 years	37,233,437
35–44 years	44,659,185
45–54 years	37,030,152
55–64 years	23,961,506
65–74 years	18,135,514
75–84 years.	12,314,793
85 years and over	4,259,173
DVS (Table 18)	
Under 75 years	258,059,676
Under 1 year.	3,794,901
1–14 years	55,168,238
15–24 years	38,076,743
25–34 years	37,233,437
35–44 years	44,659,185
45–54 years	37,030,152
55–64 years	23,961,506
65–74 years	18,135,514
NHIS, NAMCS, and NHAMCS	
All ages	274,633,642
18 years and over	203,852,188
25 years and over	177,593,760
40 years and over	118,180,367
65 years and over	34,709,480
Under 18 years	70,781,454
2–17 years	63,227,991
18–44 years.	108,151,050
18–24 years	26,258,428
25–34 years	37,233,437
35–44 years	44,659,185
45–64 years.	60,991,658
45–54 years	37,030,152
55–64 years	23,961,506
65–74 years.	18,135,514
75 years and over	16,573,966
18–49 years.	127,956,843
40–64 years:	
40–49 years	42,285,022
50–64 years	41,185,865
NHANES	
20 years and over	195,850,985
20–34 years	55,490,662
35–44 years	44,659,185
45–54 years	37,030,152
55–64 years	23,961,506
65 years and over.	34,709,480

See footnotes at end of table.

Table I. United States projected year 2000 standard population and age groups used to age-adjust data—Con.

Data system and age	Population
NHANES (Tables 40 and 53)	
20–44 years.	100,149,847
45–64 years.	60,991,658
65 years and over	34,709,480
NHANES (Table 56)	
20–44 years.	100,149,847
45–64 years.	60,991,658
65–74 years.	18,135,514
75 years and over	16,573,966
NHANES (Table 79)	
Under 18 years	70,781,454
18–44 years.	108,151,050
45–64 years.	60,991,658
65 years and over	34,709,480

NOTES: DVS is Division of Vital Statistics. NHIS is National Health Interview Survey. NAMCS is National Ambulatory Medical Care Survey. NHAMCS is National Hospital Ambulatory Medical Care Survey. NHANES is National Health and Nutrition Examination Survey. Tables listed by data system indicate use of populations in this report.

SOURCE: National Institutes of Health, National Cancer Institute, Surveillance, Epidemiology, and End Results (SEER). Standard populations—single ages. Available from: https://seer.cancer.gov/stdpopulations/.

lower limits. When the age of the mother is computed to be under 10 or 55 and over (50 and over in 1964–1996), it is considered not stated and is imputed according to the age of the mother from the previous birth record of the same race and total birth order (total of fetal deaths and live births). Before 1963, not-stated ages were distributed in proportion to the known ages for each racial group.

Beginning in 1997, the birth rate for the maternal age group 45–49 has included data for mothers aged 50–54 in the numerator and has been based on the population of women aged 45–49 in the denominator. Beginning with 2003 data, age of mother is imputed for stated ages 8 and under and 65 and over, for births reported using the 2003 revision of the birth certificate. Starting with 2007 data, age of mother is imputed for all births for stated ages 8 and under and 65 and over, regardless of the birth certificate version used. As with data for earlier years, age is imputed according to the age of mother from the previous record with the same race and total birth order.

Age adjustment—Used to compare risks for two or more populations at one point in time or for one population at two or more points in time. Age-adjusted rates are computed using the direct method by applying age-specific rates in a population of interest to a standardized age distribution, to eliminate differences in observed rates that result from age differences in population composition. Age-adjusted rates should be viewed as relative indexes rather than actual measures of risk.

Table II. United States projected year 2000 standard population and proportion distribution by age, for age-adjusting death rates prior to 2001

Age	Population	Proportion distribution (weight)	Standard million
Total.	274,634,000	1.000000	1,000,000
Under 1 year	3,795,000	0.013818	13,818
1–4 years.	15,192,000	0.055317	55,317
5–14 years.	39,977,000	0.145565	145,565
15–24 years.	38,077,000	0.138646	138,646
25–34 years.	37,233,000	0.135573	135,573
35–44 years.	44,659,000	0.162613	162,613
45–54 years.	37,030,000	0.134834	134,834
55–64 years.	23,961,000	0.087247	87,247
65–74 years.	18,136,000	0.066037	66,037
75–84 years.	12,315,000	[†]0.044842	44,842
85 years and over	4,259,000	0.015508	15,508

† Figure is rounded up instead of down to force total to 1.0.

SOURCE: National Center for Health Statistics. Anderson RN, Rosenberg HM. Age standardization of death rates: Implementation of the year 2000 standard. National Vital Statistics Reports; vol 47 no 3. Hyattsville, MD: National Center for Health Statistics. 1998. Available from: https://www.cdc.gov/nchs/data/nvsr/nvsr47/nvs47_03.pdf.

Age-adjusted rates are calculated by the direct method, as follows:

$$\sum_{i=1}^{n} r_i \times (p_i / P)$$

where

r_i = rate in age group i in the population of interest

p_i = standard population in age group i

$P = \sum_{i=1}^{n} p_i$

n = total number of age groups over the age range of the age-adjusted rate

Age adjustment by the direct method requires the use of a standard age distribution. The standard for age-adjusting death rates and estimates from surveys in *Health, United States* is the projected year 2000 U.S. resident population. Starting with *Health, United States, 2000*, the projected year 2000 U.S. standard population replaced the 1970 civilian noninstitutionalized population for age-adjusting estimates from most National Center for Health Statistics (NCHS) surveys; and starting with *Health, United States, 2001*, it was used uniformly and replaced the 1940 U.S. population for age-adjusting mortality statistics and the 1980 U.S. resident population, which previously had been used for age-adjusting estimates from the National Health and Nutrition Examination Survey.

Changing the standard population has implications for racial and ethnic differentials in mortality. For example, the mortality ratio for the black to white populations is reduced from 1.6 using the 1940 standard to 1.4 using the 2000 standard, reflecting the greater weight the 2000 standard gives to the older population, in which race differentials in mortality are smaller.

Age-adjusted estimates from any data source presented in *Health, United States* that use the projected year 2000 U.S. resident population may differ from age-adjusted estimates based on the same data presented in other reports if different age groups are used in the adjustment procedure.

For more information on implementing the 2000 population standard for age-adjusting death rates, see: Anderson RN, Rosenberg HM. Age standardization of death rates: Implementation of the year 2000 standard. National Vital Statistics Reports; vol 47 no 3. Hyattsville, MD: National Center for Health Statistics. 1998. Available from: https://www.cdc.gov/nchs/data/nvsr/nvsr47/nvs47_03.pdf. For more information on the derivation of age-adjustment weights for use with NCHS survey data, see: Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People 2010 statistical notes, no 20. Hyattsville, MD: National Center for Health Statistics. 2001. Available from: https://www.cdc.gov/nchs/data/statnt/statnt20.pdf. The projected year 2000 U.S. standard population is available from the National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) Program: https://seer.cancer.gov/stdpopulations/stdpop.singleages.html.

Mortality data—Death rates are age-adjusted to the projected year 2000 U.S. standard population (Table I). Prior to 2001 data, age-adjusted rates were calculated using standard million proportions based on rounded population numbers (Table II). Starting with 2001 data, unrounded population numbers are used to adjust age. Adjustment is based on 11 age groups, with two exceptions. First, age-adjusted death rates for black males and black females in 1950 are based on nine age groups, with under 1 and 1–4 combined as one group, and 75–84 and 85 and over combined as one group. Second, age-adjusted rates for years of potential life lost before age 75 also use the projected year 2000 standard

population and are based on eight age groups: under 1, 1–14, 15–24, and 10-year age groups through 65–74.

National Health and Nutrition Examination Survey (NHANES)—Estimates based on the National Health Examination Survey and NHANES are generally age-adjusted to the projected year 2000 U.S. standard population using five age groups: 20–34, 35–44, 45–54, 55–64, and 65–74 or 65 and over (Table I). Prior to *Health, United States, 2001*, these estimates were age-adjusted to the 1980 U.S. resident population.

National Health Care Surveys—Estimates based on the National Ambulatory Medical Care Survey and the National Hospital Ambulatory Medical Care Survey are age-adjusted to the projected year 2000 U.S. standard population (Table I). Information on the age groups used in the age-adjustment procedure is contained in the footnotes of the specific *Health, United States* trend tables.

National Health Interview Survey (NHIS)—Estimates based on NHIS are age-adjusted to the projected year 2000 U.S. standard population (Table I). Prior to *Health, United States, 2000*, NHIS estimates were age-adjusted to the 1970 civilian noninstitutionalized population. Information on the age groups used in the age-adjustment procedure is contained in the footnotes of the specific tables.

AIDS—See Appendix II, Acquired immunodeficiency syndrome (AIDS).

Alcohol consumption—Measured differently in the following data systems. (Also see Appendix II, Binge drinking.)

Monitoring the Future (MTF) Study—This school-based survey of secondary school students collects information on alcohol use by using self-completed questionnaires. To determine whether they have tried alcohol in their lifetime, students are asked a preliminary alcohol consumption screening question: "Have you ever had any alcoholic beverage to drink—more than just a few sips?" where alcoholic beverage is defined as beer, wine, liquor, and any other beverage that contains alcohol. Students who reply in the affirmative are then asked additional questions about their alcohol consumption over different time frames: "On how many occasions (if any) have you had alcohol to drink—more than just a few sips… in your lifetime, … in the last 12 months, … in the last 30 days?" A subsequent question asks, "Think back over the last two weeks. How many times have you had five or more drinks in a row?" A drink is defined as a bottle of beer, a glass of wine, a shot glass of liquor, a mixed drink, etc.

National Survey on Drug Use and Health (NSDUH)—Asks respondents aged 12 and over about their alcohol use in the 30 days before the interview. Current alcohol use is defined as any use of alcohol in the past 30 days.

In addition to asking about any alcohol use, NSDUH collects information on binge alcohol use and heavy alcohol use, which are not mutually exclusive categories.

Any-listed diagnosis—See Appendix II, Diagnosis.

Average annual rate of change (percent change)—In *Health, United States*, average annual rates of change, or growth rates, are calculated as follows:

$$[(P_n /P_o)^{1/N} - 1] \times 100$$

where

P_n = later time period

P_o = earlier time period

N = number of years in interval

This geometric rate of change assumes that a variable increases or decreases at the same rate during each year between the two time periods.

Average length of stay—The American Hospital Association computes average length of stay by dividing the number of inpatient days by the number of admissions. (Also see Appendix II, Days of care; Discharge; Inpatient.)

Bed, health facility—The American Hospital Association defines bed count as the number of beds, cribs, and pediatric bassinets that are set up and staffed for use by inpatients on the last day of the reporting period. In the Centers for Medicare & Medicaid Service's Quality Improvement Evaluation System (formerly the Online Survey Certification and Reporting System), all beds in certified facilities are counted on the day of certification inspection. (Also see Appendix II, Hospital; Occupancy rate.)

Binge drinking—Measured in the following data systems. (Also see Appendix II, Alcohol consumption.)

Monitoring the Future (MTF) Study—This school-based survey of secondary school students collects information on alcohol use by using self-completed questionnaires. To determine whether they have tried alcohol, students are asked a preliminary screening question: "Have you ever had any alcoholic beverage to drink—more than just a few sips?" where alcoholic beverage is defined as beer, wine, liquor, and any other beverage that contains alcohol. Students who reply in the affirmative are then asked additional questions about their alcohol consumption, including one on binge drinking: "Think back over the last two weeks. How many times have you had five or more drinks in a row?" A drink is defined as a bottle of beer, a glass of wine, a shot glass of liquor, a mixed drink, etc. Information on binge drinking is obtained for 12th graders (starting in 1975) and for 8th and 10th graders (starting in 1991).

National Survey on Drug Use and Health (NSDUH)—Asks respondents aged 12 and over about their alcohol use in the 30 days before the interview. Until 2015, the

threshold for binge alcohol use was defined the same for males and females: drinking five or more drinks on the same occasion on at least 1 day in the past 30 days. Since 2015, the definition remains the same for males, while binge alcohol use for females has been lowered to drinking four or more drinks on the same occasion on at least 1 day in the past 30 days. Due to this definition change, recent data on binge alcohol use among women cannot be compared with estimates prior to 2015.

Heavy alcohol use is defined as binge drinking on 5 or more days in the past 30 days. Because heavy alcohol users are binge alcohol users by definition, estimates of heavy alcohol use among females also were affected by the 2015 question revision, and recent estimates are not comparable with data collected prior to 2015.

Birth cohort—Consists of all persons born within a given period of time, such as a calendar year.

Birth rate—See Appendix II, Rate: Birth and related rates.

Birthweight—The first weight of the newborn obtained after birth. Low birthweight is defined as weighing less than 2,500 grams (5 lb 8 oz). Very low birthweight is defined as weighing less than 1,500 grams (3 lb 4 oz). Prior to 1979, low birthweight was defined as weighing 2,500 grams or less, and very low birthweight as weighing 1,500 grams or less.

Blood pressure, high— See Appendix II, Hypertension.

Body mass index (BMI)—A measure that adjusts body weight for height. It is calculated as weight in kilograms divided by height in meters squared. Normal weight for adults is defined as BMI of 18.5 to 24.9; overweight but not obese is defined as BMI of 25.0 to 29.9; and obesity is BMI greater than or equal to 30.0. Within the obesity category, Grade 1 obesity is defined as BMI of 30.0 to 34.9; Grade 2 is BMI of 35.0 to 39.9; and Grade 3 is BMI of greater than or equal to 40.0. Prior to assigning a person to a BMI category, BMI is rounded to one decimal place. In *Health, United States*, the National Health and Nutrition Examination Survey variable Body Mass Index is used to assign persons to BMI categories. Pregnant females were excluded from analyses. Mobile examination center (MEC) weights were used to obtain estimates. However, for the 1988–1994 estimates for adults, almost 500 persons had an abbreviated examination in their home instead of going to the MEC. The MEC + home weight was used to include these persons in the estimates.

For more information on the BMI cut points for adults, see: National Heart, Lung, and Blood Institute. Managing overweight and obesity in adults: Systematic evidence review from the Obesity Expert Panel. 2013. Available from: https://www.nhlbi.nih.gov/health-pro/guidelines/in-develop/obesity-evidence-review; Jensen MD, Ryan DH, Apovian CM, Ard JD, Comuzzie AG, Donato KA, et al. 2013 AHA/ACC/TOS guideline for the management of overweight and obesity in adults: A report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines and the Obesity Society. Circulation 129(25 Suppl 2):S102–38. 2014. Available from: https://www.ncbi.nlm.nih.gov/pubmed/24222017; U.S. Department of Health and Human Services. Healthy People 2020: Nutrition, physical activity, and obesity. 2012. Available from: https://www.healthypeople.gov/2020/leading-health-indicators/2020-lhi-topics/Nutrition-Physical-Activity-and-Obesity.

Obesity for children and adolescents is defined as BMI at or above the sex- and age-specific 95th percentile from the 2000 Centers for Disease Control and Prevention Growth Charts (https://www.cdc.gov/growthcharts/). The age used is age in months at the time of examination. Also see: Kuczmarski RJ, Ogden CL, Guo SS, Grummer-Strawn LM, Flegal KM, Mei Z, et al. 2000 CDC Growth Charts for the United States: Methods and development. National Center for Health Statistics. Vital Health Stat 11(246). 2002. Available from: https://www.cdc.gov/nchs/data/series/sr_11/sr11_246.pdf.

MEC weights were used to obtain estimates. Pregnant females were excluded from analyses. Starting with *Health, United States, 2010*, the terminology describing excess weight among children changed from previous editions. The term "obesity" now refers to children who were formerly labeled as overweight. This is a change in terminology only and not a change in measurement. For more information, see: Ogden CL, Flegal KM. Changes in terminology for childhood overweight and obesity. National Health Statistics Reports; no 25. Hyattsville, MD: National Center for Health Statistics. 2010. Available from: https://www.cdc.gov/nchs/data/nhsr/nhsr025.pdf.

Cause of death—For the purpose of national mortality statistics, every death is attributed to one underlying condition, based on information reported on the death certificate and using the international rules for selecting the underlying cause of death from the conditions stated on the certificate. The underlying cause is defined by the World Health Organization as "the disease or injury that initiated the train of events leading directly to death, or the circumstances of the accident or violence that produced the fatal injury." Generally, more medical information is reported on death certificates than is directly reflected in the underlying cause of death. Conditions that are not selected as the underlying cause of death constitute the nonunderlying causes of death, also known as multiple cause of death.

Cause of death is coded according to the appropriate revision of the *International Classification of Diseases* (ICD) (Table III). Effective with deaths occurring in 1999, the United States began using the 10th revision of ICD (ICD–10); during the period 1979–1998, causes of death were coded and classified according to the 9th revision (ICD–9). Table IV lists ICD codes for the 6th through 10th revisions for causes of death shown in *Health, United States*. In *Health, United States*, common terms are sometimes used in the text in

Table III. Revision of the *International Classification of Diseases* (ICD), by year of conference in which adopted and years in use in the United States

ICD revision	Year of conference in which revision adopted	Years in use in United States
1st	1900	1900–1909
2nd.	1909	1910–1920
3rd	1920	1921–1929
4th	1929	1930–1938
5th	1938	1939–1948
6th	1948	1949–1957
7th	1955	1958–1967
8th	1965	1968–1978
9th	1975	1979–1998
10th	1990	1999–present

SOURCE: NCHS. Available from: https://www.cdc.gov/nchs/icd/icd9.htm.

place of medical terminology. Examples include "cancer" for "malignant neoplasm" and "kidney disease" for "nephritis, nephrotic syndrome and nephrosis."

Each ICD revision has produced discontinuities in cause-of-death trends. These discontinuities are measured by using comparability ratios that are essential to the interpretation of mortality trends. For further discussion, see: https://www.cdc.gov/nchs/nvss/mortality/comparability_icd.htm. (Also see Appendix II, Comparability ratio; *International Classification of Diseases* [ICD]; and Appendix I, National Vital Statistics System [NVSS]; Multiple Cause-of-Death File.)

Cause-of-death ranking—Selected causes of death of public health and medical importance are compiled into tabulation lists and are ranked according to the number of deaths assigned to these causes. The top-ranking causes determine the leading causes of death. Certain causes on the tabulation lists are not ranked if, for example, the category title represents a group title (such as "Major cardiovascular diseases" and "Symptoms, signs, and abnormal clinical and laboratory findings, not elsewhere classified") or the category title begins with the words "Other" or "All other." In addition, when one of the titles that represents a subtotal (such as "Malignant neoplasms") is ranked, its component parts are not ranked. The tabulation lists used for ranking in the 10th revision of the *International Classification of Diseases* (ICD–10) include the List of 113 Selected Causes of Death, which replaces the ICD–9 List of 72 Selected Causes, HIV Infection and Alzheimer's Disease; and the ICD–10 List of 130 Selected Causes of Infant Death, which replaces the ICD–9 List of 60 Selected Causes of Infant Death and HIV Infection. Causes that are tied receive the same rank; the next cause is assigned the rank it would have received had the lower-ranked causes not been tied, that is, a rank is skipped. For more information, see the annual series of "Deaths: Final Data" and "Deaths: Leading Causes" reports, available from: https://www.cdc.gov/nchs/products/nvsr.htm. (Also see Appendix II, *International Classification of Diseases* [ICD].)

Children's Health Insurance Program—Title XXI of the Social Security Act, often referred to as the Children's Health Insurance Program (CHIP), is a program originally enacted by the Balanced Budget Act of 1997. The Children's Health Insurance Program Reauthorization Act of 2009 (CHIPRA, P.L. 111–3) reauthorized CHIP and appropriated funding for CHIP through FY 2013. The Affordable Care Act of 2010 (ACA, P.L. 111–148) extended CHIP funding through FY 2015, and the Medicare Access and CHIP Reauthorization Act of 2015 (P.L. 114–10) extended funding with no programmatic changes for CHIP through 2017. A 6-year reauthorization of CHIP was signed into law on January 22, 2018, extending the program through the end of fiscal year 2023. On February 9, 2018, the Bipartisan Budget Act was signed into law, extending CHIP an additional 4 years. Therefore, CHIP is currently authorized through 2027.

CHIP provides federal funds for states to provide health care coverage to eligible low-income, uninsured children whose income is too high to qualify for Medicaid. Generally, CHIP is only available through age 18. CHIP gives states broad flexibility in program design within a federal framework that includes important beneficiary protections. Funds from CHIP may be used for a separate child health program or to expand Medicaid. Although CHIP is not part of Medicaid, in some instances in *Health, United States*, data on CHIP and Medicaid are presented together, and those instances are discussed in the footnotes of the respective tables. For more information, see: https://www.medicaid.gov/chip/index.html. (Also see Appendix II, Health insurance coverage; Medicaid.)

Cholesterol—Serum total cholesterol is a combination of high-density lipoprotein (HDL) cholesterol, low-density lipoprotein (LDL) cholesterol, and very low-density lipoprotein (VLDL) cholesterol. High serum total cholesterol is a risk factor for cardiovascular disease (see: Wilson PW, D'Agostino RB, Levy D, Belanger AM, Silbershatz H, Kannel WB. Prediction of coronary heart disease using risk factor categories. Circulation 97(18):1837–47. 1998). In its first report (1988) on high blood cholesterol, the National Cholesterol Education Program Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults provided guidelines for the treatment of high blood cholesterol, defined as a serum total cholesterol value greater than or equal to 240 mg/dL (6.20 mmol/L). This definition was also used in the panel's second and third reports. A more recent set of guidelines—the result of initial efforts by the National Heart, Lung, and Blood Institute and subsequent efforts by the American College of Cardiology and the American Heart Association—focused on which groups of people could benefit from statin use based on their risk factors. Because *Health, United States* focuses on providing population-level prevalence data rather than individual-level estimates, three broad indicators of cholesterol are presented based on measured serum total cholesterol level and the reported use of cholesterol-lowering medications. Cholesterol levels are determined using the National Health and Nutrition Examination

Table IV. Cause-of-death codes, by applicable revision of the *International Classification of Diseases* (ICD)

Cause of death (10th revision titles)	6th and 7th revisions	8th revision	9th revision	10th revision
Communicable diseases	. . .	. . .	001–139, 460–466, 480–487, 771.3	A00–B99, J00–J22
Chronic and noncommunicable diseases	. . .	. . .	140–459, 470–478, 490–799	C00–I99, J30–R99
Meningococcal infection	. . .	. . .	036	A39
Septicemia.	. . .	. . .	038	A40–A41
Human immunodeficiency virus (HIV) disease[1]	. . .	. . .	*042–*044	B20–B24
Malignant neoplasms.	140–205	140–209	140–208	C00–C97
Colon, rectum, and anus	153–154	153–154	153, 154	C18–C21
Trachea, bronchus, and lung	162–163	162	162	C33–C34
Breast.	170	174	174–175	C50
Prostate	177	185	185	C61
In situ neoplasms, benign neoplasms, and neoplasms of uncertain or unknown behavior	210–239	210–239	210–239	D00–D48
Diabetes mellitus.	260	250	250	E10–E14
Anemias.	. . .	. . .	280–285	D50–D64
Meningitis	. . .	. . .	320–322	G00, G03
Alzheimer's disease.	. . .	. . .	331.0	G30
Diseases of heart.	400–402, 410–443	390–398, 402, 404, 410–429	390–398, 402, 404, 410–429	I00–I09, I11, I13, I20–I51
Ischemic heart disease.	. . .	. . .	410–414, 429.2	I20–I25
Essential hypertension and hypertensive renal disease	. . .	. . .	. . .	I10, I12, I15
Cerebrovascular diseases.	330–334	430–438	430–434, 436–438	I60–I69
Atherosclerosis	. . .	. . .	440	I70
Influenza and pneumonia[2].	480–483, 490–493	470–474, 480–486	480–487	J09–J18
Chronic lower respiratory diseases	241, 501, 502, 527.1	490–493, 519.3	490–494, 496	J40–J47
Chronic liver disease and cirrhosis	581	571	571	K70, K73–K74
Nephritis, nephrotic syndrome and nephrosis	. . .	. . .	580–589	N00–N07, N17–N19, N25–N27
Pregnancy, childbirth, and the puerperium	640–689	630–678	630–676	O00–O99
Congenital malformations, deformations and chromosomal abnormalities.	. . .	. . .	740–759	Q00–Q99
Certain conditions originating in the perinatal period	. . .	. . .	760–779	P00–P96
Newborn affected by maternal complications of pregnancy.	. . .	. . .	761	P01
Newborn affected by complications of placenta, cord and membranes	. . .	. . .	762	P02
Disorders related to short gestation and low birthweight, not elsewhere classified	. . .	. . .	765	P07
Birth trauma	. . .	. . .	767	P10–P15
Intrauterine hypoxia and birth asphyxia	. . .	. . .	768	P20–P21
Respiratory distress of newborn.	. . .	. . .	769	P22
Bacterial sepsis of newborn	. . .	. . .	. . .	P36
Necrotizing enterocolitis of newborn	. . .	. . .	777.5	P77
Sudden infant death syndrome	. . .	. . .	798.0	R95

See footnotes at end of table.

Table IV. Cause-of-death codes, by applicable revision of the *International Classification of Diseases* (ICD)—Con.

Cause of death (10th revision titles)	6th and 7th revisions	8th revision	9th revision	10th revision
Injuries[2]	. . .	. . .	E800–E869, E880–E929, E950–E999	*U01–*U03, V01–Y36, Y85–Y87, Y89
Unintentional injuries[3]	E800–E936, E960–E965	E800–E929, E940–E946	E800–E869, E880–E929	V01–X59, Y85–Y86
Motor vehicle-related injuries[3]	E810–E835	E810–E823	E810–E825	V02–V04, V09.0, V09.2, V12–V14, V19.0–V19.2, V19.4–V19.6, V20–V79, V80.3–V80.5, V81.0–V81.1, V82.0–V82.1, V83–V86, V87.0–V87.8, V88.0–V88.8, V89.0, V89.2
Poisoning	E870–E888, E890–E895	E850–E877	E850–E869	X40–X49
Suicide[2]	E963, E970–E979	E950–E959	E950–E959	*U03, X60–X84, Y87.0
Homicide[2]	E964, E980–E983	E960–E969	E960–E969	*U01–*U02, X85–Y09, Y87.1
Firearm-related injury	. . .	E922, E955, E965, E970, E985	E922, E955.0–E955.4, E965.0–E965.4, E970, E985.0–E985.4	*U01.4, W32–W34, X72–X74, X93–X95, Y22–Y24, Y35.0
Injury by drug overdose	. . .	. . .	. . .	X40–X44, X60–64, X85, Y10–Y14
Any opioid	. . .	. . .	. . .	X40–X44, X60–64, X85, Y10–Y14 (underlying cause) and T40.0–T40.4, T40.6 (multiple cause)
Heroin	. . .	. . .	. . .	X40–X44, X60–64, X85, Y10–Y14 (underlying cause) and T40.1 (multiple cause)
Natural and semisynthetic opioids	. . .	. . .	. . .	X40–X44, X60–64, X85, Y10–Y14 (underlying cause) and T40.2 (multiple cause)
Methadone	. . .	. . .	. . .	X40–X44, X60–64, X85, Y10–Y14 (underlying cause) and T40.3 (multiple cause)
Other synthetic opioids (other than methadone)	. . .	. . .	. . .	X40–X44, X60–64, X85, Y10–Y14 (underlying cause) and T40.4 (multiple cause)

. . . Category not applicable. Cause-of-death codes are not provided for causes not shown in *Health, United States*.

[1]Categories for coding human immunodeficiency virus (HIV) infection were introduced in 1987. The asterisk (*) indicates codes that are not part of ICD–9.

[2]Starting with 2001 data, the National Center for Health Statistics (NCHS) introduced categories *U01–*U03 for classifying and coding deaths due to acts of terrorism. The asterisk (*) indicates codes that are not part of ICD–10. Starting with 2007 data, NCHS introduced the category J09 for coding avian influenza virus. In 2009, the title for the ICD–10 code J09 was changed from "Influenza due to identified avian influenza virus" to "Influenza due to certain identified influenza virus." This change was made to accommodate deaths from influenza A (H1N1) virus in the ICD–10 code J09 for data years 2009 and beyond.

[3]In the public health community, the term "unintentional injuries" is preferred to accidents, and the term "motor vehicle-related injuries" is preferred to motor vehicle accidents.

Surveys (NHANES) T_CHOL file. For more information on the current cholesterol guidelines, see: National Heart, Lung, and Blood Institute. Management of blood cholesterol in adults: Systematic evidence review from the Cholesterol Expert Panel. 2013. Available from: https://www.nhlbi.nih.gov/health-pro/guidelines/in-develop/cholesterol-in-adults; and Stone NJ, Robinson JG, Lichtenstein AH, Merz CN, Blum CB, Eckel RH, et al. 2013 ACC/AHA guideline on the treatment of blood cholesterol to reduce atherosclerotic cardiovascular risk in adults: A report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. Circulation 129:(25 Suppl 2) S1–45. 2014. Available from: http://circ.ahajournals.org/content/129/25_suppl_2/S1.full.

In *Health, United States*, three measures of total cholesterol are presented: hypercholesterolemia, high serum total cholesterol, and mean serum total cholesterol. Hypercholesterolemia is based on both laboratory testing and self-reported use of cholesterol-lowering medication. It is defined as measured serum total cholesterol greater than or equal to 240 mg/dL (6.20 mmol/L) or reporting taking cholesterol-lowering medications. Respondents who were told by a doctor or health professional that their cholesterol was high, were told by a doctor to take cholesterol-lowering medication, and who answered "yes" to the question, "Are you now following this advice to take prescribed medicine?" were classified as taking cholesterol-lowering medication. High serum total cholesterol is defined as measured serum total cholesterol greater than or equal to 240 mg/dL (6.20 mmol/L). Both high serum total cholesterol and mean serum total cholesterol are based on serum samples collected during the NHANES examination.

