National Immunization Survey

A User's Guide for the 2008 Public-Use Data File

Centers for Disease Control and Prevention

National Center for Immunization and Respiratory Diseases

and

National Center for Health Statistics

Presented by:

National Opinion Research Center (NORC)

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The development and production of the 2008 NIS public-use data files is a team effort that has included contributions from many individuals (listed in alphabetical order) in the three organizations:

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Convention for Bolding Text

The Data User's Guide uses **bold** font to highlight substantive changes in the methodology or study design from last year's Guide.

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1. Introduction

In 1992 the Childhood Immunization Initiative (CII) (CDC 1994) was established to 1) improve the delivery of vaccines to children; 2) reduce the cost of vaccines for parents; 3) enhance awareness, partnerships, and community participation; 4) improve vaccinations and their use; and 5) monitor vaccination coverage and occurrences of disease. Subsequently, the Healthy People 2000 and 2010 objectives established the goal of having at least 90 percent of 2-year-old children fully vaccinated with each recommended vaccine and 80 percent of 2-year-old children vaccinated with the basic immunization series. To fulfill the CII mandate of monitoring vaccination coverage and marking progress toward achieving those goals, the National Immunization Survey (NIS) has been implemented by the National Center for Immunization and Respiratory Diseases (NCIRD) and the National Center for Health Statistics (NCHS) of the Centers for Disease Control and Prevention (CDC).

The target population for the NIS is children ages 19 to 35 months living in households in the United States at the time of the interview. The official coverage estimates reported from the NIS are rates of being up-to-date with respect to the recommended numbers of doses of all recommended vaccines (CDC 2008a). These vaccines and their recommended numbers of doses are:

- diphtheria and tetanus toxoids and acellular pertussis vaccine, diphtheria and tetanus toxoids and pertussis vaccine, or diphtheria and tetanus toxoids vaccine (DTaP/DTP/DT) – 4 doses;
- poliovirus vaccine (polio) – 3 doses;
- measles/mumps/rubella vaccine (MMR) – 1 dose;
- haemophilus influenzae type b vaccine (Hib) – 3 doses;
- hepatitis B vaccine (Hep B) – 3 doses;
- varicella zoster (chicken pox) vaccine, –1 dose;
- pneumococcal vaccine – 4 doses;
- hepatitis A vaccine (Hep A), 2 doses; and

- influenza vaccine (For recommended number of doses of influenza vaccine, see http://www.cdc.gov/vaccines/pubs/ACIP-list.htm or (CDC 2008b)).

In addition to these vaccines, interest focuses on vaccine series, including the 4:3:1:3:3:1 series (4+ DTaP/DTP/DT, 3+ polio, 1+ MCV, 3+ Hib, 3+ Hep B, and 1+ varicella at or after 12 months of age).

The NIS collects data on each of these vaccines. Varicella vaccine was added in Quarter 3, 1996, pneumococcal vaccine in Quarter 4, 2000, and influenza vaccine and hepatitis A vaccine in Quarter 1, 2003. The remainder of the vaccines have been included in the NIS from its start in 1994. In October 2000, the Advisory Committee on Immunization Practices recommended that all children ages 2 to 23 months receive 4 doses of pneumococcal vaccine (CDC 2000). Influenza vaccine was recommended for children aged 6-23 months starting with the 2004-05 season (CDC 2003). Estimates of influenza vaccination coverage for the 2007-08 season can be obtained from the 2008 NIS.

The NIS uses a random digit dialing (RDD) telephone survey to identify households containing children in the target age range and interviews the adult who is most knowledgeable about the child's vaccinations. With consent of the child's parent or guardian, the NIS also contacts (by mail) the child's health care provider(s) to request information on vaccinations from the child's medical records.

Samples of telephone numbers are drawn independently, for each calendar quarter, within selected geographical areas, or strata. **In 2008, there were 67 geographic strata for which vaccine coverage levels can be estimated, including 17 primarily urban city/county areas (including the District of Columbia); the remaining 50 are either an entire state or a "rest of state" area. This design makes it possible to produce annual estimates of vaccination coverage levels for each state and within each of the 17 primarily urban city/county areas with a specified degree of precision (a coefficient of variation of approximately 7.5 percent).** Further, by using the same data collection methodology and

survey instruments in all estimation areas, the NIS produces comparable vaccination coverage levels among estimation areas and over time.

When the NIS was established in 1994, 78 areas were chosen for sampling strata, including the 50 states, 6 urban areas that receive federal Section 317 immunization grants (Bexar County, TX; Chicago, IL; District of Columbia; Houston, TX; New York City; Philadelphia County, PA), and 22 other urban areas. These areas were called "Immunization Action Plan" (IAP) areas in reference to plans developed to improve immunization coverage following the resurgence of measles during 1989-1991. In 2005 and 2006, selected non-grantee IAP areas were "rotated off" (i.e., not oversampled), and replaced by new areas "rotated on" (i.e., oversampled). Starting in 2007, the base NIS geographic strata included 56 areas (6 grantee urban areas and 50 state or "rest of state" areas). In addition, starting in 2007, state immunization programs could choose city/county areas of interest to be oversampled, using their grant funds. **In 2008, the eleven additional areas chosen included: Los Angeles County, CA; Santa Clara County, CA; Northern CA, comprising the following counties: Del Norte, Siskiyou, Modoc, Lassen, Shasta, Trinity, Humboldt, Mendocino, Tehama, Plumas, Butte, Glenn, Colusa, Lake, and Sierra; Miami-Dade County, FL; Orange County, FL; Madison & St. Clair Counties, IL; City of Baltimore, MD; Twin Cities, MN; Dallas County, TX; El Paso County, TX; and Eastern/Western Washington, WA, comprising the following counties: Adams, Asotin, Benton, Chelan, Clallam, Columbia, Cowlitz, Douglas, Ferry, Franklin, Garfield, Grant, Gray's Harbor, Island, Jefferson, Kitsap, Kittitas, Klickitat, Lewis, Lincoln, Mason, Okanogan, Pacific, Pend Oreille, San Juan, Skagit, Skamania, Stevens, Thurston, Wahkiakum, Walla Walla, Whatcom, and Whitman. The 67 = 56 + 11 areas are now called *estimation areas*, or simply *strata*.** Table 9 in Chapter 7 shows cross-walk of estimation areas between years.

To maintain consistency with past NIS public use data files, variable names and descriptions continue to use the old term "IAP" to designate areas included as strata. The changing geographic strata over time will not

cause a problem with bias in estimation of state and national coverage levels since the geographic strata are nested within state.

For the 2008 NIS, the household interviews began on January 3, 2008 and ended on February 4, 2009. Provider data collection extended from January 2008 to April 2009. A total sample of approximately 5.7 million telephone numbers yielded household interviews for 25,948 children, 18,430 of whom had provider data adequate to determine whether the child was up-to-date with respect to the recommended immunization schedule. The 2008 NIS public-use data file contains data for the 25,948 children with completed household interviews, and more extensive data for the 18,430 children with adequate provider data (including 151 zero-shot children).

Major changes to the NIS in 2008 include:

Sample design: A key difference between 2007 and 2008 was a change in sampling areas. In 2008, four sampling areas that were not singled out as separate estimation domains in 2007 were rotated into the sample (Northern CA, comprising the following counties: Del Norte, Siskiyou, Modoc, Lassen, Shasta, Trinity, Humboldt, Mendocino, Tehama, Plumas, Butte, Glenn, Colusa, Lake, and Sierra; Santa Clara County, CA; Orange County, FL; and City of Baltimore, MD); two new sampling areas were created and rotated into the sample (Madison and St. Clair Counties, IL; and Twin Cities, MN); two previous sampling areas (Eastern WA, which comprises the following counties: Adams, Asotin, Benton, Chelan, Columbia, Douglas, Ferry, Franklin, Garfield, Grant, Kittitas, Klickitat, Lincoln, Okanogan, Pend Oreille, Stevens, Walla Walla, and Whitman; and Western WA, which comprises the following counties: Clallam, Cowlitz, Grays Harbor, Island, Jefferson, Kitsap, Lewis, Mason, Pacific, San Juan, Skagit, Skamania, Thurston, Wahkiakum, and Whatcom) were combined into a single estimation domain (Eastern/Western WA); and three estimation areas were rotated out (Alameda County, CA; San Bernardino County, CA; and Marion County, IL). The latter areas remained in the sampling design but were not allocated large enough sample sizes to support

individual estimates. The 2008 design supports direct estimation for the aforementioned 67 geographic areas.

Published tables of vaccination coverage estimates for 2008 will be available on the National Center for Immunization and Respiratory Diseases website, http://www.cdc.gov/vaccines/stats-surv/imz-coverage.htm#nis.

The accompanying code book (NCHS 2009) documents the contents of the 2008 NIS public-use data file. For reference, Appendix H (Alphabetical Listing of Variables that are in the 2004, 2005, 2006, 2007, or 2008 Public-Use Data Files) provides a full list of variables in the 2008 public-use data file.

Additional information on the NIS is available at:

http://www.cdc.gov/nis/
http://www.cdc.gov/vaccines/stats-surv/imz-coverage.htm#nis

For additional information on the NIS public-use data file, please contact the NCHS Information Dissemination Staff:

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2. Sample Design

The NIS uses two phases of data collection to obtain vaccination information for a large national probability sample of young children: an RDD telephone survey designed to identify households with children 19 to 35 months of age, followed by the Provider Record Check Study, a mailed survey to children's immunization providers. This section summarizes these two phases of data collection. Other descriptions of the sample design are given by Ezzati-Rice et al. (1995), Zell et al. (2000), Smith et al. (2001a, 2005), and NORC (2009).

2.1. The NIS RDD Telephone Survey

The NIS RDD telephone survey phase uses independent, quarterly samples of telephone numbers in 67 estimation areas. Table I.1 (in Appendix I) lists the 67 estimation areas by state and shows the estimated number of children living in each state and estimation area in 2008.

The NIS uses the list-assisted method of RDD (Lepkowski 1988). This method selects a random sample of telephone numbers from "banks" of 100 consecutive telephone numbers (e.g., 773-256-0000 to 773-256-0099) that contain at least one directory-listed residential telephone number. The sampling frame of telephone numbers is updated each quarter to reflect new telephone exchanges and area codes. Although the number of cellular telephone users in the U.S. has increased rapidly, most households with children continue to maintain land-line telephone service (Blumberg et al. 2006). Preliminary results from the July-December 2008 National Health Interview Survey (NHIS) indicate that the number of households with only wireless telephones continues to increase. Approximately 18.7 percent of all children—more than 13 million children—live in households with only wireless telephones (Blumberg and Luke, 2009). Also, most cellular telephone users have to pay for incoming calls, which makes it burdensome for respondents to participate in the survey. While research is underway on sampling households via cell telephone, the NIS frame excluded cellular telephone exchanges in 2008.

The target sample size of completed telephone interviews in each estimation area is designed to achieve an approximately equal coefficient of variation of 7.5 percent for an estimator of immunization coverage derived from provider-reported immunization histories, given a true coverage parameter of 50 percent. The percentage of children with completed telephone interviews that have adequate provider data is 71.0 percent. The phrase "adequate provider data" means that sufficient vaccination history information was obtained from the provider(s) to determine whether the child is up-to-date with respect to the recommended vaccination schedule. (See Section 5.4.2. Disposition and Determination of Adequate Provider Data in NORC (2009).) The percentage of children with adequate provider data varies among estimation areas (61.5 percent in City of New York, NY to 80.5 percent in El Paso, TX). Starting with the 2002 public-use data file, the definition of children with adequate provider data was expanded to include unvaccinated children. These are children for whom the respondent reported, during the household interview, either that the child had received no vaccinations and has no immunization providers; or that the child has one or more immunization providers, but those providers all reported administering no vaccinations. An NCHS Series 2 Report on the statistical methodology of the NIS (Smith et al. 2005) includes details of how unvaccinated children are included in the estimates of vaccine coverage. NCHS Series 2 reports can be viewed at http://www.cdc.gov/nchs/products/pubs/pubd/series/ser.htm#sr2. This modification to the NIS produces only small changes in vaccination coverage for estimation areas and states, because the number of unvaccinated children in the sample is very small (only 151 in 2008).

The design and implementation of the NIS sample involve four procedures. First, statistical models predict the number of sample telephone numbers needed in each estimation area to meet the target precision requirements. Second, the sample for an estimation area is divided into random sub-samples called replicates. By releasing replicates as needed, it is possible to spread the interviews for each sampling area evenly across the entire calendar quarter. Third, an automated procedure eliminates a portion of the non-working and non-residential telephone numbers from the sample before the interviewers dial them. Fourth, the sample telephone numbers are matched against a national database of residential telephone numbers in order to

obtain usable mailing addresses for as many sample households as possible. To promote participation in the NIS, an advance letter is sent to these addresses approximately two weeks prior to the household interview.

2.2. The NIS Provider Record Check Study

At the end of the household interview, consent to contact the child's vaccination provider(s) is requested from the parent/guardian. When oral consent is obtained, each provider is mailed an immunization history questionnaire. This mail survey portion of the NIS is the Provider Record Check Study.

The instructions ask vaccination providers to mail or fax the immunization history questionnaire back upon completion. Two weeks after the initial mailing, a thank you/reminder letter is sent to each provider. If no response has been received, another questionnaire packet is mailed five weeks after the initial mailing. Finally, seven weeks after the initial mailing, a telephone call is made to providers who have still not responded, to remind and encourage them to complete the form and either mail or fax the information back. In some instances, provider-reported vaccination histories are completed over the telephone. In certain key periods during the year, the above seven-week schedule is accelerated in order to obtain as many questionnaires as possible prior to the closing date for accepting questionnaires. In the accelerated schedule, telephone calls are made to providers two weeks after the initial mailout, timed to coincide with receipt of the thank you/reminder letter. The data from the questionnaires are edited, entered, cleaned, and merged with the household information from the RDD survey to produce a child level record.

2.3. Summary of Data Collection

Table 1 presents selected operational results of NIS data collection for calendar year 2008 for the entire sample. Children ages 19 to 35 months during 2008 data collection were born between January 2005 and July 2007. The original sample (in replicates that were released for use) consisted of 5,710,803 telephone numbers. Of those, 2,493,844 were eliminated before release to the telephone centers by the automated procedure as non-working, non-residential, cell telephone, or "take me off the list" numbers. The remaining 3,216,959 numbers were sent to the telephone centers to be dialed, and 1,108,491 households were identified, as shown in Rows 3 and 6. Among the identified households, 1,000,840 (90.3 percent) were successfully screened. Of these, 971,162 did not contain an age-eligible child, and 29,678 (2.97 percent) contained one or more age-eligible children. Among these households, 25,257 (85.1 percent) completed the household interview.

Table 1: Selected Operational Results of Data Collection, National Immunization Survey, 2008

Row	Key Indicator	Number	Percent	Formula
	RDD Phase			
1	Total Selected Telephone Numbers in Released Replicates	5,710,803	--	--
2	Phone Numbers Resolved before Computer-Assisted Telephone Interviewing	2,493,844	43.7%	(Row 2/Row 1)
3	Total Phone Numbers Released for Computer-Assisted Telephone Interviewing	3,216,959	--	--
4	Advance Letters Mailed	1,760,771	54.7%	(Row 4/Row 3)
5	Resolved Phone Numbers* – *Resolution Rate*	4,698,087	82.3%	(Row 5/Row 1)
6	Households Identified – *WRN Rate*	1,108,491	23.6%	(Row 6/Row 5)
7	Households Successfully Screened for Presence of Age-Eligible Children – *Screening Completion Rate*	1,000,840	90.3%	(Row 7/Row 6)
8	Households with no Age-Eligible Children	971,162	97.0%	(Row 8/Row 7)
9	Households with Age-Eligible Children – *Eligibility Rate*	29,678	2.97%	(Row 9/Row 7)
10	Households with Age-Eligible Children with Completed Household Interviews–*Interview Completion Rate*	25,257	85.1%	(Row 10/Row 9)
11	CASRO Response Rate**	--	63.2%	(Row 5 x Row 7 x Row 10)
12	Age-Eligible Children with Completed Household interviews***	25,948	--	--
	Provider Phase			
13	Children with Consent to Contact Vaccination Providers	21,004	81.0%	(Row 13/Row 12)
14	Immunization History Questionnaires Mailed to Providers	26,081	--	--
15	Immunization History Questionnaires Returned from Providers	24,653	94.5%	(Row 15/Row14)
16	Children with Adequate Provider Data	18,430 (includes 151 unvaccinated children)	71.0%	(Row 16/Row 12)

Table 1: Selected Operational Results of Q1/2008-Q4/2008 NIS Data Collection (continued)

Row	Key Indicator	Number	Percent	Formula
	Questionnaire Modules			
17	Age-Eligible Children with Completed Household Interview and Completed HIM	21,650	83.4%	(Row 17/Row 12)

*Includes phone numbers resolved before CATI (Row 2).
**CASRO, Council of American Survey Research Organizations.
***Rows 12-17 reflect the removal of children with an ineligible best date of birth.

A standard approach for measuring response rates in telephone surveys has been defined by the Council of American Survey Research Organizations (CASRO 1982). The CASRO response rate is equivalent to "RR3" of AAPOR Standard Definitions (AAPOR, 2006). In 2008, the CASRO response rate (Row 11) was 63.2 percent. The CASRO response rate equals the product of the resolution rate (82.3 percent, Row 5), the screening completion rate (90.3 percent, Row 7), and the interview completion rate among eligible households (85.1 percent, Row 10). The resolution rate is the percentage of the total telephone numbers selected that are classifiable as non-working, non-residential, or residential. The screening completion rate is the percentage of known households that are successfully screened for the presence of age-eligible children. The interview completion rate is the percentage of households with one or more age-eligible children who complete the household interview.

Row 12 of Table 1 shows that 25,948 age-eligible children completed household interviews. Rows 13 through 16 give results for the Provider Record Check phase. Specifically, Row 13 gives the rate of obtaining oral consent from household respondents to contact their children's vaccination providers – 81.0 percent in 2008. The number of immunization history questionnaires mailed to vaccination providers exceeds the number of completed interviews for children with consent, because some children have more than one vaccination provider.

Of the questionnaires mailed to providers, 24,653 (94.5 percent, Row 15) were returned. Among the children with completed household interviews, 18,430 (71.0 percent, Row 16) had adequate vaccination histories based on provider reporting (18,279) or had no vaccinations based on household reporting (151). The other 29.0 percent of children lacked adequate provider data for a variety of reasons, such as the parent did not give consent to contact the child's provider(s), or the provider(s) did not have medical records for the child.

In 2008, data from the Health Insurance Module (HIM) were collected. Among the 25,948 age-eligible children with completed household interviews, 21,650 (83.4 percent, Row 17) completed the HIM module.

For each estimation area and each state, Table I.1 (see Appendix I) shows the number of children with completed household interviews and the number of children with adequate provider data.

2.4. Informed Consent, Security, and Confidentiality of Information

The advance letter, introduction to the telephone survey, and oral consent assure the respondent of the confidentiality of his/her responses and the voluntary nature of the survey. Informed consent is obtained from the person in the household most knowledgeable about the eligible child's immunization history (generally the parent or guardian of the child). Informed consent to contact the child's vaccination provider(s) is obtained at the end of the interview.

Information in the NIS is collected and processed under high security. To ensure privacy of the respondents and confidentiality of sensitive information, NCHS has established standards for release of data from all NCHS surveys. All CDC staff and contractor staff involved with the NIS sign the NCHS confidentiality agreement and follow instructions to prevent disclosure.

All information in the NIS is collected under strict confidentiality and can be used only for research [Section 308(d) of the Public Health Service Act, 42 U.S. Code 242m(d), the Privacy Act of 1974 (5 U.S. Code 552a),

and the Confidential Information Protection and Statistical Efficiency Act (5 U.S. Code). Prior to public release, the contents of the public-use data file go through extensive review by the NCHS Disclosure Review Board to protect participant privacy as well as data confidentiality.

3. Content of NIS Questionnaires

This section describes the questionnaires used in the 2008 NIS telephone interview of households and in the NIS Provider Record Check Study.

3.1. Content of the Household Questionnaire

The computer-assisted telephone interview (CATI) questionnaire used in the RDD phase of NIS data collection (Appendix B) consists of two parts: a screener to identify households with children ages 19 to 35 months and an interview portion. The questionnaire is modeled on the Immunization Supplement to the National Health Interview Survey (NHIS) (NCHS 1999). The NIS CATI questionnaire has been translated into Spanish, and Language Line Services (formerly part of AT&T) is used for real-time translation into many other languages (Wall et al. 1995). Table 2 summarizes the content of each section of the 2008 NIS household interview.

In the screener, the purpose of the survey is explained to the respondent, and the household is screened to determine whether it contains any children ages 19 to 35 months. If the household has an eligible child, the respondent is asked whether he/she is the most knowledgeable person for the child's vaccination history. If the respondent indicates that another person in the household is more knowledgeable, the interviewer asks to speak to him/her at that time. If that person is unavailable to be interviewed, the interview proceeds to Section MR, the name of the most knowledgeable person is recorded, and a "callback" is scheduled for a later date.

Table 2: Content of the Household Interview, National Immunization Survey, 2008

Questionnaire Section	Content of Section
Section S	Screening questions to determine eligibility, roster of eligible children, availability of shot records
Section MR	Most-knowledgeable-respondent callback questions
Section A	Vaccination history (asked if shot records are available)
Section B	Vaccination history (asked if shot records are not available)
Section C	Demographic and socioeconomic questions
Section D	Provider information and request for consent to contact the eligible child's vaccination provider(s)
Section F	Health Insurance Module

During the screener section, the person being interviewed is also asked whether he/she has a written record (shot card) of the child's vaccination history, and whether it is easily accessible. If a shot card is available, the respondent is asked to provide information directly from it in Section A. If the child does not have a shot card or the shot card is not easily accessible, the interview proceeds with Section B, which asks the respondent to recall from memory information about the child's vaccinations.

Section C obtains information that includes relationship of respondent to the child, race of the child, household income, educational attainment of the mother, and other information on the socioeconomic characteristics of the household and its eligible children. This section is asked of all respondents upon completion of Section A or Section B.

