

Technical Appendix

About the Survey

The National Survey of Children's Health (NSCH) was fielded using the State and Local Area Integrated Telephone Survey (SLAITS) mechanism. SLAITS is conducted by the National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention (CDC). It uses the same large-scale random-digit-dial sampling frame as the CDC's National Immunization Survey (NIS), augmented by additional numbers in States in which the NIS sample was not large enough to meet NSCH sample targets.¹

After eliminating numbers that were determined to be nonresidential or nonworking, the remaining numbers were called to identify households with children less than 18 years of age. From each household with children, one was randomly selected to be the focus of the interview.

The respondent was the parent or guardian in the household who was knowledgeable about the health and health care of the randomly selected child. For 68.6 percent of the children, the respondent was the mother. Respondents for the remaining children were fathers (24.2 percent) or other relatives or guardians (7.2 percent).

Surveys were conducted in English, Spanish, Mandarin, Cantonese, Vietnamese, and Korean. In total, 4,905 interviews were completed in Spanish, and 229 interviews were conducted in one of the four Asian languages.

Data Collection

Data collection began on February 28, 2011, and ended on June 25, 2012, with interviews conducted from telephone centers in Chicago, IL, and Las Vegas, NV. A computer-assisted telephone interviewing system was used to collect the data. A total of 95,677 interviews were fully or partially completed for the NSCH. The number of completed interviews varied by state, ranging from 1,811 in South Dakota to 2,200 in Texas. Of the 95,677 completed interviews, 31,972 were conducted with respondents' cell phones. The number of cell phone interviews ranged from 592 in Wisconsin to 942 in Maryland.

The interview completion rate, which is the proportion of interviews completed after a household was determined to include a child under age 18, was 54.1 percent for the landline sample and 41.2 percent for the cell phone sample. The overall response rates—calculated as the product of the resolution rate (the proportion of telephone numbers identified as residential or nonresidential), the screener completion rate (the proportion of households successfully screened for children), and the interview completion rate—were 38.2 percent for the landline sample, 15.5 percent for the cell phone sample, and 23.0 percent overall.

Overall response rates ranged from 19.5 percent in California to 34.3 percent in Montana and Wyoming. Several efforts were made to increase response rates, including sending letters to households in advance to introduce the survey, toll-free numbers left on potential respondents' answering machines to allow them to call back, and small monetary incentives for those households with children who initially declined to participate.

Data Analysis

For producing the population-based estimates in this report, the data records for each interview were assigned a sampling weight. These weights are based on the probability of selection of each household telephone number within each State, with adjustments that compensate for households that have multiple telephone numbers, for households without telephones, and for nonresponse.

With data from the U.S. Bureau of the Census, the weights were also adjusted by age, sex, race, ethnicity, household size, and educational attainment of the most educated household member to provide a dataset that was more representative of each State's population of noninstitutionalized children less than 18 years of age. Analyses were conducted using statistical software that accounts for the weights and the complex survey design.

Responses of "don't know" and "refuse to answer" were considered to be missing data. Records with missing data on the variables of interest were excluded from those analyses, with one exception. For households with missing data for income or household size, the household income relative to the Federal Poverty Level was multiply imputed.

Children's areas of residence were classified according to the 2006 v2.0 Rural-Urban Commuting Areas (RUCAs) developed by the Federal Office of Rural Health Policy.² The 10 RUCA codes were grouped into three categories. Urban-focused areas (RUCA codes 1.0, 1.1, 2.0, 2.1, 3.0, 4.1, 5.1, 7.1, 8.1, and 10.1) include metropolitan areas and surrounding towns

from which commuters flow to an urban area; large rural areas (RUCA codes, 4.0, 4.2, 5.0, 5.2, 6.0, and 6.1) include large towns ("micropolitan" areas) with populations of 10,000–49,999 and their surrounding areas; and small or isolated rural areas (all remaining codes) include small towns with populations of 2,500–9,999 and their surrounding areas.

Accuracy of the Results

The data from the NSCH are subject to the usual variability associated with sample surveys. Small differences between survey estimates may be due to random survey error and not to true differences among children or across States.

The precision of the survey estimates is based on the sample size and the measure of interest. Estimates at the national level will be more precise than estimates at the urban/rural level. Estimates for all children will be more precise than estimates for subgroups of children (e.g., children 0–5 years of age or children with the same race). For national estimates of the health and health care for all children, the maximum margin of error is 0.73 percentage points.

Availability of the Data

Except for data suppressed to protect the confidentiality of the survey subjects, all data collected in the NSCH are available to the public on the NCHS and MCHB websites.

Data that were suppressed for confidentiality reasons other than personally-identifiable information, such as specific geographic location, race, and language, can be accessed through the NCHS Research Data Center (<https://www.cdc.gov/rdc>).

Data documentation and additional details on the methodology are available from the National Center for Health Statistics (<http://www.cdc.gov/slats>). Interactive data queries are possible through the Data Resource Center for the NSCH (<http://nschdata.org>). The Data Resource Center provides immediate access to the survey data, as well as resources and assistance for interpreting and reporting findings.

- 1 Zell ER, Ezzati-Rice TM, Battaglia MP, Wright RA. National immunization survey: the methodology of a vaccination surveillance system. *Public Health Reports*. 2000;115:65–77.
- 2 WWAMI Rural Health Research Center and the U.S. Department of Agriculture, Economic Research Service. Rural-Urban Commuting Area Codes. <http://depts.washington.edu/uwruca/index.php>