As part of the NHANES examination, venous blood serum samples collected from NHANES participants at mobile examination centers were frozen and shipped on dry ice to the laboratory conducting the lipid analyses. Serum total cholesterol was measured on all examined adults regardless of whether they had fasted, and data were analyzed regardless of fasting status. Cholesterol measurements are standardized according to the criteria of the Centers for Disease Control and Prevention (CDC)—and later the CDC–National Heart, Lung, and Blood Institute Lipids Standardization Program—to ensure comparable and accurate measurements. For more information, see: Myers GL, Cooper GR, Winn CL, Smith SJ. The Centers for Disease Control–National Heart, Lung, and Blood Institute Lipid Standardization Program: An approach to accurate and precise lipid measurements. Clin Lab Med 9(1):105–35. 1989. A detailed summary of the procedures used for measurement of total cholesterol in earlier NHANES years has been published in: Carroll MD, Kit BK, Lacher DA, Shero ST, Mussolino ME. Trends in lipids and lipoproteins in US adults, 1988–2010. JAMA 308(15):1545–54. 2012. A description of the laboratory procedures for the total cholesterol measurement for different NHANES years is published by the National Center for Health Statistics and is available from: https://www.cdc.gov/nchs/nhanes/index.htm.

Cigarette smoking—Estimates of cigarette smoking among adults and youths from several sources are presented in *Health, United States*. In addition, cigarette smoking may be considered in estimates of the use of tobacco products. (For information on how cigarette smoking is defined for estimates in *Health, United States*, see Appendix II, Tobacco use.)

Civilian noninstitutionalized population; Civilian population—See Appendix II, Population.

Colorectal tests or procedures—Used to detect polyps, abnormal cell growth, lesions, and other gastrointestinal conditions, including colon cancer. These tests may include home fecal occult blood tests (FOBT), sigmoidoscopy, or colonoscopy. The time interval between screenings varies, depending on the type of test as well as individual risk factors and prior screening history.

In the National Health Interview Survey (NHIS), questions about colorectal tests or procedures were asked of respondents aged 40 and over on an intermittent schedule, and the questions varied over time. Colorectal screening tests and procedures may be used for diagnostic or screening purposes, but the purpose cannot be determined from NHIS.

In 2000, 2003, 2005, and 2008, respondents were asked, "Have you ever had a sigmoidoscopy, colonoscopy, or proctoscopy?" In 2010, 2013, and 2015, respondents were asked two separate questions: "Have you ever had a colonoscopy?" and "Have you ever had a sigmoidoscopy?" An additional question about colorectal testing, "Have you ever had a blood stool test using a home testing kit?" was asked in all of these survey years.

Respondents who replied that they had a colorectal test or procedure were asked subsequent questions about the month, year, and time since their most recent test or procedure. In 2000 and 2003, if respondents did not provide the year of, or the time since, their most recent colorectal examination, they were asked about the time frame of their most recent examination (i.e., whether they had the examination a year ago or less, more than 1 year ago but not more than 2 years ago, more than 2 years ago but not more than 3 years ago, more than 3 years ago but not more than 5 years ago, more than 5 years ago but not more than 10 years ago, or more than 10 years ago). For adults who provided the year, but not the month, of their most recent examination, the examination date was coded as July 15 of the provided year.

In 2005, 2008, 2010, 2013, and 2015, the questionnaire skip pattern was modified so that respondents giving an incomplete or partial date (missing month or year) of their most recent colorectal examination were asked a follow-up question about the time since their most recent examination (i.e., whether they had the examination a year ago or less, more than 1 year ago but not more than 2 years ago, more than 2 years ago but not more than 3 years ago, more than

3 years ago but not more than 5 years ago, more than 5 years ago but not more than 10 years ago, or more than 10 years ago). In 2015, the home FOBT questions were modified to include fecal immunochemical tests (FITs)—a type of FOBT ("Have you ever had a blood stool or FIT test, using a home test kit?"). In 2010 and 2015, additional questions on the use of virtual or CT colonoscopy were included in the questionnaire, but these questions were not used to determine whether respondents had a colorectal test or procedure in *Health, United States*.

In *Health, United States*, adults aged 50–75 were considered to have any colorectal test or procedure if they met the 2008 screening guidelines made by the U.S. Preventive Services Task Force (USPSTF). These adults either reported (a) a home FOBT in the past year, (b) a sigmoidoscopy procedure in the past 5 years with FOBT in the past 3 years, or (c) a colonoscopy in the past 10 years.

The current USPSTF recommendations—made in 2016— have not been applied to *Health, United States* estimates. These guidelines recommend the use of screening in adults aged 50 to 75, with frequency of screening varying by test and procedure. Recommended strategies include: (1) annual or biennial screening with guaiac-based FOBT (gFOBT) in addition to flexible sigmoidoscopy every 3 to 5 years, (2) annual screening with FITs, (3) screening every 10 years with colonoscopy, or (4) screening every 5 years with CT colography. The recommendation does not emphasize a particular screening approach, as the risks and benefits may vary. For a summary of current colorectal screening recommendations and the status of the review of the guidelines, see: https://www.uspreventiveservicestaskforce. org/Page/Document/UpdateSummaryFinal/colorectal- cancer-screening2.

Community hospital—See Appendix II, Hospital.

Comparability ratio—About every 10 to 20 years, the *International Classification of Diseases* (ICD) is revised to stay abreast of advances in medical science and changes in medical terminology. Each of these revisions produces breaks in the continuity of cause-of-death statistics because of changes in classification and in the rules for selecting an underlying cause of death. Classification and rule changes affect cause-of-death trend data by shifting deaths away from some cause-of-death categories and into others. Comparability ratios measure the effect of changes in classification and coding rules. For the causes shown in Table V, comparability ratios range between 0.6974 and 1.5812. Influenza and pneumonia had the lowest comparability ratio (0.6974), indicating that this cause is about 30% less likely to be selected as the underlying cause of death under the 10th revision of ICD (ICD–10) than under the 9th revision (ICD–9). Alzheimer's disease had the highest comparability ratio (1.5812), indicating that Alzheimer's disease is 58% more likely to be selected as the underlying cause when ICD–10 coding is used.

For selected causes of death, the ICD–9 codes used to calculate death rates for 1980–1998 differ from the ICD–9 codes most nearly comparable with the corresponding ICD–10 cause-of-death category, which also affects the ability to compare death rates across ICD revisions. Examples of these causes are Ischemic heart disease; Cerebrovascular diseases; Trachea, bronchus, and lung cancer; Unintentional injuries; and Homicide. To address this source of discontinuity, mortality trends for 1980–1998 were recalculated using ICD–9 codes that are more comparable with codes for corresponding ICD–10 categories. Table IV shows the ICD–9 codes used for these causes. This modification may lessen the discontinuity between the 9th and 10th revisions, but the effect on the discontinuity between the 8th and 9th revisions is not measured.

Comparability ratios shown in Table V are based on a comparability study in which the same deaths were coded using both the 9th and 10th revisions. The comparability ratio was calculated by dividing the number of deaths classified using ICD–10 by the number of deaths classified

Table V. Comparability of selected causes of death between the 9th and 10th revisions of the *International Classification of Diseases* (ICD)

Cause of death[1]	Final comparability ratio[2]
Human immunodeficiency virus (HIV) disease	1.0821
Malignant neoplasms.	1.0093
Colon, rectum, and anus	0.9988
Trachea, bronchus, and lung	0.9844
Breast.	1.0073
Prostate	1.0144
Diabetes mellitus	1.0193
Alzheimer's disease.	1.5812
Diseases of heart.	0.9852
Ischemic heart diseases.	1.0006
Essential (primary) hypertension and hypertensive renal disease	1.1162
Cerebrovascular diseases.	1.0502
Influenza and pneumonia	0.6974
Chronic lower respiratory diseases	1.0411
Chronic liver disease and cirrhosis	1.0321
Nephritis, nephrotic syndrome and nephrosis	1.2555
Pregnancy, childbirth, and the puerperium	1.1404
Unintentional injuries	1.0251
Motor vehicle-related injuries	0.9527
Poisoning	1.0365
Suicide.	1.0022
Homicide	1.0020
Firearm-related injury	1.0012
Chronic and noncommunicable diseases	1.0100
Injuries.	1.0159

[1]See Table IV in this report for ICD–9 and ICD–10 cause-of-death codes.
[2]Ratio of number of deaths classified by ICD–10 to number of deaths classified by ICD–9.

SOURCE: NCHS. Table 1. Final and preliminary comparability ratios for 113 selected causes of death. Available from: ftp://ftp.cdc.gov/pub/Health_Statistics/ NCHS/Datasets/Comparability/icd9_icd10/Comparability_Ratio_tables.xls; Miniño AM, Anderson RN, Fingerhut LA, Boudreault MA, Warner M. Deaths: Injuries, 2002. National Vital Statistics Reports; vol 54 no 10. Hyattsville, MD: National Center for Health Statistics. 2006. Available from: https://www.cdc.gov/nchs/data/ nvsr/nvsr54/nvsr54_10.pdf.

using ICD–9. The resulting ratios represent the net effect of the 10th revision on cause-of-death statistics and can be used to adjust mortality statistics for causes of death classified by the 9th revision to be comparable with cause-specific mortality statistics classified by the 10th revision.

The application of comparability ratios to mortality statistics helps make the analysis of change between 1998 and 1999 more accurate and complete. The 1998 comparability-modified death rate is calculated by multiplying the comparability ratio by the 1998 death rate. Comparability-modified rates should be used to estimate mortality change between 1998 and 1999.

Caution should be used when applying the comparability ratios presented in Table V to age-, race-, and sex-specific mortality data. Demographic subgroups may sometimes differ with regard to their cause-of-death distribution, and this would result in demographic variation in cause-specific comparability ratios.

For more information, see: Anderson RN, Miniño AM, Hoyert DL, Rosenberg HM. Comparability of cause of death between ICD–9 and ICD–10: Preliminary estimates. National Vital Statistics Reports; vol 49 no 2. Hyattsville, MD: National Center for Health Statistics. 2001. Available from: https://www.cdc.gov/nchs/data/nvsr/nvsr49/nvsr49_02.pdf; Kochanek KD, Smith BL, Anderson RN. Deaths: Preliminary data for 1999. National Vital Statistics Reports; vol 49 no 3. Hyattsville, MD: National Center for Health Statistics. 2001. Available from: https://www.cdc.gov/nchs/data/nvsr/nvsr49/nvsr49_03.pdf; Final ratios for 113 selected causes of death, available from: ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Datasets/Comparability/icd9_icd10/; and the ICD comparability ratio website at: https://www.cdc.gov/nchs/nvss/mortality/comparability_icd.htm. (Also see Appendix II, Cause of death; *International Classification of Diseases* [ICD].)

Compensation—See Appendix II, Employer costs for employee compensation.

Consumer Price Index (CPI)—A measure of the average change in prices of goods and services purchased by urban households. The CPI is prepared by the U.S. Bureau of Labor Statistics. The medical care component of CPI shows trends in medical care prices based on specific indicators of hospital, medical, and drug prices. A revised definition of CPI has been in use since January 1988. (Also see Appendix II, Gross domestic product [GDP]; and Health expenditures, national.)

Contraception—The National Survey of Family Growth (NSFG) collects information on contraceptive use as reported by women aged 15–44. To determine current contraceptive use, women were asked to identify up to four contraceptive methods they had used during the month of interview from a list of contraceptive methods. In the 2011–2015 NSFG, these methods included birth control pill, condom, male sterilization, female sterilization, withdrawal, injectables, hormonal implants, calendar rhythm, natural family

planning, diaphragm, female condom or vaginal pouch, foam, jelly or cream, cervical cap, suppository or insert, sponge, intrauterine device, emergency contraception, contraceptive patch, contraceptive ring, or other methods. Contraceptive methods listed in the 2011–2015 survey may differ from contraceptive methods listed in previous NSFG surveys depending on which methods were available during each survey period.

Cost-to-charge ratio—The Agency for Healthcare Research and Quality's Healthcare Cost and Utilization Project (HCUP) contains data on total charges per discharge as reported on the hospital discharge record. This charge information represents the amount the hospital billed for services, but it does not reflect how much hospital services actually cost or the specific amounts that hospitals received in payment. Data on costs may be of more interest to some users. The HCUP cost-to-charge ratio files convert charges to costs. Each file contains hospital-specific cost-to-charge ratios based on all-payer inpatient cost for nearly every hospital in HCUP. Cost information was obtained from hospital cost reports collected by the Centers for Medicare & Medicaid Services. Some imputations for missing values were necessary. These files are unique by year.

Critical access hospital—See Appendix II, Hospital.

Crude birth rate; Crude death rate—See Appendix II, Rate: Birth and related rates; Rate: Death and related rates.

Data presentation standards for proportions—*Health, United States, 2017* adopts newly developed data presentation standards for proportions (usually multiplied by 100 and expressed as percentages) for selected National Center for Health Statistics (NCHS) data sources and years. The new multistep standards are described in the report, "National Center for Health Statistics Data Presentation Standards for Proportions." This multistep approach is based on minimum denominator sample sizes, the absolute and relative widths of a 95% confidence interval calculated using the Clopper-Pearson method and adapted for complex surveys by Korn and Graubard, and degrees of freedom. Using these standards, estimates identified as statistically unreliable (or whose complementary proportions are unreliable) are suppressed (or flagged). This approach was chosen because it performs well for proportions near 0 or 1, incorporates information from the complex survey design including the effective sample sizes, and is generally conservative (i.e., a 95% Clopper-Pearson confidence interval includes the true proportion more than 95% of the time).

This multistep approach was identified after a review of current standards, the purpose and scope of the data collection, and advances in statistical methodology. The use of the Korn-Graubard modification of the Clopper-Pearson confidence interval for proportions is considered an improvement over the commonly used Wald confidence interval, which is known for its undercoverage (i.e., a 95% Wald confidence interval includes the true proportion less than 95% of the time).

In *Health, United States, 2017* this multistep approach has been applied to estimates in the 2015–2016 and 2013–2016 National Health and Nutrition Examination Surveys, the 2016 National Health Interview Survey, and the 2014–2015 National Ambulatory Medical Care Survey. The reliability of estimates for prior data years was evaluated based on relative standard errors.

For more information on the newly developed multistep approach, see: Parker JD, Talih M, Malec DJ, Beresovsky V, Carroll M, Gonzalez Jr JF, et al. National Center for Health Statistics data presentation standards for proportions. Hyattsville, MD: 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. (Also see Appendix II, Relative standard error [RSE].)

Days of care—Defined by the American Hospital Association as the number of adult and pediatric days of care rendered during the entire reporting period. Days of care for newborns are excluded. (Also see Appendix II, Admission; Average length of stay; Discharge; Hospital; Hospital utilization; Inpatient.)

Death rate—See Appendix II, Rate: Death and related rates.

Dental caries—Evidence of decay on the crown or enamel surface of a tooth (i.e., coronal caries), including treated and untreated caries. Untreated dental caries refers to decay on the crown or enamel surface of a tooth (i.e., coronal caries) that has not been treated or filled. Decay in the root (i.e., root caries) was not included.

In *Health, United States*, estimates on the presence of caries are based on evaluation of primary and permanent teeth for persons aged 5 and over. The third molars were not included. Persons without at least one natural tooth (primary or permanent) were classified as edentulous (without any teeth) and were excluded. The majority of edentulous persons are aged 65 and over. Estimates of edentulism among persons aged 65 and over were 33% in 1988–1994, 23% in 2005–2008, and 17% in 2011–2014.

Dental caries was identified by an oral examination as part of the National Health and Nutrition Examination Survey (NHANES). Over time, there have been changes in the NHANES oral health examination process, ages examined, and methodology. During 1988–1994, a full-mouth complete oral health examination was conducted by a trained dentist on those aged 1 and over. During 1999–2004, a full-mouth complete oral health examination was conducted by a trained dentist on those aged 2 and over. During 2005–2008, data were collected for those aged 5 and over by a trained health technologist using the Basic Screening Examination (BSE), a simplified screening process to collect information on untreated caries, dental restorations, and dental sealants. During 2009–2010, the BSE was conducted by a trained dental hygienist on those aged 3–19. No data on adults were collected. During 2005–2008 and 2009–2010, the use of the BSE does not allow analysts to determine if untreated decay was found in permanent teeth or primary teeth. For 2011–2014 data, a full-mouth complete oral health examination was conducted by a trained dentist on those aged 1 and over.

For more information, see: Dye BA, Barker LK, Li X, Lewis BG, Beltrán-Aguilar ED. Overview and quality assurance for the oral health component of the National Health and Nutrition Examination Survey (NHANES), 2005–08. J Public Health Dent 71(1):54–61. 2011, and the following NHANES resources: https://wwwn.cdc.gov/nchs/nhanes/2007-2008/OHX_E.htm, https://wwwn.cdc.gov/nchs/nhanes/2009-2010/OHXDEN_F.htm, and https://wwwn.cdc.gov/nchs/nhanes/2013-2014/OHXDEN_H.htm.

Dental visit—Starting in 1997, National Health Interview Survey respondents were asked, "About how long has it been since you last saw or talked to a dentist? Include all types of dentists, such as orthodontists, oral surgeons, and all other dental specialists as well as hygienists." Starting in 2001, the question was modified slightly to ask respondents how long it had been since they last saw a dentist. Questions about dental visits were not asked for children under age 2 for years 1997–1999 and under age 1 for years 2000 and beyond. Starting with 1997 data, estimates are presented for people with a dental visit in the past year.

Diabetes—A group of conditions in which insulin is not adequately secreted or utilized. Diabetes is a leading cause of disease and death in the United States. Using data from the National Health and Nutrition Examination Survey (NHANES), three measures of diabetes are presented in *Health, United States*: physician-diagnosed diabetes, undiagnosed diabetes, and total diabetes. Physician-diagnosed diabetes data were obtained by self-report. Respondents who answered "yes" to the question, "Other than during pregnancy, have you ever been told by a doctor or health professional that you have diabetes or sugar diabetes?" were classified as having physician-diagnosed diabetes.

Only respondents who were not classified as having physician-diagnosed diabetes were evaluated to determine if they had undiagnosed diabetes. Undiagnosed diabetes was based on the results of laboratory testing of whole blood and blood plasma samples collected from NHANES participants at mobile examination centers. Undiagnosed diabetes was defined as a fasting plasma glucose (FPG) of at least 126 mg/dL or a hemoglobin A1c of at least 6.5% among those without reported physician diagnosis. Participants examined in the morning had fasted for at least 8 hours and less than 24 hours at the time of the blood draw. Estimates in the current edition of *Health, United States* may differ from prior editions, since those may have only included participants who had fasted for at least 9 hours and less than 24 hours.

Fasting is not necessary to measure hemoglobin A1c. However, to be consistent with the subsample of fasting participants used for FPG, assessment of undiagnosed

diabetes in *Health, United States* is limited to the fasting subsample. Total diabetes includes those who were classified as having either physician-diagnosed or undiagnosed diabetes. Morning fasting sample weights were used to estimate the prevalence of diagnosed, undiagnosed, and total diabetes, and pregnant women were excluded.

Starting with *Health, United States, 2010*, an elevated hemoglobin A1c (greater than or equal to 6.5%) was included as a component of the definition of undiagnosed diabetes, along with FPG. Previous editions of *Health, United States* did not evaluate hemoglobin A1c to classify participants as having undiagnosed diabetes; undiagnosed diabetes was based solely on elevated FPG (greater than or equal to 126 mg/dL) among those without physician-diagnosed diabetes. The revised definition of undiagnosed diabetes was based on recommendations from the American Diabetes Association (ADA). Hemoglobin A1c was recommended as a component in diagnosing diabetes because improvements in assay standardization make A1c results more reliable. In addition, research provided evidence linking elevated A1c levels with diabetic complications, thus allowing for a threshold to be set—a threshold above which patients would be diagnosed as having diabetes. Although ADA recommends using hemoglobin A1c greater than or equal to 6.5% as an indicator of undiagnosed diabetes, it cautions that A1c may be misleading in individuals with certain blood disorders (including sickle cell trait), which may have specific ethnic or geographic distributions. Therefore, clinicians may use other criteria and tests to diagnose a specific patient. For more information, see: Diagnosis and classification of diabetes mellitus. Diabetes Care 38(Suppl 1):S8–S16. 2015; Standards of medical care in diabetes—2010. Diabetes Care 33(Suppl 1):S11–S61. 2010; and International Expert Committee Report on the role of the A1c assay in the diagnosis of diabetes. Diabetes Care 32(7):1327–34. 2009. To ensure data comparability over time, the revised definition of undiagnosed diabetes was applied to all estimates shown in *Health, United States*. As expected, this revised definition increased the percentage of participants classified as having undiagnosed diabetes.

Periodically, NHANES laboratory testing is performed at different laboratories using different instruments than testing in earlier years. In those instances, NHANES conducts crossover studies to evaluate the impact of these changes on laboratory measurements, and thus their impact on the evaluation of data over time. Crossover studies have been conducted to evaluate the impact of laboratory changes on both FPG and A1c. In order to account for laboratory changes for 2005–2006 to the present, the recommended adjustments to FPG have been incorporated in estimates presented in *Health, United States* so that these estimates are compatible with those from earlier years. NHANES does not recommend any adjustments to the A1c data.

Estimates presented in *Health, United States* may differ from other estimates based on the same data and presented elsewhere if different weights, age-adjustment groups, definitions, or trend adjustments are used.

For more information, see: https://wwwn.cdc.gov/Nchs/Nhanes/2013-2014/GHB_H.htm, and https://wwwn.cdc.gov/Nchs/Nhanes/2013-2014/GLU_H.htm.

Diagnosis—The act or process of identifying or determining the nature and cause of a disease or injury through evaluation of patient history, examination of a patient, and review of laboratory data. Diagnoses in the National Ambulatory Medical Care Survey (NAMCS) and the National Hospital Ambulatory Medical Care Survey (NHAMCS) are abstracted from medical records and are currently coded according to the *International Classification of Diseases, 9th Revision*, *Clinical Modification* (ICD–9–CM). Starting with 2016 data, diagnosis data will be classified using the *International Classification of Diseases, 10th Revision*, *Clinical Modification/Procedure Coding System* (ICD–10–CM/PCS).

For a given medical care encounter, the first-listed diagnosis can be used to categorize the visit, or if more than one diagnosis is recorded on the medical record, the visit can be categorized based on all diagnoses recorded. Analyzing first-listed diagnoses avoids double-counting events such as visits or hospitalizations; the first-listed diagnosis is often, but not always, considered the most important or dominant condition among all comorbid conditions. However, the choice of the first-listed diagnosis by the medical facility may be influenced by reimbursement or other factors. (Also see Appendix II, External cause of injury; Injury; Injury-related visit.)

Diagnostic and other nonsurgical procedure—See Appendix II, Procedure.

Discharge—The National Health Interview Survey defines a hospital discharge as the completion of any continuous period of stay of one night or more in a hospital as an inpatient. According to the Healthcare Cost and Utilization Project—National (Nationwide) Inpatient Sample, a discharge is a completed inpatient hospitalization. A hospitalization may be completed by death or by release of the patient to the customary place of residence, a nursing home, another hospital, or other locations. (Also see Appendix II, Admission; Average length of stay; Days of care; Hospital utilization; Inpatient.)

Domiciliary care home—See Appendix II, Long-term care facility; Nursing home.

Drug—Pharmaceutical agents, by any routes of administration, for the prevention, diagnosis, or treatment of medical conditions or diseases. Data on specific drug use are collected in several National Center for Health Statistics surveys. (Also see Appendix II, Multum Lexicon Plus therapeutic class.)

National Health and Nutrition Examination Survey (NHANES)—Drug information from NHANES III and from NHANES for 1999 and subsequent years was collected

during in-person interviews conducted in participants' homes. Starting with 2001 data, participants were asked whether they had taken medication in the past 30 days for which they needed a prescription. For 1988–1994 and 1999–2000, the question wording differed slightly; participants were asked whether they had taken a prescription medication in the past month. For all survey years, those who answered "yes" were asked to provide the prescription medication containers for the interviewer. For each medication reported, the interviewer entered the product's complete name from the container. If no container was available, the interviewer asked the participant to verbally report the name of the medication. In addition, participants were asked how long they had been taking the medication and the main reason for use.

All reported medication names were converted to their standard generic ingredient name. For multi-ingredient products, the ingredients were listed in alphabetical order and counted as one drug (e.g., Tylenol #3 was listed as acetaminophen; codeine). No trade or proprietary names were provided on the data file.

Drug data from NHANES provide a snapshot of all prescribed drugs reported by a sample of the civilian noninstitutionalized population for a 30-day period (or past month, for earlier survey years). Drugs taken on an irregular basis, such as every other day, once per week, or for a 10-day period, were captured in the 30-day recall period. Data shown in *Health, United States* for the percentage of the population reporting multiple prescription drugs during the past 30 days include a range of drug utilization patterns; for example, persons who took three or more drugs daily during the past 30 days or persons who took a different drug three separate times would be classified as taking three or more drugs in the past 30 days, as long as at least three drugs were taken at some time during the past 30 days.

For more information on prescription drug data collection and coding in NHANES, see: https://wwwn.cdc.gov/Nchs/Nhanes/2013-2014/RXQ_RX_H.htm, and https://wwwn.cdc.gov/Nchs/Nhanes/1999-2000/RXQ_DRUG.htm.

For more information on NHANES III prescription drug data collection and coding, see: https://wwwn.cdc.gov/nchs/data/nhanes3/2a/pupremed.pdf. The small number of respondents (fewer than 10) who responded "unknown" to whether they were taking prescription medication was coded as not taking prescription drugs in the past month. (Also see Appendix I, National Health and Nutrition Examination Survey [NHANES].)

Drug abuse—See Appendix II, Illicit drug use.

Education—Several approaches to defining educational categories are used in *Health, United States*. Estimates are typically presented for adults aged 25 and over in order to give people time to complete their education.

National Health and Nutrition Examination Survey (NHANES)—In 1988–1994 (NHANES III) the questionnaire asked, "What is the highest grade or year of regular school [person] has completed?" Responses were used to categorize adults according to educational credentials (i.e., no high school diploma or GED; high school diploma or GED; some college, no bachelor's degree; bachelor's degree or higher). Starting with 1999–2000 data, the questionnaire was changed to ask, "What is the highest grade or level of school [you have/(person) has] completed or the highest degree you have/(person) has received?" For data on children, education is based on the level of education completed by the head of the household. The question asked is, "What is the highest grade or level of school [you have/(person) has] completed or the highest degree [you have/(person) has] received?"

National Health Interview Survey (NHIS)—Starting in 1997, the NHIS questionnaire was changed to ask, "What is the highest level of school [person] has completed or the highest degree received?" Responses were used to categorize adults according to educational credentials (i.e., no high school diploma or general educational development high school equivalency diploma [GED]; high school diploma or GED; some college, no bachelor's degree; associate's degree; bachelor's degree or higher).

Prior to 1997, the education variable in NHIS was measured by asking, "What is the highest grade or year of regular school [person] has ever attended?" and "Did [person] finish the grade/year?" Responses were used to categorize adults according to years of education completed (i.e., less than 12, 12, 13–15, or 16 years or more).

Data from the 1996 and 1997 NHIS were used to compare distributions of educational attainment for adults aged 25 and over, using categories based on educational credentials (1997) and categories based on years of education completed (1996). A larger percentage of persons reported some college than reported 13–15 years of education, and a correspondingly smaller percentage reported a high school diploma or GED than reported 12 years of education. In 1997, 19% of adults reported no high school diploma, 31% a high school diploma or GED, 26% some college, and 24% a bachelor's degree or higher. In 1996, 18% of adults reported less than 12 years of education, 37% reported 12 years, 20% reported 13–15 years, and 25% reported 16 or more years of education.

Emergency department—According to the National Hospital Ambulatory Medical Care Survey, an emergency department is a hospital facility that is staffed 24 hours a day and provides unscheduled outpatient services to patients whose condition requires immediate care. Emergency services provided under the "hospital as landlord" arrangement were also eligible. An emergency department

was eligible if it was staffed 24 hours a day. If an eligible emergency department had an emergency service area that was open less than 24 hours a day, then that area was included under the emergency department. If a hospital had an emergency department that was staffed less than 24 hours a day, that department was considered an outpatient clinic. (Also see Appendix II, Emergency department or emergency room visit; Outpatient department.)

Emergency department or emergency room visit—Starting with the 1997 National Health Interview Survey, respondents to the Sample Adult questionnaire and the Sample Child questionnaire (a knowledgeable adult, usually a parent) were asked about the number of visits to hospital emergency rooms during the past 12 months, including visits that resulted in hospitalization. In the National Hospital Ambulatory Medical Care Survey, an emergency department visit is a direct personal exchange between a patient and either a physician or a health care provider working under the physician's supervision, for the purpose of seeking care and receiving personal health services. (Also see Appendix II, Emergency department; Injury-related visit.)

Employer costs for employee compensation—A measure of the average cost to employers for wages, salaries, and benefits per employee hour worked. Wages and salaries are defined as the hourly straight-time wage rate, or for workers not paid on an hourly basis, straight-time earnings divided by the corresponding hours. Straight-time wage and salary rates are total earnings before payroll deductions, excluding premium pay for work in addition to the regular work schedule (e.g., overtime, weekends, and holidays), shift differentials, and nonproduction bonuses such as discretionary holiday bonuses and lump-sum payments provided in lieu of wage increases. Production bonuses, incentive earnings, commission payments, and cost-of-living adjustments are included in straight-time wage and salary rates. Benefits included as compensation are paid leave (paid vacations, holidays, sick leave, and other leave), supplemental pay (premium pay for overtime, weekends, or holidays), shift differentials, nonproduction bonuses, insurance benefits (life, health, and short- and long-term disability), retirement and savings benefits (pension and other retirement plans and savings and thrift plans), and legally required benefits (Social Security, Medicare, federal and state unemployment insurance, and workers' compensation). (Also see Appendix I, National Compensation Survey [NCS].)

Ethnicity—See Appendix II, Hispanic origin.

Exercise—See Appendix II, Physical activity, leisure-time.

Expenditures—See Appendix II, Health expenditures, national. (Also see Appendix I, National Health Expenditure Accounts [NHEA].)

External cause of injury—Used for classifying the circumstances in which injuries occur. The *International*

Classification of Diseases, 9th Revision (ICD–9), External Cause of Injury Matrix, is a two-dimensional array describing both the mechanism or external cause of the injury (e.g., fall, motor-vehicle traffic) and the manner or intent of the injury (e.g., unintentional, self-inflicted, or assault). Although this matrix was originally developed for mortality, it has been adapted for use with the ICD–9 Clinical Modification (ICD–9–CM) and will be used in *Health, United States* until 2016 data are available. Data for 2016 and beyond will be classified using the *International Classification of Diseases, 10th Revision, Clinical Modification/Procedure Coding System* (ICD–10–CM/PCS). For more information, see the National Center for Health Statistics website at: https://www.cdc.gov/nchs/injury/injury_tools.htm; and see: Hedegaard HB, Johnson RL, Ballesteros MF. Proposed ICD–10–CM surveillance case definitions for injury hospitalizations and emergency department visits. National Health Statistics Reports; no 100. Hyattsville, MD: National Center for Health Statistics. 2017. Available from: https://www.cdc.gov/nchs/data/nhsr/NHSR100.pdf.