In Section D of the NIS household interview, identifying information (such as name, address, and telephone number) for the child's vaccination provider(s) is requested, as well as the full names of the child(ren) and the respondent, so that NIS personnel can contact the provider(s) and identify the child(ren) whose

immunization information the NIS is requesting. After this information is obtained, consent to contact the child's vaccination provider(s) is requested. When oral consent and sufficient identifying information are obtained, the immunization history questionnaire is mailed to the child's vaccination provider(s).

Beginning in 2006, a Health Insurance Module (HIM) was administered upon completion of Section D to collect data regarding the types of medical insurance coverage the child has had since birth. If a respondent provided consent to contact medical providers and completed Section D, he/she flowed directly into the HIM. If, however, consent or any other critical provider question was refused, the call was terminated; only upon callback on which consent was granted or a second refusal given within Section D was the respondent asked the HIM.

The household questionnaire used in Quarter 4 of 2008 is included in Appendix B. Some changes were made to the NIS questionnaire during 2008. These are listed below:

In Quarter 2, a question was added in Section C of the interview. Respondents were asked: "Of all the telephone calls that you or your family receives, are all or almost all calls received on cell phones, some received on cell phones and some on regular phones, or very few or none on cell phones? Also in Section C, Q19 was changed from "In what city, county, and state do you live?" to "What is your zip code?" This change was made in order to improve data quality by reducing the need for interviewers to type in city and state names. After collecting zip code, the city, county, and state names were automatically filled into the subsequent questions. The interviewer then confirmed that information with the respondent and could correct it if necessary. If the respondent did not report a zip code, the interviewer would ask for city, county, and state as before.

In Quarter 2, an experiment was conducted with the screener of the NIS interview. The primary objective of this experiment was to test a combined age screener for young children and teens.

Instead of asking first for children between twelve months and three years old and then asking for the number of children under 18, the experimental design asked for the number of children under 18 first. The goal of the experiment was to improve the NIS-Teen eligibility rate, screener and interview completion rates. There was a concern that the NIS-Teen survey was missing potentially eligible children from cases that never complete the NIS-Child screener. The experiment was conducted with approximately 60,000 sample lines. The expected improvements to the rates were not observed.

In Quarter 2, a check point was added to the question requesting the mother's date of birth. If the reported date of birth of the mother made the mother < 13 or > 60 years old, an interviewer instruction was added to confirm that the data were entered correctly.

In Quarter 2, the text at question A8R_X was changed from "Do you remember if [CHILD] had a flu shot in the past 12 months?" to "Some shots may not be recorded on the shot record. Has [CHILD] had a flu shot in the past twelve months?"

In Quarter 3, an additional question was added in Section C of the interview. Respondents were asked: "Which of the following best describes this house or apartment? Is it owned or being bought, rented, or occupied by some other arrangement by you or someone in your household?"

Beginning in Quarter 3, all respondents were asked whether they remembered seeing an advanced letter, not just respondents who were actually mailed an advance letter.

In Quarter 3, "Don't know" and "Refused" were added as response options to question CWIC_02, which asks whether the child is currently receiving WIC benefits.

In Quarter 4, questions were added to confirm that the respondent's ZIP code of residence was entered correctly, and if not, to collect the correct ZIP code of residence.

In Quarter 4, the following text change was made to S3_INTRO, S3_INTRO_INCENT, and S5_BOX: "In order to review my work, my supervisor may record and listen as I ask the questions" was changed to "In order to review my work, my calls are recorded and my supervisor may listen as I ask the questions".

3.2. Content of the Immunization History Questionnaire

The 2008 immunization history questionnaire administered to the vaccination providers is designed to be simple and brief, to minimize provider burden and encourage survey participation. The structure and content of this form were initially derived from the National Immunization Provider Record Check Study (NHIS/NIPRCS), which collected and reconciled immunization data from the providers of respondents to the Immunization Supplement to the National Health Interview Survey. The immunization history questionnaire consists of two double-sided pages (see Appendix C). Page 1 includes space for the label that gives the child's name, date of birth, and gender. The remainder of page 1 contains questions about the facility and vaccination provider. Page 2 gives instructions for filling out the shot grid, which appears on page 3. Page 4 thanks the vaccination provider for providing the information, and lists websites and telephone numbers that can be used to obtain more information about the NIS and the National Center for Immunization and Respiratory Diseases.

One change was made to the immunization history questionnaire in 2008:

- **Starting in Quarter 1, two vaccine type boxes were added to the Influenza section of the shot grid: TIV (injected flu vaccine (e.g., Fluzone®)) and LAIV (nasal flu spray (e.g., FluMist®)).**

4. Data Preparation and Processing Procedures

The household data collection and provider data collection in the NIS incorporate extensive data preparation and processing procedures. During the household interview, the CATI system supports reconciliation of critical errors as interviewers enter the data. After completion of interviewing for a quarter, post-CATI editing and data cleaning produce a final interview data file. The editing of the provider data begins with a manual review of returned immunization history questionnaires, data entry of the questionnaires, and cleaning of the provider data file. After the provider data are merged with the household interview data and responses from multiple providers for a child are consolidated into a child level data record, the editing continues. A quality assurance check is performed, from all sources of the date-of-birth information, to ensure that the provider completed the questionnaire for the correct child and to confirm age-eligibility of 19-35 months at time of interview. Editing of the provider-reported vaccination dates then attempts to resolve specific types of discrepancies in the provider data. The end product is an analytic file containing household and provider data for use in estimating vaccination coverage.

4.1. Data Preparation

The editing and cleaning of NIS data involve several steps. First, the CATI system enables interviewers to reconcile potential errors while the respondent is on the telephone. Further cleaning and editing take place in a post-CATI clean-up stage, involving an extensive review of data values, cross tabulations, and the recoding of verbatim responses for race, ethnicity, and vaccinations. The next step involves the creation of numerous composite variables. Provider data are cleaned in a separate step. After these steps have been completed, imputations are performed for item non-response on selected variables, and weights are calculated. The procedures and rules of the National Health Interview Survey serve as the standard in all stages of data editing and cleaning (http://www.cdc.gov/nchs/nhis.htm).

4.1.1. Editing in the CATI System

The CATI software checks consistency across data elements and does not allow interviewers to enter invalid values. Catching potential errors early increases the efficiency of post-survey data cleaning and processing.

To prevent an overly complicated CATI system, out-of-range and inconsistent responses produce a warming screen, allowing the interview to correct real time errors. This allows the interviewer to reconcile errors while the respondent is on the telephone. This allows the interviewer to reconcile errors while respondent is on the telephone. CATI warning screens focus on items critical to the survey, such as those that determine a child's eligibility (e.g., date of birth).

A CATI system cannot simultaneously incorporate every possible type of error check and maximize system performance. To reconcile this trade-off, post-CATI edits are used to resolve problems that do not require access to the respondent, as well as unanticipated logic problems that appear in the data.

4.1.2. Post-CATI Edits

The post-CATI editing process produces final, cleaned data files for each quarter. The steps in this process, implemented after all data collection activities for a quarter are completed, are described below.

Initial Post-CATI Edits and File Creation

After completion of interviewing each quarter, the raw data are extracted from the CATI data system and used to create two files: the sample file and the interview data file. The sample file contains one record for each sample telephone number and summary information for telephone numbers and households. The interview data file contains one record for each eligible sample child and all vaccination data the household reported for the child.

Crosscheck programs ensure that cases exist across files in a consistent manner. The first check verifies the eligibility status of children, based on date of birth and date of interview. Once the required corrections are verified, invalid values are replaced with either an appropriate data value or a missing value code.

Frequency Review

After the pre-programmed edits are run, frequency distributions of all variables in each file are produced and reviewed. Each variable's range of values is examined for any invalid values or unusual distributions. If blank values exist for a variable, they are checked to see whether they are allowable and whether they occur in excessive numbers. Any problems are investigated and corrected as appropriate.

File Crosschecks

Crosscheck programs make sure that cases exist across files in a consistent manner. Specifically, checks ensure that each case in the interview data file is also present in the sample file and that each case in the sample file was released to the telephone center. Checks also ensure that no duplicate households exist in the sample file and no duplicate children exist in the interview data file.

When all checks have been performed, the final quarterly interview data file is created. Programmers and statisticians then create composite variables constructed from basic variables for each child. Sampling weights (described in Section 6 of this Guide) are added to each record.

4.1.3. Editing of Provider Data

Six to eight weeks after the close of household data collection for a quarter, the majority of the immunization history questionnaires have been collected from providers. The data from the hard-copy questionnaires are entered and independently re-entered to provide 100 percent verification. The provider data file is cleaned, in a similar fashion to the household data file, for out-of-range values and consistency. A computer program back-codes all "other shot" verbatim responses into the proper vaccine category (e.g., Engerix B counts as Hep B, and Tetramune counts as DTP and Hib). These translations come from a file that contains all such

verbatim responses ever encountered in the NIS. Also, the provider data file is checked for duplicate records, and exact duplicates are removed. If the provider data contains a date of birth of the child, gender of the child, or child name that differs from the household interview for that child, the questionnaire is re-examined to see whether it may have been filled out for the incorrect child. Provider data that appear to have been filled out for the wrong child are removed from the provider database. When a child has data from multiple providers, decision rules are applied to produce the most complete picture of the child's immunization history.

Once these data have been cleaned, they are combined with the household data file. Information from up to five providers can be added to a child's record.

Many variables in the household data file are checked against or verified with the provider data file. For example, a child's date of birth as recorded by the provider is checked against the date of birth as given by the household, to verify that the provider was reporting for that specific child. Shot dates are also compared, and any discrepancies are examined by hand. In most instances, the provider data are used in preference to the household data.

4.2. Limitations of Data Editing Procedures

Although data editing procedures were used for the 2008 NIS, the data user should be aware that some inconsistent data might remain in the 2008 public-use data file. The variables that indicate whether a child is up-to-date on each vaccine or series (on which the estimates of vaccination coverage are based) are derived from provider-reported data. Hence, the household-reported vaccination dates (from interviews conducted with a shot card) are not edited for discrepancies beyond the built-in checks in the CATI system.

The NIS does not recontact households or providers to attempt to reconcile potential discrepancies in provider-reported vaccination dates or to resolve date-of-birth reporting errors. However, beginning with the 1999 NIS, the provider-reported data are manually reviewed and edited to correct specific reporting errors.

The *National Immunization Survey: Guide to Quality Control Procedures* (CDC 2002) discusses the change in editing procedures in more detail. Some children with adequate provider data may have incomplete vaccination histories. These incomplete histories arise from three primary sources: 1) the household does not identify all vaccination providers, 2) some but not all providers respond with vaccination data, and 3) all identified providers respond with vaccination data but fail to list all the vaccinations in the child's medical record. Even with these limitations, the NIS overall is a rich source of data for assessment of up-to-date status and age-appropriate immunization. Also, NIS is the only source to provide comparable vaccination data across states and local areas in the US.

4.3. Variable-Naming Conventions

The names of variables follow a systematic pattern as much as possible. The code book for the public-use data file groups the variables into ten broad categories according to the source of the data (household or provider) and the content of the variable (NCHS 2009).

The household shot card report of vaccinations received by the child is used to create household up-to-date indicator variables. The names of these variables begin with "SC_". (Note that these "SC" variables were new starting with the 2006 PUF; see Section 7 of this Guide for more details.) For example, SC_HEPB indicates whether the child has three or more hepatitis B vaccinations indicated on the shot card. Additional household variables indicate whether the child has received at least one dose of each vaccine. The names of these variables begin with "HH_". (Again, these variables were new starting with the 2006 PUF; see Section 7 of this Guide for more details.) For example, HH_HEPB has five values, corresponding to zero hepatitis B doses received, at least one hepatitis B dose received, "all" hepatitis B doses received, and responses of "don't know" or "refused" from the respondent.

The provider data from the immunization history questionnaires are used to create numerous child level composite variables, as described in Section 4.7. The names of the variables giving the number of doses received for each vaccine begin with "P_NUM". For example, P_NUMHEP gives the number of doses of

hepatitis B vaccine according to the provider data. An up-to-date indicator variable also exists for each vaccine, and these variables begin with "P_UTD". For example, P_UTDHEP indicates whether the child received 3 or more doses of hepatitis B vaccine.

The provider data are also used to form variables for age in days and age in months at time of vaccination. For age in days and age in months, 9 variables are created. The variables for age in months end with "n_AGE", where n is the dose number. For example, HEP1_AGE to HEP9_AGE give age in months up to 9 doses of hepatitis B vaccine. Similarly, for age in days at vaccination, the variables start with "D" and end with the dose number. For example, DHEPB1 to DHEPB9 give age in days for up to 9 doses of hepatitis B vaccine.

4.4. Missing Value Codes

Missing value codes for each variable can be found in the code book (NCHS 2009). For household variables, the missing value codes usually are 77 for DON'T KNOW and 99 for REFUSED. Some household variables may also contain blanks, if the question was not asked. The variables developed from the immunization history questionnaire generally do not have specific missing value codes. For example, if a provider failed to answer the question on types of facility, the response category variables for that question would be blank.

4.5. Imputation for Item Non-Response

The NIS uses imputation primarily to replace missing values in the socioeconomic and demographic variables used in weighting. A sequential hot-deck method is used to assign imputed values (Ford 1983). Class variables separate respondents into cells. Donors and recipients must agree on the class variables, which include estimation area. Within classes, respondents are sorted by variables related to the variable to be imputed. The last case with an observed value is used as the donor for up to four recipients. The "Notes" line for each variable in the code book (NCHS 2009) identifies variables that contain imputed values. These variables include maternal education, Hispanic origin, race, gender, firstborn status of child, maternal marital

status, maternal age group, whether the household experienced an interruption in telephone service, length of interruption in telephone service, and whether the mother has moved to a different state since the child was born.

The count of vaccinations for a specific vaccine is based on the number of unique vaccination *dates* reported by the child's provider(s). In filling out the immunization history questionnaire a provider may not know the date of the first dose of hepatitis B, which is typically given at birth. The provider does, however, have the option of checking the "Given at Birth" box for the first dose of hepatitis B. If it was checked "yes" and the date of the birth dose of hepatitis B was not reported, a program assigns the date of the birth dose for this vaccine. If the household used a vaccination record to report vaccination dates, those dates are examined to see whether the date of the birth dose can be taken from that record. If it is not reported in the vaccination record, a value is imputed from the distribution of provider-reported dates for the birth dose of hepatitis B in the most recent four quarter Child Level Analysis File. The birth dose for this imputation is defined as being given in the first 7 days of life--between the date of birth (i.e., 0 days) and the date of birth plus 6 days. This imputation procedure was first implemented for Quarter 1, 2000 – Quarter 4, 2000. For Quarter 1, 2008 – Quarter 4, 2008 a total of 105 children had the date of the birth dose of hepatitis B assigned using the above procedure (see HEP_FLAG). The date of the birth dose was taken from the household's vaccination record for 22 children. For the remaining 83 children, the value was imputed from the distribution of provider-reported dates for the birth dose.

Table 3 shows the distribution of age in days at the birth dose of hepatitis B for children in Quarter 1, 2008 – Quarter 4, 2008 with a provider-reported birth dose. A similar table is included in the 2000-2007 data user's guides. For 1997, 1998, and 1999, Section 5 of the data user's guide provides information on the distribution of age in days for the birth dose of hepatitis B vaccine, and gives guidance on imputing age in days at birth dose for children with a missing date, but for whom the provider checked the box indicating that a dose was administered at birth (see HEP_BRTH).

Table 3: Distribution of Age (in Days) at the Birth Dose of Hepatitis B Vaccine, National Immunization Survey, 2008

Age in Days at Birth Dose	Unweighted Percentage Of Birth Doses
0	54.6
1	26.3
2	11.7
3	3.3
4	1.7
5	1.1
6+	1.3

4.6. Vaccine-Specific Recoding of Verbatim Responses

During the household interview, respondents are given the option to report vaccinations in addition to, or instead of, the categories specifically read to them. These verbatim responses are entered into the CATI system by the interviewer and stored in the interview data file. After data collection, they are reclassified into the listed categories, if possible, using a vaccination recoding table. This table is reviewed by National Center for Immunization and Respiratory Diseases personnel to ensure the shots are recoded into the appropriate category or categories (for combination shots). Such re-classification is also done for "other" vaccine responses to the provider questionnaire.

4.7. Composite Variables

A number of composite variables (constructed from basic variables) are created and included in the NIS public-use data file. Composite variables assist users and data analysts by eliminating duplication of effort and making NIS data easier to use.

Since the initial years of NIS data collection, the household composite variables have included up-to-date status on individual vaccinations, race of child, household income, and up-to-date status on several

vaccination series. Many of these household composite variables are included in the NIS public-use data file. Table 4 lists some of the key demographic variables and their categories.

Table 4: Key Demographic Variables, National Immunization Survey, 2008

Variable Name	Categories
AGEGRP – age category of child	19-23 months 24-29 months 30-35 months
RACEETHK – race/ethnicity of child (introduced in 2002; RACEKIDR used in 1995-2001)	Hispanic White alone, non-Hispanic Black alone, non-Hispanic All other races alone and multi-racial, non-Hispanic
SEX – gender of child	Male Female
EDUC1 – education of the mother	<12 years 12 years >12 years, not a college graduate College graduate
MARITAL – marital status of mother	Widowed, divorced, separated, or deceased Never married Currently married
M_AGEGRP – age category of mother	≤19 years 20-29 years 30 years or older
FRSTBRN – first born status of child	No Yes
INCPOV1 – poverty status	At or above poverty level, income > $75,000 At or above poverty level, income <= $75,000 Below poverty level Not determined

In Quarter 3, 1999 the NIS race questions (see questions C3, C9 and C10 in Appendix B) were expanded to include Alaska Native, Native Hawaiian, and Pacific Islander, implementing the revised Office of Management and Budget (OMB) standards for classification of race and ethnicity (http://www.whitehouse.gov/omb/inforeg/statpol.html). The composite race variables in the 2002 through 2008 NIS public-use data files, however, contain only three categories: non-hispanic white alone; non-hispanic black alone; and non-hispanic all other races alone and non-hispanic multi-racial. (The variable RACE_K classifies each child into one of these three categories, while the variable RACEETHK includes a separate "Hispanic" category.) The "all other races alone" category includes Asian, American Indian or Alaska Native, Native Hawaiian or Pacific Islander, and other races. If more than one race was selected during administration of the child race questions, the child is classified as multi-racial. Because of small sample sizes and risk of disclosure within estimation areas, the 2002 through 2008 public-use data files do not contain any variables with separate multiple-race categories. Rather, the multi-racial children are included in the "all other races" category. Table 5 shows some characteristics of the current race/ethnicity categories.

Table 5: Weighted Distribution of Children by Race/Ethnicity and Corresponding 4:3:1:3, 4:3:1:3:3:1, Pneumococcal, and Varicella Vaccination Coverage Rates, National Immunization Survey, 2008

Race/Ethnicity Classification (RACEETHK)	Weighted Distribution of Children ages 19-35 Months in U.S. Estimate (%)	Weighted Percentage 4:3:1:3 UTD Estimate (%)	Weighted Percentage 4:3:1:3 UTD Standard Error (%)	Weighted Percentage 4:3:1:3:3:1 UTD Estimate (%)	Weighted Percentage 4:3:1:3:3:1 UTD Standard Error (%)	Weighted Percentage 3+ Pneumococcal Estimate (%)	Weighted Percentage 3+ Pneumococcal Standard Error (%)	Weighted Percentage 1+ Varicella by 12 Months Estimate (%)	Weighted Percentage 1+ Varicella by 12 Months Standard Error (%)
Hispanic	28.00	80.66	1.12	77.72	1.18	94.09	0.61	91.82	0.75
Non-Hispanic white only	50.68	79.33	0.67	75.31	0.70	92.78	0.37	89.83	0.50
Non-Hispanic black only	12.56	75.76	1.77	72.68	1.81	90.93	1.46	90.39	1.13
Non-Hispanic American Indian or Alaska Native only	0.96	79.27	3.85	77.27	3.90	86.73	3.55	93.79	1.57
Non-Hispanic Asian only	3.33	84.84	2.35	82.23	2.46	91.24	1.54	94.21	1.26
Non-Hispanic Native Hawaiian or Pacific Islander only	0.32	76.59	10.86	75.10	10.85	87.39	10.78	92.31	3.80
Multiracial	4.14	82.92	1.88	79.27	2.11	93.55	1.16	90.92	1.44
Non-Hispanic white/black	2.13	81.64	2.95	78.86	3.27	94.33	1.54	91.70	1.99

Table 5: Weighted Distribution of Children by Race/Ethnicity and Corresponding 4:3:1:3, 4:3:1:3:3:1, Pneumococcal, and Varicella Vaccination Coverage Rates, National Immunization Survey, 2008

Race/Ethnicity Classification (RACEETHK)	Weighted Distribution of Children ages 19-35 Months in U.S. Estimate (%)	Weighted Percentage 4:3:1:3 UTD Estimate (%)	Weighted Percentage 4:3:1:3 UTD Standard Error (%)	Weighted Percentage 4:3:1:3:3:1 UTD Estimate (%)	Weighted Percentage 4:3:1:3:3:1 UTD Standard Error (%)	Weighted Percentage 3+ Pneumococcal Estimate (%)	Weighted Percentage 3+ Pneumococcal Standard Error (%)	Weighted Percentage 1+ Varicella by 12 Months Estimate (%)	Weighted Percentage 1+ Varicella by 12 Months Standard Error (%)
Non-Hispanic white/ American Indian or Alaska Native	0.49	89.61	3.00	81.17	4.96	90.62	4.17	90.75	4.17
Non-Hispanic white/Asian	0.83	83.39	3.59	78.97	4.01	94.81	2.06	89.69	3.08
Non-Hispanic other combination	0.69	81.60	4.62	79.56	4.83	91.71	3.19	90.16	3.74

Note: Weighted by PROVWT. Children with an unknown Hispanic origin and/or race were imputed by a hot-deck method.

The provider data from the immunization history questionnaires are used to create numerous child level composite variables. The most important variables give the number of doses received for each type of vaccine (e.g., P_NUMDTP). Up-to-date indicator variables are created for each individual vaccine (e.g., P_UTDHIB) and for several vaccine series (e.g., P_UTD431). Another set of variables gives age in days at time of vaccination. For each dose of a vaccine, the age in days is constructed from date of birth of the child and date of the shot. Corresponding variables give exact age in months at time of vaccination.

The immunization history questionnaires also contain information on provider characteristics. This information is used to create composite variables related to provider facility type (PROV_FAC), whether or not the providers order vaccines for children from state or local health departments (VFC_ORDER), and provider participation in state or community immunization registries (REGISTRY).

4.8. Health Insurance Module

The Health Insurance Module (HIM) was introduced in 2006 to gather information on the health insurance coverage of the child. HIM data were included in the NIS public-use data file for the first time in 2007. In 2008, the NIS public-use file contains eight variables as follows:

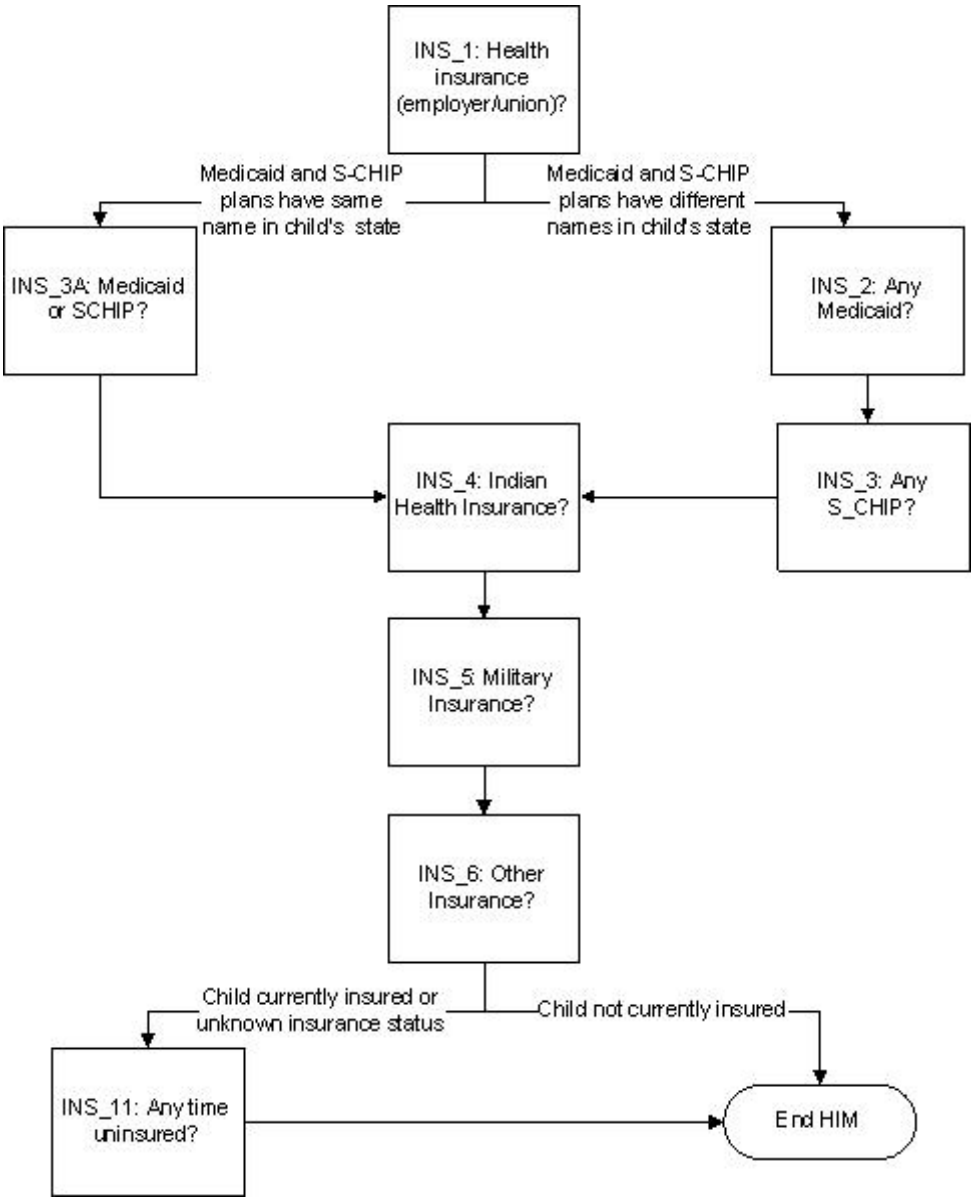
- INS_1 – "Is child covered by health insurance provided through employer or union?";
- INS_2 – "Is child covered by any MEDICAID plan?";
- INS_3 – "Is child covered by S-CHIP?";
- INS_3A – "Is child covered by any MEDICAID plan or S-CHIP?";
- INS_4 – "Is child covered by Indian Health Service?";
- INS_5 – "Is child covered by Military Health Care, TRICARE, CHAMPUS, or CHAMP-VA?";
- INS_6 – "Is child covered by any other health insurance or health care plan?"; and
- INS_11 - "Anytime when child was not covered by health insurance?"

Each question has "Yes", "No", "Don't Know", and "Refused" as response options. Also, users will encounter blanks or missing values in each variable. There are several reasons for the missingness. First, in

order to reach the HIM section, the respondent must first finish Section D. Since the NIS public-use data file contains records for all respondents completing Section C, and because some of these Section C respondents did not complete Section D, some records are for respondents who did not reach the HIM. Second, there is a possibility that the respondent began the HIM but broke off the interview before finishing. Finally, there are skip patterns in the module. That is, depending on the respondent's answers to previous questions, certain questions may be skipped. Figure 1 illustrates the flow of questions for the eight variables included in the NIS public-use data file.

The first question (INS_1) was asked of all respondents who reached the HIM. If the name of the Medicaid and S-CHIP programs were the same in the child's state, the respondent skipped to INS_3A; if the names of the Medicaid and S-CHIP programs were different in the child's state, the respondent was instead asked questions INS_2 and INS_3. Questions INS_4, INS_5, and INS_6 were asked of all HIM respondents. Based on the respondent's answers to previous HIM questions (some of which are not included in the public-use file), if it was determined that the child currently had health insurance or if the child's insurance status was unknown, the respondent was asked if the child was ever uninsured at question INS_11.

Figure 1: Question Flow for the Eight Health Insurance Variables included in the Public Use File



4.9. Sub-Sets of the NIS Data

The NIS public-use data file contains data for all children ages 19 to 35 months who have a completed household interview. An interview is considered complete if the respondent answered Section C of the questionnaire. As explained in Section 6 of this guide, each child with a completed household interview is assigned a weight (RDDWT) for use in estimation.

The NIS uses the provider-reported vaccination histories to form the estimates of vaccination coverage because the provider data are considered more accurate. Thus, the most important sub-set of the data consists of children with adequate provider data. For these children, one or more providers returned the immunization history questionnaire, and the vaccination information reported by those providers is sufficient to determine whether the child is up-to-date on the recommended vaccinations. Unvaccinated children are also considered to have adequate provider data. As discussed in Section 7 below, the PDAT variable identifies the children with adequate provider data (PDAT=1). These children have a separate weight (PROVWT), which should be used to form estimates of vaccination coverage (see Section 6).

4.10. Confidentiality and Disclosure Avoidance

To prevent identification of participants in the NIS and the resulting disclosure of information, certain items from the questionnaires are not included in the public-use data file. In addition, some of the released variables either are top- or bottom-coded, or have their categories collapsed.

5. Quality Control and Quality Assurance Procedures

A major contributor to NIS data quality is its sample management system, which in 2008 managed 268 RDD samples (67 estimation areas times 4 quarters) and used a number of performance measures to track their progress toward completion. Important aspects of the quality assurance program for the RDD component of the NIS included on-line interviewer monitoring; on-line provider look-ups in a database system integrated with the CATI system, including names, addresses, and telephone numbers of vaccination providers; and automated range-edits and consistency checks. These and other quality assurance procedures contributed to a reduction in total data collection cost by minimizing interviewer labor and overall burden to respondents. Khare et al. (2000), Khare et al. (2001), and the *National Immunization Survey: Guide to Quality Control Procedures* (CDC 2002) describe quality assurance procedures.

The Provider Record Check component used quality control measures at four junctions: prior to mailing packets to providers; during the telephone prompting effort; during the editing of returned questionnaires; and during and after their data entry. The final quality assurance activities are implemented during post-processing of the returned questionnaires or vaccination records. All returned questionnaires were examined to identify and correct any obvious errors prior to data entry and then key-entered with 100 percent verification. The keying error rate is estimated, by way of a second verification process, to be less than 1 percent.

6. Sampling Weights

Each of the two phases of data collection results in a separate sampling weight for each child who has data at that phase. The RDD-phase sampling weights permit analyses of data from children with completed household interviews. Each child with adequate provider data (the sub-set on which official estimates of vaccination coverage are based) has a provider-phase sampling weight. In 2008, the RDD-phase sampling weights are called RDDWT, and the provider-phase sampling weights of children with adequate provider data are called PROVWT. As discussed below, revisions in weighting methodology were made on various occasions and the names of the weight variables were also changed to keep track of the revisions. The RDD sampling weights were called HY_WGT in 1995-2001, RDD_WT in 2002, WGT_RDD in 2003 and 2004, and RDDWT 2005-present. The provider-phase sampling weights were called W0 in 1995-2001, WT in 2002, WGT in 2003 and 2004, and PROVWT 2005-present.

A sampling weight may be interpreted as the approximate number of children in the target population that a child in the sample represents. Thus, for example, the sum of the sampling weights of children who are up-to-date (on a particular vaccine or series of vaccines) yields an estimate of the total number of children in the target population who are up-to-date. Dividing this sum by the total of the sampling weights for all children gives an estimate of the corresponding vaccination coverage rate.

This section describes how these weights are developed and adjusted so as to achieve an accurate representation of the target population. The base weights reflect each child's probability of being selected into the sample; the adjustments take into account non-resolution of residential/non-residential/non-working status of a telephone number, non-response to the screener and household interviews, number of telephone lines in the household, non-coverage of households that do not have landline telephones, and non-response by providers.

6.1. Base Sampling Weight

In each quarterly NIS sample, each child with a completed household interview receives a base sampling weight. This weight is equal to the total of telephone numbers in the sampling frame for the estimation area divided by the total of telephone numbers that were randomly sampled from that sampling frame and released for interview during that quarter.

6.2. Adjustments for Non-Resolution of Telephone Numbers, Screener Non-Response and Interview Non-Response

Non-response occurs in population-based surveys when respondents refuse to participate, are not available at the time of the interview, or could not be reached during the survey period. Thus, the sum of the base sampling weights of children with completed household interviews will underestimate the size of the target population in the estimation area, because not all sampled households respond to all stages of data collection up to the household interview. As a result, the base sampling weights must be adjusted so they accurately reflect the number of children in the target population that each sampled child with a completed household interview represents.

Some sampled households with age-eligible children fail to complete the household interview because of unit non-response; some telephone numbers are never determined to be residential despite multiple call attempts; some households cannot be determined to have age-eligible children; and some households with age-eligible children do not complete the household interview. To compensate for these three types of unit non-response, the sampling weights of children with a completed household interview are adjusted to account for the estimated number of age-eligible children in households whose telephone numbers are never determined to be residential, the estimated number of age-eligible children in households that fail to complete the screening interview, and the number of identified age-eligible children for whom the household interview is not completed. Each of these adjustments is carried out within estimation areas by forming weighting cells based on the residential directory-listed status of the sample telephone number, percent of the population that is white in the telephone exchange, and MSA status of the telephone exchange (e.g., weighting cells were

formed from directory-listed versus non-directory-listed telephone number; by telephone exchanges with 75 percent or higher white population versus telephone exchanges with less than 75 percent white population; and MSA/non-MSA status). Each cell in each stage of adjustment is assured of having sufficient resolved/responding cases (usually 20) at that stage of adjustment. The cells with a deficient number of responding cases are collapsed with neighboring cells. The order of the variables in cell collapsing is MSA status, percent of population that is white, and directory listed status of the telephone number. Once the adjustment cells are formed, the weights of the unresolved/non-responding records from the previous adjustment step are distributed to the weights of the resolved/responding records within each cell.

6.3. Adjustment for Multiple Telephone Lines and Deriving Annual Weights

Once the non-response-adjusted interview weights for households are computed, these weights are adjusted for additional telephone lines in the household. Because households with multiple telephone lines have a greater chance of being sampled, each child's household interview weight is adjusted by dividing it by the total number of residential telephone lines reported in the household (up to a maximum of 3). Prior to 2005, the adjustment for multiple telephone lines was made by adjusting the base sampling weights before making any other adjustments. Beginning in 2005, the adjustment for multiple telephone lines has been shifted after the interview non-response adjustment, because the information on the number of telephone lines in a household is available only for households with completed household interviews. This shifts the adjustment for multiple telephone lines to the point where the information about the number of telephone lines is actually collected.

Up to the previous step, the sampling weights are adjusted separately for each quarter and the weights in each quarter pertain to the entire target population. However, annual vaccination coverage estimates are obtained from data for four consecutive quarters, so the weights in each quarterly file are adjusted when the data from the four quarters are combined. The adjustment factor is proportional to the number of households with completed household interviews in each quarter within an estimation area.

6.4. Post-Stratification, Including Adjustment for Households Without Landline Telephone

The NIS sampling frame includes only households that have landline telephones. Because the target population consists of all children ages 19 to 35 months living in households, regardless of whether they have landline telephones, non-response-adjusted base sampling weights need to be adjusted to compensate for the non-coverage of children living in households without landline telephones. The non-covered children include children from both wireless-telephone-only and non-telephone households. Data from the NHIS suggest that, of children under the age of 18, approximately 2.4 percent lived in non-telephone households and approximately 18.7 percent lived in wireless-telephone-only households in July - December, 2008, and that this latter percentage is rapidly increasing as the number of households with wireless-telephones only increases (Blumberg and Luke, 2009). Further, data from the NHIS, which samples both "telephone" and "non-telephone" households, indicate that children living in households without telephones may have lower vaccination coverage (Bartlett et al., 2001). (Note, however, that this analysis used data from 1995 and 1996, before wireless-telephone-only households became a significant proportion of all households.) Thus, the adjustment to the sampling weights to compensate for non-coverage of households without a landline telephone may be particularly important in estimation areas in which the percentage of households that have landline telephones is relatively low.

The main part of the adjustment builds on findings (from other surveys) that households that have a telephone at the time of the survey but have experienced an interruption (of more than one week) in their telephone service during the previous year are often similar to households that do not have a telephone. In essence, the resulting adjustment projects from the non-interruption part of the sample to the non-interruption part of the population and from the interruption part of the sample to both the interruption and non-landline-telephone parts of the population.

The first step in adjusting for households without landline telephones involves a post-stratification adjustment where two cells within each estimation area are formed based on the interruption status in

telephone service. Then the weights are adjusted to the control totals of the respective groups, defined below, within each estimation area. The weights of the children with interruption in telephone service are adjusted to the control total representing themselves and the children in non-landline-telephone households, while the weights of the children without interruption in telephone service are adjusted to the control total representing themselves only, i.e., the children in households without interruption in telephone service.

The control totals used for the NIS are derived from current natality data from the National Center for Health Statistics (NCHS 2005, 2006). Because the Vital Statistics data give the counts of all live births in the U.S., regardless of whether the household has landline telephone service, the control totals include children in both landline-telephone and non-landline-telephone households. These counts are adjusted for infant mortality, immigration, and migration between estimation areas. The control total for children in non-landline-telephone households or in landline-telephone households with interruption are derived from the estimation area-level control total by estimating the percentage of children in non-landline-telephone households and the percentage of children in landline telephone households with interruption within each estimation area. For 2008, data in the 5-percent Public-Use Microdata Sample (PUMS) from the 2000 Census were used to develop initial estimates of the percentage of target children with telephone coverage for each estimation area. **The percentages range from 86.5 percent (Mississippi) to 97.9 percent (Twin Cities, MN).** These initial estimates are then adjusted by the estimates of children in landline-telephone households from the Current Population Survey (CPS). The CPS estimates by census region for 2000 and 2008 are used to make a ratio-adjustment of the PUMS estimates of the percentage of children in telephone households. The estimates of the percentage of children in landline-telephone households with interruption by estimation area are obtained from the NIS sample itself. These two percentage estimates are applied to the control total for the estimation area to estimate the control totals for the two post-stratification cells within the estimation area.

The next step in the adjustment is a simple post-stratification that separates the sample of completed interviews into cells defined by characteristics related to non-coverage. The post-stratification variables are race/ethnicity of the child's mother, level of educational attainment of the child's mother, and age of the child. The control total for each post-stratification cell is derived from the NCHS natality files from 2005 and 2006 (children born between July 1, 2005 and November 30, 2006 would have been 19-35 months on June 30, 2008). Use of the natality data to form the required population control totals for the NIS has three limitations: 1) the natality file provides a universe of live births and therefore does not reflect infant mortality; 2) the natality file does not include children born outside the United States who immigrate to this country before reaching ages 19 to 35 months; and 3) the natality file records residence at time of birth, and some children may move from one estimation area to another by the time they reach 19 to 35 months of age. Adjustments are made to the natality data to account for these three factors. For 2008, the methodology is similar to that for 2003-2007 – using data primarily in the 5-percent PUMS from the 2000 Census to make the revised adjustments.

To reduce sampling variability and improve the precision of estimation, extreme weights are trimmed and then recalibrated to control totals. Since 2003, RDD sampling weight values exceeding the median weight plus six times the interquartile range of the weights within an estimation area have been truncated to that threshold. This weight trimming prevents children with unusually large weights from having an unusually large impact on immunization coverage estimates.

The final step in adjusting the RDD sampling weights is a raking adjustment (Deming 1943) of the trimmed, post-stratified weights. The raking procedure used estimation area-level control totals for maternal education categories, maternal race/ethnicity, age group of the child, gender of the child, and whether the household experienced an interruption in telephone service. Briefly, raking takes each variable in turn and applies a proportional adjustment to the current weights of the children who belong to the same category of the variable. After a number of iterations over all the variables, the raked weights have totals that match all the

desired control totals. Raking makes it possible to incorporate additional variables into the weighting and to use more detailed categories for those variables. Smith et al. (2005) and NORC (2009) give the details of various aspects of the NIS estimation procedures.

The base sampling weights after all the foregoing adjustments constitute the "RDD sampling weights" (RDDWT).

6.5. Adjustment for Provider Non-Response

Among the 25,948 children with a completed household interview, 18,430 (71.0 percent) had adequate provider data. Starting with the 2002 public-use data file, the definition of children with adequate provider data includes unvaccinated children. These are children for whom the respondent reported during the household interview that the child had received no vaccination and has no immunization providers, or for whom one or more immunization providers were reported but those providers reported administering no vaccinations. Among the 18,430 children with adequate provider data, 151 were unvaccinated children. Failure to obtain adequate provider data for the remaining 29.0 percent was attributable to:

- parent or guardian not identifying any providers or not giving consent to contact the child's vaccination provider(s) (19.3 percent);
- children with one identified provider but inadequate information to contact the provider, or the provider did not respond, or the provider responded but did not report any immunization information for the child (8.1 percent); and
- children with two or more identified providers but not all the providers responded, and responding providers did not report sufficient information to determine the child's vaccination status (1.6 percent).

The 7,518 children for whom a household interview was completed but adequate provider data were not obtained are classified as "partial non-responders" because they have only a partial response to the NIS as a whole.

Empirical results suggest that children with adequate provider data have characteristics believed to be associated with a greater likelihood of being up-to-date, compared with children who had missing provider data. Specifically, children with adequate provider data are more likely to live in households that have higher total family income, have a white mother, and live outside a central city of a Metropolitan Statistical Area. Also, a child with missing provider data is less likely to live in the state where the mother lived when the child was born and less likely to have a parent/guardian who could locate a shot card. These factors indicate a potential lack of continuity of health care, and are associated with lower vaccination rates (Coronado et al. 2000). If no adjustment is made to the RDD sampling weights to account for these differences, estimated vaccination coverage rates may be biased.

To reduce potential bias in estimators of vaccination coverage attributable to partial non-response, a weighting-class adjustment is used in each estimation area (Brick and Kalton 1996). This adjustment involves three steps. In the first step, sampled children are classified according to the quintile of their estimated probabilities of having adequate provider data. In the statistical literature these probabilities are called response propensities (Rosenbaum and Rubin 1983, 1984; Rosenbaum 1987). Children who have similar response propensities will also be similar with respect to variables that are strongly associated with the probability of having adequate provider data. In this important respect, children in each class are comparable. Because of this comparability, any sub-sample of children in a class may represent all children in the class. Therefore, the weighting-class adjustment uses the children with adequate provider data to represent all children in the class.

In the second step of this weighting-class adjustment, within each class an adjustment factor redistributes the RDD sample weights of the children with missing provider data to the weights of the children who have adequate provider data. These adjusted sampling weights of children with adequate provider data are initial non-response-adjusted provider-phase weights.

Within an estimation area, the sums of non-response adjusted weights of children with adequate provider data for the various levels of important socio-demographic variables (such as race/ethnicity) may not be equal to corresponding population totals. To reduce bias attributable to these differences, raking was used in the third step to adjust the non-response adjusted weights to match estimation area control totals. Control totals for these variables were estimated using the weighted totals from the sample of children with completed household interviews. Smith et al. (2001b, 2005) describe the development of this approach in more detail. These raked weights of children with adequate provider data are called "final provider-phase weights" (PROVWT). Because of the comparability of children within each weighting class, any estimate that uses data only from the children with adequate provider data, along with their provider-phase sampling weights, will have less bias attributable to differences between children with adequate provider data and children with missing provider data.

Appendix D summarizes the distribution of the sampling weights (RDDWT and PROVWT) in each estimation area.

NIS public-use data files for 1995 to 2001 do not include sampling weights that account for the effect of unvaccinated children. An assessment of the effect of accounting for unvaccinated children for the period 1995 to 2003 was made. Weights were calculated for each year with and without unvaccinated children and the vaccination coverage estimates compared. Details of this assessment and the results are available in the user's guide for the 2004 public-use data file. At the national level, accounting for unvaccinated children had very little effect on the estimates of 4:3:1:3 vaccination coverage. Within estimation areas also, the two coverage estimates differed little. The largest difference (in either direction) was most often around 2 percentage points. Differences of that magnitude are small relative to the standard errors of the estimates. Although accounting for unvaccinated children has a small effect on estimates of 4:3:1:3 vaccination

coverage, data users who use the public-use data files to examine estimation area-level trends over time are advised to interpret the results with appropriate caution.