Family income—For the National Health Interview Survey and the National Health and Nutrition Examination Survey, all people within a household who are related by blood, marriage or cohabitation, or adoption constitute a family. Each member of a family is classified according to the total income of the family. Unrelated individuals are classified according to their own income.

National Health and Nutrition Examination Survey (NHANES)—In NHANES 1999 and onward, family income is asked in a series of questions about possible sources of income, including wages, salaries, interest and dividends, federal programs, child support, rents, royalties, and other possible sources. After the information about sources of income was obtained in the family interview income section of the questionnaire, respondents were asked to report total combined family income for themselves and the other members of their family, in dollars. If respondents did not provide an answer or did not know the total combined family income, they were asked if the total family income was less than $20,000 or $20,000 or more. If respondents answered, a follow-up question asked them to select an income range from a list on a printed flash card. The midpoint of the income range was then used as the total family income value. Family income values are used to calculate a poverty measure. NHANES II (1976–1980) included questions on components of income; NHANES III (1988–1994) did not ask the detailed components-of-income questions but asked respondents to identify their income based on a set of ranges provided on a flash card. Family income was not imputed for individuals or families with no reported income information in any of the NHANES survey years. (Also see Appendix II, Poverty.)

National Health Interview Survey (NHIS)—Prior to 1997, family income was the total income received by

members of a family (or by an unrelated individual) in the 12 months before the interview. Family income included wages, salaries, rents from property, interest, dividends, profits and fees from their own businesses, pensions, and help from relatives. Starting in 1997, NHIS collected family income data for the calendar year prior to the interview (e.g., 2015 family income data were based on calendar year 2014 information). The 1997–2006 instrument allowed the respondent to supply a specific dollar amount (up to $999,995). Any family income responses greater than $999,995 were entered as $999,996. Respondents who did not know or refused to give a dollar amount in response to this question were asked if their total combined family income for the previous year was $20,000 or more, or less than $20,000. If respondents answered this question, they were given one of two flash cards and asked to indicate which income group listed on the card best represented their family's combined income during the previous calendar year. One flash card listed incomes that were $20,000 or more, and the other flash card listed incomes that were less than $20,000. Starting with the 2007 NHIS, the income amount follow-up questions that had been in place since 1997 were replaced with a series of unfolding bracket questions. The unfolding bracket method asked a series of closed-ended income range questions (e.g., "Is it less than $50,000?") if the respondent did not provide an answer to the exact-income amount question. The closed-ended income range questions were constructed so that each successive question established a smaller range for the amount of the family's income. In 2011, 2012, and 2014, the unfolding-bracket income questions were further refined to improve the assignment of poverty status.

Table VI. High blood pressure in adults aged 20 and over, based on two definitions of high blood pressure: United States, 1999–2002 and 2013–2016

Characteristic	1999–2002		2013–2016	
	Systolic pressure of at least 140 mm Hg or diastolic pressure of at least 90 mm Hg[1]	Systolic pressure of at least 130 mm Hg or diastolic pressure of at least 80 mm Hg[2]	Systolic pressure of at least 140 mm Hg or diastolic pressure of at least 90 mm Hg[1]	Systolic pressure of at least 130 mm Hg or diastolic pressure of at least 80 mm Hg[2]
20 years and over, age-adjusted[3]	Percent			
Both sexes..............................	19.9	42.9	14.9	34.0
Male...................................	19.1	47.5	16.6	38.2
Female................................	20.2	37.7	13.1	29.7
Not Hispanic or Latino:				
White only............................	18.3	41.3	13.4	32.0
Black or African American only	28.7	54.0	23.3	44.8
Asian only.............................	- - -	- - -	16.1	35.6
Hispanic or Latino	- - -	- - -	15.4	34.5
Mexican origin	21.6	41.1	15.6	34.4
20 years and over, crude				
Both sexes..............................	19.9	43.1	16.0	35.6
Male...................................	18.2	46.8	17.0	38.8
Female................................	21.6	39.5	15.1	32.6
Not Hispanic or Latino:				
White only............................	19.7	43.1	15.7	35.3
Black or African American only	26.3	52.1	22.8	44.4
Asian only.............................	- - -	- - -	15.3	34.7
Hispanic or Latino	- - -	- - -	12.5	30.7
Mexican origin	13.9	31.9	12.7	30.5
20–44 years.............................	7.1	27.6	6.2	20.8
45–64 years.............................	23.0	52.0	18.2	42.7
65–74 years.............................	44.9	67.6	28.8	52.0
75 years and over	59.1	75.6	42.2	61.0

- - - Data not available.

[1]These blood pressure definitions are consistent with the National Heart, Lung, and Blood Institute. See: The seventh report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. NIH publication no. 04–5230. 2004. Available from: https://www.nhlbi.nih.gov/guidelines/hypertension/jnc7full.pdf.

[2]These definitions are based on guidelines released in October 2017 by the American College of Cardiology and the American Heart Association. These guidelines have lower standards for defining high blood pressure. Available from: http://www.acc.org/latest-in-cardiology/ten-points-to-remember/2017/11/09/11/41/2017-guideline-for-high-blood-pressure-in-adults.

[3]Estimates are age-adjusted to the year 2000 standard population using five age groups: 20–34 years, 35–44 years, 45–54 years, 55–64 years, and 65 years and over.

NOTES: Estimates of high blood pressure do not take into consideration the use of antihypertensive medication. Percentages are based on the average of three blood pressure measurements taken. Pregnant women are excluded.

SOURCE: NCHS, National Health and Nutrition Examination Survey (NHANES).

For more information on this series of family income questions, see: NCHS. National Health Interview Survey 2015 Data release. 2016. Available from: https://www.cdc.gov/nchs/nhis/nhis_2015_data_release.htm.

Also see: Pleis JR, Cohen RA. Impact of income bracketing on poverty measures used in the National Health Interview Survey's Early Release Program: Preliminary data from the 2007 NHIS. 2007. Available from: https://www.cdc.gov/nchs/data/nhis/income.pdf.

For NHIS respondents, family income data are used in the computation of a poverty measure. Starting with *Health, United States, 2004*, a new methodology for imputing family income data for NHIS was implemented for data years 1997 and beyond. Multiple imputations were performed for survey years 1997 and beyond, with five sets of imputed values created to allow for the assessment of variability caused by imputation. A detailed description of the multiple imputation procedure and data files for 1997 and beyond are available from: https://www.cdc.gov/nchs/nhis/quest_data_related_1997_forward.htm, through the "Data Release" or the "Imputed Income Files" link under that year. For data years 1990 through 1996, about 16% to 18% of persons had missing data for family income. In those years, missing values were imputed for family income using a sequential hot-deck, within-matrix, cells-imputation approach. A detailed description of the imputation procedure and data files, with imputed annual family income for 1990 through 1996, is available from: ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Datasets/NHIS/1990-96_Family_Income/. (Also see Appendix II, Poverty; Table VII.)

National Immunization Survey (NIS)—Prior to 1998, family income was the total income received by all family members in the past 12 months at the time of interview. Following the changes in the NHIS income questions, NIS changed the reference period for 1998 onward and collected income received by all family members for the calendar year prior to the interview year for households with age-eligible children (e.g., 2016 NIS family income data are based on calendar year 2015 income). Family income is the combined total income received by all members of a family before taxes. For the family income questions, the household respondent is asked to include income received from jobs; Social Security; retirement income; unemployment payments; public assistance; interest; dividends; net income from business, farm, rent; or any other sources. Respondents who answered "don't know" or refused to give a dollar amount for the total family income were asked a cascading sequence of income questions—a total of 15 cascading questions—that attempt to place the family income into 1 of 15 income intervals ranging from less than or equal to $7,500 to greater than or equal to $75,000. The initial question asks if the family income for the prior year was more or less than $20,000. Subsequent sets of income range questions are asked

so that each successive question establishes a narrower income range.

A family income variable is constructed from the total family income question and the cascading income questions. If an exact income is given, family income is set to this amount; otherwise it is set to the midpoint of the tightest bounds established by the cascading-income questions. The values of total family income are used to calculate an income-to-poverty ratio. For NIS, this ratio is calculated only for households with age-eligible children, using either the actual family income value or the midpoint of the interval from the series of cascading questions in the numerator and the poverty threshold provided by the U.S. Census Bureau for the size of the family and the number of related children in the household in the denominator. Details of the income questions and computation of the income-to-poverty ratio for each data collection year can be found in the NIS data documentation (Data User's Guide and Household Interview Questionnaire for NIS–Child and NIS–Teen), available from: https://www.cdc.gov/vaccines/imz-managers/nis/data-tables.html.

For more information, see: Battaglia MP, Hoaglin DC, Izrael D, Khare M, Mokdad A. Improving income imputation by using partial income information and ecological variables. In: 2002 Proceedings of the American Statistical Association, Survey Research Methods Section. New York, NY. Available from: https://www.cdc.gov/nchs/data/nis/estimation_weighting/Battaglia2002.pdf.

Federal hospital—See Appendix II, Hospital.

Fee-for-service health insurance—Private (commercial) health insurance that reimburses health care providers on the basis of a fee for each health service provided to the insured person. In addition, "fee-for-service" is a term often applied to original Medicare, to distinguish it from Medicare managed-care plans and other new payment systems. (Also see Appendix II, Health insurance coverage; Managed care; Medicare.)

Fertility rate—See Appendix II, Rate: Birth and related rates.

Functional limitation—*Health, United States, 2017* is adopting a measure of functional limitation based on six questions asked of persons aged 18 and over in the National Health Interview Survey (NHIS):

● Do you have difficulty seeing, even when wearing glasses?

● Do you have difficulty hearing, even when using your hearing aid(s)?

● Do you have difficulty walking or climbing steps?

● Using your usual language, do you have difficulty communicating, for example, understanding or being understood?

Table VII. Imputed family income percentages in the National Health Interview Survey, by age and sex: United States, 1990–2016

Year	Both sexes									Females	
	All ages	Under 18 years	18 years and over	Under 65 years	1–64 years	18–64 years	65 years and over	2 years and over	45 years and over	18 years and over	40 years and over
	Percent										
1990.	16	14	18	15	15	16	24	17	22	18	21
1991.	18	15	19	17	17	17	26	18	23	19	23
1992.	18	16	19	17	17	18	27	18	23	20	23
1993.	16	14	17	15	15	16	23	16	20	17	19
1994.	17	15	18	16	16	17	25	17	21	18	21
1995.	16	14	16	15	15	15	22	16	19	17	19
1996.	17	14	17	16	16	16	24	17	20	18	20
1997.	24	21	26	23	23	24	34	25	30	26	30
1998.	29	25	30	27	27	28	39	29	34	30	34
1999.	31	27	32	29	29	30	43	31	37	33	37
2000.	32	28	33	30	31	31	45	32	38	34	38
2001.	32	27	33	30	30	31	44	32	38	34	37
2002.	32	28	33	30	30	31	44	32	37	33	37
2003.	33	30	35	32	32	33	44	34	38	35	38
2004.	33	29	34	31	31	32	41	33	37	34	36
2005.	33	29	34	31	31	32	44	33	38	35	37
2006.	34	31	35	33	33	33	45	34	39	36	39
2007.	33	29	34	31	31	32	43	33	37	35	38
2008.	30	27	31	29	29	29	40	30	34	32	34
2009.	25	21	26	23	23	24	34	25	29	26	29
2010.	25	20	26	23	23	24	36	25	30	27	30
2011.	22	19	23	21	21	22	31	23	26	24	26
2012.	23	19	24	21	21	22	32	23	27	24	27
2013.	23	19	24	22	22	23	31	23	27	25	27
2014.	23	20	24	22	22	23	31	23	27	25	27
2015.	23	20	24	22	22	22	31	23	26	24	26
2016.	22	18	23	20	21	21	30	22	25	23	25

NOTES: Weighted percentages. See Appendix II, Family income.

SOURCE: NCHS, National Health Interview Survey. See Appendix I, National Health Interview Survey (NHIS).

● Do you have difficulty remembering or concentrating?

● Do you have difficulty with self-care, such as washing all over or dressing?

Response categories are: no difficulty, some difficulty, a lot of difficulty, and cannot do at all/unable to do.

Respondents with answers to one or more of the six questions were classified into one of three mutually exclusive categories. Those responding "a lot of difficulty" or "cannot do at all/unable to do" to at least one question were classified in the "A lot of difficulty/cannot do" category. Of the remaining, those responding "some difficulty" to at least one question were classified in the "some difficulty" category. Of the remaining, those responding "no difficulty" to at least one question were classified in the "no difficulty" category. During 2010–2016, 1% to 8% of respondents were excluded from the analysis because they were missing data across all six functioning questions. Data are for the civilian noninstitutionalized population. For more information on functional limitation, see: http://www.washingtongroup-disability.com/.

These questions have been asked annually in NHIS starting in 2010, and are found in the 2010 Quality of Life NHIS files and the 2011–2016 Functioning and Disability NHIS files. For more information about NHIS, including annual questionnaire and documentation for these files, see: https://www.cdc.gov/nchs/nhis/data-questionnaires-documentation.htm.

General hospital—See Appendix II, Hospital.

Geographic region—The U.S. Census Bureau groups the 50 states and the District of Columbia, for statistical purposes, into four geographic regions (Northeast, Midwest, South, and West) and nine divisions based on geographic proximity; (see Figure).

Gestation—For the National Vital Statistics System and the Centers for Disease Control and Prevention's Abortion Surveillance System, the period of gestation is defined as beginning with the first day of the last normal menstrual period and ending with the day of birth or day of termination of pregnancy. Data on gestational age are subject to error for several reasons, including imperfect maternal recall or misidentification of the last menstrual period because of postconception bleeding, delayed ovulation, or intervening early miscarriage.

Figure. U.S. Census Bureau: Four geographic regions and nine divisions of the United States
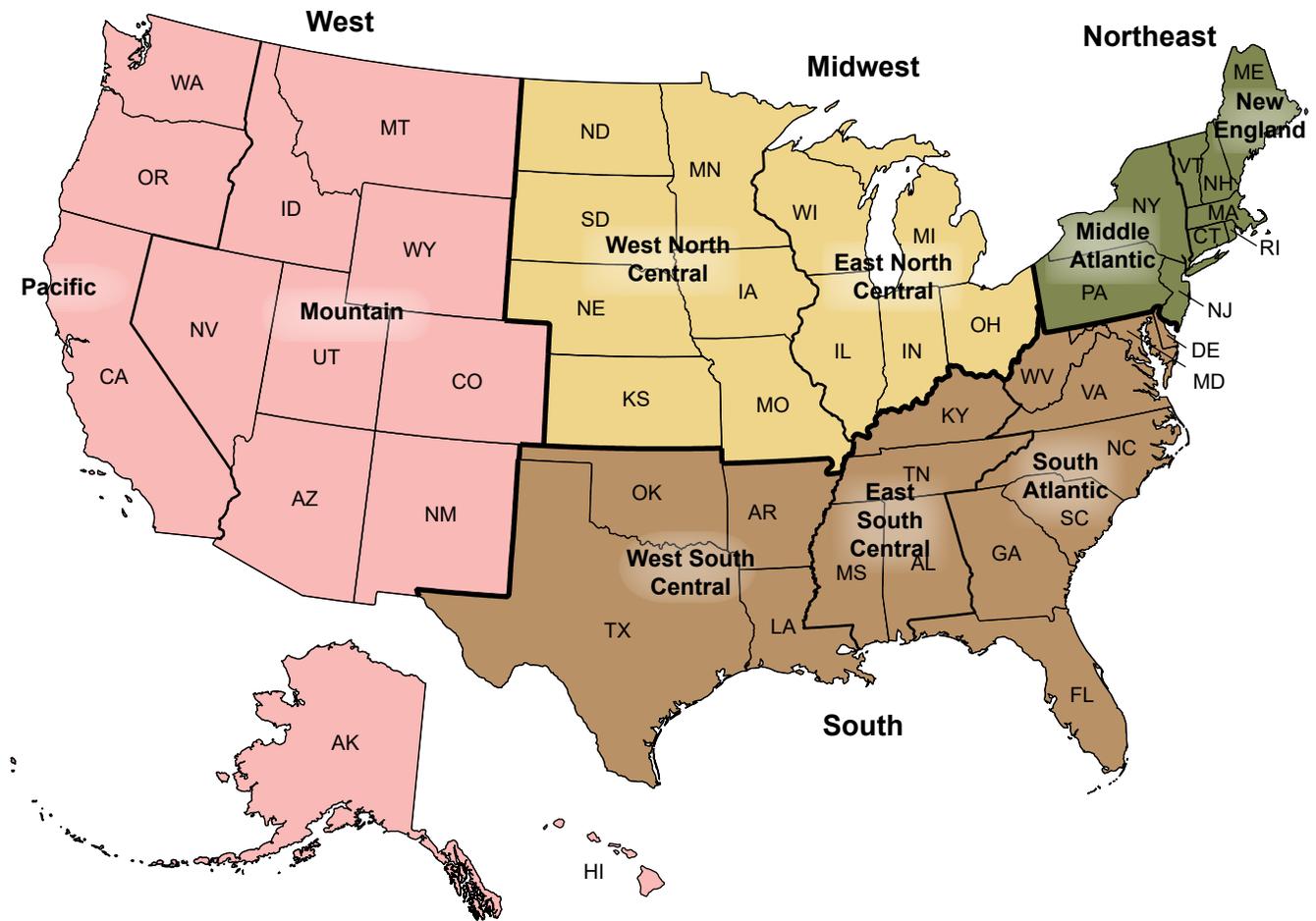
Gross domestic product (GDP)—The market value of the goods and services produced by labor and property located in the United States. As long as the labor and property are located in the United States, the suppliers (i.e., the workers, and for property, the owners) may be U.S. residents or residents of other countries. (Also see Appendix II, Consumer Price Index [CPI]; Health expenditures, national.)

Health care contact—Starting in 1997, the National Health Interview Survey has collected information on health care contacts with doctors and other health care professionals using the following series of questions: "During the past 12 months, how many times have you gone to a hospital emergency room about your own health?;" "During the past 12 months, did you receive care at home from a nurse or other health care professional? What was the total number of home visits received?;" and "During the past 12 months, how many times have you seen a doctor or other health care professional about your own health at a doctor's office, a clinic, or some other place? Do not include times you were hospitalized overnight, visits to hospital emergency rooms, home visits, or telephone calls." Starting with 2000 data, this question was amended to specifically exclude dental visits.

For 1997–1999, for each question, respondents were shown a flash card with response categories of 0, 1, 2–3, 4–9, 10–12,

or 13 or more visits. For tabulation of the 1997–1999 data, responses of 2–3 were recoded to 2, responses of 4–9 were recoded to 6, responses of 10–12 were recoded to 11, and 13 or more visits were recoded to 13. The recoded values for the three types of visits were then added to yield an estimate of total health care contacts. Starting with 2000 data, response categories were expanded to 0, 1, 2–3, 4–5, 6–7, 8–9, 10–12, 13–15, or 16 or more. For 2000 and more recent data, these response categories were recoded to the midpoint of the range. The category of 16 or more was recoded to 16. The recoded values for the three types of visits were then added to yield an estimate of the summary measure of health care contacts (including doctor's visits, hospital emergency room visits, and home visits). After summing the three component visit variables, respondents with values on the edge of the categories presented in *Health, United States* were rounded down to provide a more conservative estimate of the number of visits. For example, a respondent with 3.5 health care contacts was included in the 1–3 visits category, and a respondent with 9.5 health care contacts was included in the 4–9 visits category. Respondents were included in this analysis only if they were known on all three visit variables.

Analyses of the percentage of children without a health care visit are based on the following question: "During the past

12 months, how many times has [person] seen a doctor or other health care professional about [his/her] health at a doctor's office, a clinic, or some other place? Do not include times [person] was hospitalized overnight, visits to hospital emergency rooms, home visits, or telephone calls." Starting with 2000 data, this question was amended to specifically exclude dental visits. (Also see Appendix II, Emergency department or emergency room visit; Home visit.)

Health expenditures, national—Estimates from the Centers for Medicare & Medicaid Services (CMS) that measure calendar year spending for health care in the United States by type of service delivered (e.g., hospital care, physician services, nursing home care) and source of funding for those services (e.g., private health insurance, Medicare, Medicaid, out-of-pocket spending). CMS produces both historical and projected estimates of health expenditures by category. (Also see Appendix I, National Health Expenditure Accounts [NHEA]; Appendix II, Gross domestic product [GDP].) Types of national health expenditures are described below.

Business, household, and other private expenditures—Outlays for services paid for by nongovernmental sources, such as consumers, private industry, and philanthropic and other nonpatient-care sources.

Government expenditures—Outlays for services paid for by federal, state, and local government agencies or expenditures required by governmental mandate (such as workers' compensation insurance payments).

Health consumption expenditures—Outlays for goods and services relating directly to patient care, plus expenses for administering health insurance programs, the net cost of health insurance, and public health activities. This category is equivalent to total national health expenditures minus expenditures for investment in noncommercial research and structures and equipment.

Personal health care expenditures—Outlays for goods and services relating directly to patient care. These expenditures are total national health expenditures minus expenditures for investment, health insurance program administration and the net cost of insurance, and public health activities.

Health insurance coverage—Broadly defined to include both public and private payers that cover medical expenditures incurred by a defined population in a variety of settings. Estimates of health insurance are available from several different government surveys. Because of differences in methodology, question wording, and recall period, estimates from different sources may vary and are not directly comparable. For more information, see: "Health Insurance Measurement and Estimates," available from: https://www.census.gov/content/dam/Census/library/working-papers/2015/demo/2015-Vornovitsy-Day-01.pdf.

American Community Survey (ACS)—For point-in-time health insurance estimates, ACS respondents were asked about their coverage at the time of interview. Respondents were asked: "Is this person CURRENTLY covered by any of the following types of health insurance or health coverage plans? Mark yes or no for each type of coverage: Insurance through a current or former employer or union [of this person or another family member]; Insurance purchased directly from an insurance company [by this person or another family member]; Medicare, for people 65 and older, or people with certain disabilities; Medicaid, Medical Assistance, or any kind of government-assistance plan for those with low incomes or a disability; TRICARE or other military health care; VA [including those who have ever used or enrolled for VA health care]; Indian Health Service; any other type of health insurance or health coverage plan [specify plan]." In ACS, persons were considered uninsured if they were not covered by private health insurance, Medicare, Medicaid, Medical Assistance, TRICARE or other military health care, veteran's coverage through the Veteran's Administration, or other government coverage. People with Indian Health Service coverage only were considered uninsured in ACS.

National Health Interview Survey (NHIS)—For point-in-time health insurance estimates, NHIS respondents were asked about their coverage at the time of interview. For 1993–1996, respondents were asked about their coverage in the previous month. Questions on health insurance coverage were expanded starting in 1993, compared with previous years. In 1997, the entire questionnaire was redesigned and data were collected using a computer-assisted personal interview. In 2007, questions on health insurance coverage were expanded again to include three new questions on high-deductible health plans, health savings accounts, and flexible spending accounts.

Respondents were considered to be covered by private health insurance if they indicated private health insurance, or prior to 1997, if they were covered by a single-service hospital plan. Private health insurance includes managed care such as health maintenance organizations.

Private insurance obtained through the workplace was defined as any private insurance that was originally obtained through a present or former employer or union, or starting in 1997, through the workplace, self-employment, or a professional association. Starting in 2011, respondents were also asked whether health insurance coverage was obtained through parents or another relative. Starting in 2014, an additional question on the Health Insurance Marketplace was added to the questionnaire for those respondents who did not indicate that their health plan was obtained through a present or former employer, union, self-employment, or

professional association, to evaluate whether their plan was obtained through the Health Insurance Marketplace or state-based exchange. Starting in 2015, an additional category "Through Healthcare.gov" was added to the list describing new options for the direct purchase of health insurance. Individuals who selected this new category did not receive the additional question about the Health Insurance Marketplace.

Until 1996, persons were defined as having Medicaid or other public assistance coverage if they indicated that they had either Medicaid or other public assistance or if they reported receiving Aid to Families with Dependent Children (AFDC) or Supplemental Security Income (SSI). After welfare reform in late 1996, Medicaid was delinked from AFDC and SSI. Starting in 1997, persons were considered to be covered by Medicaid if they reported Medicaid or a state-sponsored health program. Starting in 1999, persons also were considered covered by Medicaid if they reported coverage by the Children's Health Insurance Program. Medicare or military health plan coverage was also determined in the interview, and starting in 1997, other government-sponsored program coverage was determined as well.

If respondents did not report coverage under one of the types of plans listed above, and they had unknown coverage under either private health insurance or Medicaid, they were considered to have unknown coverage.

The remaining respondents without any indicated coverage were considered uninsured. The uninsured were persons who did not have coverage under private health insurance, Medicare, Medicaid, public assistance, a state-sponsored health plan, other government-sponsored programs, or a military health plan. Persons with only Indian Health Service (IHS) coverage were considered uninsured. Although NHIS respondents who report IHS coverage as their only source of coverage are currently recoded to being uninsured, IHS provides a comprehensive health service delivery system for approximately 2.2 million American Indian or Alaska Native persons; see: https://www.ihs.gov/newsroom/factsheets/ihsprofile/. Estimates of the percentage of persons who were uninsured based on NHIS may differ slightly from those based on other sources because of differences in survey questions, recall period, and other aspects of survey methodology.

In NHIS, on average less than 2% of people aged 65 and over reported no current health insurance coverage, but the small sample size precludes the presentation of separate estimates for this population. Therefore, the term "uninsured" refers only to the population under age 65.

Two additional questions were added to the health insurance section of NHIS beginning with the third quarter of 2004 (Table VIII). One question was asked

of persons aged 65 and over who had not indicated that they had Medicare: "People covered by Medicare have a card which looks like this. [Are/Is] [person] covered by Medicare?" The other question was asked of persons under age 65 who had not indicated any type of coverage: "There is a program called Medicaid that pays for health care for persons in need. In this state it is also called [state name]. [Are/Is] [person] covered by Medicaid?" Respondents who originally classified themselves as uninsured, but whose classification was changed to Medicare or Medicaid on the basis of a "yes" response to either question, subsequently received appropriate follow-up questions concerning periods of noncoverage for insured respondents. Of the 892 people (unweighted) who were eligible to receive the Medicare probe question in the third and fourth quarters of 2004, 55% indicated that they were covered by Medicare. Of the 9,146 people (unweighted) who were eligible to receive the Medicaid probe question in the third and fourth quarters of 2004, 3% indicated that they were covered by Medicaid. From 2004 onwards, estimates in *Health, United States* were calculated using the responses to the two additional probe questions. For a complete discussion of the effect of the addition of these two probe questions on the estimates for insurance coverage, see: Cohen RA, Martinez ME. Impact of Medicare and Medicaid probe questions on health insurance estimates from the National Health Interview Survey, 2004. Health E-Stats. National Center for Health Statistics. 2005. Available from: https://www.cdc.gov/nchs/data/hestat/impact04/impact04.htm.

Survey respondents may be covered by health insurance at the time of interview but may have experienced one or more lapses in coverage during the 12 months prior to interview. Starting with *Health, United States, 2006*, NHIS estimates have been presented for the following three exhaustive categories: (a) people with health insurance continuously for the full 12 months prior to interview, (b) those who had a period of up to 12 months prior to interview without coverage, and (c) those who were uninsured for more than 12 months prior to interview. This stub variable has been added to selected tables. Two additional NHIS questions were used to determine the appropriate category for the survey respondents: (a) all persons without a known comprehensive health insurance plan were asked, "About how long has it been since [person] last had health care coverage?"; and (b) all persons with known health insurance coverage were asked, "In the past 12 months, was there any time when [person] did NOT have ANY health insurance coverage?" Persons uninsured for 1 year are classified into the category "uninsured for a period of up to 12 months prior to interview."

For more information, see: Section V. Health insurance section (FHI). In: 2016 National Health Interview Survey (NHIS) public use data release: Survey description. 2017.

Table VIII. Percentage of persons under age 65 with Medicaid or who are uninsured, by selected demographic characteristics, using Method 1 and Method 2 estimation procedures: United States, 2004

Characteristic	Medicaid[1]		Uninsured[2]	
	Method 2[3]	Method 1[3]	Method 2[3]	Method 1[3]
Age	Percent (standard error)			
Under 65 years	12.0 (0.24)	11.8 (0.24)	16.4 (0.23)	16.6 (0.23)
Under 18 years	25.4 (0.49)	24.9 (0.49)	9.2 (0.30)	9.7 (0.29)
18–64 years	6.6 (0.17)	6.5 (0.17)	19.3 (0.26)	19.4 (0.26)
Percent of poverty level[4]				
Below 100%	47.5 (1.03)	46.6 (1.03)	29.6 (0.89)	30.5 (0.92)
100% to less than 200%	22.0 (0.59)	21.5 (0.60)	28.9 (0.66)	29.4 (0.66)
200% or more	2.9 (0.13)	2.8 (0.13)	9.4 (0.23)	9.5 (0.23)
Age and percent of poverty level[4]				
Under 18 years				
Below 100%	71.9 (1.35)	70.2 (1.35)	14.5 (1.15)	16.2 (1.22)
100% to less than 200%	39.2 (1.13)	38.4 (1.14)	15.0 (0.81)	15.8 (0.82)
200% or more	6.2 (0.33)	6.1 (0.33)	4.9 (0.30)	4.9 (0.30)
18–64 years				
Below 100%	31.2 (1.02)	30.8 (1.02)	39.7 (1.09)	40.1 (1.09)
100% to less than 200%	12.0 (0.48)	11.8 (0.48)	37.0 (0.72)	37.2 (0.72)
200% or more	1.7 (0.11)	1.7 (0.10)	11.0 (0.26)	11.1 (0.26)
Hispanic origin and race[5]				
Hispanic or Latino	22.2 (0.55)	21.5 (0.55)	34.4 (0.64)	35.1 (0.65)
Mexican	22.0 (0.63)	21.5 (0.63)	37.6 (0.82)	38.1 (0.83)
Not Hispanic or Latino	10.2 (0.25)	10.1 (0.25)	13.2 (0.23)	13.3 (0.23)
White only	7.4 (0.26)	7.4 (0.26)	12.0 (0.25)	12.1 (0.25)
Black or African American only	23.9 (0.80)	23.5 (0.79)	17.3 (0.58)	17.8 (0.58)

[1]Includes persons who do not have private coverage but who have Medicaid or other state-sponsored health plans, including the Children's Health Insurance Program (CHIP).