7. Analytic and Reporting Guidelines

Data from the NIS public-use data file can be used to produce national, state, and estimation area estimates of vaccination coverage rates using the PROVWT weight. Information in the data file can also be used to calculate standard errors of the estimated vaccination coverage rates that reflect the complex sample design of the NIS. The file includes estimation area and state identifiers (ESTIAP08 and STATE). The sample is stratified by the 67 estimation areas; and the estimation area identifier and the coded household identifier (SEQNUMHH) are key variables for obtaining standard errors for estimation area, state, and national estimates of vaccination coverage rates. Demographic and socioeconomic variables in the file can be used to obtain national vaccination coverage rates for sub-groups of the population. Data users should, however, be aware that estimates for such sub-groups at the state or estimation area level will generally have large standard errors because of small sample sizes. The NCHS standard for precision of sub-group estimates is that the ratio of the standard error to the estimate should be less than or equal to 0.3, and each analytic cell should contain at least 30 respondents.

7.1. Key Variables

The variables in the NIS public-use data file fall into two major categories: 1) variables that apply to all children with completed household interviews (use RDDWT), and 2) variables that apply only to children with adequate provider data (use PDAT=1 and the PROVWT weight). Variables in the first group include the household report of vaccinations received by the child and various demographic and socioeconomic characteristics of the child, mother, and household. Because of reporting and recall errors, the household report of vaccinations is not used to produce vaccination coverage rates. As discussed below, the provider report of vaccinations received by the child is used to produce vaccination coverage rates.

A few variable changes were made for the 2008 public-use data file compared to the 2007 version:

- **Because the 2008 estimation areas differ from those used in 1995-2004 and from those used in 2005, 2006, and 2007, a new 2008 estimation area variable has been added (ESTIAP08) and the 2007 estimation area variable (ESTIAP07) has been dropped.**
- **Variable BF_FORMR06 has been dropped and replaced with BF_FORMR08. Both variables store the age in days when the child was first fed formula, but children who were never fed were assigned a missing value for BF_FORMR06 and are now assigned a separate code (888) for BF_FORMR08.**
- **In 2008, vaccine type boxes were added to the influenza section IHQ shot grid. New variables P_NUMFLUN, P_NUMFLU_M, and P_NUMFLUL have been added to store the number of influenza vaccinations the child has received that were injected shots, nasal sprays, and of unknown type, respectively. Variables XFLUTY1 - XFLUTY9 have been added to indicate the type of influenza vaccination for each of the up-to-nine influenza vaccinations in the child's vaccination history.**

A full list of variables appearing on either the 2004, 2005, 2006, 2007, or 2008 public-use data file appears in Appendix H, along with the reason for the addition, subtraction, or modification of the variables in 2005, 2006, 2007, or 2008. Information on changes made between 1995-2004 can be found in the *Alphabetical Listing of Variables that are Not Available in All Public-Use Data Files, National Immunization Survey, 1995-2004*. http://www.cdc.gov/nis/notice.htm

Table 6 lists variables commonly used in analyses or for published estimates of vaccination coverage. The SEQNUMC variable is the unique child identifier. SEQNUMHH is the unique household identifier. Key geographic variables include estimation area (ESTIAP08), state (STATE), and census region (CEN_REG). Key demographic variables include age category of child (AGEGRP), race/ethnicity category of child (RACEETHK), age category of mother (M_AGEGRP), gender of child (SEX), marital status category of mother (MARITAL), and firstborn status of child (FRSTBRN). Key socioeconomic variables include

education category of mother (EDUC1), poverty status (INCPOV1), and income-to-poverty ratio (INCPORAR). The WIC variables include whether the child ever participated in the WIC program (CWIC_01) and whether the child is currently participating (CWIC_02).

Table 6: NIS Variables Commonly Used in Analyses or for Published Estimates

ID Variables	
SEQNUMC – unique child ID variable	
SEQNUMHH – unique household ID variable	
Geographic Variables	
ESTIAP08 – estimation area number (introduced in 2008; ITRUEIAP used through 2004; ESTIAP in 2005; ESTIAP06 in 2006; ESTIAP07 in 2007)	
STATE – state FIPS code	
CEN_REG – census region	Northeast Midwest South West
Child Demographic Variables	
AGEGRP – age category of child	19-23 months 24-29 months 30-35 months
RACEETHK – race/ethnicity of child (introduced in 2002; RACEKIDR used in 1995-2001)	Hispanic White alone, non-Hispanic Black alone, non-Hispanic All other races alone and multi-racial, non-Hispanic
SEX – gender of child	Male Female
FRSTBRN – firstborn status of the child	No Yes
Mother Demographic Variables	
EDUC1 – education of the mother	<12 years 12 years >12 years, not a college graduate College graduate
MARITAL – marital status of mother	Widowed, divorced, separated, or deceased Never married Currently married
M_AGEGRP – age group of mother	<=19 years 20-29 years 30 years or older
Poverty Variables	
INCPOV1 – poverty status (introduced in 2005; INCPOV1R used through 2004)	At or above poverty level, income > $75,000 At or above poverty level, income <= $75,000 Below poverty level Not determined

Table 6: NIS Variables Commonly Used in Analyses or for Published Estimates (continued)

INCPORAR – income-to-poverty ratio (introduced in 2005; INCPORAT used through 2004)	
WIC Variables	
CWIC_01 – child ever participated in WIC program	Yes No Never heard of WIC Don't know Refused Missing
CWIC_02 – child currently participating in WIC program	Yes No Don't know Refused Missing
Breastfeeding Variables	
CBF_01 – child ever fed breast milk	Yes No Don't know Missing
BF_ENDR06 – length of time in days child was fed breast milk	
BF_EXCLR06 – length of time in days child was exclusively fed breast milk or formula (introduced in 2006)	
BF_FORMR08 – age in days when child was first fed formula (introduced in 2008; BF_FORMR06 used in 2006 and 2007)	
Chicken Pox Variables	
HAD_CPOX – did child ever have chicken pox (introduced in 2005; I_HADCPX used through 2004)	Yes No Don't know Refused Missing
AGECPOXR – age in months when child had chicken pox (introduced in 2005; IAGECPXR used through 2004)	0-6 months 7-12 months 13-18 months 19-24 months 25-30 months 31 months or older Missing
Presence of Provider Data Variables	
PDAT – adequate provider data indicator	Yes No
Number of Provider-Reported Doses of Vaccine Variables	
P_NUMDTP – total number of DT/DTP/DTaP doses	
P_NUMPOL – total number of polio doses	

Table 6: NIS Variables Commonly Used in Analyses or for Published Estimates (continued)

P_NUMMMR – total number of MCV doses	
P_NUMHIB – total number of Hib doses	
P_NUMHEP – total number of hepatitis B doses	
P_NUMVRC – total number of varicella doses	
P_NUMPCV – total number of pneumococcal doses	
P_NUMFLU – total number of influenza doses	
P_NUMHEA – total number of hepatitis A doses	
Provider Characteristic Variables	
PROV_FAC – provider facility type	All public facilities All hospital facilities All private facilities All military/other facilities All WIC clinic providers Mixed types Unknown
VFC_ORDER – do child's providers order vaccines for children from state/local health department? (introduced in 2006)	All providers Some but not all providers No providers Unknown
REGISTRY – provider(s) reported child's vaccination(s) to state or community immunization registry	All providers Some but not all providers No providers Unknown

The breastfeeding variables include whether the child was ever fed breast milk (CBF_01), length of time in days the child was fed breast milk (BF_ENDR06), the age in days when the child was first fed formula (BF_FORMR08), and the length of time in days the child was exclusively fed breast milk or formula (BF_EXCLR06). Two types of inconsistencies arise in the breastfeeding data: 1) duration of any breastfeeding can exceed age of the child, and 2) age when the child was first fed formula can exceed the age of the child. BFENDFL06 is set equal to 1 when BF_ENDR06 exceeds the age of the child (with a buffer), and BFFORMFL06 is set equal to 1 when BF_FORMR08 exceeds the age of the child (with a buffer). Appendix E provides details on how the flags were created. Data users are cautioned to review Appendix E before analyzing any of the breastfeeding variables.

The chicken pox variables include whether child has ever had chicken pox (HAD_CPOX), and age in months at which child had chicken pox (AGECPOXR).

In addition to the above household variables, there are many key variables from the provider data. Selecting children with PDAT equal to 1 identifies children with adequate provider data (DISPCODE = 1 to 6 or 8 to 11) or who are unvaccinated (as defined earlier). Children (excluding unvaccinated children) who do not have provider data (DISPCODE = MISSING) or have provider data that are not adequate to determine up-to-date vaccination status of the child (DISPCODE = 7) have PDAT equal to 2. (Appendix F gives the definition of the values of DISPCODE.)

The NIS public-use data file contains many variables constructed from the provider data. One set of variables indicates number of doses the child received for each vaccine. For example, P_NUMDTP indicates number of doses of DT-containing vaccine, including DTP, DTaP, DT, DTaP-Hib, DTP-Hib, and DTaP-HepB-IPV. Both the individual vaccines and the vaccine series have up-to-date indicator variables. For example, PUTD4313 is an indicator variable for whether the child has 4+ DT-containing vaccinations, 3+ polio-containing vaccinations, 1+ measles-containing vaccinations, and 3+ Hib-containing vaccinations. Also, PUT43133 is an indicator variable for 4+ DT-containing, 3+ polio-containing, 1+ measles-containing, 3+ Hib-containing, and 3+ Hep B-containing. Section 4 discusses the naming conventions for these variables. Since 2003, two influenza vaccine up-to-date variables have been created (NCHS 2009). The two variables are:

P_UTDFL1: Vaccinated – For interviews conducted during year x (defined using year variable associated with the quarter), child was of age between 6 and 23 months during the entire span from 9/1 through 12/31 of year x-1, and child received at least one influenza vaccination during this period.

Not Vaccinated – For interviews conducted during year x (defined using year variable associated with the quarter), child was of age between 6 and 23 months during the entire span from 9/1 through

12/31 of year x-1, and child received no influenza vaccine during this period.

Not eligible – Child falls into neither of the preceding categories.

and

P_UTDFL2: Vaccinated – For interviews conducted during year x (defined using year variable associated with the quarter), child was of age between 6 and 23 months during the entire span from 9/1 through 12/31 of year x-1, and either a) received no doses of influenza vaccine prior to 9/1/x-1, but then received two between 9/1/(x-1) and whichever is earlier, date of interview or 1/31/x or b) received at least one dose of influenza vaccine prior to 9/1/x-1 and then received one during the period 9/1/x-1 through 12/31/x-1.

Not vaccinated – For interviews conducted during year x (defined using year variable associated with the quarter), child was of age between 6 and 23 months during the entire span from 9/1 through 12/31 of year x-1, but does not qualify for the above definition.

Not eligible – For interviews conducted during year x (defined using year variable associated with the quarter), child's age fell outside the span of 6 and 23 months at any point between 9/1/x-1 and 12/31/x-1.

Starting 2007, another influenza vaccine up-to-date variable (P_UTDFL3) was been created. It is similar to P_UTDFL2 variable but with slight modification in the definition of "not vaccinated". The difference between P_UTDFL2 and P_UTDFL3 is shown in Table 7.

Table 7: Comparison of Old Flu Up-to-Date Indicator (P_UTDFL2) and New Flu Up-to-Date Indicator (P_UTDFL3)[1]

Number of Doses in Season 1 Before 9/1/[YEAR[2]-2]	Number of Doses in Season 2 9/1/[YEAR-2] to 9/1/[YEAR-1], Left Inclusive	Number of Doses in Season 3 9/1/[YEAR-1] to 12/31/[YEAR-1][3] Inclusive	Fully Vaccinated According to P_UTDFL2	Fully Vaccinated According to P_UTDFL3	Different
0	0	0	No	No	
0	0	1	No	No	
0	0	2	Yes	Yes	
0	1	0	No	No	
0	1	1	Yes	No	X
0	1	2	Yes	Yes	
0	2	0	No	No	
0	2	1	Yes	Yes	
0	2	2	Yes	Yes	
1	0	0	No	No	
1	0	1	Yes	Yes	
1	0	2	Yes	Yes	
1	1	0	No	No	
1	1	1	Yes	Yes	
1	1	2	Yes	Yes	
1	2	0	No	No	
1	2	1	Yes	Yes	
1	2	2	Yes	Yes	
2	0	0	No	No	
2	0	1	Yes	Yes	
2	0	2	Yes	Yes	
2	1	0	No	No	
2	1	1	Yes	Yes	
2	1	2	Yes	Yes	
2	2	0	No	No	
2	2	1	Yes	Yes	
2	2	2	Yes	Yes	

[1] For children who were between the ages of 6 and 23 months (inclusive) for the entire span of 9/1/[YEAR-1] and 12/31/[YEAR-1].

[2] In this table, YEAR refers to the sampling year for the child.

[3] This date does not apply to the first three rows of this table; for the first three rows (i.e., 0 doses received prior to 9/1/[YEAR-1]) the date is INTERVIEWDATE or 1/31/[YEAR], whichever is earlier.

To accommodate the large and continually growing number of vaccination types covered by the NIS, vaccination-type indicator variables are also created from information on the immunization history questionnaire. For example, the vaccination-type indicator variable for the first dose of DT-containing vaccine (XDTPTY1) indicates whether that dose was a DT, DTP, DTaP, DTP-Hib, DTaP-Hib, or DTaP-HepB-IPV vaccination. Each type of vaccination has a distinct vaccination type code. Additional codes cover situations where the provider does not specify the type of DT-containing, polio-containing, pneumococcal-containing, measles-containing, Hib-containing, Hep B-containing, or varicella-containing vaccine. Hepatitis A and influenza vaccines do not require vaccination-type indicator variables.

DT-containing vaccines have a vaccination type code of 01, 02, 03, 04, 05, 07, and 08; polio-containing vaccines have a vaccination type code of 08, 20, 21 and 22; measles-containing vaccines have a vaccination type code of 30, 31, 32, 33, MM, and VM; Hib-containing vaccines have a vaccination type code of 05, 07, 43, 44, and HI; hepatitis B-containing vaccines have a vaccination type code of 08, 43, 60, and HB; pneumococcal-containing vaccines have a vaccination type code of 70, 71, and 72; varicella-containing vaccines have a vaccination type code of VA, VM, and VO; and influenza vaccines have a vaccination type code of FN, FM, and FL. A full list of vaccine type codes appears in Table 8 and in Appendix K.

The vaccination-type indicator variables greatly reduce the number of age-at-vaccination variables that must be carried in the NIS 2008 public-use data file without loss of information. They also allow data users to determine more easily the specific type of vaccine given at each dose (e.g., percentage of children with a DTaP vaccination for their first dose of DT-containing vaccine). The vaccination-type indicator variables are located in Section 9 (Provider-Reported Age-at-Vaccination Variables) of the code book. As an example of their use, a weighted (using the PROVWT weight for children with PDAT = 1) frequency distribution on XDTPTY1 would give estimates of the proportion of DT-containing first doses that were DT, DTP, DTaP, DTP-Hib, DTaP-Hib, etc.

The NIS public-use data file includes a variable for age in days at each vaccination (e.g., DDTP1 for first dose of DT-containing vaccine). These variables can be used to examine age at vaccination, vaccination spacing intervals, and age-appropriate immunization. Another set of variables gives age in months at time of vaccination (e.g., DTP1_AGE for first dose of DT-containing vaccine). They are also located in Section 9 of the code book. These variables can be used to determine, for example, whether a child received at least four DT-containing vaccinations by age 19 months. Section 4 of this Guide discusses the naming conventions for these variables. Note that these age-in-days and age-in-months variables, as well as the vaccine type variables described above, are based on *all* vaccinations in the provider reported vaccination history, not just those occurring before the household interview date, whereas the "P_NUM" and "P_UTD" variables in Section 8 of the codebook reflect only those shots given before the household interview date. (Children who get vaccinations after the household interview date but before the provider returns the IHQ may have been influenced to do so by the household interview itself, and so such vaccinations are excluded when producing estimates of vaccination coverage.) If desired, users can limit the Section 9 variables to only those before the household interview date by examining the corresponding Section 8 "P_NUM" variable and limiting the analysis of the section 9 variables to only the first *n* variables, where *n* is equal to the number of vaccinations in the vaccine category before the household interview date as indicated by the corresponding "P_NUM" variable.

The final key set of provider variables relates to characteristics of the provider(s): provider facility type (PROV_FAC), an indicator of whether the child's providers order vaccines from a state or local health department (VFC_ORDER), and an indicator of whether the child's vaccinations are reported to a community or state immunization registry (REGISTRY).

Table 8: Vaccination-Type Indicator Variables Use with Vaccination-Date Arrays and Age-at-Vaccination Arrays, National Immunization Survey, 2008

Vaccination-Type Indicator Variable Description and Variable Names	Vaccination Type Code	Specific Type of Vaccination Recorded on Immunization History Questionnaire
DTP (DT-containing vaccine): XDTPTY1 – XDTPTY9	01	DT
	02	DTP
	03	DT - containing - unknown type
	04	DTaP
	05	DTP/Hib
	07	DTaP/Hib
	08	DTaP/IPV/Hep B
POLIO (Polio-containing vaccine): XPOLTY1 – XPOLTY9	08	DTaP/IPV/Hep B
	20	OPV
	21	IPV
	22	Polio – unknown type
MCV (Measles-containing vaccine): XMMRTY1 – XMMRTY9	30	MMR
	31	Measles only
	32	Measles/mumps
	33	Measles/rubella
	MM	Measles-containing - unknown type
	VM	MMR/Varicella
HIB (Hib-containing HIB (Hib-containing vaccine): XHIBTY1 – XHIBTY9	05	DTP/Hib
	07	DTaP/Hib
	43	Hep B/Hib
	44	Hib only
	HI	HIB-unknown type
HEP B (Hep B-containing vaccine): XHEPTY1 – XHEPTY9	08	DTaP/Hep B/IPV
	43	Hep B/Hib
	60	Hep B only
	HB	Hep B - unknown type
PCV (Pneumococcal-containing vaccine): XPCVTY1 – XPCVTY9	70	Conjugate
	71	Polysaccharide
	72	Pneumococcal - unknown type

Table 8: Vaccination-Type Indicator Variables Use with Vaccination-Date Arrays and Age-at-Vaccination Arrays, National Immunization Survey, 2008 (continued)

Vaccination-Type Indicator Variable Description and Variable Names	Vaccination Type Code	Specific Type of Vaccination Recorded on Immunization History Questionnaire
VRC (Varicella-containing vaccine): XVRCTY1 – XVRCTY9	VA	Varicella - unknown type
	VM	MMR/Varicella
	VO	Varicella only
FLU (Influenza vaccine): XFLUTY1 – XFLUTY9	FL	Influenza - unknown type
	FN	Injected influenza
	FM	Influenza spray

7.2. Use of NIS Sampling Weights

The NIS public-use data file contains two child level weights. The RDDWT variable gives the household weight for each child. It should be used to form estimates from children with completed household interviews. This weight reflects the stratified sample design and also adjusts for unit non-response, for post-stratification to population control totals, and for the exclusion of non-telephone children. The weight variable that applies to children with adequate provider data is PROVWT. This weight should be used to form estimates of vaccination coverage. Each child with adequate provider data (PDAT = 1) has a positive value for PROVWT. Starting with the 2002 file, the definition of children with adequate provider data was expanded to include unvaccinated children (as discussed in Section 2).

The NIS public-use data file does not contain any provider-level weights. The NIS does not sample providers directly; rather, they are included in the survey through the children they vaccinate. A user of the file should not attempt provider-level analyses (e.g., estimate the percentage of providers in the U.S. that are private providers), because the NIS sample was not designed for that purpose.

7.3. Estimation and Analysis

7.3.1. Estimating Vaccination Coverage Rates

Vaccination coverage rates are ratio estimators, as described in the statistical literature on methods for complex sample surveys. Because of the adjustment to the sampling weights for provider-phase non-response, statistical analyses require only data from children with adequate provider data (PDAT = 1), along with their final provider sampling weights (PROVWT). To summarize the statistical methodology by which vaccination coverage rates and their standard errors are obtained from these data, let Y_{hij} be an indicator, for the *j*th child with adequate provider data in the *i*th sampled household in the *h*th stratum of the NIS sampling design, equal to 1 if the child is up-to-date according to the provider data and 0 otherwise. Also, let W_{hij} denote the value of PROVWT for this child. Then, letting $\hat{Y}_h = \sum_{i=1}^{n_h} \sum_{j=1}^{m_{hi}} W_{hij} Y_{hij}$ and $\hat{T}_h = \sum_{i=1}^{n_h} \sum_{j=1}^{m_{hi}} W_{hij}$,

the national estimator of the vaccination coverage rate may be expressed as

$$\hat{\theta} = \frac{\sum_{h=1}^{L} \hat{Y}_h}{\sum_{h=1}^{L} \hat{T}_h}$$

where L denotes the number of strata (the 67 estimation areas), n_h denotes the number of sampled households containing children with adequate provider data in the *h*th estimation area, and m_{hi} denotes the number of age-eligible children with adequate provider data in the *i*th household in the *h*th stratum.

Letting L instead denote the number of estimation areas in a state, the above formula can also be used to calculate vaccination coverage rates for states (regardless of whether the state contains only one or more than one estimation area).

7.3.2. Estimating Standard Errors of Vaccination Coverage Rates

The Taylor-series method can be used to estimate the sampling variance of vaccination coverage rates for the U.S., the states, and estimation areas. Letting $Z_{hij} = \frac{W_{hij}(Y_{hij} - \hat{\theta})}{\sum_{h=1}^{L} \hat{T}_h}$, $Z_{hi} = \sum_{j=1}^{m_{hi}} Z_{hij}$, and $\overline{Z}_h = \frac{\sum_{i=1}^{n_h} Z_{hi}}{n_h}$ yields an estimator of the variance of the estimated vaccination coverage rate, $\hat{\theta}$, equal to

$$v(\hat{\theta}) = \sum_{h=1}^{L} \frac{n_h}{n_h - 1} \sum_{i=1}^{n_h} (Z_{hi} - \overline{Z}_h)^2 .$$

The standard error is the square root of the variance. The estimation of standard errors for estimates of vaccination coverage rates in the NIS can be implemented in specialized statistical software such as SUDAAN (Research Triangle Institute 2008), SAS (SAS Institute Inc. 2003), R (Lumley, 2009), and Stata (Stata Corporation 2009). Appendix G gives several examples of the use of SAS, R, and SUDAAN to estimate vaccination coverage rates and their standard errors for estimation areas and states. For all procedures, the option of with-replacement sampling of primary sampling units within stratum is used, because the sampling fractions for households within an estimation area are all quite small. In these applications the estimation area (ESTIAP08) is used as the stratum variable and the household identifier (SEQNUMHH) as the primary sampling unit identifier. The data file should be sorted first on ESTIAP08 and then on SEQNUMHH within ESTIAP08 before running the programs for SUDAAN and SAS. As indicated above, PROVWT is used as the weight variable.