[2]Includes persons who have not indicated that they are covered at the time of interview under private health insurance, Medicare, Medicaid, CHIP, a state-sponsored health plan, other government programs, or military health plan (includes VA, TRICARE, and CHAMP–VA). This category includes persons who are only covered by Indian Health Service (IHS) or only have a plan that pays for one type of service, such as accidents or dental care.

[3]Starting with the third quarter of 2004, two additional questions were added to the National Health Interview Survey (NHIS) insurance section to reduce potential errors in reporting of Medicare and Medicaid status. Persons aged 65 and over not reporting Medicare coverage were asked explicitly about Medicare coverage, and persons under age 65 with no reported coverage were asked explicitly about Medicaid coverage. Estimates calculated without using the additional information from these questions are noted as Method 1. Estimates calculated using the additional information from these questions are noted as Method 2.

[4]Based on family income and family size and composition, using the U.S. Census Bureau's poverty thresholds. The percentage of respondents with unknown poverty level was 28.2% in 2004. See the NHIS survey description for 2004. Available from: https://www.cdc.gov/nchs/data/nhis/srvydesc.pdf.

[5]Persons of Hispanic origin may be of any race or combination of races. Similarly, the category Not Hispanic or Latino refers to all persons who are not of Hispanic or Latino origin, regardless of race.

SOURCE: NCHS, National Health Interview Survey, 2004, Family Core Component. Data are based on household interviews of a sample of the civilian noninstitutionalized population. For more information, see: Cohen RA, Martinez ME. Impact of Medicare and Medicaid probe questions on health insurance estimates from the National Health Interview Survey, 2004. National Center for Health Statistics. Health E-Stats. 2005. Available from: https://www.cdc.gov/nchs/data/hestat/impact04/impact04.htm. See Appendix I, National Health Interview Survey (NHIS).

Available from: ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Dataset_Documentation/NHIS/2016/srvydesc.pdf.

(Also see Appendix II, Children's Health Insurance Program [CHIP]; Fee-for-service health insurance; Health maintenance organization [HMO]; Managed care; Medicaid; Medicare; Uninsured.)

Health maintenance organization (HMO)—A health care system that assumes or shares both the financial risks and the delivery risks associated with providing comprehensive medical services to a voluntarily enrolled population in a particular geographic area, usually in return for a fixed, prepaid fee. Pure HMO enrollees use only the prepaid, capitated health services of the HMO panel of medical care providers. Open-ended HMO enrollees use the prepaid HMO health services but may also receive medical care from providers who are not part of the HMO panel. There is usually a substantial deductible, copayment, or coinsurance associated with use of nonpanel providers. HMO model types are described below.

Group model HMO—An HMO that contracts with a single multispecialty medical group to provide care to the HMO's membership. The group practice may work exclusively with the HMO, or it may provide services to non-HMO patients as well. The HMO pays the medical group a negotiated per capita rate, which the group distributes among its physicians, usually on a salaried basis.

Individual practice association (IPA)—A health care provider organization comprising a group of independent practicing physicians who maintain their own offices and band together for the purpose of

contracting their services to HMOs, preferred provider organizations, and insurance companies. An IPA may contract with and provide services to both HMO and non-HMO plan participants.

Mixed model HMO—An HMO that combines features of more than one HMO model.

Network model HMO—An HMO that contracts with multiple physician groups to provide services to HMO members. It may include single or multispecialty groups.

Staff model HMO—A closed-panel HMO (where patients can receive services only through a limited number of providers) in which physicians are HMO employees. The providers see members in the HMO's own facilities. (Also see Appendix II, Managed care; Preferred provider organization [PPO].)

Health services and supplies expenditures—See Appendix II, Health expenditures, national.

Health status, respondent-assessed—Health status was measured in the National Health Interview Survey by asking the family respondent about his or her health or the health of a family member: "Would you say [person's] health in general is excellent, very good, good, fair, or poor?"

Hearing trouble—In the National Health Interview Survey, information about hearing trouble is obtained by asking respondents how well they hear without the use of hearing aids. Prior to 2007 data, respondents were asked, "Which statement best describes your hearing without a hearing aid: good, a little trouble, a lot of trouble, or deaf?" Starting with 2007 data, the question was revised to expand the response categories. Respondents were asked, "These next questions are about your hearing WITHOUT the use of hearing aids or other listening devices. Is your hearing excellent, good, [do you have] a little trouble hearing, moderate trouble, a lot of trouble, or are you deaf?" Starting with 2008 data, respondents were asked, "WITHOUT the use of hearing aids or other listening devices, is your hearing excellent, good, [do you have] a little trouble hearing, moderate trouble, a lot of trouble, or are you deaf?" Because of the expanded response categories, 2007 and subsequent data are not strictly comparable with earlier years and caution is urged when interpreting trends. For example, in 2006, 3.5% of adults (aged 18 and over) were classified as having hearing difficulty (response categories: a lot of trouble or deaf). In 2007, 2.3% of adults (aged 18 and over) were classified as having hearing difficulty (response categories: a lot of trouble or deaf). This more than 30% decline from 2006 to 2007 in the estimate of those with hearing trouble is likely attributable to the addition of the moderate trouble response category, rather than changes in the prevalence of hearing trouble. Although all age groups saw a decline in the percentage reporting hearing trouble between 2006 and 2007, the amount of the decline varied. There was a 50% decline in reported hearing trouble among adults aged 18–44 (from 0.8% in 2006 to 0.4% in 2007). Among adults aged 45–64, the percentage that reported hearing trouble declined 43%, from 3.5% in 2006 to 2.0% in 2007. Among adults aged 65 and over, reported hearing trouble declined 24%, from 11.4% in 2006 to 8.7% in 2007.

For more information, see: Pleis JR, Lucas JW. Summary health statistics for U.S. adults: National Health Interview Survey, 2007. National Center for Health Statistics. Vital Health Stat 10(240). 2009. Available from: https://www.cdc.gov/nchs/data/series/sr_10/sr10_240.pdf.

The questions about hearing trouble used to estimate hearing limitations are different than those used to assess the hearing component of the functional limitation measure. (Also see Appendix II, Functional limitation.)

Hispanic origin—Hispanic or Latino origin includes persons of Mexican, Puerto Rican, Cuban, Central and South American, and other or unknown Latin American or Spanish origin. Persons of Hispanic origin may be of any race.

Birth file—The reporting area for a Hispanic-origin item on the birth certificate expanded between 1980 and 1993 (when the Hispanic item was included on the birth certificate in all states and the District of Columbia [D.C.]). Trend data on births of Hispanic and non-Hispanic parentage in *Health, United States* are affected by expansion of the reporting areas, which affects numbers of events, composition of the Hispanic population, and maternal and infant health characteristics.

In 1980 and 1981, information on births of Hispanic parentage was reported on the birth certificate by the following 22 states: Arizona, Arkansas, California, Colorado, Florida, Georgia, Hawaii, Illinois, Indiana, Kansas, Maine, Mississippi, Nebraska, Nevada, New Jersey, New Mexico, New York, North Dakota, Ohio, Texas, Utah, and Wyoming. In 1982 Tennessee, and in 1983 D.C., began reporting this information. Between 1983 and 1987, information on births of Hispanic parentage was available for 23 states and D.C. In 1988, this information became available for Alabama, Connecticut, Kentucky, Massachusetts, Montana, North Carolina, and Washington State, increasing the number of states reporting information on births of Hispanic parentage to 30 states and D.C. In 1989, this information became available from an additional 17 states, increasing the number of Hispanic-reporting states to 47 and D.C. In 1989, only Louisiana, New Hampshire, and Oklahoma did not report Hispanic parentage on the birth certificate. With the inclusion of Louisiana and Oklahoma in 1990 as Hispanic-reporting states, 99% of birth records included information on mother's origin. Hispanic origin of the mother was reported on the birth certificates of 49 states and D.C. in 1991 and 1992; only New Hampshire did not provide this information. Starting in 1993, Hispanic origin of mother was reported by all 50 states and D.C.

Starting with 2003 data, some states began using the 2003 revision of the U.S. Standard Certificate of Live Birth. As of January 1, 2016, all states, D.C., Guam, Puerto Rico, the U.S. Virgin Islands, and the Northern Marianas had implemented the revised birth certificate of 2003. Hispanic origin and race are collected separately on the birth certificate. The Hispanic-origin question on the 2003 revision of the birth certificate asks respondents to select only one response. Occasionally, more than one Hispanic-origin response is given; that is, a specified Hispanic-origin group (Mexican, Puerto Rican, Cuban, or Central and South American) in combination with one or more other specified Hispanic-origin groups. From 2003 through 2012, respondents who selected more than one Hispanic origin on the birth certificate were classified as other Hispanic. In 2012, 0.4% of births in the revised state-reporting area, plus Massachusetts (unrevised state that also reported more than one Hispanic-origin response), were to women reporting more than one Hispanic origin. Beginning with 2013 data, respondents who select more than one Hispanic origin are randomly assigned to a single Hispanic origin. The number of births to "other and unknown Hispanic" women increased by 1.3% from 143,536 in 2015 to 145,381 in 2016, increasing steadily from 48,972 in 2003. Factors that may have influenced this rise are not clear but may include less specificity in respondent reporting of Hispanic origin and increases in the populations of groups included in the "other Hispanic" category. The Hispanic-origin question on the 1989 revision of the birth certificate also offers the opportunity to report more than one origin; however, National Center for Health Statistics (NCHS) processing guidelines for unrevised data allow for coding only the first Hispanic origin listed.

Linked birth/infant death file—Particularly useful for computing accurate infant mortality rates by race and Hispanic origin because the race and Hispanic origin of the mother from the birth certificate are used in both the numerator and denominator of the linked birth/infant death infant mortality rate. In contrast, infant mortality rates based on the vital statistics mortality file use for the numerator race and Hispanic origin as reported on the death certificate and for the denominator the race and Hispanic origin of the mother as reported on the birth certificate. Race and Hispanic-origin information from the birth certificate, which is reported by the mother, is considered more reliable than race and Hispanic-origin information from the death certificate, which is reported by the funeral director based on information provided by an informant or by observation. See "Birth file" and "Mortality file" in this section.

Mortality file—The reporting area for a Hispanic-origin item on the death certificate expanded between 1985 and 1997. In 1985, mortality data by Hispanic origin of decedent were based on deaths of residents in 17 states

and D.C., whose data on the death certificate were at least 90% complete on a place-of-occurrence basis and of comparable format: Arizona, Arkansas, California, Colorado, Georgia, Hawaii, Illinois, Indiana, Kansas, Mississippi, Nebraska, New York, North Dakota, Ohio, Texas, Utah, and Wyoming. In 1986, New Jersey began reporting Hispanic origin of decedent, increasing the number of reporting states to 18 and D.C. in 1986 and 1987. In 1988, Alabama, Kentucky, Maine, Montana, North Carolina, Oregon, Rhode Island, and Washington State were added to the reporting area, increasing the number of states to 26 and D.C. In 1989, an additional 18 states were added, increasing the Hispanic-reporting area to 44 states and D.C.; only Connecticut, Louisiana, Maryland, New Hampshire, Oklahoma, and Virginia were not included in the reporting area. Starting with 1990 data in *Health, United States*, the criterion was changed to include states whose data were at least 80% complete. In 1990, Maryland, Virginia, and Connecticut; in 1991 Louisiana; and in 1993 New Hampshire were added, increasing the reporting area for Hispanic origin of decedent to 47 states and D.C. in 1990; 48 states and D.C. in 1991 and 1992; and 49 states and D.C. in 1993–1996. Only Oklahoma did not provide this information in 1993–1996. Starting in 1997, Hispanic origin of decedent was reported by all 50 states and D.C. Based on data from the U.S. Census Bureau, the 1990 reporting area encompassed 99.6% of the U.S. Hispanic population. In 1990, more than 96% of death records included information on Hispanic origin of the decedent.

Starting with 2003 data, some states began using the 2003 revision of the U.S. Standard Certificate of Death, which allows the reporting of more than one race (multiple races) and includes some revisions in the item reporting Hispanic origin. The effect of the 2003 revision of the Hispanic-origin item on the reporting of Hispanic origin on death certificates is presumed to be minor. For more information, see Appendix II, Race. Also see the Technical Notes sections of the annual series of "Deaths: Final Data" reports, available from: https://www.cdc.gov/nchs/products/nvsr.htm; and "NCHS Procedures for Multiple-Race and Hispanic Origin Data: Collection, Coding, Editing, and Transmitting," available from: https://www.cdc.gov/nchs/data/dvs/Multiple_race_documentation_5-10-04.pdf.

National Health Interview Survey (NHIS) and National Health and Nutrition Examination Survey (NHANES)—Questions on Hispanic origin have been self-reported in NHIS since 1976 as well as in NHANES III and subsequent years of NHANES. Questions on Hispanic origin precede questions on race. For 1999–2006 data, the NHANES sample was designed to provide estimates specifically for persons of Mexican origin and not for all Hispanic-origin persons in the United States. Persons of Hispanic origin other than Mexican were entered into the sample with different selection probabilities that are

not nationally representative of the total U.S. Hispanic population. Starting with 2007–2008 data collection, all Hispanic persons were oversampled, not just persons of Mexican origin. In addition to allowing estimates for the total group of Hispanic persons, the sample size for Hispanic persons of Mexican origin is sufficient to continue to produce reliable estimates for this group. However, the methodology for the oversampling of Hispanic persons did not provide sufficient sample sizes for calculating estimates for other Hispanic subgroups besides Mexican origin. For more information on the NHANES sampling methodology changes, see "National Health and Nutrition Examination Survey: Sample Design, 2011–2014," available from: https://www.cdc.gov/nchs/data/series/sr_02/sr02_162.pdf; and the NHANES analytic guidelines available from: https://wwwn.cdc.gov/nchs/data/nhanes/2011-2012/analytic_guidelines_11_12.pdf.

For more information on race and Hispanic origin in NHIS, see the survey's "Race and Hispanic Origin Information" page, available from: https://www.cdc.gov/nchs/nhis/rhoi.htm.

Surveillance, Epidemiology, and End Results (SEER) Program—SEER data are available from the National Institutes of Health, National Cancer Institute. SEER Hispanic data used in *Health, United States* tables exclude data from Alaska. The North American Association of Central Cancer Registries, Inc. (NAACCR) Hispanic Identification Algorithm was used on a combination of variables to classify incidence cases as Hispanic for analytic purposes. See: NAACCR guideline for enhancing Hispanic–Latino identification: Revised NAACCR Hispanic/Latino Identification Algorithm [NHIA v2.2.1]. Revised 2011. Available from: https://www.naaccr.org/wp-content/uploads/2016/11/NHIA_v2_2_1_09122011.pdf.

Youth Risk Behavior Surveillance System (YRBSS)—Prior to 1999, a single question was asked about race and Hispanic origin, with the option of selecting one of the following categories: white not Hispanic, black not Hispanic, Hispanic or Latino, Asian or Other Pacific Islander, American Indian or Alaska Native, or other. Between 1999 and 2003, respondents were asked a single question about race and Hispanic origin with the option of choosing one or more of the following categories: white, black or African American, Hispanic or Latino, Asian, Native Hawaiian or Other Pacific Islander, or American Indian or Alaska Native. Beginning in 2005, respondents were asked a question about Hispanic origin ("Are you Hispanic or Latino?") and a second separate question about race that included the option of selecting one or more of the following categories: American Indian or Alaska Native, Asian, black or African American, Native Hawaiian or Other Pacific Islander, or white. Because of the differences between questions, the data about race and Hispanic ethnicity for the years

prior to 1999 are not strictly comparable with estimates for the subsequent years. However, analyses of data collected between 1991 and 2003 have indicated that the data are comparable across years and can be used to study trends. See Appendix II, Race; and see: Brener ND, Kann L, McManus T. A comparison of two survey questions on race and ethnicity among high school students. Public Opin Q 67(2):227–36. 2003.

HIV—See Appendix II, Human immunodeficiency virus (HIV) disease.

Home visit—Starting in 1997, the National Health Interview Survey has been collecting information on home visits received during the 12 months prior to interview. Respondents are asked, "During the past 12 months, did you receive care at home from a nurse or other health care professional? What was the total number of home visits received?" These data are combined with data on visits to doctors' offices, clinics, and emergency departments to provide a summary measure of adult health care visits. (Also see Appendix II, Emergency department or emergency room visit; Health care contact.)

Hospital—According to the American Hospital Association (AHA), hospitals are licensed institutions with at least six beds whose primary function is to provide diagnostic and therapeutic patient services for medical conditions; they have an organized physician staff and provide continuous nursing services under the supervision of registered nurses. The World Health Organization (WHO) considers an establishment to be a hospital if it is permanently staffed by at least one physician, can offer inpatient accommodation, and can provide active medical and nursing care. Hospitals may be classified by type of service, ownership, size in terms of number of beds, and length of stay. In the National Hospital Ambulatory Medical Care Survey, hospitals include all those with an average length of stay for all patients of less than 30 days (short-stay) or hospitals whose specialty is general (medical or surgical) or children's general. Federal hospitals and hospital units of institutions and hospitals with fewer than six beds staffed for patient use are excluded. (Also see Appendix II, Average length of stay; Bed, health facility; Days of care; Emergency department; Inpatient; Outpatient department.)

Community hospital—Based on the AHA definition, includes all nonfederal, short-term general, and special hospitals whose facilities and services are available to the public. Special hospitals include obstetrics and gynecology; eye, ear, nose, and throat; rehabilitation; orthopedic; and other specialty services. Short-term general and special children's hospitals are also considered to be community hospitals. A hospital may include a nursing-home-type unit and still be classified as short-term, provided that the majority of its patients are admitted to units where the average length of stay is less than 30 days. Hospital units of institutions such as prisons and college infirmaries that are not open

to the public and are contained within a nonhospital facility are not included in the category of community hospitals. Traditionally, the definition has included all nonfederal short-stay hospitals except facilities for persons with intellectual disabilities (formerly called mentally retarded). In a revised definition, the following additional sites were excluded: hospital units of institutions, and alcoholism and chemical dependency facilities.

Federal hospital—Those operated by the federal government.

For-profit hospital— Those operated for profit by individuals, partnerships, or corporations.

General hospital— Those providing diagnostic, treatment, and surgical services for patients with a variety of medical conditions. According to WHO, these hospitals provide medical and nursing care for more than one category of medical discipline (e.g., general medicine, specialized medicine, general surgery, specialized surgery, and obstetrics). Excluded are hospitals, usually in rural areas, that provide a more limited range of care.

Nonprofit hospital— Those controlled by nonprofit organizations, such as religious organizations and fraternal societies.

Registered hospital—Those registered with AHA. About 98% of U.S. hospitals are registered.

Short-stay hospital—In the National Health Interview Survey, short-stay hospitals are defined as any hospital or hospital department in which the type of service provided is general; maternity; eye, ear, nose, and throat; children's; or osteopathic.

Special hospital—Those that provide a particular type of service to the majority of their patients. Special hospitals include psychiatric, tuberculosis, chronic disease, rehabilitation, maternity, and alcoholic or narcotic dependency facilities.

Hospital-based physician—See Appendix II, Physician.

Hospital day—See Appendix II, Days of care.

Hospital utilization—Estimates of hospital utilization (such as hospital discharge rate, days of care rate, average length of stay, and percentage of the population with a hospitalization) presented in *Health, United States* are based on data from three sources: Healthcare Cost and Utilization Project, National (Nationwide) Inpatient Sample (HCUP–NIS); National Health Interview Survey (NHIS); and American Hospital Association (AHA). Beginning with the 2012 data year, HCUP–NIS is a 20% sample of discharges (alive or deceased) from all community hospitals participating in HCUP, excluding rehabilitation and long-term acute care hospitals. For prior years, HCUP–NIS estimates are based on hospital stays for persons discharged alive or deceased

from about 1,000 hospitals sampled to approximate a 20% stratified sample of U.S. community hospitals, excluding rehabilitation hospitals and long-term acute care hospitals. NHIS hospital utilization data are based on household interviews with a sample of the civilian noninstitutionalized population. NHIS respondents were asked whether they had any hospital stays in the past year, excluding overnight stays in the emergency room. AHA data are from information reported by a census of hospitals. (Also see Appendix II, Average length of stay; Days of care; Discharge; and Appendix I, Healthcare Cost and Utilization Project [HCUP], National [Nationwide] Inpatient Sample; National Health Interview Survey [NHIS].)

Human immunodeficiency virus (HIV) disease—Caused by infection with a cytopathic retrovirus, which in turn leads to destruction of parts of the immune system. A surveillance case for HIV requires laboratory-confirmed evidence of infection, including a positive result on a screening test for HIV antibody, followed by a positive result on a confirmatory test, or a positive result or detectable quantity on an HIV virologic test (see: Centers for Disease Control and Prevention [CDC]. Diagnoses of HIV infection in the United States and dependent areas, 2015. 2016. Available from: https://www.cdc.gov/hiv/pdf/library/reports/surveillance/cdc-hiv-surveillance-report-2015-vol-27.pdf).

Since 1985, many states and U.S. dependent areas have implemented HIV case reporting as part of their comprehensive HIV and AIDS surveillance programs. As of April 2008, all reporting areas (50 states, the District of Columbia, and the 6 U.S. dependent areas of American Samoa, Guam, the Northern Mariana Islands, Puerto Rico, the Republic of Palau, and the U.S. Virgin Islands) had implemented HIV case surveillance using a confidential system for name-based case reporting for both HIV infection and AIDS. To better capture and characterize populations in which HIV infection has been newly diagnosed, including persons with evidence of recent HIV infection, many states report the prevalence of those living with a diagnosis of HIV infection, including those living with AIDS.

In 2008, changes were made to the case definition for HIV infection. The new case definition combined the two previous case definitions for HIV and AIDS and established a new disease staging classification. The term "HIV/AIDS" was replaced with the term "diagnosis of HIV infection," which is defined as diagnosis of HIV infection regardless of the stage of disease (stage 1, 2, 3 [AIDS], or unknown) and refers to all persons with a diagnosis of HIV infection (see "Revised Surveillance Case Definitions for HIV Infection Among Adults, Adolescents, and Children Aged < 18 Months and for HIV Infection and AIDS Among Children Aged 18 Months to < 13 Years—United States, 2008").

The 2008 case definition was used to classify cases diagnosed from the beginning of the epidemic through 2013. In order to classify HIV infection among both adults and adolescents, the following HIV infection classification staging system was used:

- *HIV infection, stage 1:* No AIDS-defining condition and either a CD4 count of 500 cells/μL or more or a CD4 percentage of total lymphocytes of 29% or more

- *HIV infection, stage 2:* No AIDS-defining condition and either a CD4 count of 200–499 cells/μL or a CD4 percentage of total lymphocytes of 14% to 28%

- *HIV infection, stage 3 (AIDS):* Documentation of an AIDS-defining condition, or either a CD4 count of less than 200 cells/μL or a CD4 percentage of total lymphocytes of less than 14%; documentation of an AIDS-defining condition supersedes a CD4 count or percentage that would not by itself be the basis for a stage 3 (AIDS) classification

- *HIV infection, stage unknown:* No reported information on AIDS-defining conditions and no information available on CD4 count or percentage (see "Revised Surveillance Case Definitions for HIV Infection Among Adults, Adolescents, and Children Aged < 18 Months and for HIV Infection and AIDS Among Children Aged 18 Months to < 13 Years—United States, 2008")

In 2014, the HIV surveillance case definition was revised again to adapt to changes in diagnostic criteria used by laboratories and clinicians (see CDC "HIV Surveillance Report, 2014"). The 2014 case definition was used to classify cases diagnosed beginning in 2014 and is similar to the 2008 case definition except for the following: (a) inclusion of criteria for stage 0, (b) inclusion of CD4 testing criteria for stage 3 in children, and (c) changes in cutoffs for CD4 percentages of total lymphocytes used for classifications of stages 1 and 2 in persons aged 6 years and over. The 2014 case definition classifies HIV infection based on the following stages:

- *HIV infection, stage 0:* First positive HIV test result within 6 months after negative test result; after 6 months, the stage may be reclassified as 1, 2, 3, or unknown

- *HIV infection, stages 1, 2, and 3:* Documentation of an AIDS-defining condition (excluding stage 0) is stage 3; otherwise, the stage is determined by the lowest CD4 test result

- *HIV infection, stage unknown:* No reported information on AIDS-defining conditions and no information available on CD4 count or percentage

Mortality coding—Starting with 1999 data and the introduction of the 10th revision of the *International Classification of Diseases* (ICD–10), the title for this cause of death was changed from HIV infection to HIV disease, and the ICD codes were changed to B20–B24. Starting with 1987 data, the National Center for Health Statistics introduced category numbers *042–*044 for classifying and coding HIV infection as a cause of death in ICD–9. The asterisks before the category numbers indicate that these codes were not part of the original ICD–9. HIV infection was formerly referred to as human T-cell lymphotropic virus-III/lymphadenopathy-associated virus (HTLV–III/LAV)

infection. Before 1987, deaths involving HIV infection were classified to "Deficiency of cell-mediated immunity" (ICD–9 code 279.1) contained in the category "All other diseases;" to "Pneumocystosis" (ICD–9 code 136.3) contained in the category "All other infectious and parasitic diseases;" to "Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues;" and to a number of other causes. Because of these coding changes, death statistics for HIV infection before 1987 are not strictly comparable with data for 1987 and subsequent years, and therefore are not shown in *Health, United States*.

(Also see Appendix II, Acquired immunodeficiency syndrome [AIDS]; Cause of death; *International Classification of Diseases* [ICD]; *International Classification of Diseases, 9th Revision*, *Clinical Modification* [ICD–9–CM]; Table IV.)

Hypercholesterolemia—See Appendix II, Cholesterol.

Hypertension—In *Health, United States*, participants are considered to have hypertension if they have measured high blood pressure or if they report taking a prescription medicine for high blood pressure. Measured high blood pressure is a systolic blood pressure of at least 140 mm Hg or diastolic blood pressure of at least 90 mm Hg. An average of up to three systolic and diastolic blood pressure readings were used for systolic and diastolic blood pressure values. For antihypertensive medication use, respondents were asked, "Are you now taking prescribed medicine for your high blood pressure?"

Uncontrolled high blood pressure is defined as having measured high blood pressure, among those with hypertension. Those with uncontrolled high blood pressure may also be taking prescribed medicine for high blood pressure. These blood pressure definitions are consistent with the National Heart, Lung, and Blood Institute's (NHLBI) "Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure" (available from: https://www.nhlbi.nih.gov/guidelines/hypertension/jnc7full.pdf), and "An Effective Approach to High Blood Pressure Control: A Science Advisory From the American Heart Association, the American College of Cardiology, and the Centers for Disease Control and Prevention" (available from: http://hyper.ahajournals.org/content/63/4/878).

In October 2017, a revised set of practice guidelines from the American College of Cardiology/American Heart Association Task Force was released. These new guidelines set lower cutoff points for defining high blood pressure: average measured systolic blood pressure of at least 130 mm Hg or diastolic pressure of at least 80 mm Hg. These standards capture what NHLBI categorizes as "prehypertension;" however, they have not yet been adopted by NHLBI and other organizations. Therefore, *Health, United States* continues to use the current standards of systolic blood pressure of at least 140 mm Hg or diastolic pressure of at least 90 mm Hg for hypertension estimates. The impact of the lower blood pressure cutoff points on the percentage of

the population that would be classified as having high blood pressure is shown in Table VI. Among adults aged 20 and over, the age-adjusted prevalence of high blood pressure in 2013–2016 would be 14.9% under the current standards and 34.0% under the alternate standards. Applying the alternate standard to the age-adjusted prevalence of high blood pressure in 1999–2002 would change the percentage from 19.9% to 42.9%. Substantial changes in the percentage with high blood pressure were observed among males and females, across racial and ethnic groups, and by age group (Table VI).

For more information on the alternate standards, see: Whelton PK, Carey RM, Aronow WS, Casey Jr DE, Collins KJ, Himmelfarb CD, et al. 2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA guideline for the prevention, detection, evaluation, and management of high blood pressure in adults. J Am Coll Cardiol. 2017. Available from: http://hyper.ahajournals.org/content/early/2017/11/10/HYP.0000000000000065.

Blood pressure data presented in *Health, United States* are from the National Health and Nutrition Examination Survey (NHANES). Blood pressure is measured by averaging up to three blood pressure readings taken for an NHANES participant. Blood pressure readings of 0 mm Hg are not included in the estimates. The methods used to measure the blood pressure of participants have changed over the different NHANES survey years. Changes have included the following:

- Number of blood pressure measurements taken (increased from one to four)

- Equipment maintenance procedures

- Training of persons taking readings (physician, nurse, or interviewer)

- Proportion zero end-digits for systolic and diastolic readings

- Published diastolic definition

- Location where the measurements were taken (mobile examination center [MEC] or home)

In 1999 and subsequent years, blood pressure was measured for participants aged 8 years and over in the NHANES MEC by one of its physicians. Three consecutive blood pressure readings are obtained using the same arm. If a blood pressure measurement was interrupted or incomplete, a fourth attempt may be made. Both systolic and diastolic measurements are recorded to the nearest even number. Participants with any of the following on both arms were excluded from the examination: rashes, gauze dressings, casts, edema, paralysis, tubes, open sores or wounds, withered arms, a-v shunts, or radical mastectomy. Patients were also excluded if the blood pressure cuff did not fit on the arm.

In NHANES III, three sets of blood pressure measurements were taken in the MEC for examinees aged 5 years and over. Blood pressure measurements were also taken by trained interviewers during the household interview, on sample persons aged 17 and over. Systolic and diastolic average blood pressures were computed as the arithmetic mean of six or fewer measurements obtained at the household interview (maximum of three) and the MEC examination (maximum of three). If the examinee did not have blood pressure measurements taken in the MEC, this variable was calculated from measurements taken at the household interview. Both systolic and diastolic measurements were recorded to the nearest even number.

For more information on changes in blood pressure measurement in NHANES up to 1991, see: Burt VL, Cutler JA, Higgins M, Horan MJ, Labarthe D, Whelton P, et al. Trends in the prevalence, awareness, treatment, and control of hypertension in the adult U.S. population: Data from the health examination surveys, 1960 to 1991. Hypertension 26(1):60–9. 1995.