7.4. Combining Multiple Years of NIS Data

7.4.1. Estimation of Multi-Year Means

With release of the 2008 NIS public-use data file, fourteen years of NIS data are now available. The precision of estimates of vaccination coverage for sub-domains (e.g., by race/ethnicity of child) within estimation areas or states can be improved by combining two or more years of NIS data. Data users should, however, be aware that estimates from combined years of NIS data represent an average over two or more years.

Although combining several years of NIS data will yield a larger sample size for estimation areas and states, the composition of the population in a geographic area may change over time, making interpretation of the results difficult. Furthermore, if vaccination administration schedules or vaccination coverage changes over time, the estimate of vaccination coverage for the combined time period applies to a hypothetical population that existed at the middle of the time period, making interpretation of the results even more difficult. Given the use of independent RDD samples in the NIS, it is also possible that a child could appear in more than one public-use data file.

To estimate a multi-year mean for a given NIS variable, the weights in each participating file (RDD-phase weights HY_WGT in 1995-2001, RDD_WT in 2002, WGT_RDD in 2003-2004, RDDWT in 2005-2008; and provider-phase weights W0 in 1995-2001, WT in 2002, WGT in 2003-2004, PROVWT in 2005-2008) should be divided by the number of years being combined. For example, if data for 2004 and 2005 for children with adequate provider data are to be combined, then the weights in the two files – WGT in 2004 and PROVWT in 2005 – should be divided by 2 to obtain revised weights, which should be saved as a new variable, say NEWWT. It is necessary to use NEWWT in the analysis to obtain correct weighted estimates for children ages 19 to 35 months. Furthermore, the child and household ID numbers (SEQNUMC and SEQNUMHH) in the files are unique only within a year, not across years. It is important for the user to create revised, unique ID numbers when combining data from multiple years.

The following SAS code can be used:

```
YRSEQC = 1 * (YEAR || SEQNUMC);
YRSEQHH = 1 * (YEAR || SEQNUMHH);
```

YEAR is the 4-digit year variable for the NIS data year (e.g., 2001).

To produce valid estimates of sampling variability and valid confidence intervals for multi-year coverage rates and other multi-year means, it is necessary to use specialized software such as SAS or SUDAAN.

The years 2005 to 2008 bring an important new complication for variance estimation not encountered in previous NIS years, because some traditional estimation areas were removed and other new areas were defined and introduced to the survey (see Section 2 above for more information about rotating estimation areas). The variance strata for 2004 and all prior files are defined by the variable ITRUEIAP, while the variance strata for 2005-2008 are defined by the variables ESTIAP, ESTIAP06, ESTIAP07, and ESTIAP08 respectively. The variables ITRUEIAP, ESTIAP, ESTIAP06, ESTIAP07, and ESTIAP08 define mutually exclusive and exhaustive geographic areas. However, they are not exactly the same areas. For example, Boston and Rest of Massachusetts are both strata in 2006, 2004 and all prior years, while statewide Massachusetts is a stratum in 2005 and 2007-2008. Other areas, such as Chicago and Rest of Illinois, are strata in all years, including 2005-2008.

To make inferences concerning multi-year means, the user must take two actions. First, he/she must define and save a new stratum variable with a common name for all years included in the analysis. Second, he/she must define a common set of estimation domains that can be supported by each of the files included in the multi-year analysis. To take these actions, the user should follow the following seven-step procedure (or its equivalent):

i. Compute and save the new, common variance-stratum variable for each year participating in the analysis. The variable should be defined by the equation

STRATUMV	=	ITRUEIAP	, for children in the 2004 or prior public-use data files
	=	ESTIAP	, for children in the 2005 public-use data file
	=	ESTIAP06	, for children in the 2006 public-use data file
	=	ESTIAP07	, for children in the 2007 public-use data file
	=	**ESTIAP08**	**, for children in the 2008 public-use data file**

ii. Compute and save the new, common weight variable, NEWWT, as instructed above for each year participating in the analysis.

iii. Compute and save the new, unique child and household identification numbers, YRSEQC and YRSEQHH, as instructed above for each year participating in the analysis.

iv. Compute and save a variable defining the common estimation domains to be studied for each year participating in the analysis. For example, one could use the LCDIAP (Least Common Denominator Estimation Area) variable set forth in Table 9 or states as geographic domains.

v. Merge the multiple files into one consolidated file in a format compatible with the specialized software to be used.

vi. Sort the consolidated file by YEAR, STRATUMV, and YRSEQHH.

vii. Run the specialized software on the consolidated file, computing estimates, variance estimates, and confidence intervals. For SUDAAN users, sampling levels or stages may be specified by the statement

NEST YEAR STRATUMV YRSEQHH / PSULEV = 3;

the specification of weights by

WEIGHT NEWWT;

and the specification of estimation domains, for example, by the two statements

```
CLASS YEAR LCDIAP STATE;
TABLES LCDIAP;
```

or

```
CLASS YEAR LCDIAP STATE;
TABLES STATE;
```

7.4.2. Estimation of Multi-Year Contrasts

Considerations similar to those for multi-year means arise in the estimation of contrasts between NIS years. For example, a typical contrast of interest would be the difference between the immunization coverage parameters in 2004 and in 2005.

To make inferences concerning a multi-year contrast, the user will need to work with the original weights reported on the files and store them in a common variable. One must not divide the original weights by the

number of years included in the contrast. For the example, one may define the new, common weight variable as

NEWWT2 = PROVWT , if the child is in the 2005 PUF

= WGT , if the child is in the 2004 PUF.

The user should follow the seven-step procedure set forth in the section on multi-year means, using NEWWT2 in lieu of NEWWT. In SUDAAN, the user should also specify the contrast of interest through use of a CONTRAST statement or an appropriate regression model. For example, to compare the 4:3:1:3:3:1 up-to-date estimate from 2004 to the 2005 estimate, SUDAAN users can use the following WEIGHT, VAR, and CONTRAST statements:

```
WEIGHT NEWWT2;
VAR PU431331;
CONTRAST YEAR = (-1 1);
```

Table 9: Cross-Walk Between ITRUEIAP, ESTIAP, ESTIAP06, ESTIAP07, ESTIAP08, and Least Common Denominator Estimation Area (LCDIAP), National Immunization Survey, 2008

LCDIAP	Area Name	ITRUEIAP (1995-2004)	ESTIAP (2005)	ESTIAP06 (2006)	ESTIAP07 (2007)	ESTIAP08 (2008)
	Alabama					
20	AL-Jefferson County	21	21	20	20	20
20	AL-Rest of State	20	20	20	20	20
74	Alaska	74	74	74	74	74
	Arizona					
66	AZ-Maricopa County	67	67	67	66	66
66	AZ-Rest of State	66	66	66	66	66
46	Arkansas	46	46	46	46	46
	California					
68	CA-Fresno County	68	68	84	68	68
69	CA-Los Angeles County	69	69	69	69	69
68	CA-Northern CA	68	68	85	68	85
68	CA-San Diego County	71	68	71	68	68
68	CA-Santa Clara County	70	68	70	68	70
68	CA-San Bernardino County	68	80	68	80	68
68	CA-Alameda County	68	79	68	79	68
68	CA-Rest of State	68	68	68	68	68
	Colorado					
60	CO-Denver	60	81	60	60	60
60	CO-Rest of State	60	60	60	60	60
1	Connecticut	1	1	1	1	1
13	Delaware	13	13	13	13	13
12	District of Columbia	12	12	12	12	12
	Florida					
22	FL-Miami-Dade County	24	22	24	24	24
22	FL-Duval County	23	23	23	22	22
22	FL-Orange County	22	22	22	22	91
22	FL-Rest of State	22	22	22	22	22
	Georgia					
25	GA-Fulton/DeKalb Counties	26	26	26	25	25
25	GA-Rest of State	25	25	25	25	25
72	Hawaii	72	72	72	72	72

Table 9: Cross-Walk Between ITRUEIAP, ESTIAP, ESTIAP06, ESTIAP07, ESTIAP08, and Least Common Denominator Estimation Area (LCDIAP), National Immunization Survey, 2008 (continued)

LCDIAP	Area Name	ITRUEIAP (1995-2004)	ESTIAP (2005)	ESTIAP06 (2006)	ESTIAP07 (2007)	ESTIAP08 (2008)
75	Idaho	75	75	75	75	75
	Illinois					
35	IL-City of Chicago	35	35	35	35	35
34	IL-Madison and St. Clair Counties	34	34	34	34	92
34	IL-Rest of State	34	34	34	34	34
	Indiana					
36	IN-Marion County	37	36	37	37	36
36	IN-Rest of State	36	36	36	36	36
56	Iowa	56	56	56	56	56
	Kansas					
57	KS-Eastern KS	57	57	86	57	57
57	KS-Rest of State	57	57	57	57	57
27	Kentucky	27	27	27	27	27
	Louisiana					
47	LA-Orleans Parish	48	47	47	47	47
47	LA-Rest of State	47	47	47	47	47
4	Maine	4	4	4	4	4
	Maryland					
14	MD-City of Baltimore	15	15	15	14	15
14	MD-Rest of State	14	14	14	14	14
	Massachusetts					
2	MA-City of Boston	3	2	3	2	2
2	MA-Rest of State	2	2	2	2	2
	Michigan					
38	MI-City of Detroit	39	39	39	38	38
38	MI-Rest of State	38	38	38	38	38
	Minnesota					
40	MN-Twin Cities	40	40	40	40	93
40	MN-Rest of State	40	40	40	40	40
28	Mississippi	28	28	28	28	28
	Missouri					
58	MO-St. Louis County/City	58	82	58	58	58
58	MO-Rest of State	58	58	58	58	58
61	Montana	61	61	61	61	61

Table 9: Cross-Walk Between ITRUEIAP, ESTIAP, ESTIAP06, ESTIAP07, ESTIAP08, and Least Common Denominator Estimation Area (LCDIAP), National Immunization Survey, 2008 (continued)

LCDIAP	Area Name	ITRUEIAP (1995-2004)	ESTIAP (2005)	ESTIAP06 (2006)	ESTIAP07 (2007)	ESTIAP08 (2008)
59	Nebraska	59	59	59	59	59
	Nevada					
73	NV-Clark County	73	83	73	73	73
73	NV-Rest of State	73	73	73	73	73
5	New Hampshire	5	5	5	5	5
	New Jersey					
8	NJ-City of Newark	9	9	9	8	8
8	NJ-Rest of State	8	8	8	8	8
	New Mexico					
49	NM-Southern NM	49	49	88	49	49
49	NM-Rest of State	49	49	49	49	49
	New York					
11	NY-City of New York	11	11	11	11	11
10	NY-Rest of State	10	10	10	10	10
29	North Carolina	29	29	29	29	29
62	North Dakota	62	62	62	62	62
	Ohio					
41	OH-Cuyahoga County	42	42	42	41	41
41	OH-Franklin County	43	43	41	41	41
41	OH-Rest of State	41	41	41	41	41
50	Oklahoma	50	50	50	50	50
76	Oregon	76	76	76	76	76
	Pennsylvania					
16	PA-Allegheny County	16	16	87	16	16
17	PA-Philadelphia County	17	17	17	17	17
16	PA-Rest of State	16	16	16	16	16
6	Rhode Island	6	6	6	6	6
30	South Carolina	30	30	30	30	30
63	South Dakota	63	63	63	63	63
	Tennessee					
31	TN-Davidson County	33	33	31	31	31
31	TN-Shelby County	32	32	32	31	31
31	TN-Rest of State	31	31	31	31	31

Table 9: Cross-Walk Between ITRUEIAP, ESTIAP, ESTIAP06, ESTIAP07, ESTIAP08, and Least Common Denominator Estimation Area (LCDIAP), National Immunization Survey, 2008 (continued)

LCDIAP	Area Name	ITRUEIAP (1995-2004)	ESTIAP (2005)	ESTIAP06 (2006)	ESTIAP07 (2007)	ESTIAP08 (2008)
	Texas					
55	TX-Bexar County	55	55	55	55	55
54	TX-City of Houston	54	54	54	54	54
52	TX-Dallas County	52	52	52	52	52
53	TX-El Paso County	53	53	53	53	53
51	TX-Rest of State	51	51	51	51	51
64	Utah	64	64	64	64	64
7	Vermont	7	7	7	7	7
18	Virginia	18	18	18	18	18
	Washington					
77	WA-Eastern WA	77	77	771	77	774
77	WA-Western WA	77	77	77	773	774
77	WA-King County	78	78	78	77	77
77	WA-Rest of State	77	77	772	77	77
19	West Virginia	19	19	19	19	19
	Wisconsin					
44	WI-Milwaukee County	45	45	45	44	44
44	WI-Rest of State	44	44	44	44	44
65	Wyoming	65	65	65	65	65

8. Summary Tables

Appendix I contains seven tables. Appendix Table I.1 lists the 67 estimation areas for the 2008 NIS by state. For the U.S. and for each state and estimation area, it provides the estimated population total of children ages 19 to 35 months of age in 2008, and (from 2008 NIS data collection) number of children with completed household interviews and number of children with adequate provider data.

Appendix Tables I.2 through I.5 summarize pairs of variables: age group of child by maternal education (Appendix Table I.2), age group by family poverty status (Appendix Table I.3), race/ethnicity by family poverty status (Appendix Table I.4), age group by race/ethnicity (Appendix Table I.5), and age group by gender (Appendix Table I.6). Each of these tables gives the unweighted and weighted counts of children who have completed household interviews and the unweighted and weighted counts of children with adequate provider data.

Appendix Table I.7 gives unweighted counts of children for shot card use by presence of adequate provider data.

Appendix Table I.8 presents estimates of vaccination coverage and asymmetric 95-percent confidence intervals obtained from SUDAAN. The data user should obtain the same estimates from the 2008 public-use data file.

Appendix J contains two tables and two time-series charts. Table J.1 and Figure J.1 show key components of the NIS response rates and the overall CASRO rates by year of the survey. Table J.2 and Figure J.2 show vaccination coverage rates since 1995.

The findings in this report are subject to at least three limitations. First, because NIS is a telephone survey, results are weighted to be representative of all children aged 19-35 months. Although statistical adjustments were made to account for nonresponse and households without landline telephones, some bias might remain. Second, underestimates of vaccination coverage might have resulted from the exclusive use of provider-reported vaccination histories because completeness of these records is unknown. Finally, although national estimates of vaccination coverage are precise, estimates for state and local areas should be interpreted with caution because their sample sizes are smaller and their confidence intervals generally are wider than those for national estimates.

9. Citations for NIS Data

In publications please acknowledge the original data source. The citation for the 2008 NIS public-use data file is:

U.S. Department of Health and Human Services (DHHS). National Center for Health Statistics. The 2008 National Immunization Survey, Hyattsville, MD: Centers for Disease Control and Prevention, 2009.

Information about the NIS is located at http://www.cdc.gov/nis/

The NIS public-use data file is located at http://www.cdc.gov/nis/data_files.htm.

Please place the acronym "NIS" in the titles, keywords, or abstracts of journal articles and other publications in order to facilitate retrieval of such materials in bibliographic searches.

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Appendix A

Glossary of Abbreviations and Terms

3:3:1	The series of 3 or more DTaP vaccinations, 3 or more polio immunizations, and 1 or more MCV vaccinations
4:3:1	The series of 4 or more DTaP vaccinations, 3 or more polio immunizations, and 1 or more MCV vaccinations
4:3:1:3	The series of 4 or more DTaP vaccinations, 3 or more polio immunizations, 1 or more MCV vaccinations, and 3 or more Hib vaccinations
4:3:1:3:3	The series of 4 or more DTaP vaccinations, 3 or more polio immunizations, 1 or more MCV vaccinations, 3 or more Hib vaccinations, and 3 or more hepatitis B vaccinations
4:3:1:3:3:1	The series of 4 or more DTaP vaccinations, 3 or more polio immunizations, 1 or more MCV vaccinations, 3 or more Hib vaccinations, 3 or more hepatitis B vaccinations, and 1 or more varicella vaccinations given at age 12 months or older
4:3:1:3:3:1:3	The series of 4 or more DTaP vaccinations, 3 or more polio immunizations, 1 or more MCV vaccinations, 3 or more Hib vaccinations, 3 or more hepatitis B vaccinations, 1 or more varicella vaccinations given at age 12 months or older, and 3 or more pneumococcal vaccinations
4:3:1:3:3:1:4	The series of 4 or more DTaP vaccinations, 3 or more polio immunizations, 1 or more MCV vaccinations, 3 or more Hib vaccinations, 3 or more hepatitis B vaccinations, 1 or more varicella vaccinations given at age 12 months or older, and 4 or more pneumococcal vaccinations
CATI	Computer-assisted telephone interviewing
CDC	Centers for Disease Control and Prevention
CII	Childhood Immunization Initiative
DOB	Date of birth
DTaP	Diphtheria and tetanus toxoids and acellular pertussis vaccine
DTP	Diphtheria and tetanus toxoids and pertussis vaccine
DT	Diphtheria and tetanus toxoids vaccine
FLU	Influenza vaccine
Hep A	Hepatitis A vaccine

Hep B	Hepatitis B vaccine
Hib	Haemophilus influenzae type b vaccine
IAP	Immunization Action Plan areas
IHQ	Immunization history questionnaire
IPV	Inactivated poliovirus vaccine
MCV	Measles-containing vaccine
MMR	Measles, mumps, and rubella vaccine
NCHS	National Center for Health Statistics
NCIRD	National Center for Immunization and Respiratory Diseases
NIS	National Immunization Survey
NHIS	National Health Interview Survey
NIP	National Immunization Program
OPV	Oral poliovirus vaccine
PCV	Pneumococcal vaccine
PRC	Provider Record Check Study
PUF	Public-use file
RDD	Random digit dialing
ROT	Rotavirus vaccine
SC	Shot card
UTD	Up-to-date
VFC	Vaccines for Children program
VRC	Varicella vaccine

Appendix B

NIS Household Questionnaire

NIS Hard Copy Questionnaire

Q4/2008

Section S – Screener

Section MR – Most Knowledgeable Respondent Callback

Section A – Available Shot Records

Section B – No Shot Records

Section C – Demographics

Section D – Provider

Section E- Health Insurance Module

Section F - Universal Exit

Appendix A-Section D on-screen FAQs

Confidential Information

Information contained on this form which would permit identification of any individual or establishment has been collected with a guarantee that it will be held in strict confidence by NORC and CDC, will be used only for purposes states in this study, and will not be disclosed or released to anyone other than authorized staff of CDC without the consent of the individual or establishment in accordance with Section 308(d) of the Public Health Service Act
(42 U.S.C. 242.m)

SECTION S

Screener

Intro_1 Hello, my name is _____. I'm calling on behalf of the Centers for Disease Control and Prevention. We're conducting a nationwide immunization study to find out how many children under 4 years of age, are receiving all of the recommended vaccinations for childhood diseases. Your telephone number has been selected at random to be included in the study.

CONTINUE	1	GO TO S1
CONFIRM BUSINESS	2	GO TO SALZ
Out of scope	3	GO TO THANK_YOU_OOS
Terminate the Interview	4	GO TO UNIVERSAL EXIT-T1
Cell phone	5	GO TO UNIVERSAL EXIT- CELL_1
Answering machine	6	GO TO MSG_Y
R will call 800 line/verify website	7	GO TO VERIFY_INFO
R asks for letter	8	GO TO UNIVERSAL EXIT M1_NAME
Supervisor review	9	GO TO CNOTES_1_1
Test sample – use only if respondent instructs that this call was a test	15	
Continue the case with Language Line	16	GO TO S1

Intro_1_HUDI Hello, my name is ___. I'm calling on behalf of the Centers for Disease Control and Prevention. We're conducting a nationwide study to prevent future outbreaks of childhood diseases.

CONTINUE WITH INTERVIEW	1	GO TO S1
CONFIRM BUSINESS	2	GO TO SALZ
ANSWERING MACHINE	4	GO TO MSG_Y

INTRO_1
(for partial completes)

Hello, my name is _____ and I am calling on behalf of the Centers for Disease Control and Prevention. We recently spoke to (MKR / an adult in this household) and began an important nationwide immunization study regarding (child's name or initials)'s vaccinations. I'm calling to complete the interview now, may I please speak with (MKR / that adult)?

CONTINUE WITH INTERVIEW	1	GO TO S1
CONFIRM BUSINESS	2	GO TO SALZ
Out of scope	3	GO TO THANK_YOU_OOS
Terminate the Interview	4	GO TO UNIVERSAL EXIT-T1
Cell phone	5	GO TO UNIVERSAL EXIT- CELL_1
Answering machine	6	GO TO MSG_Y
R will call 800 line/verify website	7	GO TO CNOTES_1_1
R asks for letter	8	GO TO UNIVERSAL EXIT M1_NAME
Supervisor review	9	GO TO CNOTES_1_1

(Raise your hand to get permission before using this code)

INTRO_1

(Incentives_10/Address Available)

Hello. I'm calling on behalf of the Centers for Disease Control and Prevention to follow up on a letter that was sent to your home. Earlier, we had contacted your household to participate in a survey regarding the immunizations of the [IF S_NUMB=1, THEN "child who lives"{IF S_NUMB>1, THEN "children who live"] there. I'm calling back to continue the interview. In appreciation for your time, we will send you $10.

CONTINUE WITH INTERVIEW	1	GO TO S1
CONFIRM BUSINESS	2	GO TO SALZ
Out of scope	3	GO TO THANK_YOU_OOS
Terminate the Interview	4	GO TO UNIVERSAL EXIT-T1
Cell phone	5	GO TO UNIVERSAL EXIT- CELL_1
Answering machine	6	GO TO MSG_Y
R will call 800 line/verify website	7	GO TO CNOTES_1_1
R asks for letter	8	GO TO UNIVERSAL EXIT M1_NAME
Supervisor review	9	GO TO CNOTES_1_1

(Raise your hand to get permission before using this code)

INTRO_1 (Incentives_15/Telephone Only)

Hello. I'm calling on behalf of the Centers for Disease Control and Prevention. Earlier, we had contacted your household to participate in a survey regarding the immunizations of the [IF S_NUMB=1, THEN "child who lives"/IF S_NUMB>1, THEN "children who live"] there. I'm calling back to continue the interview. In appreciation for your time, we will send you $15.

CONTINUE WITH INTERVIEW	1	GO TO S1
CONFIRM BUSINESS	2	GO TO SALZ
Out of scope	3	GO TO THANK_YOU_OOS
Terminate the Interview	4	GO TO UNIVERSAL EXIT-T1
Cell phone	5	GO TO UNIVERSAL EXIT- CELL_1
Answering machine	6	GO TO MSG_Y
R will call 800 line/verify website	7	GO TO CNOTES_1_1
R asks for letter	8	GO TO UNIVERSAL EXIT M1_NAME
Supervisor review	9	GO TO CNOTES_1_1

(Raise your hand to get permission before using this code)

[IF MOST KNOWLEDGEABLE PARENT HAS NOT BEEN IDENTIFIED:

May I please speak with the parent or guardian who knows the most about the health of the child[ren] in the household?]

[IF MOST KNOWLEDGEABLE PARENT HAS BEEN DETERMINED:

May I please speak with [NAME]/the person who had started the interview?]

THANK_YOU_OOS

We are only interviewing families living in their usual place of residence, those are all the questions I have. Thank you.

GO BACK TO INTRO 1	1	GO TO INTRO_1
TERMINATE INTERVIEW	2	GO TO CNOTES1_1

SALZ Is this telephone number for business use only?

Yes	1	GO TO SALZ_BUS
No	2	GO TO INTRO_1
DORM/PRISON/HOSTEL	3	GO TO SALZ_BUS
PAGING SERVICE	4	GO TO SALZ_BUS

MSG_Y Hello. I am calling on behalf of the Centers for Disease Control and Prevention. We are conducting a nationwide study about childhood immunization. Would you please call us toll-free at 1-866-999-3340 to let us know whether or not there are any children between 12 months and 3 years old living or staying in this household? The number again is 1-866-999-3340. Thank you.

LEAVE MESSAGE AND TERMINATE	1	GO TO SASERV
COULD NOT LEAVE A MESSAGE	2	GO TO SASERV
ANSWERING MACHINE SAID "TAKE ME OFF YOUR LIST"	3	GO TO SASERV
CONTINUE INTERVIEW	4	GO TO INTRO_1

MSG_Y_FLAG2 Immunizing children against infectious disease has been a central mission and a substantial success for our public health systems and we'd like your help in improving vaccination services. The Centers for Disease Control and Prevention is conducting a brief immunization survey and your household has been selected to represent your area. Please contact us toll free at 1-866-999-3340. It is important that we speak with you, as our survey is ending soon. Even if you don't have children, it would help us to know that. Again, that number is 1-866-999-3340. Thank you.

IF THE AM SAYS THAT YOU CAN PRESS "0" TO SPEAK TO AN OPERATOR, DO SO. IF AN AM IS ASKING THAT YOU PRESS A NUMBER TO LEAVE A MESSAGE FOR A PARTICULAR PERSON, PRESS "1" SO THAT YOU CAN LEAVE A MESSAGE

LEAVE MESSAGE AND TERMINATE	1	GO TO SASERV
COULD NOT LEAVE A MESSAGE	2	GO TO SASERV
ANSWERING MACHINE SAID "TAKE ME OFF YOUR LIST"	3	GO TO SASERV
CONTINUE INTERVIEW	4	GO TO INTRO_1

MSG_INCENT

[IF INCENT_GRP=Address Available]

Hello. I'm calling on behalf of the Centers for Disease Control and Prevention to follow up on a letter that was sent to your home. Earlier, we had contacted your household to participate in a survey regarding the immunizations of the [child who lives/children who live] there. I'm calling back to continue the interview. If you would like to participate immediately, please call our toll-free number, 1-866-999-3340. In appreciation for your time, we will send you $10 after we speak with you. Again, our toll-free number is 1-866-999-3340. Thank you.

LEAVE MESSAGE AND TERMINATE	1	GO TO SASERV
COULD NOT LEAVE A MESSAGE	2	GO TO SASERV
ANSWERING MACHINE SAID "TAKE ME OFF YOUR LIST"	3	GO TO SASERV
CONTINUE INTERVIEW	4	GO TO INTRO_1

MSG_INCENT

[IF INCENT_GRP=Phone Only]

Hello. I'm calling on behalf of the Centers for Disease Control and Prevention. Earlier, we had contacted your household to participate in a survey regarding the immunizations of the [child who lives/children who live] there. I'm calling back to continue the interview. If you would like to participate immediately, please call our toll-free number, 1-866-999-3340. In appreciation for your time, we will send you $15 after we speak with you. Again, our toll-free number is 1-866-999-3340. Thank you.

LEAVE MESSAGE AND TERMINATE	1	GO TO SASERV
COULD NOT LEAVE A MESSAGE	2	GO TO SASERV
ANSWERING MACHINE SAID "TAKE ME OFF YOUR LIST"	3	GO TO SASERV
CONTINUE INTERVIEW	4	GO TO INTRO_1

MSG_Y_APPT Hello. I am calling on behalf of the Centers for Disease Control and Prevention regarding a nationwide study about childhood immunization. When we spoke previously about this important study, you requested that we call you back at this time. I'm sorry that we've missed you. We'll try to contact you again soon but please feel free to return our call anytime at 1 – 866 – 999 – 3340. Also, if you have any questions, that number again is 1 – 866 – 999 – 3340. Thank you.

LEAVE MESSAGE AND TERMINATE	1	GO TO SASERV
COULD NOT LEAVE A MESSAGE	2	GO TO SASERV
ANSWERING MACHINE SAID "TAKE ME OFF YOUR LIST"	3	GO TO SASERV
CONTINUE INTERVIEW	4	GO TO INTRO_1

MSG_PENDING_SCREENED

Hello. I am calling on behalf of the Centers for Disease Control and Prevention. We recently spoke with someone in this household regarding an important nationwide survey on childhood immunizations. Your participation is very important to us, we would like to finish the interview at your earliest convenience. Please call us toll-free at 1 - 866 - 999 - 3340 to either complete the interview or to make an appointment to do so. The number again is 1 - 866 - 999 - 3340.

LEAVE MESSAGE AND TERMINATE	1	GO TO SASERV
COULD NOT LEAVE A MESSAGE	2	GO TO SASERV
ANSWERING MACHINE SAID "TAKE ME OFF YOUR LIST"	3	GO TO SASERV
CONTINUE INTERVIEW	4	GO TO INTRO_1

SASERV BASED ON THE ANSWERING SERVICE, WAS THIS DEFINITELY A BUSINESS, A HOUSEHOLD, OR COULD NOT BE DETERMINED?

IF THE AM SAYS THAT YOU CAN PRESS "0" TO SPEAK TO AN OPERATOR, DO SO. IF AN AM IS ASKING THAT YOU PRESS A NUMBER TO LEAVE A MESSAGE FOR A PARTICULAR PERSON, PRESS "1" SO THAT YOU CAN LEAVE A MESSAGE

BUSINESS	1	TERMINATE
HOUSEHOLD	2	GO TO CNOTES1_1
COULD NOT DETERMINE	3	TERMINATE
ANSWERING MACHINE SAID "TAKE ME OFF YOUR LIST"	4	TERMINATE

S1 Am I speaking to someone who lives in this household who is over 17 years old?

IF THE RESPONDENT SAYS NO: ASK TO SPEAK WITH SOMEONE OVER 17 WHO LIVES IN THE HOUSEHOLD.

I AM THAT PERSON	1	GO TO S_NUMB [IFINCENTIVE=1, GO TO S3_INTRO_INCENT]
THIS IS A BUSINESS	2	GO TO SALZ
NEW PERSON COMES TO PHONE	3	GO TO INTRO_1
DOESN'T LIVE IN HOUSEHOLD	8	GO TO INSTRUCTION: [ASK FORANOTHER PERSON OR SCHEDULE APPOINTMENT ON THE NEXT SCREEN] THEN GO TO CB1
NO PERSON AT HOME WHO IS AT OVER 17	9	GO TO S2_B
REFUSED	99	GO TO UNIVERSAL EXIT- R1

SALZ_BUS We are interviewing only private residences. Thank you very much.

[TERMINATE INTERVIEW]

S2_B Does anyone live in your household who is over 17 years old? **IF THE RESPONDENT SAYS NO, READ.** Just to clarify, no one 18 years of age or older lives in the household?

YES, THEY ARE COMING TO THE PHONE	1	GO TO INTRO_1
YES, BUT NO ONE IS HOME, SO SET A CALLBACK	2	GO TO S_2_B_1_WARNING_TEXT
NO, NO ADULTS LIVE IN THE HOUSEHOLD AT ANY TIME	3	GO TO CNOTES1_1
TEEN LINE (COLLECT ANOTHER PHONE NUMBER)	4	GO TO S2_C
REFUSED	99	GO TO R1

S_2_B_1_WARNING_TEXT: Thank you, we'll try back another time.

[CREATE AN APPOINTMENT OR SET GENERAL CALL BACK. ENTER DATE/TIME AND CONTACT NAME IF KNOWN]

S2_C Is there another telephone number that I should call? _____

GO TO INSTRUCTION: WARNING: THE PHONE NUMBER FOR THIS INTERVIEW IS CHANGED NOW FROM X TO X.

GO TO CB1 (APPOINTMENT SCREEN) THEN C_NOTES_1_1

S_NUMB How many children between the ages of 12 months and 3 years old are living or staying in your household?

IF ONE OR MORE CHILDREN ENTER NUMBER OF CHILDREN (0-9)

IF NO CHILDREN ENTER 0

ENTER 77 IF R DOESN'T KNOW THE NUMBER OF CHILDREN
ENTER 99 IF R REFUSES TO GIVE YOU THE NUMBER OF CHILDREN

IF THE RESPONDENT ASKS FOR A DEFINITION OF LIVING OR STAYING SAY "Would you consider the child to be living or staying in your household?"

IF ONE OR MORE,		
ENTER NUMBER OF CHILDREN.....	___	(ENTER 1 to 9)
IF NO CHILDREN		
ENTER 0.....	00	GO TO S_NUMB2
Don't Know.....	77	GO TO S_NUMB_TERM
Refused.....	99	GO TO S_NUMB_TERM

S_NUMB_ TERM

Since we need to know how many children are in this age group in order to continue, these are all the questions I have at this time. I'd like to thank you on behalf of the Centers for Disease Control and Prevention for the time you have spent answering these questions.

S_NUMB2 Just to confirm, there are 0 children between the ages of 12 months and 3 years living or staying in your household?

Yes	1	TIS_ UNDER 18
No	2	GO TO S_NUMB
Don't Know	77	GO TO INSTRUCTION: "ASK FOR ANOTHER PERSON OR SCHEDULE APPOINTMENT ON THE NEXT SCREEN" THEN CB1
Refused	99	TIS_UNDER18

S3_LTR A letter describing the National Immunization Survey may have been sent to your home recently. Do you remember seeing the letter?

YES	1	GO TO S3_INTRO
NO	2	GO TO S3_INTRO
DON'T KNOW	77	GO TO S3_INTRO
REFUSED	99	GO TO S3_INTRO

S3_INTRO/
S3_INTRO_
INCENT Before we continue, I'd like you to know that taking part in this research is voluntary. You may choose not to answer any questions you don't wish to answer, or end the interview at any time. We are required by Federal law to develop and follow strict procedures to protect your information and use your answers only for statistical research. I can describe these laws if you wish. In order to review my work, my calls are recorded and my supervisor may listen as I ask the questions. . I'd like to continue now unless you have any questions.

Continue	1	GO TO S3_EVAL_R
Respondent asks for description of law	1	GO TO S3_LAW

S3_EVAL_R/
S3_EVAL_R_
INCENT

Yes, respondent agrees to recording/listening	1	GO TO S3_X
No, the respondent does not agree to recording/listening	2	GO TO S3_X

S3_LAW/
S3_LAW_
INCENT

The Public Health Service Act is Volume 42 of the US Code, Section 242k. The collection of information in this survey is authorized by Section 306 of this Act. The confidentiality of your responses is assured by Section 308d of this Act, and the Confidential Information Protection and Statistical Efficiency Act. Would you like me to read the Confidential Information Protection provisions to you?

IF RESPONDENT WOULD LIKE TO HEAR PROVISIONS, READ: The information you provide will be used for statistical purposes only. In accordance with the Confidential Information Protection provisions of Title V, Subtitle A, Public Law 107-347 and other applicable Federal laws, your responses will be kept confidential and will not be disclosed in identifiable form to anyone other than employees or agents. By law, every employee of the National Center for Health Statistics, the National Center for Immunization and Respiratory Diseases, and its agent, the National Opinion Research Center who works on this survey has taken an oath and is subject to a jail term of up to 5 years, a fine of up to $250,000, or both, if he or she willingly discloses ANY identifiable information about you or your household members.

Continue ..... GO TO S3_EVAL_R

S3_X

So I'll know which vaccination questions to ask, please tell me the month, day, and year of birth of the [ordinal # of child derived from S_NUMB] child in your household who is between 12 months and 3 years old.

AGREE .....1 GO TO S3_3M_X
DON'T KNOW .....77 GO TO YEARDK_X
REFUSED .....99 GO TO YEARREF_X

S3_3M/D/Y_X

Please tell me the month, day, and year of birth of the [ordinal # of child derived from S_NUMB] child in your household who is between 12 months and 3 years old.

REPEAT IF NECESSARY
ENTER 77/77/7777 FOR DON'T KNOW AND 99/99/9999 FOR REFUSED

MONTH	DAY	YEAR
_ _	_ _	_ _ _ _

DATE ..... GO TO S3_CONF_X
DON'T KNOW ..... GO TO YEARDK_X
REFUSED ..... GO TO YEARREF_X

S3_CONF_X That would make the [ordinal # of kid derived from S_NUMB] child [age of child in months and years] old; is that correct?

YES	1	IF CHILD IS ELIGIBLE GO TO S3_4_X, IF NOT GO TO NEXT CHILD
NO	2	GO TO INSTRUCTION: PLEASE CORRECT THE DATE OF BIRTH FOR THIS CHILD AND THEN S3_3M_X

YEARREF_X I understand you may be uncomfortable, however, all information is confidential under Federal Law. The only reason we need your child's birthdate is to know which immunization questions to ask IF NECESSARY: If you would feel more comfortable, I can enter only a month and year of birth.

R STILL REFUSES	1	GO TO YEARQUIT OR TO NEXT CHILD
RETURN TO QUESTIONNAIRE	2	GO TO S3_3M_X

YEARQUIT_X Since we need a birthdate in order to continue, these are all the questions I have at this time. I'd like to thank you on behalf of the Centers for Disease Control and Prevention for the time you have spent answering these questions.

GO TO R1

YEARDK_X The reason we need your child's birth date is to know which immunization questions to ask. Is there anyone available who would know the child's month, day, and year of birth?

YES	1	GO TO PERSON_X
NO	2	GO TO WHEN_CALL OR TO NEXT CHILD

PERSON_X May I speak with this person now?

Yes	1	GO TO S3_3M_X
No	2	GO TO WHEN_CALL

WHEN_CALL When would be a good time to reach a person who knows the child's birthdate?

SELECT APPOINTMENT AND ENTER THE APPROPRIATE DATE/TIME ON THE NEXT APPOINTMENT SCREEN

IF CALLBACK, SELECT CONTINUE AND READ THE NEXT SCREEN STATEMENT FOR THE MOST KNOWLEDGEABLE RESPONDENT CALLBACK INTRODUCTION

APPOINTMENT	1	GO TO CB1
CONTINUE	2	GO TO BITHD_BOX

BITHD_BOX Hi. I'm calling for the Centers for Disease Control and Prevention. We're calling about an important national study of immunization. I'd like you to know that this study is voluntary and is authorized by the U.S. Public Health Service Act. The information you give will be kept in strict confidence and will be summarized for research purposes only. You may choose not to answer any question you don't want to answer or stop at any time.

CONTINUE .....1 GO TO S3_X

S3_4_X Is the child born in [insert month and year of birth] male or female?

MALE 1
FEMALE.....2
DON'T KNOW 77
REFUSED 99

S3_5_X So I'll know how to refer to [him/her] during the interview, please tell me [his/her] first name or initials
ENTER "REFUSED AND "DON'T KNOW" AS NECESSARY

_____

S3_C I have (FILL number of child/children) child/children listed with a birthdate/birthdates of (FILL birthdate 1, birthdate 2, etc. from S3_3). Do you have any other children between 12 months and 3 years old living or staying in this household that we haven't talked about yet?

YES. .....1 YES - GO TO INSTRUCTION: PLEASE CORRECT THE NUMBER OF CHILDREN IN THIS HOUSEHOLD AND THEN S_NUMB
NO.....2 GO TO S3_D_1_X

S3_TERM Those are all the questions I have. (I'd like to thank you on behalf of the Centers for Disease Control and Prevention for the time and effort you have spent answering these questions.)

[TERMINATE INTERVIEW]

S3_D_1_X Most of the remaining questions will be about [FIRST NAME(S)/INITIALS OF ELIGIBLE CHILD(REN) FROM S3_5].

S4 Since this survey asks about immunizations children may have received, I need to speak to the person living in your household who knows the most about the immunizations or shots that [FIRST NAMES/INITIALS OF ELIGIBLE CHILD(REN) FROM S3_5] (has/have) received. Are you this person?

YES…….. .....1 GO TO S6_INTRO
NO…… .....2 GO TO S5

S5 May I speak with this person now?

YES……..	1	GO TO S5_BOX
NO, NOT AT HOME..	2	GO TO MR1

S5_BOX Hi. I'm calling for the Centers for Disease Control and Prevention. We're calling about an important national study of immunization. Before we continue, I'd like you to know that taking part in this research is voluntary. You may choose not to answer any questions you don't wish to answer, or end the interview at any time. We are required by Federal law to develop and follow strict procedures to protect your information and use your answers only for statistical research. I can describe these laws if you wish. In order to review my work, my calls are recorded and my supervisor may listen as I ask the questions. I'd like to continue now unless you have any questions.

Continue	1	GO TO S5_EVAL_R
Respondent asks for description of law	2	GO TO S5_LAW

S5_LAW The Public Health Service Act is Volume 42 of the US Code, Section 242k. The collection of information in this survey is authorized by Section 306 of this Act. The confidentiality of your responses is assured by Section 308d of this Act, and the Confidential Information Protection and Statistical Efficiency Act. Would you like me to read the Confidential Information Protection provisions to you?

IF RESPONDENT WOULD LIKE TO HEAR PROVISIONS, READ: The information you provide will be used for statistical purposes only. In accordance with the Confidential Information Protection provisions of Title V, Subtitle A, Public Law 107-347 and other applicable Federal laws, your responses will be kept confidential and will not be disclosed in identifiable form to anyone other than employees or agents. By law, every employee of the National Center for Health Statistics, the National Center for Immunization and Respiratory Diseases, and its agent, the National Opinion Research Center who works on this survey has taken an oath and is subject to a jail term of up to 5 years, a fine of up to $250,000, or both, if he or she willingly discloses ANY identifiable information about you or your household members.

S3_EVAL_R	Yes, respondent agrees to recording listening	1	GO TO S6_INTRO
	No, the respondent does not agree to recording/ listening	2	GO TO S6_INTRO

S6_INTRO The following questions ask about immunizations or shots for [FIRST NAMES/INITIALS OF ALL ELIGIBLE CHILDREN, FROM S3_5]. Since some of the immunizations are difficult to remember it would be helpful if you could refer to shot records.

S6_X Do you have any shot records for [NAME OF FIRST CHILD]?

READ IF NECESSARY: I'll be happy to wait while you go get it/them?

YES.	1	GO TO A1INTRO
NO	2	GO TO (next child) OR S6B
DON'T KNOW	77	GO TO S6B
REFUSED	99	GO S6B

S6B That's fine. It is common for households not to have the shot records on hand. Let's continue with the interview.

CONTINUE .....1 GO TO BINTRO

SECTION MR

Most Knowledgeable Respondent Callback Questions

MR1 Before we hang up, please tell me the first name of the person who knows the most about (this child's/these children's) immunizations.

_____

MR3 Would I call the same telephone number where I reached you?

YES .....1 GO TO MR_APP
NO .....2 GO TO MR4

MR4 What number should I call?

ENTER AREA CODE AND PHONE NUMBER ONLY (10 DIGITS)

GO TO INSTRUCTION: WARNING: THE PHONE NUMBER FOR THIS INTERVIEW IS CHANGED NOW FROM X TO X.

MR_APP When would be a good time to call back and speak with (NAME FROM MR1)?

SELECT APPOINTMENT AND ENTER THE APPROPRIATE DATE/TIME ON THE NEXT APPOINTMENT SCREEN

IF CALLBACK, SELECT CONTINUE AND READ THE NEXT SCREEN STATEMENT FOR THE MOST KNOWLEDGEABLE CALLBACK INTRODUCTION

APPOINTMENT.....1 GO TO UNIVERSAL EXIT-CB1
CONTINUE .....2 GO TO S5_BOX

SECTION A
Available Shot Records

AINTRO Thank you for getting the shot records. The remainder of the survey will take about 20 minutes.

ANTRO_2 The next few questions ask about shots [FILL VAR: NAME OF FIRST/SECOND…/SIXTH CHILD, FROM S3_5] may have received.

SHOT RECORD FOR DTP

AN1_X Looking at the shot record, please tell me how many times [FILL VAR: NAME OF FIRST/SECOND…/SIXTH CHILD, FROM S3_5] has received a D-T-P, D-T-A-P, or D-T shot, sometimes called a D-P-T shot, diphtheria-tetanus-pertussis shot, baby shot, or three-in-one shot.

ENTER 77 FOR DON'T KNOW AND 99 FOR REFUSED
IF R MENTIONS A SHOT NOT LISTED ABOVE, RECORD IN "OTHER SHOTS" QUESTION A6".