ICD; ICD codes—See Appendix II, Cause of death; *International Classification of Diseases* (ICD).

Illicit drug use—Refers to the use and misuse of illegal and controlled drugs.

Monitoring the Future (MTF) Study—In this school-based survey of secondary school students, information on illicit drug use is collected using self-completed questionnaires. The information is based on the following questions: "On how many occasions (if any) have you used marijuana in the last 30 days?" Similar questions are asked about lifetime and past year use of marijuana and a range of other drugs, including hallucinogens, inhalants, cocaine, and heroin. Questions on cocaine use include the following: "On how many occasions (if any) have you taken crack (cocaine in chunk or rock form) during the last 30 days?" and "On how many occasions (if any) have you taken cocaine in any other form during the last 30 days?" Starting in 2014, the question on MDMA asks, "On how many occasions (if any) have you taken MDMA (ecstasy or Molly) during the past 30 days?" Previously, the question only asked about ecstasy use before Molly—a nickname for a supposedly stronger form of MDMA—became a popular form of the drug. Questions about prescription drugs (tranquilizers, sedatives, narcotic drugs other than heroin, and amphetamines) provide a description of the legitimate uses for those drugs and then ask respondents to include only use "…on your own, that is, without a doctor telling you to take them."

National Survey on Drug Use and Health (NSDUH)—Information on illicit drug use is collected for survey participants aged 12 and over. Information on any illicit drug use includes any use of marijuana or hashish, cocaine, crack, heroin, hallucinogens, inhalants or methamphetamine, as well as misuse of prescription

psychotherapeutic drugs. Current use (within the past month) is based on the question: "How long has it been since you last used [drug name]?" This answer is cross-checked with the following question: "Think specifically about the past 30 days, from [DATE] up to and including today. During the past 30 days, on how many days did you use [drug name]?" Starting in 2013, information about marijuana use that was recommended by a doctor or other health care professional has been collected; however, reported marijuana use is classified as illicit drug use. Starting in 2015, the NSDUH questionnaire underwent a partial redesign, and changes in measurement for 7 of the 10 illicit drug categories—hallucinogens, inhalants, methamphetamine, and the misuse of prescription pain relievers, tranquilizers, stimulants, and sedatives—may have affected the comparability of the measurement of these illicit drugs and any illicit drug with earlier years (Also see Appendix II, Substance use.)

Immunization—See Appendix II, Vaccination.

Incidence—The number of cases of disease having their onset during a prescribed period of time. It is often expressed as a rate (e.g., the incidence of measles per 1,000 children aged 5–15 years during a specified year). Measuring incidence may be complicated because the population at risk for the disease may change during the period of interest due to births, deaths, or migration, for example. In addition, determining whether a case is new—that is, whether its onset occurred during the prescribed period of time—may be difficult. Because of these difficulties in measuring incidence, many health statistics are instead measured in terms of prevalence. (Also see Appendix II, Prevalence.)

Income—See Appendix II, Family income.

Individual practice association (IPA)—See Appendix II, Health maintenance organization (HMO).

Industry of employment—For the presentation of data in *Health, United States*, industries are classified according to the North American Industry Classification System (NAICS). NAICS groups establishments into industries based on their production or supply function. Establishments using similar raw material inputs, capital equipment, and labor are classified in the same industry. This approach creates homogeneous categories well suited for economic analysis. NAICS uses a six-digit hierarchical coding system to classify all economic activity. The first two digits of the six-digit code designate the highest level of aggregation into the public administration (government) and 20 private industry sectors (Table IX). Agriculture, forestry, fishing and hunting; mining, quarrying, and oil and gas extraction; construction; and manufacturing are primarily goods-producing sectors, and the remaining 16 sectors are entirely service providing. NAICS allows for the classification of more than 1,000 industries. For more information on NAICS, see: https://www.census.gov/eos/www/naics.

Starting in 1997, NAICS replaced the Standard Industrial Classification (SIC) system, which was last updated in 1987. The SIC system focused on the manufacturing sector of the economy and provided significantly less detail for the now-dominant service sector, including newly developed industries in information services, health care delivery, and high-technology manufacturing. Although some titles in SIC and NAICS are similar, there is little comparability between the two systems because industry groupings are defined differently. Estimates classified by NAICS should not be compared with estimates that used SIC.

Infant death—The death of a live-born child before his or her first birthday. Age at death may be further classified as neonatal or postneonatal. Neonatal deaths are those that occur before the 28th day of life; postneonatal deaths are those that occur within 28 days to under 1 year of age. (Also see Appendix II, Rate: Death and related rates.)

Injury—The International Classification of External Causes of Injuries (ICECI) Coordination and Maintenance Group defines injury as a (suspected) bodily lesion resulting from acute overexposure to energy (this can be mechanical, thermal, electrical, chemical, or radiant) interacting with the body in amounts or rates that exceed the threshold of physiological tolerance. The time between exposure to the energy and the appearance of an injury is short. In some cases, an injury results from an insufficiency of any of the vital elements (i.e., air, water, or warmth), as in strangulation, drowning, or freezing. Acute poisonings and toxic effects, including overdoses of substances and wrong substances given or taken in error are included, as are adverse effects and complications of therapeutic, surgical, and medical care. Psychological harm is excluded. Injuries can be intentional or unintentional (i.e., accidental). In National Center for Health Statistics (NCHS) data systems, external causes of nonfatal injuries are currently coded according to the *International Classification of Diseases, 9th Revision*, *Clinical Modification*, Supplementary Classification of External Causes of Injury and Poisoning, and the codes are often referred to as E codes. See Table X for a list of external causes-of-injury categories and E codes used in *Health, United States*. Also see the NCHS injury website at: https://www.cdc.gov/nchs/injury.htm; and see: World Health Organization. International Classification of External Causes of Injuries (ICECI), Version 1.2. 2004. Available from: http://www.who.int/classifications/icd/adaptations/iceci/en/.
(Also see Appendix II, Diagnosis; Injury-related visit.)

Injury-related visit—In the National Hospital Ambulatory Medical Care Survey (NHAMCS), an emergency department visit was considered injury related if the physician diagnosis was injury related or an external cause-of-injury code (E code) was present (Table X). Starting with *Health, United States, 2008*, an injury-related visit was redefined as an initial injury visit. In the 2001–2010 NHAMCS, an initial injury visit was the first visit to an emergency department for an injury that was characterized by either the first-listed

diagnosis being a valid injury diagnosis or by a valid first-listed E code, regardless of the diagnosis code. Visits for which the first-listed diagnosis or the first-listed E code was for a complication of medical care or for an adverse event were not counted as injury visits. For 2001–2004 and 2007 and subsequent data years, the patient record form had a specific question on whether the episode of care was an initial visit for the problem. In the 2005 and 2006 surveys, this variable was not included, and in its place an imputed variable was constructed that indicated whether the visit was or was not the initial visit for the problem. For an explanation of the methodology used to create the imputed initial visit variable, see: https://www.cdc.gov/nchs/data/ahcd/initialvisit.pdf. For more information, see the National Center for Health Statistics Injury Data and Resources website at: https://www.cdc.gov/nchs/injury.htm; and, Fingerhut LA. Recommended definition of initial injury visits to emergency departments for use with the NHAMCS–ED data. NCHS. Health E-Stats. 2006. Available from: https://www.cdc.gov/nchs/data/hestat/injury/injury.htm. (Also see Appendix II, Emergency department or emergency room visit; External cause of injury; Injury.)

Inpatient—A person who is formally admitted to the inpatient service of a hospital for observation, care, diagnosis, or treatment. (Also see Appendix II, Admission; Average length of stay; Days of care; Discharge; Hospital.)

Inpatient care—See Appendix II, Hospital utilization.

Inpatient day—See Appendix II, Days of care.

Instrumental activities of daily living (IADL)—Activities related to independent living, including preparing meals, managing money, shopping for groceries or personal items, performing light or heavy housework, and using a telephone. In the National Health Interview Survey, respondents are asked whether they or family members need the help of another person for handling routine IADLs because of a physical, mental, or emotional problem.

In the Medicare Current Beneficiary Survey, if a sample person had any difficulty performing an activity by him- or herself and without special equipment or did not perform the activity at all because of health problems, the person was categorized as having a limitation in that activity. The limitation may have been temporary or chronic at the time of interview. Sampled persons in the community answered health status and functioning questions themselves, if able to do so. For sampled persons in a long-term care facility, a proxy—such as a nurse—answered questions about the sampled person's health status and functioning. (Also see Appendix II, Activities of daily living [ADL]; Functional limitation; Limitation of activity.)

Insurance—See Appendix II, Health insurance coverage.

Intermediate care facility—See Appendix II, Nursing home.

***International Classification of Diseases* (ICD)**—Used to

Table IX. Codes for industries, based on the North American Industry Classification System (NAICS)

Industry	Code
Agriculture, forestry, fishing and hunting	11
Mining, quarrying, and oil and gas extraction	21
Utilities.	22
Construction	23
Manufacturing	31–33
Wholesale trade.	42
Retail trade	44–45
Transportation and warehousing.	48–49
Information.	51
Finance and insurance	52
Real estate and rental and leasing	53
Professional, scientific, and technical services	54
Management of companies and enterprises	55
Administrative and support and waste management and remediation services.	56
Educational services	61
Health care and social assistance.	62
Arts, entertainment, and recreation	71
Accommodation and food services	72
Other services, except public administration.	81
Public administration	92

SOURCE: Bureau of Labor Statistics. Available from: https://www.census.gov/eos/www/naics/.

code and classify cause-of-death data. ICD is developed collaboratively by the World Health Organization and 10 international centers, 1 of which is housed at the National Center for Health Statistics (NCHS). The purpose of ICD is to promote international comparability in the collection, classification, processing, and presentation of health statistics. Since 1900, ICD has been modified about once every 10 years, except for the 20-year interval between the 9th and 10th revisions (ICD–9 and ICD–10) (Table III). The purpose of the revisions is to stay abreast of advances in medical science. New revisions usually introduce major disruptions in time series of mortality statistics (Tables IV and V). For more information, see the NCHS ICD–10 website at: https://www.cdc.gov/nchs/icd/icd10.htm. (Also see Appendix II, Cause of death; Comparability ratio; *International Classification of Diseases, 9th Revision*, *Clinical Modification* [ICD–9–CM].)

***International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM)**—Based on, and compatible with, the World Health Organization's ICD–9. The United States used ICD–9–CM to code morbidity diagnoses and inpatient procedures until October 1, 2015, when the *International Classification of Diseases, 10th Revision, Clinical Modification/Procedure Coding System* (ICD–10–CM/PCS) went into effect. ICD–9–CM consists of three volumes. Volumes 1 and 2 contain the diagnosis tabular list and index; Volume 3 contains the procedure classification (tabular list and index combined).

ICD–9–CM is divided into 17 chapters and 2 supplemental classifications. The chapters are arranged primarily by body system. In addition, there are chapters for Infectious and

Table X. Codes for external causes of injury, from the *International Classification of Diseases, 9th Revision, Clinical Modification*

External cause-of-injury category	E code
All injury	E800–E869, E880–E929, E950–E999
Unintentional	E800–E869, E880–E929
Motor-vehicle traffic	E810–E819
Falls	E880–E886, E888
Struck by or against objects or persons	E916–E917
Caused by cutting and piercing instruments or objects	E920
Intentional (suicide and homicide)	E950–E969, E979, E999.1
Undetermined	E980–E989
Other (includes legal intervention and operations of war)	E970–E978, E990–E999.0

SOURCE: CDC. Recommended framework of E code groupings for presenting injury morbidity data (August 10, 2011). Available from: https://www.cdc.gov/injury/wisqars/ecode_matrix.html; *International Classification of Diseases, 9th Revision, Clinical Modification*. Available from: https://www.cdc.gov/nchs/icd/icd9cm.htm.

parasitic diseases; Neoplasms; Endocrine, nutritional, and metabolic diseases; Mental disorders; Complications of pregnancy, childbirth, and puerperium; Certain conditions originating in the perinatal period; Congenital anomalies; and Symptoms, signs, and ill-defined conditions. The two supplemental classifications are for factors influencing health status and contact with health services (V codes), and for external causes of injury and poisoning (E codes).

In *Health, United States*, morbidity data will be classified using ICD–9–CM until 2016 data are available, and then morbidity data will be classified using ICD–10–CM/PCS. ICD–9–CM procedure categories and codes are shown in Table XI. For more information about ICD–9–CM, see the National Center for Health Statistics "Classification of Diseases, Functioning, and Disability" website at: https://www.cdc.gov/nchs/icd.htm. (Also see Appendix II, *International Classification of Diseases* [ICD]; *International Classification of Diseases, 10th Revision*, *Clinical Modification/ Procedure Coding System* [ICD–10–CM/PCS].)

International Classification of Diseases, 10th Revision, Clinical Modification/Procedure Coding System (ICD–10–CM/PCS)—Use of ICD–10–CM/PCS to report medical diagnoses and inpatient procedures was implemented October 1, 2015. The transition to ICD–10 is required for everyone covered by the Health Insurance Portability and Accountability Act. This change to ICD–10 does not affect Current Procedural Terminology coding for outpatient procedures and physician services. ICD–10–CM/PCS consists of two parts: ICD–10–CM for diagnosis coding, and ICD–10–PCS for inpatient procedure coding. For more information about ICD–10–CM/PCS, see the National Center for Health Statistics "Classification of Diseases, Functioning, and Disability" website at: https://www.cdc.gov/nchs/icd.htm; and the Centers for Medicare & Medicaid Services' ICD–10 transition website at: https://www.cms.gov/Medicare/Coding/ICD10/index.html.

Late fetal death rate—See Appendix II, Rate: Death and related rates.

Leading causes of death—See Appendix II, Cause-of-death ranking.

Length of stay—See Appendix II, Average length of stay.

Life expectancy—The average number of years of life remaining to a person at a particular age and based on a given set of age-specific death rates—generally the mortality conditions existing in the period mentioned. Life expectancy may be determined by sex, race and Hispanic origin, or other characteristics, by using age-specific death rates for the population with that characteristic. (Also see Appendix II, Rate: Death and related rates.)

U.S. life tables by Hispanic origin were available starting with 2006 data. Life expectancy data for the Hispanic population were not available before 2006 for three major reasons: (a) coverage of the Hispanic population in the U.S. mortality statistics system was incomplete, (b) misclassification of Hispanic persons on death certificate data underestimated deaths in the Hispanic population, and (c) misstatement of age at the oldest ages in the Hispanic population led to an underestimation of mortality at the oldest ages.

Hispanic origin was added to the U.S. standard death certificate in 1989, but it was not adopted by every state until 1997. By 1997, all states had reporting rates over 99%. Research on race and Hispanic-origin reporting on U.S. death certificates found that misclassification of race and Hispanic origin accounts for a net underestimate of 5% for total Hispanic deaths, 1% for total non-Hispanic black deaths, and 0.5% for non-Hispanic white deaths. To address the effects of age misstatement at the oldest ages, the probability of death for Hispanic persons over age 80 is estimated as a function of non-Hispanic white mortality with the use of the Brass relational-logit model. For more information, see: Arias E. United States life tables by Hispanic origin. National Center for Health Statistics. Vital Health Stat 2(152). 2010. Available from: https://www.cdc.gov/nchs/data/series/sr_02/sr02_152.pdf.

Life tables are used in the calculation of life expectancy and have been available since 1945. From 1945 through 1996, the annual life tables were abridged life tables, closed at age 85 and over, and were constructed by reference to a standard table. Beginning with 1997 mortality data, a new methodology similar to that of the 1989–1991 decennial life

Table XI. Codes for procedure categories for Healthcare Cost and Utilization Project data, from the *International Classification of Diseases, 9th Revision, Clinical Modification*

Procedure category	Code
Amputation of lower extremity (amputation of lower limb)	84.10–84.19
Appendectomy	47.0, 47.01, 47.09, 47.1, 47.11, 47.19
Arthroplasty knee (knee replacement)	00.80–00.84, 81.41–81.44, 81.46, 81.47, 81.54, 81.55
Cesarean section	74.0, 74.1, 74.2, 74.4, 74.99
Cholecystectomy (gall bladder removal)	51.21–51.24, 51.41–51.43, 51.49, 51.51, 51.59
Colorectal resection (removal of part of the bowel)	17.31–17.36, 17.39, 45.71–45.76, 45.79, 45.8, 45.81–45.83, 48.40–48.43, 48.49, 48.5, 48.50–48.52, 48.59, 48.61–48.66, 48.69
Coronary artery bypass graft (CABG)	36.10–36.17, 36.19, 36.2, 36.3, 36.31–36.34, 36.39
Endarterectomy (plaque removal from artery lining of brain, head, neck)	38.11, 38.12
Heart valve procedures	35.00–35.14, 35.20–35.28, 35.96, 35.97, 35.99
Hip replacement	00.70–00.77, 00.85–00.87, 81.51–81.53, 81.69
Hysterectomy	68.3, 68.31, 68.39, 68.4, 68.41, 68.49, 68.5, 68.51, 68.59, 68.6, 68.61, 68.69, 68.7, 68.71, 68.79, 68.9
Incision and excision of central nervous system (brain surgery)	01.01, 01.09, 01.21–01.28, 01.31, 01.32, 01.39, 01.41, 01.42, 01.51–01.53, 01.59
Insertion, revision, replacement, removal of cardiac pacemaker	00.50–00.54, 00.56, 00.57, 17.51, 17.52, 37.70–37.83, 37.85–37.87, 37.89, 37.94–37.98
Laminectomy (spine surgery)	03.02, 03.09, 80.5, 80.50, 80.51, 80.59, 84.59–84.69, 84.80–84.85,
Ligation of fallopian tubes (“tying” of fallopian tubes)	66.21, 66.22, 66.29, 66.31, 66.32, 66.39
Oophorectomy (removal of one or both ovaries)	65.3, 65.31, 65.39, 65.4, 65.41, 65.49, 65.51–65.54, 65.61–65.64
Percutaneous coronary angioplasty (PTCA) (balloon angioplasty)	00.66, 17.55, 36.01, 36.02, 36.05
Small bowel resection (removal of part of the small bowel)	45.61–45.63
Spinal fusion	81.00–81.09, 81.30–81.39, 81.61–81.64, 84.51
Tonsillectomy or adenoidectomy	28.2, 28.3, 28.6, 28.7
Treatment, fracture or dislocation of hip and femur	78.55, 78.65, 79.05, 79.15, 79.25, 79.35, 79.45, 79.55, 79.65, 79.75, 79.85, 79.95

NOTES: Procedures were classified by the Clinical Classifications Software (CCS). For more information, see: https://www.hcup-us.ahrq.gov/toolssoftware/ccs/AppendixBSinglePR.txt.

SOURCE: Agency for Healthcare Research and Quality.

tables was employed to estimate annual complete life tables to age 100, with combined life table values presented for ages 100 and over. The methodology was again revised for 2000–2007 using a methodology similar to that of the 1999–2001 decennial life tables. Beginning with 2008 data, the life table methodology was refined by changing the smoothing technique used to estimate the life table functions at the oldest ages. All intercensal life tables (2001–2009) were revised with the new methodology and the intercensal population estimates. As a result, data post-2000 may differ from figures published previously. For a full description of the 2008 life table methodology, see: Arias E. United States life tables, 2008. National Vital Statistics Reports; vol 61 no 3. Hyattsville, MD: National Center for Health Statistics. 2012. Available from: https://www.cdc.gov/nchs/data/nvsr/nvsr61/nvsr61_03.pdf. Starting with *Health, United States, 2016*, life expectancy estimates for 2010 and beyond were revised to reflect updated race and Hispanic-origin classification ratios. See: Arias E, Heron M, Hakes JK. The validity of race and Hispanic-origin reporting on death certificates in the United States: An update. National Center for Health Statistics. Vital Health Stat 2(172). 2016. Available from: https://www.cdc.gov/nchs/data/series/sr_02/sr02_172.pdf. Additional life table estimates are available from the life tables website at: https://www.cdc.gov/nchs/products/life_tables.htm.

Limitation of activity—May be defined in different ways, depending on the conceptual framework. In the National Health Interview Survey, limitation of activity refers to a long-term reduction in a person's capacity to perform the usual kind or amount of activities associated with his or her age group as a result of a chronic condition. Limitation of activity is assessed by asking persons a series of questions about limitations in their or a family member's ability to perform activities usual for their age group because of a physical, mental, or emotional problem. Persons are asked about limitations in activities of daily living, instrumental activities of daily living, play, school, work, difficulty walking or remembering, and any other activity limitations. For reported limitations, the causal health conditions are determined, and persons are considered limited if one or more of these conditions is chronic. Children under age 18 who receive special education or early intervention services are considered to have a limitation of activity. (Also see Appendix II, Activities of daily living [ADL]; Instrumental activities of daily living [IADL].)

Long-term care facility—A residence that provides a specific level of personal or medical care or supervision to residents. In the Medicare Current Beneficiary Survey, a residence is considered a long-term care facility if it has three or more long-term care beds and answers affirmatively to at least one of three questions: "Does this facility (a)

provide personal care services to residents, (b) provide continuous supervision of residents, or (c) provide any long-term care?" Types of long-term care facilities include licensed nursing homes, skilled nursing homes, intermediate care facilities, retirement homes (that provide services), domiciliary or personal care facilities, distinct long-term care units in a hospital complex, mental health facilities and centers, assisted and foster care homes, assisted living facilities, and institutions for persons with intellectual disabilities (formerly called mentally retarded) and the developmentally disabled. (Also see Appendix II, Nursing home.)

Low birthweight—See Appendix II, Birthweight.

Mammography—An x-ray image of the breast used to detect irregularities in breast tissue. In the National Health Interview Survey (NHIS), questions concerning use of mammography are asked on an intermittent schedule, and question content has differed across years. Mammograms may be used for diagnostic or screening purposes, but the purpose cannot be determined from NHIS.

In *Health, United States*, use of mammography was defined as "percent of women having a mammogram within the past two years." Survey questions have changed over time.

In 1987 and 1990, women were asked to report the number of days, weeks, months, or years that had passed since their most recent mammogram. In 1991, women were asked whether they had a mammogram in the past 2 years. In 1993 and 1994, women were asked whether they had a mammogram within the past year, between 1 to 2 years ago, or more than 2 years ago. In 1998, women were asked whether they had a mammogram a year ago or less, more than 1 year but not more than 2 years, more than 2 years ago but not more than 3 years, more than 3 years but not more than 5 years, or more than 5 years ago.

In 1999, women were asked to report the number of days, weeks, months, or years that had passed since their most recent mammogram. Estimates for 1999 may be slightly overestimated in comparison with previous years: women who responded "2 years ago" (10% of women) may include those who received a mammogram more than 2 years but less than 3 years ago.

In 2000 and 2003, women were asked when they had their most recent mammogram (asked to give month and year). Women who did not respond were given a follow-up question that used the 1999 wording, and women who did not respond to the 1999 wording were asked a second follow-up question that used the 1998 wording. Estimates for 2000 and 2003 may be slightly overestimated in comparison with estimates prior to 1999: women who responded "2 years ago" (2% of women) may include those who received a mammogram more than 2 years but less than 3 years ago.

In 2005, women were asked the same series of mammography questions as in the 2000 and 2003 surveys,

but the questionnaire skip pattern was modified so that more women were asked the follow-up question using the 1998 wording. Thus, estimates for 2005 and subsequent years are more precise than estimates for 1999, 2000, and 2003. SAS code to categorize mammography data for 2000 and beyond is available from: https://www.cdc.gov/nchs/nhis/nhis_2005_data_release.htm. In 2008, 2010, 2013, and 2015, the mammography questions were identical to those asked in 2005.

The recommended age to begin mammography screening and the interval between screenings has changed over time. The current recommendation, made by the U.S. Preventive Services Task Force in 2016, is the use of screening mammography for breast cancer every 2 years in women aged 50–74, with additional guidance provided for women aged 40–49. For additional information, see: U.S. Preventive Services Task Force. Breast cancer: Screening. 2016. Available from: https://www.uspreventiveservicestaskforce.org/Page/Document/RecommendationStatementFinal/breast-cancer-screening1; and U.S. Preventive Services Task Force. The guide to clinical preventive services, 2014. 2014. Available from: https://www.ahrq.gov/sites/default/files/wysiwyg/professionals/clinicians-providers/guidelines-recommendations/guide/cpsguide.pdf.

Managed care—A term originally used to refer to prepaid health plans (generally, health maintenance organizations, or HMOs) that furnish care through a network of providers under a fixed budget and "manage" costs. Increasingly, the term is also used to include preferred provider organizations (PPOs) and even forms of indemnity insurance coverage (i.e., fee-for-service insurance).

Medicare managed care includes a combination of risk- and cost-based plans. Risk-based plans receive a fixed prepayment per beneficiary per month to help pay for the cost of all covered services that a beneficiary may use. Each year, the Centers for Medicare & Medicaid Services (CMS) announces a "benchmark" amount for each county for coverage of Medicare Part A and Part B services. A managed care plan contracting with Medicare then submits a "bid," which represents the revenue it needs to cover these services. If the bid is above the benchmark, the difference must be charged in a premium to the enrollees of the plan. If the bid is below the benchmark, then a portion of the difference must be used to provide additional benefits to enrollees, with the Medicare trust funds receiving the remaining share. The term Medicare Advantage is used to refer to managed care plans, including HMOs, PPOs, private fee-for-service plans, special needs plans, Medicare medical savings account plans, and certain other types of plans.

Cost-based plans are offered by an HMO or a competitive medical plan and are paid for their "reasonable costs" in providing Medicare services to enrollees, based on annual cost reports filed with CMS. For current definitions of the various Medicare managed care plans, see Chapter 1, section 30 ("Other MA Plans") in the CMS "Medicare Managed Care

Manual," available from: https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/Downloads/mc86c01.pdf.

Medicare enrollees can choose to enroll in a managed care program (if available) or to receive services on a fee-for-service basis.

The two major Medicaid managed care categories are risk-based plans (such as managed care organizations [MCOs], prepaid inpatient health plans, and prepaid ambulatory health plans) and primary care case management (PCCM) arrangements. Risk-based plans are paid a fixed fee per enrollee, which is generally paid on a monthly basis. Risk-based plans assume some or all of the financial risk for providing the services covered under the contract. PCCM providers are usually physicians, physician group practices, or entities employing or having other arrangements with such physicians, but they can also include nurse practitioners, nurse midwives, or physician assistants. These providers contract directly with the state to locate, coordinate, and monitor covered primary care (and sometimes additional services). PCCM providers are paid a per-patient case management fee and usually do not assume financial risk for the provision of services. Some states allow Medicaid enrollees to voluntarily enroll in managed care plans; most states require that at least certain categories of Medicaid beneficiaries join such plans. Both risk-based plans and PCCM arrangements include plans that provide specialized services to certain categories of Medicaid beneficiaries. For more information on state Medicaid managed care plans, see https://www.medicaid.gov/.

(Also see Appendix II, Health maintenance organization [HMO]; Medicare; Medicaid; Preferred provider organization [PPO].)

Marital status—Classified through self-reporting in the categories married and unmarried. The term "married" encompasses all married people, including those separated from their spouses. "Unmarried" includes those who are single (never married), divorced, or widowed.

> *Birth file*—In 1970, 39 states and the District of Columbia (D.C.), and in 1975, 38 states and D.C., included a direct question about mother's marital status on the birth certificate. Since 1980, national estimates of births to unmarried women have been based on two methods for determining marital status: a direct question in the birth registration process and inferential procedures. For 1980–1996, marital status was reported on the birth certificates of 41 to 45 states and D.C.; with the addition of California in 1997, 46 states and D.C.; and for 1998–2001, 48 states and D.C. In 1997, all but four states (Connecticut, Michigan, Nevada, and New York), and in 1998, all but two states (Michigan and New York) included a direct question about mother's marital status on their birth certificates. For 1998–2007, marital status was imputed as married on birth records with missing information in the 48 states and D.C. where

this information was obtained by a direct question. For 2008–2016 for 49 states and D.C., marital status is reported in the birth registration process. Marital status is imputed if missing on the birth certificate; for 2014–2016 mother's marital status was imputed for less than 0.1% of birth records in the reporting areas.

For states lacking a direct question, marital status was inferred. Before 1980, the incidence of births to unmarried women in states with no direct question on marital status was assumed to be the same as the incidence in reporting states in the same geographic division. Starting in 1980, for states without a direct question, marital status was inferred by comparing the parents' and child's surnames. For 1994–1996, birth certificates in 45 states and D.C. included a question about the mother's marital status. Beginning in 1997, the marital status of women giving birth in California and Nevada has been determined by a direct question in the birth registration process. Beginning on June 15, 1998, Connecticut discontinued inferring the mother's marital status and added a direct question regarding mother's marital status to the state's birth certificate.

In 2005, Michigan added a direct question to the birth registration process, but it uses inferential procedures to update information collected using the direct question. In both Michigan and New York, a birth is inferred as nonmarital if either of these factors, listed in priority-of-use order, is present: (a) a paternity acknowledgment was received or (b) the father's name is missing. For 2006–2008 data, inferential procedures were used to compile birth statistics by marital status, in full or in part, for New York and Michigan, respectively. For 2009–2016, mother's marital status is inferred for New York birth records where it was missing.

National Health Interview Survey (NHIS)—In NHIS, marital status is asked of, or about, all persons aged 14 and over. Respondents are asked, "Are you now married, widowed, divorced, separated, never married, or living with a partner?" In tables, these responses are categorized into three groups: married; divorced, separated, widowed; and never married.

Maternal age—See Appendix II, Age.

Medicaid—Authorized in 1965 and became Title XIX of the Social Security Act. Medicaid is a jointly funded cooperative venture between the federal and state governments to assist states in the provision of adequate medical care to eligible persons. Within broad federal guidelines, each state establishes its own eligibility standards; determines the type, amount, duration, and scope of services; sets the rate of payment for services; and administers its own program.

Medicaid is the largest program providing medical and health-related services to low-income individuals. Medicaid was originally available only to individuals receiving cash assistance, but over time, Congress has expanded eligibility

for children and selected adult groups. Most recently, the Affordable Care Act (ACA) and the Health Care and Education Reconciliation Act (HCERA) initiated significant changes to Medicaid. (Subsequent references to ACA in this text will include changes enacted by either ACA or HCERA.)

States are mandated by federal law to cover certain population groups (mandatory eligibility groups) but are granted flexibility in covering other groups (optional eligibility groups). In the standard benefit package, states must cover mandatory benefits (e.g., physician services) but may choose to cover optional benefits (e.g., tuberculosis-related services). Prior to ACA, many states expanded Medicaid coverage above the federal minimums, and many states have chosen to continue this additional coverage. The major coverage change introduced by ACA was to create a new eligibility group—Medicaid expansion to Low-Income Adults—for those with incomes not exceeding 138% of the federal poverty level (FPL) (133% by statute with an additional 5% income disregard). This group is discussed in more detail below.

States set individual eligibility criteria within federal minimum standards. In addition to Medicaid's financial eligibility requirements, individuals must satisfy federal and state requirements regarding residency, immigration status, and documentation of U.S. citizenship. ACA provided a standard application—available through the Medicaid program or through the Health Insurance Marketplace—and a standard method for calculating income eligibility for Medicaid, the Children's Health Insurance Program (CHIP), and insurance affordability programs offered through the marketplace, based primarily on modified adjusted gross income (MAGI). Effective 2014, MAGI is used to determine Medicaid and CHIP eligibility for most nondisabled children and adults under age 65.

Broadly, there are four major eligibility groups covered by most states: Children, Adults with Disabilities, Aged Adults, and Nondisabled Adults. These are discussed in more detail below.

Major eligibility groups

Children—Medicaid was originally available only to individuals receiving cash assistance, but Congress has since expanded eligibility for children and other populations, making individuals eligible based on income below a specified percentage of the FPL. ACA raised the minimum Medicaid eligibility for nondisabled children not exceeding 138% FPL (133% by statute with an additional 5% income disregard). Other eligible child groups include: infants born to women covered by Medicaid (known as "deemed newborns"), certain children in foster care or adoption assistance programs, certain children with disabilities, and children who use long-term services and supports. Like disabled adults, most states automatically qualify disabled children in the Supplemental Security Income (SSI) program for Medicaid coverage; eligibility is not determined by the newly introduced MAGI. Some states use more

restrictive criteria to determine Medicaid eligibility of children with SSI. These criteria are usually based on income relative to the FPL and assets. Regardless of how they qualify, all children enrolled in Medicaid are entitled to the comprehensive set of health care services known as Early, Periodic Screening, Diagnostic and Treatment. These services include screening for and treatment of any vision or hearing problems, coverage for eyeglasses and hearing aids, and regular preventive dental care and treatment.

Adults with Disabilities—Adults with disabilities from physical conditions, intellectual or developmental disabilities, serious behavioral disorders, or serious mental illness may be eligible for Medicaid. The SSI program pays benefits to disabled adults and children who have limited income and resources. Enrollment in SSI (or the Social Security Disability Insurance program, which provides Medicare to qualified individuals after a 24-month waiting period) automatically qualifies adults with disabilities for Medicaid in most states. However, some states use more restrictive criteria (known as 209(b) of the 1972 amendments to the Social Security Act) to determine Medicaid eligibility. These criteria are often based on income relative to the FPL and assets. As of December 2016, 10 states used more restrictive criteria than enrollment in SSI. Individuals with disabilities who are eligible for Medicaid are entitled to all services that are deemed medically necessary.

All states have the option of covering additional people with low incomes or high medical expenses through other eligibility pathways. These may include covering those at higher income levels; permitting persons with disabilities and high medical expenses to spend down until they are eligible for coverage; setting a special income level to cover institutionalized individuals with incomes up to 300% of the SSI benefit rate; extending coverage to individuals who receive home- and community-based waiver services as an alternative to institutionalization; permitting working individuals who are severely impaired but whose earnings would otherwise disqualify them from Medicaid to buy into Medicaid; or covering adults with disabilities who use long-term services and supports based on their functional status (known as level-of-care) and use of services (e.g., residence in a nursing facility, intermediate care facility for persons with intellectual disabilities, or mental health facility, or requiring significant home-based services).

Aged Adults—The SSI program covers those with disabilities and people aged 65 and over without disabilities who meet the financial limits. In most states, SSI enrollment automatically qualified those aged 65 and over for Medicaid. However, some states use more restrictive criteria (known as 209(b)) to determine Medicaid eligibility. The more restrictive criteria may consider income and assets, disability, or both. Most Medicaid enrollees aged 65 and over are also Medicare

beneficiaries. Members of this group are known as dual-eligible beneficiaries. Dual eligibles are eligible for the same Medicare benefits as other Medicare beneficiaries but have low incomes that make it difficult to afford the premiums and cost sharing required by Medicare, as well as the cost of services not covered by the Medicare program (e.g., long-term services and supports). Dual eligibles may qualify for partial Medicaid benefits (to cover Medicare premium and cost sharing) or full Medicaid benefits, in which case they get coverage for the full range of services offered by their state's Medicaid program.

Like coverage for adults with disabilities, states may extend Medicaid coverage to adults with low incomes or high medical expenses through other eligibility pathways, such as covering those with higher income levels or those with chronic conditions or low functional status requiring institutionalization or significant home-based services. There is considerable variation across states in the optional Medicaid services covered, which results in different benefits for dual-eligible beneficiaries depending on where they live.

Nondisabled Adults—Prior to the enactment of ACA, most low-income nondisabled adults were not eligible for Medicaid unless they were in special groups (e.g., pregnant women, low-income parents, or other caretaker relatives with dependent children) or in states with demonstration programs that provided expanded coverage.

The major eligibility groups of nondisabled adults include the following: Medicaid Expansion to Low-income Adults (the new adult group), Pregnant Women, Parents and Caretaker Relatives, and Adults without Dependent Children. These groups and some specialty eligible groups—Breast and Cervical Cancer Prevention and Treatment Program and Tuberculosis (TB)—are discussed below.

Medicaid Expansion to Low-income Adults—As of October 2016, 31 states and the District of Columbia (D.C.) had chosen to expand their Medicaid programs. These states include: Alaska, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, Hawaii, Illinois, Indiana, Iowa, Kentucky, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Montana, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Dakota, Ohio, Oregon, Pennsylvania, Rhode Island, Vermont, Washington, and West Virginia.

Pregnant Women—Since 1989, Congress has required Medicaid to cover pregnant women with low income. Currently, all but four states have extended Medicaid coverage to pregnant women above the currently required level of 138% FPL. Maternity-related services covered by the programs include prenatal care, labor and delivery, and 60 days of postpartum care. In Medicaid-expansion states, women at or below 138% FPL who are pregnant when they apply for Medicaid are

not eligible for the new adult group. Medicaid coverage as a pregnant woman ends 2 months postpartum (after which the individual may be eligible in another Medicaid eligibility group).

Parents and Caretaker Relatives—Parents and caretaker relatives in low-income families with dependent children are eligible for coverage if their income meets the minimum eligibility levels established in 1996 for financial and medical assistance, which averages 41% of poverty level; 1996 was the year of enactment for welfare reform, which held in place guaranteed Medicaid eligibility for those receiving cash benefits at that time. States have the option to be more or less restrictive than the 1996 standards.

Adults without Dependent Children—Prior to ACA, about one-half of states provided some coverage, through Medicaid demonstration projects or state-funded programs, for nondisabled adults who had limited incomes but did not otherwise qualify for Medicaid. Currently, 31 states and D.C. have implemented ACA Medicaid expansion for adults with incomes at or below 133% of the poverty line (with a 5% income disregard, so effectively 138%).

Other eligibility groups

Breast and Cervical Cancer Prevention and Treatment Program—In 2000, Congress passed the Breast and Cervical Cancer Prevention and Treatment Act, which allowed states to offer eligible women, who were diagnosed with cancer through the Centers for Disease Control and Prevention (CDC)-funded screening program, access to treatment through Medicaid. All states and D.C. have chosen to provide this coverage. For a woman to be eligible under this option, she must be under age 65; have been screened through CDC's National Breast and Cervical Cancer Early Detection Program; be diagnosed with either breast or cervical cancer, including precancerous conditions; need treatment for breast or cervical cancer; and be uninsured and otherwise not eligible for Medicaid.

Tuberculosis (TB)—States can choose to provide Medicaid coverage of TB-related services for low-income individuals who are infected with TB. This eligibility group serves individuals who are not otherwise eligible for Medicaid based on the traditional eligibility categories.

Medicaid operates as a vendor payment program. States may pay health care providers directly on a fee-for-service basis, or states may pay for Medicaid services through various prepayment arrangements, such as through Medicaid managed care organizations or other forms of managed care. Within federally imposed upper limits and restrictions, each state generally has broad discretion in determining both the payment method and rate for services. Thus, the Medicaid program varies considerably from state to state, as well as within each state over time.

For more information, see: https://www.medicaid.gov/ and https://www.macpac.gov/.

(Also see Appendix II, Children's Health Insurance Program [CHIP]; Health expenditures, national; Health insurance coverage; Health maintenance organization [HMO]; Managed care; and Appendix I, Medicaid Statistical Information System [MSIS].)

Medicaid payments—Under the Medicaid program, medical vendor payments are payments (expenditures) to medical vendors from the state through a fiscal agent or to a health insurance plan. Adjustments are made for cost settlements, third-party recoupments, refunds, voided checks, and financial settlements that cannot be related to specific provided claims. Medicaid medical vendor payments presented in *Health, United States* do not include payments made to providers from other federal programs or from third-party payers for Medicaid-eligible individuals; payments made from state medical assistance funds that are not federally matchable; cost sharing or enrollment fees collected from recipients or a third party; and administration and training costs. Medicaid payment data presented in *Health, United States* are from the Medical Statistical Information System, which obtains payment data from electronic Medicaid data submitted to the Centers for Medicare & Medicaid Services by each state. Payment data are based on adjudicated claims for medical services reimbursed with Title XIX funds.

Medical specialty—See Appendix II, Physician specialty.

Medicare—A nationwide program providing health insurance coverage to selected groups, regardless of income. The covered groups are (a) most people aged 65 and over; (b) people entitled to Social Security or Railroad Retirement disability benefits for at least 24 months (with the waiting period waived or reduced in certain situations); (c) government employees or spouses with Medicare-only coverage who have been disabled for more than 29 months (with the waiting period waived or reduced in certain situations); (d) most people with end-stage renal disease; and (e) certain people in the Libby, Montana, vicinity who are diagnosed with asbestos-related conditions. The program was enacted on July 30, 1965, as Title XVIII of the Social Security Act, "Health Insurance for the Aged and Disabled," and became effective on July 1, 1966.

From its inception, Medicare has included two separate but coordinated programs: Hospital Insurance (Part A) and Supplementary Medical Insurance (Part B). Part C (Medicare Advantage) was established by the Balanced Budget Act of 1997 (originally as Medicare+Choice) as an expanded set of options for the delivery of health care under Medicare. Although all Medicare beneficiaries can receive their benefits through the original fee-for-service program, most beneficiaries enrolled in both Part A and Part B have the option to participate in a Medicare Advantage plan instead.

Organizations that seek to contract as Medicare Advantage

plans must meet specific organizational, financial, and other requirements. Although most Medicare Advantage enrollees are in coordinated care plans, such as health maintenance organizations and preferred provider organizations, Medicare Advantage plans also include private fee-for-service plans, provider-sponsored organizations, special needs plans, medical savings account plans (which provide benefits after a single high deductible is met), and certain other types of plans. Medicare Advantage plans are generally paid on a capitation basis—that is, plans are paid a predetermined amount per member per month, which is adjusted according to the health status of the plans' members—and are required to provide at least those services covered by Parts A and B, except hospice services. Plans may (and in certain situations must) provide extra benefits (such as vision or hearing coverage) or reduce cost sharing or premiums.

The Medicare Prescription Drug, Improvement, and Modernization Act (also called the Medicare Modernization Act, or MMA) was passed on December 8, 2003. MMA (Pub. L. 108–173) established a voluntary prescription drug benefit for Medicare beneficiaries and created a new Medicare Part D. People eligible for Medicare could begin to enroll in Part D beginning in January 2006. For more information on Medicare, see: https://www.medicare.gov/Pubs/pdf/10050-Medicare-and-you.pdf and https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/CMSProgramStatistics/index.html. (Also see Appendix II, Fee-for-service health insurance; Health insurance coverage; Health maintenance organization [HMO]; Managed care; and Appendix I, Medicare Administrative Data.)

Metropolitan statistical area (MSA)—The Office of Management and Budget (OMB) defines MSAs according to published standards that are applied to U.S. Census Bureau data. The standards are revised periodically, generally prior to the decennial census, and are applied to the census data to delineate the statistical areas. Revisions to the areas are implemented between censuses by using updated population estimates. The most recent standards were released in June 2010 (available from: https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/bulletins/2013/b13-01.pdf). In August 2017, OMB released a new delineation of the country's metropolitan and micropolitan statistical areas based on the 2010 standards (available from: https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/bulletins/2017/b-17-01.pdf). New MSA delineations are incorporated into individual data systems at different times.

In the 2000 and 2010 standards, an MSA is a county, or group of contiguous counties, that contains at least one urbanized area with a population of 50,000 or more. In addition to the county or counties that contain all or part of the urbanized area, an MSA may contain other counties if there are strong social and economic ties with the central county or counties, as measured by commuting. Counties that are not within an MSA are considered to be nonmetropolitan. For more

information, see: https://www.census.gov/programs-surveys/metro-micro.html. Starting with 2016, most data by MSA currently in *Health, United States* are based on the June 2013 OMB definitions (2010 OMB standards applied to 2010 Census data). (Also see Appendix II, Urbanization.)

National Health Interview Survey (NHIS)—For respondents to NHIS, designation of place of residence as metropolitan or nonmetropolitan is based on the following MSA definitions: for 2016 and beyond, based on the June 2013 OMB definitions (2010 OMB standards applied to 2010 Census data); for 2006–2015, based on the June 2003 OMB definitions (2000 OMB standards applied to 2000 Census data); for 1995–2005, based on the June 1993 OMB definitions (1990 OMB standards applied to 1990 Census data); and for 1985–1994, based on the June 1983 OMB definitions (1980 OMB standards applied to 1980 Census data). For estimates based on 2016 NHIS data combined with earlier years of NHIS, metropolitan status of residence for all years involved is based on the June 2013 definitions. Introduction of each set of standards may create a discontinuity in trends.

National Immunization Survey (NIS)—Since 2013, designation of place of residence as metropolitan or nonmetropolitan for NIS respondents is based on 2010 Census data and the MSAs delineated in February 2013. For data prior to 2013, designation of place of residence as metropolitan or nonmetropolitan for NIS respondents was based on 2000 Census data and the MSAs delineated in 2003, as well as the following versions and revisions of MSA definitions: for 2011 and 2012, on the December 2009 definitions; for 2010, on the November 2008 definitions, for New England, the county-based areas were used; for 2009, on the November 2007 definitions, for New England, the county-based areas were used; for 2008, on the December 2006 definitions, for New England, the county-based areas were used; for Quarter 4 of 2007, on the December 2006 definitions; for Quarters 1–3 of 2007, on the December 2005 definitions, for New England, the county-based areas were used in 2007; for 2006, on the November 2004 definitions, for New England, the county-based areas were used; for 2005, on the December 2003 definitions, for New England, the county-based areas were used; for Quarters 3 and 4 of 2004, on the December 2003 definitions; and for Quarters 1 and 2 of 2004 and Quarter 4 of 2003, on the June 2003 definitions. For 2003–2004 for New England, the county-based areas were used. For more information, see: https://www.census.gov/programs-surveys/metro-micro.html.

Micropolitan statistical area—The Office of Management and Budget (OMB) defines a micropolitan statistical area as a nonmetropolitan county, or group of contiguous nonmetropolitan counties, that contains an urban cluster of 10,000–49,999 persons. A micropolitan statistical area may include surrounding counties that have strong social and economic ties with the central county or counties as measured by commuting. Nonmetropolitan counties that are not classified as part of a micropolitan statistical area are considered noncore.

OMB defines micropolitan statistical areas according to published standards that are applied to U.S. Census Bureau data. The standards are revised periodically, generally prior to the decennial census, and are applied to the census data to delineate the statistical areas. Revisions to the areas are implemented between censuses using updated population estimates. The most recent standards were released in June 2010 (available from: https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/federal_register/FR2010/06282010_metro_standards.pdf). OMB released a new delineation of the country's metropolitan and micropolitan statistical areas based on the 2010 standards in July 2015 (available from: https://obamawhitehouse.archives.gov/sites/default/files/omb/bulletins/2015/15-01.pdf). Data for micropolitan statistical areas currently in *Health, United States* are based on the 2013-based delineation as part of the 2013 NCHS Urban–Rural Classification Scheme for Counties. The micropolitan statistical area data will be updated when the new delineation is incorporated into individual data systems.

For more information about micropolitan statistical areas, see: https://www.census.gov/programs-surveys/metro-micro.html. (Also see Appendix II, Metropolitan statistical area [MSA]; Urbanization.)

Multum Lexicon Plus therapeutic class—Starting with 2003 data, the National Center for Health Statistics (NCHS) used Lexicon Plus (Cerner Multum, Inc., Denver, CO.), a proprietary database, to assist with data editing and classification of human drugs. Starting with 2005 data, Lexicon Plus has also been used to assist with data collection. Data collected before 2003 were updated by adding a generic drug code from Lexicon Plus.

Lexicon Plus is a comprehensive database of all prescription and some nonprescription drug products available in the U.S. drug market. It uses a three-level nested category system to assign a therapeutic classification to each drug (e.g., for atenolol: cardiovascular agents [level 1]; beta-adrenergic blocking agents [level 2]; cardioselective beta blockers [level 3]). Not all drugs have three classification levels; some may only have two (e.g., for diltiazem: cardiovascular agents [level 1]; calcium channel blocking agents [level 2]). Other drugs may have only one classification level. All drugs in NCHS surveys were assigned into a Lexicon Plus drug category, even those drugs not found in the Lexicon Plus drug database. "Unspecified" drugs were assigned to their respective therapeutic category (e.g., hormones/hormone modifiers–unspecified: category ID = 97, category name = hormones/hormone modifiers).

Data presented in the *Health, United States* trend table on prescription drug use by drug class are based on the second

level of the Lexicon Plus nested category system (e.g., calcium channel blocking agents). A drug may have up to four drug therapeutic categories; drugs classified into more than one class were counted in each class. For example, if a person reported taking lorazepam, that respondent was classified as taking an anticonvulsant, an antiemetic/antivertigo agent, and an anxiolytic, sedative, hypnotic drug.

The drug information file is updated along with each cycle of prescription medication data release. Some new therapeutic categories could be added, and a few assigned classification levels might be changed (e.g., alendronate now has three classification levels: metabolic agents [level 1], bone resorption inhibitors [level 2], and bisphosphonates [level 3]); under the prior drug information file, alendronate had two classification levels: hormones [level 1] and bisphosphonates [level 2]. Data presented in *Health, United States* used the most recent drug information file for all data years. For more information, see: http://wwwn.cdc.gov/nchs/nhanes/1999-2000/RXQ_DRUG.htm.

Neonatal mortality rate—See Appendix II, Rate: Death and related rates.

Nonprofit hospital—See Appendix II, Hospital.

North American Industry Classification System (NAICS)—See Appendix II, Industry of employment.

Notifiable disease—A disease that, when diagnosed, requires health providers (usually by law) to report to state or local public health officials. Notifiable diseases are of public interest by reason of their contagiousness, severity, or frequency. For more information, see: https://wwwn.cdc.gov/nndss/.

Nursing home—In the Quality Improvement Evaluation System (formerly the Online Survey Certification and Reporting System), a nursing home is a facility that is certified and meets the Centers for Medicare & Medicaid Services' long-term care requirements for Medicare and Medicaid eligibility.

After October 1, 1990, long-term care facilities that met the Omnibus Budget Reconciliation Act of 1987 (Pub. L. No. 100–203, 101 Stat. 1330) nursing home reform requirements and were formerly certified under Medicaid as skilled nursing, nursing home, or intermediate care facilities were reclassified as nursing facilities. Medicare continues to certify skilled nursing facilities but not intermediate care facilities. State Medicaid programs can certify intermediate care facilities for individuals with intellectual disabilities (formerly called mentally retarded) and the developmentally disabled. To be certified for participation in Medicaid, nursing facilities must also be certified to participate in Medicare (except those facilities that have obtained waivers). Thus, most nursing home care is now provided in skilled care facilities. (Also see Appendix II, Long-term care facility; Nursing home; Resident, health facility.)

Nursing home expenditures—See Appendix II, Health expenditures, national.

Obesity—See Appendix II, Body mass index (BMI).

Occupancy rate—In American Hospital Association statistics, hospital occupancy rate is calculated as the average daily census divided by the number of hospital beds, cribs, and pediatric bassinets set up and staffed on the last day of the reporting period, expressed as a percentage. Average daily census is calculated by dividing the total annual number of inpatients, excluding newborns, by 365 days to derive the number of inpatients receiving care on an average day during the annual reporting period. The occupancy rate for facilities other than hospitals is calculated as the number of residents at the facility reported on the day of interview, divided by the number of reported beds. In the Centers for Medicare & Medicaid Services' Quality Improvement Evaluation System (formerly the Online Survey Certification and Reporting System), occupancy is determined as of the day of certification inspection as the total number of residents on that day divided by the total number of beds on that day.

Office-based physician—See Appendix II, Physician.

Office visit—In the National Ambulatory Medical Care Survey, a physician's ambulatory practice (office) can be in any location other than in a hospital, nursing home, other extended care facility, patient's home, industrial clinic, college clinic, or family planning clinic. Offices in health maintenance organizations and private offices in hospitals are included. An office visit is any direct personal exchange between an ambulatory patient and a physician or members of his or her staff for the purpose of seeking care and rendering health services. (Also see Appendix II, Outpatient visit.)

Operation—See Appendix II, Procedure.

Outpatient department—According to the National Hospital Ambulatory Medical Care Survey (NHAMCS), an outpatient department (OPD) is a hospital facility where nonurgent ambulatory medical care is provided. The following types of OPDs are excluded from NHAMCS: ambulatory surgical centers, chemotherapy, employee health services, renal dialysis, methadone maintenance, and radiology. (Also see Appendix II, Emergency department; Outpatient visit.)

Outpatient surgery—According to the American Hospital Association, outpatient surgery is a surgical operation, whether major or minor, performed on a patient who does not remain in the hospital overnight. Outpatient surgery may be performed in inpatient operating suites, outpatient surgery suites, or procedure rooms within an outpatient care facility. A surgical operation involving more than one surgical procedure is considered one surgical operation. (Also see Appendix II, Procedure.)

Outpatient visit—The American Hospital Association defines outpatient visits as visits for receipt of medical, dental, or other services at a hospital by patients who are not lodged in the hospital. Each appearance by an outpatient to each unit of the hospital is counted individually as an outpatient visit, including all clinic visits, referred visits, observation services, outpatient surgeries, and emergency department visits. In the National Hospital Ambulatory Medical Care Survey (NHAMCS), an outpatient department visit is a direct personal exchange between a patient and a physician or other health care provider working under the physician's supervision for the purpose of seeking care and receiving personal health services. (Also see Appendix II, Emergency department or emergency room visit; Outpatient department.)

Overweight—See Appendix II, Body mass index (BMI).

Pap smear—A Pap smear (also known as a Papanicolaou smear or Pap test) is a microscopic examination of cells scraped from the cervix that is used to detect cancerous or precancerous conditions of the cervix or other medical conditions.

In the National Health Interview Survey (NHIS), questions concerning Pap smear use are asked on an intermittent schedule, and the question content has differed slightly across years. For 2015, women were asked when they had their most recent Pap smear, and use of Pap smears was defined as "percent of women having a Pap smear within the past 3 years." Survey questions have changed over time.

In 1987, women were asked to report either the month and year of their Pap smear or the amount of time (in days, weeks, months, or years) elapsed since their last Pap smear. Women who did not respond were asked, "Was it within the past year or a year or more ago?" Those who answered "within the past year" were asked to further clarify whether the Pap smear was less than 3 months or 3 or more months ago, and those who answered "a year or more ago" were asked to further clarify whether the Pap smear was 3 years or less, between 3 and 5 years, or 5 or more years ago.

In 1990 and 1991, Pap smear data in the past 3 years were not available. In 1993 and 1994, women were asked whether they had a Pap smear within the past year, between 1 and 3 years ago, or more than 3 years ago. In 1998, women were asked whether they had a Pap smear 1 year ago or less, more than 1 year but not more than 2 years ago, more than 2 years but not more than 3 years ago, more than 3 years but not more than 5 years ago, or more than 5 years ago.

In 1999, women were asked when they had their most recent Pap smear (time elapsed in days, weeks, months, or years). Women who did not respond were asked whether they had a Pap smear a year ago or less, more than 1 year but not more than 2 years ago, more than 2 years but not more than 3 years ago, more than 3 years but not more than 5 years ago, or more than 5 years ago. Estimates for 1999 may be slightly overestimated in comparison with estimates for previous years due to the inclusion of women who

responded "3 years ago" (4% of women), which could have included more than 3 years but less than 4 years.

In 2000 and 2003, women were asked when they had their most recent Pap smear (month and year). Women who did not respond were given a follow-up question that used the 1999 wording, and women who did not respond to the follow-up question were asked a second follow-up question that used the 1998 wording. Estimates for 2000 and 2003 may be slightly overestimated in comparison with years prior to 1999 due to the inclusion of women who responded "3 years ago" (less than 1% of women), which could have included more than 3 years but less than 4 years.

In 2005, women were asked the same series of questions about Pap smear use as in the 2000 and 2003 surveys, but the questionnaire skip pattern was modified so that more women were asked the follow-up question using the 1998 wording, and these women were not uniformly coded as having had a Pap smear within the past 3 years. Thus, estimates for 2005 are more precise than estimates for 1999, 2000, and 2003. SAS code to categorize Pap smear data for 2000 and beyond is available from: https://www.cdc.gov/nchs/nhis/nhis_2005_data_release.htm.

In 2008, 2010, 2013, and 2015, Pap smear questions were similar to those asked in 2005.

All women aged 18 and over were asked the Pap smear question(s). Women who reported having had a hysterectomy (removal of the uterus, with or without removal of the ovaries and cervix) were still asked the Pap smear questions because a woman who has had a hysterectomy may still have had Pap smear testing.

The current general recommendation, made by the U.S. Preventive Services Task Force (USPSTF) in 2012, is the use of Pap smears for cervical cancer every 3 years in women aged 21–65, with additional recommendations available for women aged 30–65 who want to lengthen the recommended screening interval. In *Health, United States, 2014*, additional age groups (18–20, 21–24, and 21–44) were added to account for the new recommendation. However, these recommendations were undergoing review by USPSTF at the time this report was prepared. For a summary of current Pap smear testing recommendations and the status of the review, see: https://www.uspreventiveservicestaskforce.org/Page/Document/UpdateSummaryFinal/cervical-cancer-screening and https://www.uspreventiveservicestaskforce.org/Page/Document/UpdateSummaryDraft/cervical-cancer-screening2.

USPSTF recommends against routine Pap smear screening in women who have had a total hysterectomy for benign disease. Therefore, two measures of Pap smear screening are presented in *Health, United States*: one among all women and one among women who did not report having a hysterectomy, although it is not known from NHIS data whether, for women who did report a hysterectomy, it was for benign disease. Questions about whether the respondent had a hysterectomy were not asked in 2003.

For other survey years, questions about hysterectomy in NHIS differed slightly, as follows.

In 1987, women who reported that they had not had a recent Pap smear were asked the most important reason they had not had a Pap smear; one reason women could select was "had a hysterectomy." In 1993, 1994, 1998, 1999, 2013, and 2015, women were asked, "Have you had a hysterectomy?" In 2000, 2005, 2008, and 2010, two questions were used to determine whether women had a hysterectomy. Women were asked, "Have you had a hysterectomy?" In addition, women who reported that they had not had a recent Pap smear were asked the most important reason they had not had a Pap smear; one reason women could select was "had hysterectomy." Women responding to either of these questions that they had a hysterectomy were excluded from the *Health, United States* estimates for the group "Percent of women having a Pap smear within the past 3 years, among those who have not had a hysterectomy."

Patient—See Appendix II, Inpatient; Office visit; Outpatient visit.

Percent change/percentage change—See Appendix II, Average annual rate of change (percent change).

Perinatal mortality rate; ratio—See Appendix II, Rate: Death and related rates.

Personal care home with or without nursing—See Appendix II, Nursing home.

Personal health care expenditures—See Appendix II, Health expenditures, national.

Physical activity, leisure-time—Starting with *Health, United States, 2010*, estimates on leisure-time physical activity changed to reflect the federal 2008 Physical Activity Guidelines for Americans (available from: https://health.gov/PAGuidelines/guidelines/default.aspx). Adults who met the 2008 guidelines reported at least 150 minutes per week of moderate-intensity aerobic physical activity or 75 minutes per week of vigorous-intensity aerobic physical activity (or an equivalent combination of moderate- and vigorous-intensity aerobic activity) and muscle-strengthening activities at least twice a week. The estimates for the percentage of Americans who met the 2008 guidelines for aerobic physical activity and muscle strengthening are not comparable with estimates in previous editions of *Health, United States* that showed the percentage of Americans with regular leisure-time physical activity. For more information, see: Carlson SA, Fulton JE, Schoenborn CA, Loustalot F. Trend and prevalence estimates based on the 2008 Physical Activity Guidelines for Americans. Am J Prev Med 39(4)305–13. 2010.

Starting with 1998 data, leisure-time physical activity has been assessed in the National Health Interview Survey (NHIS) by asking adults a series of questions about how often they do vigorous or light or moderate physical activity of at least 10 minutes duration and about how long these

sessions generally last. All questions related to leisure-time physical activity were phrased in terms of current behavior and lack a specific reference period. Vigorous physical activity is described as causing heavy sweating or a large increase in breathing or heart rate, and light or moderate as causing light sweating or a slight-to-moderate increase in breathing or heart rate. Adults were also asked about how often they did leisure-time physical activities specifically designed to strengthen their muscles, such as lifting weights or doing calisthenics. The 2008 guidelines recommend any kind of aerobic activity, not just leisure-time aerobic activity, so the leisure-time aerobic activity estimates presented in this report may underestimate the percentage of adults who met the 2008 guidelines for aerobic activity. For more information, see the NHIS Adult Physical Activity Information website at: https://www.cdc.gov/nchs/nhis/physical_activity.htm.

Physician—Data on physician characteristics are obtained through physician self-report from the American Medical Association's (AMA) Physician Masterfile. Although AMA collects data for both doctors of medicine and doctors of osteopathy (DOs), in *Health, United States*, data for DOs come from the American Osteopathic Association. (Also see Appendix II, Physician specialty.)