Shots……	___	GO TO AD1XM_X
NONE…….	0	GO TO AN2_X
DON'T KNOW….	77	GO TO AN2_X
REFUSED…….	99	GO TO AN2_X

AD1X(M,D,Y)_X What is the date (on the record) for the [FILL VAR: (First/Second/…Eight)] D-T-P, D-T-A-P, or D-T shot?

ENTER 77/77/7777 FOR DON'T KNOW AND 99/99/9999 FOR REFUSED

MONTH	DAY	YEAR
__	__	__

DATE	GO TO NEXT SHOT OR AN2_X
DON'T KNOW	GO TO NEXT SHOT OR AN2_X
REFUSED	GO TO NEXT SHOT OR AN2_X

SHOT RECORD FOR POLIO (DROPS OR SHOTS)

AN2_X Looking at the shot record, please tell me how many times [FILL VAR: NAME OF FIRST, SECOND…/SIXTH CHILD, FROM S3_5] has received a polio vaccine—pink drops, sometimes called O-P-V – or a polio shot, sometimes called I-P-V.

ENTER 77 FOR DON'T KNOW AND 99 FOR REFUSED
IF R MENTIONS A SHOT NOT LISTED ABOVE, RECORD IN "OTHER SHOTS" QUESTION A6".

Shots……	___	GO TO AD2X[M]_X
NONE…….	0	GO TO AN3_X
DON'T KNOW….	77	GO TO AN3_X
REFUSED…….	99	GO TO AN3_X

AD2X[M,D,Y]_X What is the date (on the record) for the [FILL VAR: (First/Second/…Eight)] Polio shot?

ENTER 77/77/7777 FOR DON'T KNOW AND 99/99/9999 FOR REFUSED

MONTH	DAY	YEAR
_ _	_ _	_ _ _ _

DATE	GO TO NEXT SHOT OR AN3_X
DON'T KNOW	GO TO NEXT SHOT OR AN3_X
REFUSED	GO TO NEXT SHOT OR AN3_X

SHOT RECORD FOR MEASLES/MMR (SHOTS)

AN3_X Looking at the shot record, please tell me how many times [FILL VAR: NAME OF FIRST/SECOND…/SIXTH CHILD, FROM S3_5] has received a measles shot or an M-M-R shot, that is, a measles, mumps, and rubella shot.

ENTER 77 FOR DON'T KNOW AND 99 FOR REFUSED
IF R MENTIONS A SHOT NOT LISTED ABOVE, RECORD IN "OTHER SHOTS" QUESTION A6".

Shots……	___	GO TO AD3X[M]_X
NONE…….	0	GO TO AN4_X
DON'T KNOW….	77	GO TO AN4_X
REFUSED…….	99	GO TO AN4_X

AD3X [MD,Y]_X What is the date (on the record) for the [FILL VAR: (First/Second/…Fourth)] (measles or M-M-R) shot?

ENTER 77/77/7777 FOR DON'T KNOW AND 99/99/9999 FOR REFUSED

MONTH	DAY	YEAR
_ _	_ _	_ _ _ _

DATE	GO TO AM3X_X
DON'T KNOW	GO TO AM3X_X
REFUSED	GO TO AM3X_X

AM3X_X Was that shot measles only or a full M-M-R only?

MEASLES ONLY	…1	GO TO NEXT SHOT DATE OR AN4_X
MMR ONLY….	2	GO TO NEXT SHOT DATE OR AN4_X
DON'T KNOW ….	77	GO TO NEXT SHOT DATE OR AN4_X
REFUSED ….	99	GO TO NEXT SHOT DATE OR AN4_X

SHOT RECORD FOR HIB (shot)

AN4_X Looking at the shot record please tell me how many times [FILL VAR: NAME OF FIRST/SECOND…/SIXTH CHILD FROM S3_5] has received an H-I-B shot. (This is for meningitis and is called HA-MA-FI-LUS IN-FLU-EN-ZA, H-I-B as in boy vaccine, or H flu vaccine.)

ENTER 77 FOR DON'T KNOW AND 99 FOR REFUSED
IF R MENTIONS A SHOT NOT LISTED ABOVE, RECORD IN "OTHER SHOTS" QUESTION A6".

Shots……	___	GO TO AD4X[M]_X
NONE…….	0	GO TO AN5_X
DON'T KNOW….	77	GO TO AN5_X
REFUSED…….	99	GO TO AN5_X

AD4X[M,D,Y]_X What is the date (on the record) for the [FILL VAR: (First/Second/…Eighth)] (H-I-B) shot?

ENTER 77/77/7777 FOR DON'T KNOW AND 99/99/9999 FOR REFUSED

MONTH	DAY	YEAR
_ _	_ _	_ _ _ _

DATE	GO TO NEXT SHOT OR AN5_X
DON'T KNOW	GO TO NEXT SHOT OR AN5_X
REFUSED	GO TO NEXT SHOT OR AN5_X

SHOT RECORD FOR HEPATITIS B

AN5_X (Looking at the shot record) Please tell me how many times [FILL VAR: NAME OF FIRST/SECOND…/SIXTH CHILD, FROM S3_5] has received a hepatitis B shot.

ENTER 77 FOR DON'T KNOW AND 99 FOR REFUSED
IF R MENTIONS A SHOT NOT LISTED ABOVE, RECORD IN "OTHER SHOTS" QUESTION A6".

Shots……	___	GO TO AD5X[M]_X
NONE…….	0	GO TO AN6_X
DON'T KNOW….	77	GO TO AN6_X
REFUSED…….	99	GO TO AN6_X

AD5X[M,D,Y]_X What is the date (on the record) for the [FILL VAR: First/Second/…Eight)] hepatitis B shot?

ENTER 77/77/7777 FOR DON'T KNOW AND 99/99/9999 FOR REFUSED

MONTH	DAY	YEAR
_ _	_ _	_ _ _ _

DATE	GO TO NEXT SHOT OR AN6_X
DON'T KNOW	GO TO NEXT SHOT OR AN6_X
REFUSED	GO TO NEXT SHOT OR AN6_X

SHOT RECORD FOR CHICKEN POX

AN6_X (Looking at the shot record) Please tell me how many times [FILL VAR: NAME OF FIRST/SECOND…/SIXTH CHILD, FROM S3_5] has received a chicken pox or varicella shot.

ENTER 77 FOR DON'T KNOW AND 99 FOR REFUSED
IF R MENTIONS A SHOT NOT LISTED ABOVE, RECORD IN "OTHER SHOTS" QUESTION A6".

Shots……	___	GO TO AD6X[M]_X
NONE……	0	GO TO A5_C_X
DON'T KNOW….	77	GO TO A5_C_X
REFUSED…….	99	GO TO A5_C_X

AD6X[M,D,Y]_X

What is the date (on the record) for the [FILL VAR: First/Second/…Eight)] chicken pox shot?

ENTER 77/77/7777 FOR DON'T KNOW AND 99/99/9999 FOR REFUSED

MONTH	DAY	YEAR
_ _	_ _	_ _ _ _

DATE	GO TO NEXT SHOT OR A5_C_X
DON'T KNOW	GO TO NEXT SHOT OR A5_C_X
REFUSED	GO TO NEXT SHOT OR A5_C_X

A5_C_X I've been asking about shots received by [FILL VAR: NAME OF FIRST/SECOND…NINTH CHILD, FROM S3_5.] Now I would like to ask, has [FILL VAR: NAME OF FIRST/SECOND…NINTH CHILD, FROM S3_5.] ever been ill with chicken pox or varicella?

YES	1	GO TO A5_E_X
NO	2	GO TO AN8_X
DON'T KNOW	77	GO TO AN8_X
REFUSED	99	GO TO AN8_X

A5_E_X How old was [FILL VAR: NAME OF FIRST/SECOND…NINTH CHILD, FROM S3_5.] in months, when he/she had chicken pox?
ENTER 77 FOR DON'T KNOW AND 99 FOR REFUSED

Age in months	__	GO TO AN8_X
DON'T KNOW	77	GO TO A5_F_X
REFUSED	99	GO TO AN8_X

A5_F_X Was [FILL VAR: NAME OF FIRST/SECOND…NINTH CHILD, FROM S3_5.]…

one to six months old 01
seven to twelve months old 02
13 to 18 months old 03
19 to 24 months old 04
25 to 30 months old 05
31 to 35months old 06
DON'T KNOW 77
REFUSED 99

SHOT RECORD FOR FLU SHOT

AN8_X (Looking at the shot record) Please tell me how many times [FILL VAR: NAME OF FIRST/SECOND…/SIXTH CHILD, FROM S3_5] has received a flu shot?

ENTER 77 FOR DON'T KNOW AND 99 FOR REFUSED
IF R MENTIONS A SHOT NOT LISTED ABOVE, RECORD IN "OTHER SHOTS" QUESTION A6.

Number	___	GO TO AD8YM_X
DON'T KNOW	77	GO TO A8R_X
REFUSED	99	GO TO A8R_X

AD8X(M,D,Y)_X What is the date (on the record) for the [FILL VAR: first/second/…eighth] flu shot?

Enter 777/77/7777 FOR DON'T KNOW AND 999/99/9999 FOR REFUSED

MONTH	DAY	YEAR
_ _	_ _	_ _ _ _

A8R_X Some shots may not be recorded on the shot record. Has [FILL VAR: NAME OF FIRST/SECOND…/SIXTH CHILD, FROM S3_5] had a flu shot in the past twelve months?

YES	1	GO TO A8RD_M_X
NO	2	GO TO A6_X
DON'T KNOW	77	GO TO A6_X
REFUSED	99	GO TO A6_X

A8RD_(M,D,Y)_X During what month and year did [FILL VAR: NAME OF FIRST/SECOND…/SIXTH CHILD, FROM S3_5] receive the most recent flu shot?

Enter 77/7777 FOR DON'T KNOW AND 99/9999 FOR REFUSED
IF ONLY YEAR IS KNOWN, ENTER YEAR AND DON'T KNOW (77) FOR MONTH

MONTH	YEAR
_	_ _ _ _

SHOT RECORD FOR OTHER SHOTS

A6_X Has [FILL VAR: NAME OF FIRST/SECOND…NINTH CHILD, FROM S3_5.] received any other immunizations that are listed on the shot records that I have not asked about?

YES…….....	1	GO TO A6_B_X
NO	2	GO TO NEXT CHILD OR CWIC_INTRO
DON'T KNOW……..	77	GO TO NEXT CHILD OR CWIC_INTRO
REFUSED……	99	GO TO NEXT CHILD OR CWIC_INTRO

A6_B_X What is the name of the [FIRST/SECOND/THIRD/FOURTH/FIFTH] other shot listed on the record?

SELECT '70-NO OTHER SHOTS' TO END THIS QUESTION.

FOUR-IN-ONE..	02	GO TO A7NEWX_X
BCG (TUBERCULOSIS)…	03	GO TO A7NEWX_X
TYPHOID	04	GO TO A7NEWX_X
YELLOW FEVER	05	GO TO A7NEWX_X
MALARIA	06	GO TO A7NEWX_X
DTaP.....	07	GO TO A7NEWX_X
DTP/HiB.....	08	GO TO A7NEWX_X
DTP/HepB	09	GO TO A7NEWX_X
PNEUMOCOCCAL	10	GO TO A7NEWX_X
HEPATITIS A	12	GO TO A7NEWX_X
OTHER (SPECIFY)	55	GO TO A6_B_OTHRX_
NO OTHER SHOTS	70	GO TO NEXT CHILD OR CWIC_INTRO
DON'T KNOW	77	GO TO NEXT SHOT, CHILD OR CWIC_INTRO
REFUSED	99	GO TO NEXT SHOT, CHILD OR CWIC_INTRO

A6_B_OTHRX: ENTER OTHER SPECIFY _____

A7NEWX_X How many times has [FILL VAR: NAME OF FIRST/SECOND…NINTH CHILD, FROM S3_5.] received the [shot name from A6_B_X] shot?

ENTER 77 FOR DON'T KNOW AND 99 FOR REFUSED

Number.....	___	GO TO A7_MXX_X
DON'T KNOW	77	GO TO NEXT SHOT, NEXT CHILD, OR CWIC_INTR
REFUSED	99	GO TO NEXT SHOT, NEXT CHILD, OR CWIC_INTRO

A7_ [M,D,Y]XX_X What is the date (on the record) for the [FILL VAR: first/second/…eighth] [shot name from A6_B_X]shot?

Enter 777/77/7777 FOR DON'T KNOW AND 999/99/9999 FOR REFUSED

MONTH	DAY	YEAR
_	_ _	_ _ _ _

DATE	GO TO NEXT SHOT, NEXT CHILD, OR CWIC_INTRO
DON'T KNOW	GO TO NEXT SHOT, NEXT CHILD, OR CWIC_INTRO
REFUSED	GO TO NEXT SHOT, NEXT CHILD, OR CWIC_INTRO

SECTION B

No Shot Records

BINTRO The remainder of the survey will take about 15 minutes.

BINTRO_2 The next few questions ask about shots [FILL VAR: NAME OF FIRST/SECOND…/SIXTH CHILD, FROM S3_5] may have received.

B1_X Has [FILL VAR: NAME OF FIRST/SECOND…NINTH CHILD, FROM S3_5.] ever received an immunization, that is a shot or drops?

YES	1	GO TO B2_X
NO	2	GO TO B6_D_X
DON'T KNOW	77	GO TO B6_D_X
REFUSED	99	GO TO B6_D_X

B2_X Has [FILL VAR: NAME OF FIRST/SECOND…NINTH CHILD, FROM S3_5.] ever received a D-T-P, D-T-A-P or D-T shot (sometimes called a D-P-T shot, diphtheria-tetanus-pertussis shot, baby shot, or three-in-one shot)?

CONFIRM ALL DON'T KNOW ANSWERS WITH "TO THE BEST OF YOUR KNOWLEDGE"

YES.	1	GO TO B3_X
NO	2	GO TO B3_X
DON'T KNOW	77	GO TO B3_X
DON'T KNOW – CHILD IS UP TO DATE ON ALL SHOTS	78	GO TO B6_U_X
REFUSED	99	GO TO B3_X

B6_U_X I will record that your child is up to date on his/her vaccinations, and we can move to the next series of questions

CONTINUE	GO TO B6_D_X

B3_X Has [FILL VAR: NAME OF FIRST/SECOND…NINTH CHILD, FROM S3_5.] ever received a polio vaccination by mouth, pink drops, sometimes called O-P-V, or by polio shot, sometimes called I-P-V?

CONFIRM ALL DON'T KNOW ANSWERS WITH "TO THE BEST OF YOUR KNOWLEDGE"

YES...	1	GO TO B4_X
NO	2	GO TO B4_X
DON'T KNOW	77	GO TO B4_X
DON'T KNOW – CHILD IS UP TO DATE ON ALL SHOTS	78	GO TO B6_U_X
REFUSED	99	GO TO B4_X

B4_X Has [FILL VAR: NAME OF FIRST/SECOND…NINTH CHILD, FROM S3_5.] ever received a measles or M-M-R (Measles-Mumps-Rubella) shot?

CONFIRM ALL DON'T KNOW ANSWERS WITH "TO THE BEST OF YOUR KNOWLEDGE"

YES…..	1	GO TO B5_X
NO	2	GO TO B5_X
DON'T KNOW	77	GO TO B5_X
DON'T KNOW – CHILD IS UP TO DATE ON ALL SHOTS	78	GO TO B6_U_X
REFUSED.	99	GO TO B5_X

B5_X Has [FILL VAR: NAME OF FIRST/SECOND…NINTH CHILD, FROM S3_5.] ever received an H-I-B shot? This shot is for meningitis and is called Haemophilus Influenzae (HA-MA-FI-LUS IN-FLU-EN-ZI)?

CONFIRM ALL DON'T KNOW ANSWERS WITH "TO THE BEST OF YOUR KNOWLEDGE"

YES	1	GO TO B6_X
NO	2	GO TO B6_X
DON'T KNOW	77	GO TO B6_X
DON'T KNOW – CHILD IS UP TO DATE ON ALL SHOTS	78	GO TO B6_U_X
REFUSED	99	GO TO B6_X

B6_X Has [FILL VAR: NAME OF FIRST/SECOND…NINTH CHILD, FROM S3_5.] ever received a hepatitis B shot? This shot is for hepatitis and is often called HepB.

CONFIRM ALL DON'T KNOW ANSWERS WITH "TO THE BEST OF YOUR KNOWLEDGE"

YES...	1	GO TO B6_B_X
NO	2	GO TO B6_B_X
DON'T KNOW	77	GO TO B6_B_X
DON'T KNOW – CHILD IS UP TO DATE ON ALL SHOTS	78	GO TO B6_U_X
REFUSED	99	GO TO B6_B_X

B6_B_X Has [FILL VAR: NAME OF FIRST/SECOND…NINTH CHILD, FROM S3_5.] ever received a chicken pox or varicella shot?

YES	1	GO TO B6_D_X
NO	2	GO TO B6_D_X
DON'T KNOW	77	GO TO B6_D_X
DON'T KNOW – CHILD IS UP TO DATE ON ALL SHOTS	78	GO TO B6_U_X
REFUSED	99	GO TO B6_D_X

B6_D_X I've been asking about shots received by [FILL VAR: NAME OF FIRST/SECOND… NINTH CHILD, FROM S3_5.] Now I would like to ask, has [FILL VAR: NAME OF FIRST/SECOND…NINTH CHILD, FROM S3_5.] ever been ill with chicken pox or varicella?

YES	1	GO TO B6_E_X
NO	2	GO TO B8_X
DON'T KNOW	77	GO TO B8_X
REFUSED	99	GO TO B8_X

B6_E_X How old was [FILL VAR: NAME OF FIRST/SECOND…NINTH CHILD, FROM S3_5.] in months, when (he/she) had chicken pox?

ENTER 77 FOR DON'T KNOW AND 99 FOR REFUSED

Age in months	1	GO TO B8_X
DON'T KNOW	77	GO TO B6_F_X
REFUSED	99	GO TO B8_X

B6_F_X Was [FILL VAR: NAME OF FIRST/SECOND…NINTH CHILD, FROM S3_5.]……

one to six months old	01
.seven to twelve months old	02
13 to 18 months old	03
19 to 24 months old	04
25 to 30 months old	05
31 to 35 months old	06
DON'T KNOW	77
REFUSED	99

B8_X Has [FILL VAR: NAME OF FIRST/SECOND…/SIXTH CHILD, FROM S3_5] had a flu shot in the past twelve months?

YES	1	GO TO B8DM_X
NO	2	GO TO NEXT CHILD OR CWIC_INTRO
DON'T KNOW	77	GO TO NEXT CHILD OR CWIC_INTRO
REFUSED	99	GO TO NEXT CHILD OR CWIC_INTRO

B8D(M,Y)_X During what month and year did [FILL VAR: NAME OF FIRST/SECOND…/SIXTH CHILD, FROM S3_5] receive the most recent flu shot?

Enter 77/7777 FOR DON'T KNOW AND 99/9999 FOR REFUSED
IF ONLY YEAR IS KNOWN, ENTER YEAR AND DON'T KNOW (77) FOR MONTH

MONTH	YEAR
_ _	_ _ _ _

SECTION C
Demographics

CWIC_INTRO The following questions are about the WIC program. WIC is a nutrition and health program for Women, Infants, and Children. WIC benefits include food, checks or vouchers for food, health care referrals, and nutrition education.

CWIC_01_X Has [FILL VAR: NAME OF FIRST/SECOND…NINTH CHILD, FROM S3_5.] ever received WIC benefits?

YES	1	
NO	2	GO TO CBF_INTRO
NEVER HEARD OF WIC……..		GO TO CBF_INTRO
DON'T KNOW	77	GO TO CBF_INTRO
REFUSED	99	GO TO CBF_INTRO

CWIC_02_X Is [FILL VAR: NAME OF FIRST/SECOND…NINTH CHILD, FROM S3_5.] currently receiving WIC benefits?

YES	1	GO TO CBF_INTRO
NO	2	GO TO CBF_INTRO
DON'T KNOW	77	GO TO CBF_INTRO
REFUSED	99	GO TO CBF_INTRO

CBF_INTRO Now I have a couple of questions on infant feeding.

CBF_01_X Was [FILL VAR: NAME OF FIRST/SECOND…NINTH CHILD, FROM S3_5.] ever breastfed or fed breastmilk?

YES	1	
NO	2	GO TO CINTRO
DON'T KNOW	77	GO TO CINTRO
REFUSED	99	GO TO CINTRO

CBF_02L_X How old was [FILL CHILD'S NAME] when [FILL CHILD'S NAME] completely stopped breastfeeding or being fed breast milk?

ENTER 888 FOR STILL BREASTFEEDING
ENTER 777 FOR DON'T KNOW AND 999 FOR REFUSED

ENTER NUMBER	___	GO TO CBF_02RU_X
STILL BREASTFEEDING	888	GO TO CBF_03_X
DON'T KNOW	777	GO TO CBF_03_X
REFUSED	999	GO TO CBF_03_X

CBF_02RU_X ENTER PERIOD:

DAYS	1	GO TO CBF_03_X
WEEKS_	2	GO TO CBF_03_X
MONTHS	3	GO TO CBF_03_X
YEARS	4	GO TO CBF_03_X

CBF_03_X How old was [FILL CHILD'S NAME] when (he/she) was first fed formula?

ENTER 888 FOR NEVER, ENTER 0 FOR AT BIRTH
ENTER 777 FOR DON'T KNOW AND 999 FOR REFUSED

ENTER NUMBER ____ GO TO CBF_04_X

AT BIRTH	0	GO TO CBF_N_X
DON'T KNOW	777	GO TO CBF_N_X
NEVER	888	GO TO CBF_N_X
REFUSED	999	GO TO CBF_N_X

CBF_04_X ENTER PERIOD:

DAYS	1
WEEKS_	2
MONTHS	3
YEARS	4

CBF_N_X This next question is about the first thing that [FILL CHILD'S NAME] was given other than breast milk or formula. Please include juice, cow's milk, sugar water, baby food, or anything else that [FILL CHILD'S NAME] might have been given, even water. How old was [FILL CHILD'S NAME] when (he/she) was first fed anything other than breast milk or formula?

ENTER 888 FOR NEVER, ENTER 0 FOR AT BIRTH
ENTER 777 FOR DON'T KNOW AND 999 FOR REFUSED

ENTER NUMBER ___ GO TO CBF_U_X

NEVER	888	GO TO CINTRO
AT BIRTH	0	GO TO CINTRO
DON'T KNOW	777	GO TO CINTRO
REFUSED	999	GO TO CINTRO

CBF_U_X ENTER PERIOD:

DAYS	1	GO TO CINTRO
WEEKS_	2	GO TO CINTRO
MONTHS	3	GO TO CINTRO
YEARS	4	GO TO CINTRO

CINTRO Now I have some questions about your entire household.