Active (or professionally active) physician—These physicians are currently engaged in patient care or other professional activity for a minimum of 20 hours per week. Other professional activity includes administration, medical teaching, research, and other activities such as employment with insurance carriers, pharmaceutical companies, corporations, voluntary organizations, and medical societies. Physicians who are retired, semiretired, working part-time, or not practicing are classified as inactive and are excluded. Also excluded are physicians with unknown addresses and physicians who did not provide information on type of practice or present employment (not classified).

Hospital-based physician—These physicians are employed under contract with hospitals to provide direct patient care and include physicians in residency training (including clinical fellows) and full-time members of the hospital staff.

Office-based physician—These physicians are engaged in seeing patients in solo practice, group practice, two-physician practice, other patient care employment, or in providing inpatient services such as those offered by pathologists and radiologists.

Data for physicians are presented by type of education (doctor of medicine or doctor of osteopathy); place of education (U.S. medical graduates and international medical graduates); activity status (professionally active and inactive); area of specialty; and geographic area.

Physician specialty—Any specific branch of medicine in which a physician may concentrate. Data are based on physician self-reports of their primary area of specialty.

Physician data are broadly categorized into two areas of practice: those who provide primary care and those who provide specialty care. (Also see Appendix II, Physician.)

General primary care specialist—These physicians practice in the general fields of family medicine, general practice, internal medicine, obstetrics and gynecology, and pediatrics. Primary care specialists associated with these generalist fields are excluded.

Primary care subspecialist—These specialists practice in the primary care subspecialties of family medicine, internal medicine, obstetrics and gynecology, and pediatrics. Family medicine subspecialties include geriatric medicine and sports medicine. Internal medicine subspecialties include adolescent medicine, critical care medicine, diabetes, endocrinology, diabetes and metabolism, hematology, hepatology, hematology or oncology, cardiac electrophysiology, infectious diseases, clinical and laboratory immunology, geriatric medicine, sports medicine, nephrology, nutrition, medical oncology, pulmonary critical care medicine, and rheumatology. Obstetrics and gynecology subspecialties include hospice and palliative medicine (obstetrics and gynecology), maternal and fetal medicine, critical care medicine (obstetrics and gynecology), and reproductive endocrinology. Pediatric subspecialties include adolescent medicine, pediatric critical care medicine, pediatrics or internal medicine, neonatal-perinatal medicine, pediatric allergy, pediatric cardiology, pediatric endocrinology, pediatric infectious disease, pediatric pulmonology, medical toxicology (pediatrics), pediatric emergency medicine, pediatric gastroenterology, pediatric hematology or oncology, clinical and laboratory immunology (pediatrics), pediatric nephrology, pediatric rheumatology, and sports medicine (pediatrics).

Specialty care physician—These physicians are sometimes called specialists and include primary care specialists listed above in addition to all other physicians not included in the generalist definition. Specialty fields include allergy and immunology, aerospace medicine, anesthesiology, cardiovascular diseases, child and adolescent psychiatry, colon and rectal surgery, dermatology, diagnostic radiology, forensic pathology, gastroenterology, general surgery, medical genetics, neurology, nuclear medicine, neurological surgery, occupational medicine, ophthalmology, orthopedic surgery, otolaryngology, psychiatry, public health and general preventive medicine, physical medicine and rehabilitation, plastic surgery, anatomic and clinical pathology, pulmonary diseases, radiation oncology, thoracic surgery, urology, addiction medicine, critical care medicine, legal medicine, and clinical pharmacology.

Population—The U.S. Census Bureau collects and publishes data on populations in the United States according to several different definitions. Various statistical systems then use the appropriate population for calculating rates. (Also see Appendix I, Population Census and Population Estimates.)

Civilian noninstitutionalized population—Civilian population excluding persons residing in institutions (such as nursing homes, prisons, jails, mental hospitals, and juvenile correctional facilities). U.S. Census Bureau estimates of the civilian noninstitutionalized population are used to calculate sample weights for the National Health Interview Survey, the National Health and Nutrition Examination Survey, and the National Survey of Family Growth, and as denominators for rates calculated for the National Ambulatory Medical Care Survey and the National Hospital Ambulatory Medical Care Survey–Outpatient Department Component.

Civilian population—Resident population excluding members of the Armed Forces, although families of members of the Armed Forces are included. The civilian population is the denominator for emergency department visit rates using the National Hospital Ambulatory Medical Care Survey–Emergency Department Component.

Resident population—Includes persons whose usual place of residence (i.e., the place where one usually lives and sleeps) is in 1 of the 50 states or the District of Columbia. It includes members of the Armed Forces stationed in the United States and their families. It excludes members of the Armed Forces stationed outside the United States and civilian U.S. citizens whose usual place of residence is outside the United States. The resident population is the denominator used to calculate birth and death rates and incidence of disease.

Postneonatal mortality rate—See Appendix II, Rate: Death and related rates.

Poverty—Two related versions of federal poverty measures are shown in *Health, United States*. The first measure—a ratio of family income to federal poverty threshold—is constructed using poverty thresholds from the U.S. Census Bureau. Poverty thresholds are updated annually for inflation by the U.S. Census Bureau using the Consumer Price Index for all urban consumers (CPI–U). Poverty thresholds include a set of money income thresholds that vary by family size and composition but do not vary geographically. Families or individuals with income below the appropriate threshold are classified as below poverty. For example, the weighted average poverty threshold for a family of four was $24,563 in 2016, $24,257 in 2015, $24,230 in 2014, $22,314 in 2010, $17,603 in 2000, and $13,359 in 1990. For more information, see the U.S. Census Bureau's poverty threshold website at: https://www.census.gov/data/tables/time-series/demo/income-poverty/historical-poverty-thresholds.html.

The second poverty measure used in *Health, United States* is a ratio of family income to the U.S. Department of Health

and Human Services (HHS) poverty guidelines. Poverty guidelines are derived from the U.S. Census Bureau's poverty thresholds and are issued annually by HHS. These guidelines are often used to determine eligibility in certain federal programs. The HHS poverty guidelines take into account family size and state (coterminous states, Alaska, Hawaii), but not family composition. For more information, see the HHS "Poverty Guidelines, Research, and Measurement" website at: https://aspe.hhs.gov/poverty-research.

National Health and Nutrition Examination Survey (NHANES)—NHANES uses the U.S. Census Bureau's Current Population Survey definition of family to group household members into a family unit. A poverty ratio is computed by dividing family income by the HHS poverty guidelines specific to family size, as well as the appropriate guideline year, and state. See: Johnson CL, Paulose-Ram R, Ogden CL, Carroll MD, Kruszon-Moran D, Dohrmann SM, Curtin LR. National Health and Nutrition Examination Survey: Analytic guidelines, 1999–2010. National Center for Health Statistics. Vital Health Stat 2(161). 2013. Available from: https://www.cdc.gov/nchs/data/series/sr_02/sr02_161.pdf.

National Health Interview Survey—For data years prior to 1997, a ratio of family income to U.S. Census Bureau poverty threshold was computed taking into account family income and family size. Starting with 1997 data, the poverty ratio was based on family income, family size, and family composition (number of children in the family, and for families with two or fewer adults, the age of the adults in the family). (Also see Appendix II, Consumer Price Index [CPI]; Family income; and Appendix I, Current Population Survey [CPS]; National Health Interview Survey [NHIS].)

Preferred provider organization—A type of medical plan in which coverage is provided to participants through a network of selected health care providers, such as hospitals and physicians. Enrollees may seek care outside the network but pay a greater percentage of the cost of coverage than within the network. (Also see Appendix II, Health maintenance organization [HMO]; Managed care.)

Prevalence—The number of cases of a disease, number of infected persons, or number of persons with some other attribute present during a particular interval of time. It is often expressed as a rate (e.g., the prevalence of diabetes per 1,000 persons during a year). (Also see Appendix II, Incidence.)

Primary care specialty—See Appendix II, Physician specialty.

Private expenditures—See Appendix II, Health expenditures, national.

Procedure—Can include surgical procedures (such as appendectomies), diagnostic procedures (such as spinal taps), and therapeutic treatments (such as infusion of

a cancer chemotherapeutic substance) reported on a patient's medical record. In *Health, United States*, procedures are coded according to the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM) until 2016 data are available, and then procedures will be classified using the *International Classification of Diseases, 10th Revision, Clinical Modification/Procedure Coding System* (ICD–10–CM/PCS).

Healthcare Cost and Utilization Project, National (Nationwide) Inpatient Sample (HCUP–NIS)—Currently, up to 15 procedures are coded using ICD–9–CM procedure codes per hospital stay in the HCUP–NIS database. On October 1, 2015, the United States transitioned to the *International Classification of Diseases, 10th Revision, Clinical Modification* (ICD–10–CM) diagnosis coding system for most inpatient and outpatient medical encounters and the *International Classification of Diseases, 10th Revision, Procedure Coding System* (ICD–10–PCS) for inpatient hospital procedures. Because of the impact of this transition to ICD–10–CM/PCS, and because full calendar year data for 2015 are not available using one ICD system, the *Health, United States* table has not been updated with 2015 data. Starting with 2016 data, procedures will be coded according to ICD–10–CM/PCS. For each record, a principal procedure is identified as the first procedure listed. HCUP–NIS procedure data presented in *Health, United States* are limited to operating room procedures that are principal procedures (first-listed). Valid operating room procedures were identified according to diagnosis-related groups (DRGs) software. For DRG development, physician panels classify all ICD–9–CM procedure codes based on whether the procedure would be performed in operating rooms in most hospitals. Clinical Classifications Software (CCS) was used to categorize ICD–9–CM principal operating room procedure codes into 1 of 231 clinically meaningful categories. CCS was developed at the Agency for Healthcare Research and Quality as a tool for clustering patient procedures into a manageable number of clinically meaningful categories. It is periodically updated. For more information on CCS, see: https://www.hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp. The top-ranking operating room procedure categories by age group, based on the number of discharges and total national costs, are presented in *Health, United States* (Table XI). CCS categories labeled "other" are not presented because these comprise miscellaneous procedures that do not form a homogeneous group. (Also see Appendix II, Outpatient surgery.)

Proprietary hospital—See Appendix II, Hospital.

Public expenditures—See Appendix II, Health expenditures, national.

Purchasing power parities (PPPs)—Calculated rates of currency conversion that equalize the purchasing power

of different currencies by eliminating the differences in price levels between countries. PPPs show the ratio of prices in national currencies for the same good or service in different countries. PPPs can be used to make intercountry comparisons of the gross domestic product and its component expenditures. (Also see Appendix II, Gross domestic product [GDP].)

Race—In 1977, the Office of Management and Budget (OMB) issued *Race and Ethnic Standards for Federal Statistics and Administrative Reporting* (Statistical Policy Directive 15) to promote comparability of data among federal data systems. The 1977 Standards called for the federal government's data systems to classify individuals into the following four racial groups: American Indian or Alaskan Native, Asian or Pacific Islander, black, and white. Depending on the data source, the classification by race was based on self-classification or on observation by an interviewer or other person filling out the questionnaire.

In 1997, revisions were announced for classification of individuals by race within the federal government's data systems (see: Revisions to the standards for the classification of federal data on race and ethnicity. Fed Regist 62(210):58782–90. 1997). The 1997 Standards specify five racial groups: American Indian or Alaska Native, Asian, black or African American, Native Hawaiian or Other Pacific Islander, and white. These five categories are the minimum set for data on race in federal statistics. The 1997 Standards also offer an opportunity for respondents to select more than one of the five groups, leading to many possible multiple-race categories. As with the single-race groups, data for the multiple-race groups are to be reported when estimates meet agency requirements for reliability and confidentiality. The 1997 Standards allow for observer or proxy identification of race but clearly state a preference for self-classification. The federal government considers race and Hispanic origin to be two separate and distinct concepts. Thus, Hispanic persons may be of any race. Federal data systems were required to comply with the 1997 Standards by 2003.

> *Birth file*—Information about the race and Hispanic origin of the mother and father is provided by the mother at the time of birth and is recorded on the birth certificate or fetal death record. Since 1980, birth rates, birth characteristics, and death rates for live-born infants and fetal deaths are presented in *Health, United States* according to race of the mother. Before 1980, data were tabulated by race of the newborn and fetus, taking into account the race of both parents. If the parents were of different races and one parent was white, the child was classified according to the race of the other parent. When neither parent was white, the child was classified according to father's race, with one exception: if either parent was Hawaiian, the child was classified as Hawaiian. Before 1964, if race was unknown, the birth was classified as white. Starting in 1964, unknown race was classified according to information on the birth

record. Starting with the 2000 Census, the race and ethnicity data used for denominators (population) to calculate birth and fertility rates have been collected in accordance with the 1997 revised OMB standards for race and ethnicity. However, the numerators (births) will not be compatible with the denominators until all the states revise their birth certificates to reflect the new standards. To compute rates, it is currently necessary to bridge population data for multiple-race persons to single-race categories. (Also see Appendix I, Population Census and Population Estimates, Bridged-race Population Estimates.)

Starting with 2003 data, some states began using the 2003 revision of the U.S. Standard Certificate of Live Birth, which allows the reporting of more than one race (multiple races). As of January 1, 2016, all states and the District of Columbia (D.C.), in addition to Puerto Rico, the U.S. Virgin Islands, Guam, and Northern Marianas, used the 2003 revision of the U.S. Standard Certificate of Live Birth and reported race according to the 1997 revised OMB standards. In 2016, 2.5% of mothers in the 50 U.S. states and D.C. reported more than one race. To provide uniformity and comparability of data for trend comparison, bridged single-race categories are still presented in *Health, United States*. For more information on the adoption of the 2003 revision of the U.S. Standard Certificate of Live Birth, see the Technical Notes section of the annual series of "Births: Final Data" reports, available from: https://www.cdc.gov/nchs/products/nvsr.htm.

Although the bridging procedure imputes multiple race of mothers to one of the four minimum races stipulated in the 1977 Standards, mothers of a specified Asian or Pacific Islander (API) subgroup (Chinese, Japanese, Hawaiian, or Filipino) in combination with another race (American Indian or Alaska Native, black, or white) or another API subgroup cannot be imputed to a single API subgroup. Data for the API subgroups from all states and D.C. are available starting with the 2016 Natality public-use data file at: https://www.cdc.gov/nchs/births.htm.

Mortality file—Information about the race and Hispanic origin of a decedent is reported by the funeral director as provided by an informant (often the surviving next of kin), or in the absence of an informant, on the basis of observation. Death rates by race and Hispanic origin are based on information from death certificates (numerators of the rates) and on population estimates from the U.S. Census Bureau (denominators). Race and ethnicity information from the census is by self-report. To the extent that race and Hispanic origin are inconsistent between these two data sources, death rates will be biased. Studies have shown that persons self-reported as American Indian, Asian, or Hispanic on census and survey records may sometimes be reported as white or non-Hispanic on the death certificate,

resulting in an underestimation of deaths and death rates for the American Indian, Asian, and Hispanic groups. Bias also results from undercounts of some population groups in the census—particularly young black males, young white males, and elderly persons—resulting in an overestimation of death rates.

Race and ethnicity reporting on the death certificate continues to be excellent for the white and black populations. It remains poor for the American Indian or Alaska Native population but is reasonably good for the Hispanic and Asian or Pacific Islander populations. Decedent characteristics such as place of residence and nativity have an important effect on the quality of reporting on the death certificate. The effects of misclassification on mortality estimates were most pronounced for the American Indian or Alaska Native population, where correcting for misclassification reverses a large American Indian or Alaska Native-over-white mortality advantage to a relatively large disadvantage. Among the Hispanic and Asian or Pacific Islander populations, adjustment for death certificate misclassification did not significantly affect minority-majority mortality. For more information, see: Arias E, Heron M, Hakes JK. The validity of race and Hispanic-origin reporting on death certificates in the United States: An update. National Center for Health Statistics. Vital Health Stat 2(172). 2016. Available from: https://www.cdc.gov/nchs/data/series/sr_02/sr02_172.pdf; and Arias E, Schauman WS, Eschbach K, Sorlie PD, Backlund E. The validity of race and Hispanic origin reporting on death certificates in the United States. National Center for Health Statistics. Vital Health Stat 2(148). 2008. Available from: https://www.cdc.gov/nchs/data/series/sr_02/sr02_148.pdf.

Denominators for infant mortality rates are based on the number of live births, rather than on population estimates. Race information for the denominator is supplied from the birth certificate. Before 1980, race of child for the denominator took into account the races of both parents. Starting in 1980, race information for the denominator has been based solely on the race of the mother. Race information for the numerator is supplied from the death certificate. For the infant mortality rate, race information for the numerator is race of the deceased child.

Issues affecting the interpretation of vital event rates for the American Indian or Alaska Native population include (a) changes in the classification or self-identification of persons of American Indian or Alaska Native heritage over time, and (b) misclassification of American Indian or Alaska Native persons on death certificates by the funeral director or informant. Vital event rates for the American Indian or Alaska Native population shown in *Health, United States* are based on the total U.S. resident American Indian or Alaska Native population, as enumerated by the U.S. Census Bureau.

In contrast, the Indian Health Service calculates vital event rates for this population based on U.S. Census Bureau county data for American Indian or Alaska Native persons who reside on or near reservations. Because of misclassification of American Indian or Alaska Native persons on death certificates, American Indian or Alaska Native national and state-specific mortality estimates published in *Health, United States* should be interpreted with caution.

Interpretation of trends for the Asian population in the United States should take into account that this population more than doubled between 1980 and 1990, primarily because of immigration. Between 1990 and 2000, the increase in the Asian population was 48% for persons reporting that they were Asian alone and 72% for persons who reported they were either Asian alone or Asian in combination with another race.

For more information on coding race by using vital statistics, see: National Center for Health Statistics. Vital statistics of the United States, vol I, Natality, and vol II, Mortality, part A, Technical appendix. Published annually, available from: https://www.cdc.gov/nchs/products/vsus/ta.htm.

Starting with 2003 data, some states began using the 2003 revision of the U.S. Standard Certificate of Death, which allows the reporting of more than one race (multiple races). This change was implemented to reflect the increasing diversity of the U.S. population and to be consistent with the decennial census. For more information on states' reporting of multiple-race data, see the annual series of "Deaths: Final Data" reports, available from: https://www.cdc.gov/nchs/products/nvsr.htm.

To provide uniformity and comparability of data until all states are reporting multiple-race data, it has been necessary to bridge the responses of those for whom more than one race is reported (multiple race) to one single race. For more information, see: National Center for Health Statistics. NCHS procedures for multiple-race and Hispanic origin data: Collection, coding, editing, and transmitting. 2004. Available from: https://www.cdc.gov/nchs/data/dvs/Multiple_race_docu_5-10-04.pdf; and National Center for Health Statistics. Vital statistics of the United States, vol I, Natality, and vol II, Mortality, part A, Technical appendix. Published annually, available from: https://www.cdc.gov/nchs/nvss.htm.

National Health and Nutrition Examination Survey (NHANES)—Starting with *Health, United States, 2003*, race-specific estimates based on NHANES were tabulated using the 1997 Standards for data years 1999 and beyond. Prior to data year 1999, the 1977 Standards were used. Because of the differences between the two standards, the race-specific estimates shown in trend tables presenting NHANES data for 1999 and beyond are not strictly comparable with estimates for earlier data

years. Race in NHANES I and II was determined primarily by interviewer observation; starting with NHANES III, race was self-reported by survey participants.

The NHANES sample for data years 1999–2006 was designed to provide estimates specifically for persons of Mexican origin and not for all Hispanic-origin persons in the United States. Persons of Hispanic origin other than Mexican origin were entered into the sample with different selection probabilities that are not nationally representative of the total U.S. Hispanic population. Starting with 2007–2008 data, all Hispanic persons were oversampled, not just persons of Mexican origin. Oversampling of the black population was continued. Starting in 2011, NHANES oversampled the non-Hispanic Asian population. In *Health, United States*, estimates are shown for non-Hispanic white, non-Hispanic black, and Mexican-origin persons, as well as for Hispanic-origin and non-Hispanic Asian persons, where possible. Although data were collected according to the 1997 Standards, there are insufficient numbers of observations during this period to meet statistical reliability or confidentiality requirements for reporting estimates for additional race categories.

National Health Care Surveys—Estimates by racial group based on the National Ambulatory Medical Care Survey (NAMCS) and the National Hospital Ambulatory Medical Care Survey (NHAMCS) should be used with caution because information on race was collected from medical records and race is imputed for records missing that information. In 2015, race data were missing and imputed for 26% of NAMCS visits and 19% of NHAMCS–Emergency Department visits. For more information on the race imputation process used in each data year, see the public-use file documentation, available from: https://www.cdc.gov/nchs/ahcd/index.htm. Starting with 1999 data, the instruction for the race item on the Patient Record Form was changed so that more than one race could be recorded. In previous years only one race could be recorded. Estimates by racial group presented in *Health, United States* are for visits where only one race was recorded. Because of the small number of responses with more than one racial group recorded, estimates for visits with multiple races recorded are unreliable and are not presented.

National Health Interview Survey (NHIS)—Starting with *Health, United States, 2002*, race-specific estimates based on NHIS were tabulated using the 1997 Standards for data year 1999 and beyond and are not strictly comparable with estimates for earlier years. The 1997 Standards specify five single-race categories and multiple-race categories. Estimates for specific race groups are shown when they meet requirements for statistical reliability and confidentiality. The race categories white only, black or African American only, American Indian or Alaska Native only, Asian only, and Native Hawaiian or Other Pacific Islander only

include persons who reported only one racial group; the category 2 or more races includes persons who reported more than one of the five racial groups in the 1997 Standards or one of the five racial groups and "some other race." In order to maintain consistency with the U.S. Census Bureau procedures for collecting and editing data on race and ethnicity, NHIS made major changes to its editing procedures in the 2003 data year. Beginning with the 2003 NHIS, Other Race was no longer available as a separate race response. This response category was treated as missing, and the race was imputed if this was the only race response. In cases where Other Race was mentioned along with one or more race groups, the Other Race response was dropped, and the race group information was retained.

Prior to data year 1999, data were tabulated according to the 1977 Standards, with four racial groups, and the Asian only category included Native Hawaiian or Other Pacific Islander. Estimates for single-race categories prior to 1999 included persons who reported one race, or if they reported more than one race, identified one race as best representing their race. Differences between estimates tabulated using the two standards for data year 1999 are discussed in the footnotes for each NHIS table in *Health, United States 2002, 2003*, and *2004* editions, available from: https://www.cdc.gov/nchs/hus/previous.htm#editions.

Tables XII and XIII illustrate NHIS data tabulated by race and Hispanic origin according to the 1997 and 1977 Standards for two health statistics (cigarette smoking and private health insurance coverage). In these examples, three separate tabulations using the 1997 Standards are shown: (a) race: mutually exclusive race groups, including several multiple-race combinations; (b) race, any mention: race groups that are not mutually exclusive because each race category includes all persons who mention that race; and (c) Hispanic origin and race: detailed race and Hispanic origin with a multiple-race total category. Where applicable, comparison tabulations by race and Hispanic origin are shown based on the 1977 Standards. Because there are more race groups with the 1997 Standards, the sample size of each race group under the 1997 Standards is slightly smaller than the sample size under the 1977 Standards. Only those few multiple-race groups with sufficient numbers of observations to meet standards of statistical reliability are shown. These tables also illustrate changes in labels and group categories resulting from the 1997 Standards. The race designation "black" was changed to "black or African American," and the ethnicity designation "Hispanic" was changed to "Hispanic or Latino."

Survey data included in *Health, United States*, other than NHIS, the National Survey of Drug Use and Health (NSDUH), and the National Health and Nutrition Examination Survey (NHANES), generally do not

Table XII. Current cigarette smoking among adults aged 18 and over, by race and Hispanic origin under the 1997 and 1977 Standards for federal data on race and ethnicity: United States, average annual 1993–1995

1997 Standards	Sample size	Percent (standard error)	1977 Standards	Sample size	Percent (standard error)
White only	46,228	25.2 (0.26)	White	46,664	25.3 (0.26)
Black or African American only	7,208	26.6 (0.64)	Black	7,334	26.5 (0.63)
American Indian or Alaska Native only	416	32.9 (2.53)	American Indian or Alaskan Native.	480	33.9 (2.38)
Asian only	1,370	15.0 (1.19)	Asian or Pacific Islander	1,411	15.5 (1.22)
2 or more races total	786	34.5 (2.00)			
Black or African American; white	83	*21.7 (6.05)			
American Indian or Alaska Native; white	461	40.0 (2.58)			

Race, any mention

1997 Standards	Sample size	Percent (standard error)			
White, any mention	46,882	25.3 (0.26)			
Black or African American, any mention	7,382	26.6 (0.63)			
American Indian or Alaska Native, any mention	965	36.3 (1.71)			
Asian, any mention	1,458	15.7 (1.20)			
Native Hawaiian or Other Pacific Islander, any mention	53	*17.5 (5.10)			

Hispanic origin and race

1997 Standards	Sample size	Percent (standard error)	1977 Standards	Sample size	Percent (standard error)
Not Hispanic or Latino:			Non-Hispanic:		
White only.	42,421	25.8 (0.27)	White	42,976	25.9 (0.27)
Black or African American only . . .	7,053	26.7 (0.65)	Black.	7,203	26.7 (0.64)
American Indian or Alaska Native only.	358	33.5 (2.69)	American Indian or Alaskan Native	407	35.4 (2.53)
Asian only.	1,320	14.8 (1.21)	Asian or Pacific Islander.	1,397	15.3 (1.24)
2 or more races total	687	35.6 (2.15)			
Hispanic or Latino	5,175	17.8 (0.65)	Hispanic.	5,175	17.8 (0.65)

* Estimates are considered unreliable. Data preceded by an asterisk have a relative standard error of 20%–30%.

NOTES: The Office of Management and Budget's (OMB) 1997 *Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity* specify five race groups (white, black or African American, American Indian or Alaska Native, Asian, and Native Hawaiian or Other Pacific Islander) and allow respondents to report one or more race groups. Estimates for single-race and multiple-race groups not shown above do not meet standards for statistical reliability or confidentiality (relative standard error greater than 30%). Race groups under the 1997 Standards were based on the question, "What is the group or groups which represent [person's] race?" For persons who selected multiple groups, race groups under the OMB's 1977 *Race and Ethnic Standards for Federal Statistics and Administrative Reporting* were based on the additional question, "Which of those groups would you say best represents [person's] race?" Race-specific estimates in this table were calculated after excluding respondents of other and unknown race. Other published race-specific estimates are based on files in which such responses have been edited. Estimates are age-adjusted to the year 2000 standard population using five age groups: 18–24, 25–34, 35–44, 45–64, and 65 and over. See Appendix II, Age adjustment.

SOURCE: NCHS, National Health Interview Survey. See Appendix I, National Health Interview Survey (NHIS).

permit tabulation of estimates for the detailed race and ethnicity categories shown in Tables XII and XIII, either because race data based on the 1997 Standards categories are not yet available or because there are insufficient numbers of observations in certain subpopulation groups to meet statistical reliability or confidentiality requirements.

To improve the quality of data on ethnicity and race in NHIS, hot-deck imputation of selected race and ethnicity variables was done for the first time in the 2000 NHIS and continued to be used for subsequent data years. Starting with 2003 data, records for persons for whom "other race" was the only race response were treated as having missing data on race and were added to the pool of records for which selected race and ethnicity variables were imputed. Prior to the 2000 NHIS, a crude imputation method that assigned a race to persons with missing values for the variable MAINRACE (the respondent's classification of the race he or she most identified with) was used. Under these procedures, if an observed race was recorded by the interviewer, it was used to code a race value. If there was no observed race value, all persons who had a missing value for MAINRACE and were identified as Hispanic on the Hispanic-origin question were coded as white. In all other cases, non-Hispanic persons were coded as "other race." Additional information on the NHIS methodology for imputing race and ethnicity is available from the survey documentation at: https://www.cdc.gov/nchs/nhis/quest_data_related_1997_forward.htm, and from the NHIS race and Hispanic-origin home page at: https://www.cdc.gov/nchs/nhis/rhoi.htm.

National Survey on Drug Use and Health (NSDUH)—Race-specific estimates based on NSDUH are tabulated using the 1997 Standards. Estimates in the NSDUH trend table begin with data year 2002. Estimates for specific

Table XIII. Private health care coverage among persons under age 65, by race and Hispanic origin under the 1997 and 1977 Standards for federal data on race and ethnicity: United States, average annual 1993–1995

1997 Standards	Sample size	Percent (standard error)	1977 Standards	Sample size	Percent (standard error)
White only	168,256	76.1 (0.28)	White	170,472	75.9 (0.28)
Black or African American only	30,048	53.5 (0.63)	Black	30,690	53.6 (0.63)
American Indian or Alaska Native only	2,003	44.2 (1.97)	American Indian or Alaskan. . . . . Native.	2,316	43.5 (1.85)
Asian only	6,896	68.0 (1.39)	Asian or Pacific Islander	7,146	68.2 (1.34)
Native Hawaiian or Other Pacific Islander only	173	75.0 (7.43)			
2 or more races total	4,203	60.9 (1.17)			
Black or African American; white . .	686	59.5 (3.21)			
American Indian or Alaska Native; white	2,022	60.0 (1.71)			
Asian; white	590	71.9 (3.39)			
Native Hawaiian or Other Pacific Islander; white	56	59.2 (10.65)			

Race, any mention					
White, any mention	171,817	75.8 (0.28)			
Black or African American, any mention	31,147	53.6 (0.62)			
American Indian or Alaska Native, any mention	4,365	52.4 (1.40)			
Asian, any mention	7,639	68.4 (1.27)			
Native Hawaiian or Other Pacific Islander, any mention	283	68.7 (6.23)			

Hispanic origin and race					
Not Hispanic or Latino:			Non-Hispanic:		
White only.	146,109	78.9 (0.27)	White	149,057	78.6 (0.27)
Black or African American only . . .	29,250	53.9 (0.64)	Black.	29,877	54.0 (0.63)
American Indian or Alaska Native only.	1,620	45.2 (2.15)	American Indian or Alaskan Native	1,859	44.6 (2.05)
Asian only.	6,623	68.2 (1.43)	Asian or Pacific Islander.	6,999	68.4 (1.40)
Native Hawaiian or Other Pacific Islander only	145	76.4 (7.79)			
2 or more races total	3,365	62.6 (1.18)			
Hispanic or Latino	31,040	48.8 (0.74)	Hispanic.	31,040	48.8 (0.74)

NOTES: The Office of Management and Budget's (OMB) 1997 *Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity* specify five race groups (white, black or African American, American Indian or Alaska Native, Asian, and Native Hawaiian or Other Pacific Islander) and allow respondents to report one or more race groups. Estimates for single-race and multiple-race groups not shown above do not meet standards for statistical reliability or confidentiality (relative standard error greater than 30%). Race groups under the 1997 Standards were based on the question, "What is the group or groups which represent [person's] race?" For persons who selected multiple groups, race groups under the OMB's 1977 *Race and Ethnic Standards for Federal Statistics and Administrative Reporting* were based on the additional question, "Which of those groups would you say best represents [person's] race?" Race-specific estimates in this table were calculated after excluding respondents of other and unknown race. Other published race-specific estimates are based on files in which such responses have been edited. Estimates are age-adjusted to the year 2000 standard population using three age groups: under 18, 18–44, and 45–64. See Appendix II, Age adjustment.

SOURCE: NCHS, National Health Interview Survey. See Appendix I, National Health Interview Survey (NHIS).

race groups are shown when they meet requirements for statistical reliability and confidentiality. The race categories white only, black or African American only, American Indian or Alaska Native only, Asian only, and Native Hawaiian or Other Pacific Islander only include persons who reported only one racial group; the category 2 or more races includes persons who reported more than one of the five racial groups in the 1997 Standards or one of the five racial groups and "some other race."

National Vital Statistics System (NVSS)—In 2003, revised birth and death certificates were introduced with revised race and ethnicity sections conforming to the 1997 Standards on race and ethnicity. The new certificates were adopted on a rolling basis by states, territories, and other reporting areas. During the transition to full implementation of the 1997 Standards, in *Health, United States* vital statistics data will continue to be presented for four major race groups (white, black or African American, American Indian or Alaska Native, and Asian or Pacific Islander) in accordance with the 1977 Standards. In 2016, all states, territories, and reporting areas (except American Samoa) had adopted the 2003 revision of U.S. Standard Certificate of Live Birth. Some reporting areas in the Vital Statistics Cooperative Program are still revising their death records to conform to the 1997 Standards on race and ethnicity.

Youth Risk Behavior Surveillance System (YRBSS)—Prior to 1999, the 1977 OMB Standards were used. Respondents could select only one of the following categories: white (not Hispanic), black (not Hispanic), Hispanic or Latino, Asian or Pacific Islander, American Indian or Alaska Native, or other. Beginning in 1999, the 1997 OMB Standards were used for race-specific estimates, and respondents were given the option of selecting more than one category to describe their race and ethnicity. Between 1999 and 2003, respondents were asked a single question about race and Hispanic origin, with the option of choosing more than one of the following responses: white, black or African American, Hispanic or Latino, Asian, Native Hawaiian or Other Pacific Islander, or American Indian or Alaska Native. In 2005, respondents were asked a question about Hispanic origin ("Are you Hispanic or Latino?") and a second separate question about race that included the option of selecting more than one of the following categories: American Indian or Alaska Native, Asian, black or African American, Native Hawaiian or Other Pacific Islander, or white. Because of the differences between questions, data about race and Hispanic ethnicity for the years prior to 1999 are not strictly comparable with estimates for the later years. However, analyses of data collected between 1991 and 2003 have indicated that the data are comparable across years and can be used to study trends. See: Brener ND, Kann L, McManus T. A comparison of two survey questions on race and ethnicity among high school students. Public Opin Q67(2):227–36. 2003.
(Also see Appendix II, Hispanic origin; and Appendix I, Population Census and Population Estimates.)

Rate—A measure of some event, disease, or condition in relation to a unit of population, along with some specification of time. (Also see Appendix II, Age adjustment; Population.)

Birth and related rates

Birth rate—Calculated by dividing the number of live births in a population in a year by the resident population. For census years, rates are based on unrounded census counts of the resident population as of April 1. For the noncensus years 1981–1989, rates are based on national estimates of the resident population as of July 1, rounded to thousands. Rounded population estimates for 5-year age groups are calculated by summing unrounded population estimates before rounding to thousands. Starting in 1991, rates are based on unrounded national population estimates. Birth rates for 1991–1999 were revised based on the 1990 and 2000 Censuses. The rates for 1990, 2000, and 2010 are based on populations from the censuses in those years as of April 1. Birth rates for 2001–2009 were revised based on the 2000 and 2010 Censuses. Birth rates for 2011 and subsequent years were computed using 2010-based postcensal estimates. The population estimates have been provided by the U.S. Census Bureau and have been modified to be consistent with OMB racial categories as of 1977 and historical categories for birth data. Beginning in 1997, the birth rate for the maternal age group 45–49 includes data for mothers aged 50–54 in the numerator and is based on the population of women aged 45–49 in the denominator. Birth rates are expressed as the number of live births per 1,000 population. The rate may be restricted to births to women of specific age, race, marital status, or geographic location (specific rate), or it may be related to the entire population (crude rate).

Fertility rate—Total number of live births, regardless of the age of the mother, per 1,000 women of reproductive age (aged 15–44). Beginning in 1997, the birth rate for the maternal age group 45–49 includes data for mothers aged 50–54 in the numerator and is based on the population of women aged 45–49 in the denominator.

Death and related rates

Death rate—Calculated by dividing the number of deaths in a population in a year by the midyear resident population. For census years, rates are based on unrounded census counts of the resident population as of April 1. For the noncensus years 1981–1989, rates are based on national estimates of the resident population as of July 1, rounded to thousands. Rounded population estimates for 10-year age groups are calculated by summing unrounded population estimates before rounding to thousands. Starting in 1991, rates are based on unrounded national population estimates. Rates for the Hispanic and non-Hispanic white populations in each year are based on unrounded state population estimates for states in the Hispanic reporting area. Death rates are expressed as the number of deaths per 100,000 resident population. The rate may be restricted to deaths in specific age, race, sex, or geographic groups or from specific causes of death (specific rate), or it may be related to the entire population (crude rate). (Also see Appendix I, Population Census and Population Estimates.)

Birth cohort infant mortality rates—Based on the birth cohort linked birth and infant death files and computed as the number of deaths under age 1 year to members of the birth cohort, divided by the number of live births, times 1,000. (Also see Appendix II, Birth cohort.)

Fetal mortality rate—Number of fetal deaths with stated or presumed gestation of 20 weeks or more, divided by the sum of live births plus fetal deaths, times 1,000.

Infant mortality rate—Based on period files and calculated by dividing the number of infant deaths during a calendar year by the number of live births reported in the same year. It is expressed as the number of infant deaths per 1,000 live births. Neonatal mortality rate is the number of deaths among infants under age

28 days per 1,000 live births. Postneonatal mortality rate is the number of infant deaths that occur between 28 days to under 1 year after birth, per 1,000 live births. (Also see Appendix II, Infant death.)

Late fetal mortality rate—Number of fetal deaths with stated or presumed gestation of 28 weeks or more, divided by the sum of live births plus late fetal deaths, times 1,000. (Also see Appendix II, Gestation.)

Perinatal mortality rates and ratios—Relate to the period surrounding the birth event. Rates and ratios are based on events reported in a calendar year. Although several different perinatal mortality definitions exist, the perinatal definition used in *Health, United States* (and used most commonly for international comparisons) is the sum of late fetal deaths at 28 weeks of gestation or more plus infant deaths within 7 days of birth, divided by the sum of live births plus late fetal deaths, times 1,000. Perinatal mortality ratio is the sum of late fetal deaths plus infant deaths within 7 days of birth, divided by the number of live births, times 1,000.

Visit rate

Visit rate—A basic measure of service utilization for event-based data. Examples of events include physician office visits with drugs provided, or hospital discharges. In the visit rate calculation, the numerator is the number of estimated events, and the denominator is the corresponding U.S. population estimate for those who possibly could have had events during a given period of time. The interpretation is that for every person in the population there were, on average, *x* events. It does not mean that *x* persons in the population had events, because some persons in the population had no events while others had multiple events. The only exception is when an event can occur just once for a person (e.g., if an appendectomy is performed during a hospital stay). The visit rate is best used to compare utilization across various subgroups of interest, such as age or race groups or geographic regions.

Region—See Appendix II, Geographic region.

Registered hospital—See Appendix II, Hospital.

Registration area—The United States has separate registration areas for birth, death, marriage, and divorce statistics. In general, registration areas correspond to states and include two separate registration areas for the District of Columbia (D.C.) and New York City. The term "reporting area" may be used interchangeably with the term "registration area." All registration areas have adopted laws that require registration of births and deaths and the reporting of fetal deaths. It is believed that more than 99% of births and deaths occurring in this country are registered.

The death registration area was established in 1900 with 10 states and D.C., and the birth registration area was established in 1915, also with 10 states and D.C. Beginning

in 1933, all states were included in the birth and death registration areas. The specific states added year by year are shown in: Hetzel AM. History and organization of the vital statistics system. National Center for Health Statistics. 1997. Available from: https://www.cdc.gov/nchs/data/misc/usvss.pdf. Currently, Puerto Rico, the U.S. Virgin Islands, and Guam each constitute a separate registration area, although their data are not included in statistical tabulations of U.S. resident data. (Also see Appendix II, Reporting area.)

Relative standard error (RSE)—A measure of an estimate's reliability. The RSE of an estimate is obtained by dividing the standard error of the estimate, SE(*r*), by the estimate itself, *r*. This quantity is expressed as a percentage of the estimate and is calculated as follows:

$$RSE = 100 \times [SE(r)/(r)]$$

Estimates with large RSEs are considered unreliable. In *Health, United States*, most statistics with large RSEs are preceded by an asterisk or are not presented. The criteria for evaluating RSEs is discussed in the footnotes accompanying each table. In *Health, United States, 2017*, a multistep National Center for Health Statistics data presentation standard for proportions has replaced RSE to identify unreliable estimates of proportions from the 2015–2016 and 2013–2016 National Health and Nutrition Examination Surveys, the 2016 National Health Interview Survey, and the 2014–2015 National Ambulatory Medical Care Survey. (Also see Appendix II, Data presentation standard for proportions.)

Relative survival rate—The ratio of the observed survival rate for the patient group to the expected survival rate for persons in the general population similar to the patient group with respect to age, sex, race, and calendar year of observation. The 5-year relative survival rate estimates the proportion of cancer patients who have survived their cancer 5 years after diagnosis. Because more than one-half of all cancers occur in persons aged 65 and over, many of these individuals die of other causes with no evidence of recurrence of their cancer. However, by adjusting observed survival for the normal life expectancy of the general population of the same age, the relative survival rate gives a more specific estimate of the chance of surviving the effects of cancer alone.

Reporting area—In the National Vital Statistics System, the reporting area for basic items on the birth and death certificates such as age, race, and sex is based on data from residents of all 50 states in the United States, the District of Columbia, and New York City. The term "reporting area" may be used interchangeably with the term "registration area." (Also see Appendix II, Registration area; and Appendix I, National Vital Statistics System [NVSS].)

Resident, health facility—In the Centers for Medicare & Medicaid Services' Quality Improvement Evaluation System (formerly the Online Survey Certification and Reporting System), all residents in certified facilities are counted on the day of certification inspection.

Resident population—See Appendix II, Population.

Rural—See Appendix II, Urbanization.

Self-assessment of health—See Appendix II, Health status, respondent-assessed.

Serious psychological distress—The K6 mental health screening instrument is a measure of psychological distress associated with unspecified but potentially diagnosable mental illness that may result in a higher risk for disability and higher utilization of health services. In the National Health Interview Survey (NHIS), the K6 questions were asked of adults aged 18 and over. The K6 is designed to identify persons with serious psychological distress, using as few questions as possible. The six items included in the K6 are:

During the past 30 days, how often did you feel:

- So sad that nothing could cheer you up?

- Nervous?

- Restless or fidgety?

- Hopeless?

- That everything was an effort?

- Worthless?

Possible answers are "All of the time" (4 points), "Most of the time" (3 points), "Some of the time" (2 points), "A little of the time" (1 point), and "None of the time" (0 points).

To score the K6, the points are added together, yielding a possible total of 0–24 points. A threshold of 13 points or more is used to define serious psychological distress. Persons answering "Some of the time" to all six questions would not reach the threshold for serious psychological distress because they would need to answer "Most of the time" to at least one item to achieve a score of 13. Only respondents who answered all six psychological distress questions would have a computed K6 score for analysis. The version of the K6 used in NHIS provides 1-month prevalence rates because the reference period is the past 30 days. For more information, see: Kessler RC, Barker PR, Colpe LJ, Epstein JF, Gfroerer JC, Hiripi E, et al. Screening for serious mental illness in the general population. Arch Gen Psychiatry 60(2):184–9. 2003. (Also see Appendix II, Functional limitation.)

Starting in 2013, the K6 questions were moved to the adult selected items section of the Sample Adult questionnaire. Observed differences between 2012 and earlier estimates and 2013 and later estimates may be partially or fully attributable to this change in question placement within the Sample Adult questionnaire.

Short-stay hospital—See Appendix II, Hospital.

Skilled nursing facility—See Appendix II, Nursing home.

Smoker—See Appendix II, Tobacco use.

Special hospital—See Appendix II, Hospital.

Substance use—Refers to the use of selected substances, including alcohol, tobacco products, drugs, inhalants, and other substances that can be consumed, inhaled, injected, or otherwise absorbed into the body with possible dependence and other detrimental effects. (Also see Appendix II, Alcohol consumption; Illicit drug use; Tobacco use.)

Monitoring the Future (MTF) Study—Collects information on the use of selected substances by using self-completed questionnaires in a school-based survey of secondary school students. MTF has tracked 12th graders' illicit drug use and attitudes toward drugs since 1975. In 1991, 8th and 10th graders were added to the study. The survey includes questions on abuse of substances including (but not limited to) marijuana, inhalants, other illegal drugs, alcohol, and tobacco products. (Also see Appendix I, Monitoring the Future [MTF] Study.)

National Survey on Drug Use and Health (NSDUH)—Conducts in-person, computer-assisted interviews of a sample of individuals aged 12 and over at their place of residence. For illicit drug use, alcohol use, and tobacco use, information is collected about use in the lifetime, past year, and past month. However, only estimates of use in the past month are presented in *Health, United States*. For illicit drug use, respondents in NSDUH are asked about use of marijuana or hashish, cocaine (including crack), inhalants, hallucinogens, heroin, and misuse of prescription-type psychotherapeutic drugs (pain relievers, tranquilizers, stimulants, and sedatives). A series of questions is asked about each substance: "Have you ever, even once, used [substance]?," and "How long has it been since you last used [substance]?" Numerous probes and checks are included in the computer-assisted interview system. Starting in 2013, information about marijuana use that was recommended by a doctor or other health care professional has been collected; however, any reported marijuana use is classified as illicit drug use. Starting in 2015, changes in measurement for 7 of the 10 illicit drug categories—hallucinogens, inhalants, methamphetamine, and the misuse of prescription pain relievers, tranquilizers, stimulants, and sedatives—may affect their comparability with the estimates of these illicit drugs and any illicit drug use produced prior to 2015. Additionally, prescription psychotherapeutic subtypes were revised in 2016; therefore, data on codeine products prior to 2016 cannot be compared with those from 2016 onward. (Also see Appendix I, National Survey on Drug Use and Health [NSDUH].)

Suicidal ideation—Refers to having thoughts of suicide or of taking action to end one's own life. Suicidal ideation includes all thoughts of suicide, both when the thoughts include a plan to commit suicide and when they do not

include a plan. Suicidal ideation is measured in the Youth Risk Behavior Surveillance System by the following three questions: "During the past 12 months, did you ever seriously consider attempting suicide?," "During the past 12 months, how many times did you actually attempt suicide?," and "If you attempted suicide during the past 12 months, did any attempt result in an injury, poisoning, or overdose that had to be treated by a doctor or nurse?" For more information, see: https://www.cdc.gov/HealthyYouth/yrbs/index.htm.

Surgery—See Appendix II, Outpatient surgery; Procedure.

Surgical specialty—See Appendix II, Physician specialty.

Tobacco use—Tobacco products encompass varieties of products including: cigarettes, cigarette tobacco, roll-your-own tobacco, smokeless tobacco, electronic cigarettes, cigars, hookahs, pipe tobacco, nicotine gels, and dissolvables. Vapes, vaporizers, vape pens, hookah pens, electronic cigarettes (e-cigarettes or e-cigs), and e-pipes are some of the many terms used to describe electronic nicotine delivery systems (ENDS). ENDS are noncombustible tobacco products. Cigars include premium cigars, little filtered cigars, and cigarillos. Use of tobacco products is measured differently by the data systems used in *Health, United States*.

Monitoring the Future (MTF) Study—Collects information on the use of selected substances by using self-completed questionnaires in a school-based survey of secondary school students. Information on current cigarette smoking was obtained for 12th graders (starting in 1975) and for 8th and 10th graders (starting in 1991), based on the following question: "How frequently have you smoked cigarettes during the past 30 days?" Information on e-cigarette use was obtained for 8th, 10th, and 12th graders (starting in 2014), based on the following question: "During the last 30 days, on how many days (if any), have you used electronic cigarettes (e-cigarettes)?" Any amount of use reported in the past 30 days was classified as recent use of that tobacco product.

National Health Interview Survey (NHIS)—Information about cigarette smoking is obtained for adults aged 18 and over. From 1965 through 1991, the basic cigarette smoking status questions consisted of two parts: (1) "Have you smoked at least 100 cigarettes during your entire life?" If yes, "Do you smoke now?"

In 1991, a transition to a new measure of smoking status was initiated. For the first time, NHIS distinguished smokers who smoked daily from those who smoked less often than daily. Respondents were first asked, "Have you smoked at least 100 cigarettes during your entire life?" If yes, "Do you smoke now?" To those who said "yes" to the question about current smoking, the question was asked, "Do you smoke every day or some days?" For those who said "no" to the current smoking status question, the question was asked, "Do you smoke some

days or not at all?" This additional follow-up resulted in the classification of persons as "someday smokers" who would otherwise have been considered former smokers, since they initially said that they did not smoke now.

In 1992, the transition to the current set of questions occurred. The NHIS Cancer Supplement consisted of two separate questionnaires, each asked of a representative sample of the U.S. civilian noninstitutionalized adult population aged 18 years and over. The Cancer Control questionnaire contained the same set of questions asked in 1991, while the Cancer Epidemiology questionnaire asked "Have you smoked at least 100 cigarettes during your entire life?" If yes, "Do you NOW smoke cigarettes every day, some days, or not at all?" The inclusion of both sets of questions in the same year allowed for evaluation of the impact of the question change on population prevalence. The revised current smoking status question was estimated to have resulted in an increase in smoking prevalence of about 1% as a result of capturing smoking among persons who would otherwise have been classified as nonsmokers with the original question. The estimates for 1992 shown in *Health, United States* combine data collected using both the traditional and revised questions. Estimates for 1993 and beyond use the revised questions.

In 1993–1995, estimates of cigarette smoking prevalence were based on a half-sample. Smoking data were not collected in 1996. Starting in 1997, smoking data were collected in the Sample Adult questionnaire. Starting in 2014, questions were added to NHIS on the use of e-cigarettes; however, estimates on e-cigarette use from NHIS are not presented in *Health, United States*. For more information on survey methodology and sample sizes pertaining to NHIS cigarette smoking data, see the NHIS "Adult Tobacco Use Information" website at: https://www.cdc.gov/nchs/nhis/tobacco.htm.

National Survey on Drug Use and Health (NSDUH)—Conducts in-person, computer-assisted interviews of a sample of individuals aged 12 and over at their place of residence. Information on current cigarette smoking is obtained based on the following question: "Now think about the past 30 days—that is, from [DATE] up to and including today. During the past 30 days, have you smoked part or all of a cigarette?"

To measure current use of any tobacco products, respondents were asked about the use of each tobacco product on 1 or more days in the past 30 days, including: smokeless tobacco (such as snuff, dip, chewing tobacco, or snus), cigars, or pipe tobacco. Any amount of use reported in the past 30 days was classified as recent use of that tobacco product. Electronic cigarette use was not considered in the definition of current cigarette smoking or any use of tobacco products.

National Youth Tobacco Survey (NYTS)—An annual school-based survey of U.S. middle and high school

students that collects data on tobacco use and tobacco-related attitudes, beliefs, and influences. Students in grades 6–12 were asked questions about the use of a variety of tobacco products on 1 or more days during the past 30 days. Tobacco products include: cigarettes; cigars, cigarillos, or little cigars; chewing tobacco, snuff, or dip; e-cigarettes; hookah or water pipe; roll-your-own cigarettes; pipe filled with tobacco (not water pipe); snus; dissolvable tobacco products; and bidis (small brown cigarettes wrapped in a leaf). Any amount of use reported in the past 30 days was classified as recent use of that tobacco product.

Uninsured—Broadly, persons are considered uninsured if they do not have coverage under private health insurance, Medicare, Medicaid, public assistance (through 1996), Children's Health Insurance Program (CHIP), a state-sponsored or other government-sponsored plan or program, or a military health plan. Because of differences in methodology, question wording, and recall period, estimates from different sources may vary and are not directly comparable. For more information, see: U.S. Census Bureau. Health insurance measurement: Differences by data source. Available from: https://www2.census.gov/programs-surveys/demo/visualizations/p60/257/health_insurance_measurement.pdf.

American Community Survey (ACS)—In ACS, persons are considered uninsured if they do not have coverage through private health insurance, Medicare, Medicaid, TRICARE or other military health care, veteran's coverage through the Veteran's Administration, or other government insurance. Persons with only Indian Health Service coverage are considered uninsured. The questions on health insurance are administered throughout the year and ask about current health insurance coverage as of the day of the interview.

National Health Interview Survey (NHIS)—In NHIS, the uninsured are persons who do not have coverage under private health insurance, Medicare, Medicaid, public assistance (through 1996), CHIP, a state-sponsored health plan, other government-sponsored programs, or a military health plan. Persons with only Indian Health Service coverage are considered uninsured. Estimates for the uninsured are shown only for the population under age 65. Estimates of the percentage of persons who are uninsured based on NHIS may differ slightly from those based on the March Current Population Survey or the American Community Survey because of differences in survey questions, recall period, and other aspects of survey methodology.

Survey respondents may be covered by health insurance at the time of interview but may have experienced one or more lapses in coverage during the year prior to interview. Starting with *Health, United States, 2006*, NHIS estimates for people with health insurance coverage for all 12 months prior to interview, for those who were uninsured for any period up to 12 months, and for those who were uninsured for more than 12 months were added as stub variables to selected tables. (Also see Appendix II, Health insurance coverage.)

Urbanization—The degree of urban (city-like) character of a particular geographic area. Urbanization can be measured in a variety of ways. In *Health, United States*, the two measures currently used to categorize counties by urbanization level are the Office of Management and Budget's (OMB) metropolitan and micropolitan statistical area classification and the 2013 NCHS (National Center for Health Statistics) Urban–Rural Classification Scheme for Counties. For more information on the OMB classification of counties, see Appendix II, Metropolitan statistical area (MSA); Micropolitan statistical area.

The 2013 Urban–Rural Classification Scheme is based on the February 2013 OMB delineation of MSAs and micropolitan statistical areas, 2012 postcensal estimates of county and place population, and county-level data on selected settlement density, socioeconomic, and demographic variables from Census 2010. This is an updated version of NCHS' earlier scheme, the 2006 NCHS Urban–Rural Classification Scheme for Counties. The six categories of the NCHS scheme are large central metro (inner-city counties of MSAs of 1 million or more population), large fringe metro (suburban counties of MSAs of 1 million or more population), medium metro (counties of MSAs of 250,000–999,999 population), small metro (counties of MSAs with less than 250,000 population), nonmetropolitan micropolitan statistical areas, and nonmetropolitan noncore. For more information on the classification scheme, see: https://www.cdc.gov/nchs/data_access/urban_rural.htm.

Usual source of care—Measured in the National Health Interview Survey (NHIS) in 1993 and 1994 by asking the respondent, "Is there a particular person or place that [person] usually goes to when [person] is sick or needs advice about [person's] health?" In the 1995 and 1996 NHIS, the respondent was asked, "Is there one doctor, person, or place that [person] usually goes to when [person] is sick or needs advice about health?" Starting in 1997, the respondent was asked, "Is there a place that you USUALLY go to when you are sick or need advice about your health?" In a sample child interview, the question was asked "Is there a place that [child] USUALLY goes when [he/she] is sick or you need advice about [his/her] health?" Persons who report the emergency department as their usual source of care are defined in *Health, United States* as having no usual source of care.

Vaccination—Also called immunizations, work by stimulating the immune system—the natural disease-fighting system of the body. A healthy immune system is able to recognize invading bacteria and viruses and produce substances (antibodies) to destroy or disable these invaders. Vaccinations prepare the immune system to ward off a disease. In addition to the initial immunization process, the

effectiveness of some immunizations can be improved by periodic repeat injections or "boosters." Vaccines are among the most successful and cost-effective public health tools available for reducing morbidity and mortality from vaccine-preventable diseases. For a comprehensive list of vaccine-preventable diseases, see: https://www.cdc.gov/vaccines/vpd/vaccines-list.html, and https://www.cdc.gov/vaccines/spec-grps.html.

The currently recommended childhood vaccination schedule includes vaccines that prevent infectious diseases, including hepatitis A and B, diphtheria, tetanus toxoids, acellular pertussis (whooping cough), measles, mumps, rubella (German measles), polio, varicella (chicken pox), and some forms of meningitis (HIB), influenza, and pneumococcal disease. In February 2006, a rotavirus vaccine (RotaTeq) was licensed for use in U.S. infants.

A quadrivalent vaccine that protects against the four types of human papillomavirus (HPV) that cause most cervical cancers and genital warts was marketed starting in 2006 and is now available for both females and males. In 2006, the vaccine was recommended for females aged 11 and 12 and females aged 13–26 who have not yet been vaccinated or completed the vaccine series. In 2011, HPV vaccination also was recommended for males aged 11 and 12. More information is available from: https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6050a3.htm.

In addition to keeping current with the vaccines listed above and annual influenza vaccination, some additional vaccinations are recommended for older adults, persons with specific health conditions, or health care workers who are likely to be exposed to infectious persons. For example, herpes zoster vaccination is recommended for adults aged 60 and over, and pneumococcal vaccination is recommended for adults aged 65 and over and persons with specific health conditions. For a full discussion of recommended vaccination schedules by age and population, see the Centers for Disease Control and Prevention's (CDC's) vaccination and immunization website at: https://www.cdc.gov/vaccines/schedules/index.html.

Influenza vaccination—In the National Health Interview Survey, questions concerning influenza vaccination differed slightly across the survey years. Prior to September 2003, respondents were asked, "During the past 12 months, have you had a flu shot? A flu shot is usually given in the fall and protects against influenza for the flu season." Starting in September 2003, respondents were asked about influenza vaccination by nasal spray (sometimes called by the brand name FluMist) during the past 12 months, in addition to the question regarding the flu shot. Starting with 2005 data, receipt of nasal spray or a flu shot was included in the calculation of influenza vaccination estimates presented in *Health, United States*. Starting with 2010 data, additional questions were asked about the receipt of the H1N1 flu shot and spray, including month and year received. These H1N1 questions and

the original seasonal flu questions were asked only in Quarters 1 and 2 and the first several weeks of Quarter 3. Starting August 11, 2010, revised flu vaccination questions replaced all flu vaccination questions fielded earlier in 2010 and were used in 2011. The revised questions reflect the introduction of a new combined flu vaccination that protects against both the seasonal and H1N1 strains. For more information regarding the influenza questions that were introduced in 2010, see: ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Dataset_Documentation/NHIS/2010/srvydesc.pdf.

The prevalence of influenza vaccination during the past 12 months may differ from season-specific coverage, and estimates from different data sources may differ (additional estimates are available from: https://www.cdc.gov/flu/fluvaxview/). See: Lu PJ, Santibanez TA, Williams WW, Zhang J, Ding H, Bryan L, et al. Surveillance of influenza vaccination coverage—*United States, 2007*–08 through 2011–12 influenza seasons. MMWR Surveill Summ 62(4):1–28. 2013. Available from: https://www.cdc.gov/mmwr/preview/mmwrhtml/ss6204a1.htm?s_cid=ss6204a1_w.

The recommendations of the Advisory Committee on Immunization Practices regarding who should receive an influenza vaccination have changed over the years, and changes in coverage estimates may reflect changes in recommendations. An influenza vaccine shortage occurred during the 2004–2005 influenza season. Delays in the availability of influenza shots also occurred in fall 2000, and to a lesser extent, in fall 2001.

Pneumococcal vaccination—In the National Health Interview Survey, questions concerning pneumococcal vaccination differed slightly across the survey years. Prior to 1999, respondents were asked, "Have you EVER had a pneumonia vaccination? This shot is usually given only once in a person's lifetime and is different from the flu shot." Starting in 1999, respondents were asked, "Have you EVER had a pneumonia vaccination, sometimes called a pneumonia shot? This shot is usually given only once in a person's lifetime and is different from the flu shot." Starting in 2001, respondents were asked, "Have you EVER had a pneumonia shot? This shot is usually given only once or twice in a person's lifetime and is different from the flu shot. It is also called the pneumococcal vaccine."

Wages and salaries—See Appendix II, Employer costs for employee compensation.

Years of potential life lost (YPLL)—A measure of premature mortality. Starting with *Health, United States, 1996*, YPLL has been presented for persons under age 75 because the average life expectancy in the United States is over 75 years. YPLL–75 is calculated using the following eight age groups: under 1, 1–14, 15–24, 25–34, 35–44, 45–54, 55–64, and 65–74. The number of deaths for each age group is multiplied by years of life lost, calculated as the

difference between age 75 years and the midpoint of the age group. For the eight age groups, the midpoints are 0.5, 7.5, 19.5, 29.5, 39.5, 49.5, 59.5, and 69.5 years, respectively. For example, the death of a person aged 15–24 counts as 55.5 years of life lost. YPLL is derived by summing years of life lost over all age groups. In *Health, United States, 1995* and earlier editions, YPLL was presented for persons under age 65. For more information, see: Centers for Disease Control and Prevention. Premature mortality in the United States: Public health issues in the use of years of potential life lost. MMWR Suppl 35(SS–02):1S–11S. 1986. Available from: https://www.cdc.gov/mmwr/preview/mmwrhtml/00001773.htm.