C1 Including the adults and all the children, how many people live in this household? ENTER 77 FOR DON'T KNOW AND 99 FOR REFUSED

NUMBER OF PEOPLE ..... _____

C1_A How many of these are adults 18 years of age or older?

ENTER 77 FOR DON'T KNOW AND 99 FOR REFUSED

NUMBER OF PEOPLE .....

C1_B And that means that [FILL VAR: ANSWER TO C1-ANSWER TO C1A] of these people are under 18 years of age?

YES	1	GO TO C2_06Q3_X
NO	2	GO TO INSTUCTION "PLEASE CORRECT NUMBERS" THEN GO TO C1
DON'T KNOW	77	
REFUSED	99	

[IF C1-C1A IS GREATER THAN OR EQUAL TO S_NUMB +1 OR C1_B=77 OR 99, THEN ASK C1.C, OTHERWISE, SKIP TO C2,]

C1_C How many children less than 12 months old live in this household?
ENTER 77 FOR DON'T KNOW AND 99 FOR REFUSED

NUMBER ..... _____

C2_06Q3_X Is [FILL VAR: NAME OF FIRST/SECOND…NINTH CHILD, FROM S3_5] of Hispanic or Latino origin? (INCLUDES MEXICAN, MEXICAN-AMERICAN, CENTRAL AMERICAN, SOUTH AMERICAN OR PUERTO RICAN, CUBAN, OR OTHER SPANISH-CARIBBEAN)

YES	1	GO TO C2_A_06Q3_X
NO	2	GO TO C3_X
DON'T KNOW	77	GO TO C3_X
REFUSED	99	GO TO C3_X

C2_A_06Q3_X Is [child] Mexican, Mexican-American, Central American, South American, Puerto Rican, Cuban, or other Spanish-Caribbean? CLICK ALL THAT APPLY

MEXICAN/MEXICANO	1	
MEXICAN-AMERICAN	2	
CENTRAL AMERICAN	3	
SOUTH AMERICAN	4	
PUERTO RICAN	5	
CUBAN/CUBAN AMERICAN	6	
SPANISH-CARIBBEAN	7	
OTHER SPANISH/HISPANIC (SPECIFY)	10	GO TO C2_OTHR1_06Q3_X
DON'T KNOW	77	
REFUSED	99	

C2_OTHR1_06Q3_X

ENTER OTHER SPECIFY _____

C3_X Now, I am going to read a list of categories. Please choose one or more of the following categories to describe [FILL VAR: NAME OF FIRST/SECOND…NINTH CHILD, FROM S3_5.]'s race. Is [FILL VAR: NAME OF FIRST/SECOND…NINTH CHILD, FROM S3_5.] White, Black or African American, American Indian, Alaska Native, Asian, Native Hawaiian or other Pacific Islander? CLICK ALL THAT APPLY

WHITE	1	
BLACK/AFRICAN AMERICAN	2	
AMERICAN INDIAN	3	
ALASKA NATIVE	4	
ASIAN	5	
NATIVE HAWAIIAN	6	
PACIFIC ISLANDER	7	
OTHER (SPECIFY)	8	GO TO C3_OTHR1
DON'T KNOW	77	
REFUSED	99	

C3_OTHR1 ENTER OTHER SPECIFY

_____

C5_X What is your relationship to [FILL VAR: NAME OF FIRST/SECOND…/NINTH CHILD, FROM S3_5]?

MOTHER (STEP, FOSTER, ADOPTIVE) OR FEMALE GUARDIAN 1
FATHER (STEP, FOSTER, ADOPTIVE) OR MALE GUARDIAN 2
SISTER OR BROTHER (STEP/FOSTER/ HALF/ADOPTIVE) 3
IN-LAW OF ANY TYPE 4
AUNT/UNCLE 5
GRANDPARENT 6
OTHER FAMILY MEMBER 7
FRIEND 8
DON'T KNOW 77
REFUSED 99

RULES FOR ASKING C6 (EDUCATION), C7 (MARITAL STATUS), C8-C10 (RACE-ETHNICITY) AND C11 (RESIDENCE AT CHILD'S BIRTH):
I. ONLY ONE CHILD IN HOUSEHOLD: ASK EACH QUESTION ONCE
II. TWO OR MORE CHILDREN IN HOUSEHOLD:
A. ASK FOR A CHILD ONLY IF THIS IS THE FIRST CHILD WHERE RESPONDENT IS MOTHER (C5=01)
B. ALWAYS ASK WHEN RESPONDENT IS NOT MOTHER (C5≠01)

C6_06Q3_X What is the highest grade or year of school (you have /[FILL VAR: NAME OF FIRST/SECOND…/NINTH CHILD, FROM S3_5]'s mother has) completed? READ IF NESSESSARY

8th GRADE OR LESS 1
9th-12th GRADE NO DIPLOMA 2
HIGH SCHOOL GRADUATE OR GED COMPLETED 3
COMPLETED A VOCATIONAL, TRADE, OR BUSINESS SCHOOL PROGRAM 4
SOME COLLEGE CREDIT BUT NO DEGREE 5
ASSOCIATE DEGREE (AA, AS) 6
BACHELOR'S DEGREE (BA, BS, AB) 7
MASTER'S DEGREE (MA, MS, MSW, MBA) 8
DOCTORATE (PhD, EdD) or PROFESSIONAL DEGREE (MD, DDS, DVM, JD) 9
DON'T KNOW 77
REFUSED 99

C7_X (Are you/is [FILL VAR: NAME OF FIRST/SECOND…/NINTH CHILD, FROM S3_5]'S mother) now married, widowed, divorced, separated, or (have you/has she) never been married?

Married	1	
Widowed	2	
Divorced	3	
Separated	4	
Never married	5	
DECEASED	6	GO TO C8_INTRO
DON'T KNOW	77	
REFUSED	99	

C8_INTRO The next few questions ask for some background information about (eligible child)'s mother. I understand that it may be difficult to answer these questions. Please know we are asking them because they're important for the survey. (READ IF NECESSARY: If you feel uncomfortable answering any of these questions, please let me know and I will move on to the next question.)

C8_06Q3_X

IF C7_X= 6

Was [FILL VAR: NAME OF FIRST/SECOND/NINTH CHILD, FROM S3_5]'s mother of Hispanic or Latino origin? (INCLUDES MEXICAN, MEXICAN-AMERICAN, CENTRAL AMERICAN, SOUTH AMERICAN OR PUERTO RICAN, CUBAN, OR OTHER SPANISH-CARIBBEAN)?

IF C7_X ≠ 6

Are you/is [FILL VAR: NAME OF FIRST/SECOND/NINTH CHILD, FROM S3_5]'s mother of Hispanic or Latino origin? (INCLUDES MEXICAN, MEXICAN-AMERICAN, CENTRAL AMERICAN, SOUTH AMERICAN OR PUERTO RICAN, CUBAN, OR OTHER SPANISH-CARIBBEAN)

YES	1	GO TO C8_A_06Q3_X
NO	2	GO TO C9_X
DON'T KNOW	77	GO TO C9_X
REFUSED	99	GO TO C9_X

C8_A_06Q3_X

(Are you / Is [child]'s mother) Mexican, Mexican-American, Central American, South American, Puerto Rican, Cuban, or other Spanish-Caribbean? CLICK ALL THAT APPLY

MEXICAN/MEXICANO	1	
MEXICAN-AMERICAN	2	
CENTRAL AMERICAN	3	
SOUTH AMERICAN	4	
PUERTO RICAN	5	
CUBAN/CUBAN AMERICAN	6	
SPANISH-CARIBBEAN	7	
OTHER SPANISH/HISPANIC (SPECIFY)	10	GO TO C8_OTHR1_06Q3_X
DON'T KNOW	77	
REFUSED	99	

C8_OTHR1_06Q3_X

ENTER OTHER SPECIFY_____

C9_X Now I'm going to read a list of categories. Please choose one or more of the following categories to describe (your/[FILL VAR: NAME OF FIRST/SECOND…/NINTH CHILD, FROM S3_5]'s mother's) race. (Are you/is [FILL VAR: NAME OF FIRST/SECOND…/NINTH CHILD, FROM S3_5]'s mother) White, Black or African American, American Indian, Alaska Native, Asian, Native Hawaiian or other Pacific Islander? [CLICK ALL THAT APPLY]

WHITE	1	
BLACK/AFRICAN AMERICAN	2	
AMERICAN INDIAN	3	
ALASKA NATIVE	4	
ASIAN	5	
NATIVE HAWAIIAN.	6	
PACIFIC ISLANDER	7	
OTHER (SPECIFY)	8	GO TO C9_OTHR1
DON'T KNOW	77	
REFUSED	99	

C9_OTHR1 ENTER OTHER SPECIFY

_____

[IF MORE THAN ONE AN SWER AT C9, ASK C10; OTHERWISE SKIP TO C10AM_X.]

C10_X Which do you feel best describes (your/[FILL VAR: NAME OF FIRST/SECOND…/NINTH CHILD, FROM S3_5]'s mother's) race?

WHITE	1	
BLACK/AFRICAN AMERICAN	2	
AMERICAN INDIAN	3	
ALASKA NATIVE	4	
ASIAN.	5	
NATIVE HAWAIIAN	6	
PACIFIC ISLANDER	7	
OTHER	8	
C9_OTHR1	9	
DON'T KNOW	77	
REFUSED	99	

C10AM_X What is (your/[FILL VAR: NAME OF FIRST/SECOND…/NINTH CHILD, FROM S3_5]'s mother's) month, day, and year of birth?

ENTER 77/77/7777 FOR DON'T KNOW AND 99/99/9999 FOR REFUSED

ENTER BIRTH DATE (MM/DD/YYYY)_____/_____/_____

[IF MONTH=DK/REF OR YEAR=DK/REF, THEN GO TO C10B_X. OTHERWISE, SKIP TO C11_X.]

C10B_X What is (your/[FILL VAR: NAME OF FIRST/SECOND…/NINTH CHILD, FROM S3_5]'s mother's) current age?

ENTER 77 FOR DON'T KNOW AND 99 FOR REFUSED

AGE	_____	
DON'T KNOW	77	
REFUSED	99	

C11_X (Do you/Does [FILL VAR: NAME OF FIRST/SECOND…/NINTH CHILD, FROM S3_5]'s mother live at the same address as (you/she) did when [FILL VAR: NAME OF FIRST/SECOND…/NINTH CHILD, FROM S3_5] was born?

YES	1	GO TO CFAMINC
NO	2	
DON'T KNOW	77	GO TO CFAMINC
REFUSED	99	GO TO CFAMINC

C11A_X In what city, county, and state did (you//[FILL VAR: NAME OF FIRST/SECOND…/NINTH CHILD, FROM S3_5]'s mother) live when /[FILL VAR: NAME OF FIRST/SECOND…/NINTH CHILD, FROM S3_5] was born?

ENTER CITY. _____

ENTER COUNTY. _____

ENTER STATE. _____

IF CHILD IS FOREIGN BORN, SELECT 'FC' (Foreign Country)

C11B_X What was (your/ [FILL VAR: NAME OF FIRST/SECOND…/NINTH CHILD, FROM S3_5]'s mother's) zip code at that time?

ENTER 77777 FOR DON'T KNOW AND 99999 FOR REFUSED

_____ _____ _____ _____ _____

CFAMINC Please think about your total combined family income during 2007 for all members of the family. Include money for jobs, social security, retirement income, unemployment payments, public assistance, and so forth. Also include income from interest, dividends, net income from business, farm, rent, or any other money income received. Can you tell me that amount before taxes?

IF RESPONDENT GIVES INCOME RANGE READ: What amount would you like me to enter?

ENTER 77 FOR DON'T KNOW AND 99 FOR REFUSED

$ ____ ____ ____, ____ ____ ____, ____ ____ ____	....	GO TO CINC
DON'T KNOW	77	GO TO C12_DONT_KNOW
REFUSED	99	GO TO C12_REFUSED

C12 _DONT_KNOW

You may not be able to give us an exact figure for your total combined family income, but was your total family income during 2007 more or less than $20,000?

More than $20,000.	1	GO TO C16
$20,000	2	GO TO C19A
Less than $20,000	3	GO TO C13
DON'T KNOW	77	GO TO C19A
REFUSED	99	GO TO C19A

C12_REFUSED Income is important in analyzing the immunization information we collect. For example, this information helps us to learn whether persons in one group use these medical services more or less than those in another group. Now you may not be able to give us an exact figure for your total combined family income, but was your total family income during 2006 more or less than $20,000?

More than $20,000.	1	GO TO C16
$20,000	2	GO TO C19A
Less than $20,000	3	GO TO C13
DON'T KNOW	77	GO TO C19A
REFUSED	99	GO TO C19A

C13 Was the total combined FAMILY income more or less than $10,000?

More than $10,000.	1	GO TO C15
$10,000	2	GO TO C19A
Less than $10,000	3	GO TO C14_A
DON'T KNOW	77	GO TO C19A
REFUSED	99	GO TO C19A

C14_A Was it more than $7,500?

YES	1	GO TO C19A
NO	2	GO TO C19A
DON'T KNOW	77	GO TO C19A
REFUSED	99	GO TO C19A

C15 Was it more than $15,000?

YES	1	GO TO C15_A
NO.	2	GO TO C15_B
DON'T KNOW	77	GO TO C19A
REFUSED	99	GO TO C19A

C15_A Was it more than $17,500?

YES	1	GO TO C19A
NO	2	GO TO C19A
DON'T KNOW	77	GO TO C19A
REFUSED	99	GO TO C19A

C15_B Was it more than $12,500?

YES	1	GO TO C19A
NO	2	GO TO C19A
DON'T KNOW	77	GO TO C19A
REFUSED	99	GO TO C19A

C16 Was the total combined FAMILY income more or less than $40,000?

More than $40,000.	1	GO TO C16_A
$40,000	2	GO TO C19_A
Less than $40,000	3	GO TO C17
DON'T KNOW	77	GO TO C19A
REFUSED	99	GO TO C19A

C16_A Was the total combined FAMILY income more or less than $60,000?

More than $60,000.	1	GO TO C18
$60,000	2	GO TO C19A
Less than $60,000	3	GO TO C16_B
DON'T KNOW	77	GO TO C19A
REFUSED	99	GO TO C19A

C16_B Was the total combined FAMILY income more or less than $50,000?

More than $50,000.	1	GO TO C19A
$50,000	2	GO TO C19A
Less than $50,000	3	GO TO C16_C
DON'T KNOW	77	GO TO C19A
REFUSED	99	GO TO C19A

C16_C Was the total combined FAMILY income more or less than $45,000?

More than $45,000.	1	GO TO C19A
$45,000	2	GO TO C19A
Less than $45,000	3	GO TO C19A
DON'T KNOW	77	GO TO C19A
REFUSED	99	GO TO C19A

C17 Was the total combined FAMILY income more or less than $30,000?

More than $30,000.	1	GO TO C17_A
$30,000	2	GO TO C19A
Less than $30,000	3	GO TO C17_B
DON'T KNOW	77	GO TO C19A
REFUSED	99	GO TO C19A

C17_A Was the total combined FAMILY income more or less than $35,000?

More than $35,000	1	GO TO C19A
$35,000	2	GO TO C19A
Less than $35,000	3	GO TO C19A
DON'T KNOW	77	GO TO C19A
REFUSED	99	GO TO C19A

C17_B Was the total combined FAMILY income more or less than $25,000?

More than $25,000	1	GO TO C19A
$25,000	2	GO TO C19A
Less than $25,000	3	GO TO C19A
DON'T KNOW	77	GO TO C19A
REFUSED	99	GO TO C19A

C18 Was the total combined FAMILY income more or less than $75,000?

More than $75,000	1	GO TO C19A
$75,000	2	GO TO C19A
Less than $75,000	3	GO TO C19A
DON'T KNOW	77	GO TO C19A
REFUSED	99	GO TO C19A

CINC Just to confirm that I entered the number correctly, the total combined family income was [FILL RESPONSE, CFAMINC]?

YES.	1	GO TO C19A
NO	2	GO TO CFAMINC
DON'T KNOW	77	GO TO CFAMINC
REFUSED	99	GO TO CFAMINC

C19A What is your zip code?

ENTER 77777 FOR DON'T KNOW AND 99999 FOR REFUSED

___ ___ ___ ___ ___

DON'T KNOW	77777	GO TO C19
REFUSED	99999	GO TO C19

C19A_CONF To confirm, you live in [CITY], [COUNTY], [STATE]. Is that correct?

YES	1	GO TO C19B
NO	2	GO TO C19

C19 In what city, county and state do you live?

ENTER CITY _____ [ALL GO TO C19 COUNTY]
ENTER COUNTY_____ [ALL GO TO C19 STATE]
ENTER STATE_____ [ALL GO TO C19_ZIP_CONF]

C19_ZIP_CONF Just to confirm, I have your zip code as [FILL]. Is that correct?

YES	1	GO TO C19B
NO	2	GO TO C19_NEW_ZIP
DON'T KNOW	77	GO TO C19B
REFUSED	99	GO TO C19B

C19_NEW_ZIP What is your zip code?

ENTER 77777 FOR DON'T KNOW AND 99999 FOR REFUSED

___ ___ ___ ___ ___

DON'T KNOW	77777	GO TO C19B
REFUSED	99999	GO TO C19B

C19B Do you live within the city limits?

YES	1
NO	2
DON'T KNOW	77
REFUSED	99

C19C Which of the following best describes your house or apartment? Is it owned or being bought, rented, or occupied by some other arrangement by you?

Owned or being bought	1
Rented	2
Other arrangement	3
DON'T KNOW	77
REFUSED	99

C20_06Q3 The next few questions are about the telephone numbers in your household. Do you have any other home phone numbers in addition to (XXX) XXX-XXXX. Please do not include cellular phones in your answer.

COUNT BUSINESS TELEPHONE NUMBERS THAT RING TO THE HOUSEHOLD IF THEY ARE USED OCCASIONALLY FOR HOME USE.

YES	1	
NO	2	GO TO CNOSERV
DON'T KNOW	77	GO TO CNOSERV
REFUSED	99	GO TO CNOSERV

C21_06Q3 How many telephone numbers are residential numbers?

THIS QUESTION IS ASKING FOR THE TOTAL NUMBER OF HOME TELEPHONE NUMBERS (INCLUDING THE NUMBER WE CALLED).

ONE	1
TWO	2
THREE OR MORE	3
DON'T KNOW	77
REFUSED	99

CNOSERV During the past 12 months, has your household been without telephone service for 1 week or more? Please do not include cellular phones in your answer. Do not include interruptions of phone service due to weather or natural disasters.

YES	1	GO TO CHOWLONG1
NO	2	GO TO C11Q78
DON'T KNOW	77	GO TO C11Q78
REFUSED	99	GO TO C11Q78

CHOWLONG1

For how long was your household without telephone service in the past 12 months?
IF ONE WEEK OR LESS, ENTER 0 FOR THE NUMBER.
ENTER 77 FOR DON'T KNOW AND 99 FOR REFUSED

NUMBER _____

DON'T KNOW	77	GO TO C11Q77
REFUSED	99	GO TO C11Q77

CHOWLONG2

ENTER PERIOD _____

DAY(S)	1	GO TO C11Q77
WEEK(S)	2	GO TO C11Q77
MONTH(S)	3	GO TO C11Q77

C11Q77 When your household was without telephone service, did someone in your household have a working cell phone?

YES	1	GO TO C11Q78
NO	2	GO TO C11Q78
DON'T KNOW	77	GO TO C11Q78
REFUSED	99	GO TO C11Q78

C11Q78 Of all the telephone calls that you and your family receive, are nearly all received on cell phones, nearly all received on regular phones, or some received on cell phones and some received on regular phones?

IF ASKED ABOUT INCLUDING BUSINESS CALLS: Please do not include any business-related calls in your answer.

NEARLY ALL RECEIVED ON CELL PHONES	1	GO TO D5
NEARLY ALL RECEIVED ON REGULAR PHONES.	2	GO TO D5
SOME RECEIVED ON CELL PHONES AND SOME RECEIVED ON REGULAR PHONES	3	GO TO D5
DON'T KNOW	77	GO TO D5
REFUSED	99	GO TO D5

SECTION D

Provider Questions

D5 IF S6_X=1 To get a complete picture of the vaccinations received by your (children/child), we would like to contact doctors or health clinics to obtain a copy of the vaccination records. These records contain only the immunizations and dates of the immunizations for your (children/child).

READ IF NECESSARY: Information we collect from you and your health care provider will be used to monitor and report on childhood immunizations. Last year, over 21,000 providers participated in this study. Participation by you and your child's provider helps the CDC understand the potential for childhood diseases.

D5 (Version for Section B respondents)

ELSE IF S6_x=(2, 77, or 99) OR (S6_X=1), THEN DISPLAY:
Thank you for the valuable information you've shared with us. We find that it's often difficult to remember specifics about vaccinations. We'd like to collect the dates and types of vaccinations your (children have/child has) received by contacting the doctors or health clinics who provided them.

READ IF NECESSARY:
Information we collect from families like yours is used to develop health care policies and to determine where funding is most needed for vaccination programs such as Vaccines for Children.
- - Since 1994, the Vaccines for Children (VFC) program has helped families of children who may not otherwise have access to vaccines by providing free vaccines to doctors who serve them.
- - Children who are uninsured, (Medicaid recipients, Native Americans, Alaska Natives), can receive the necessary CDC recommended immunizations as part of routine health care in their doctor's office if their doctor is part of this program. Also, some state or local health departments have special programs for other groups of children.

Confidentiality is mandated by law and I can assure you that the data is reported only in summary form and neither you nor the child will be identified as a participant.

When you give us permission to contact your child's provider to collect specific dates and types of shots, we also take the opportunity to ask the provider a few questions about the medical practice or clinic.

D6_X How many locations have provided vaccinations for your child named [NAME OF (FIRST) ELIGIBLE CHILD] whose birth date is [DATE OF BIRTH OF (FIRST) ELIGIBLE CHILD]?
ENTER 77 FOR DON'T KNOW AND 99 FOR REFUSED

ENTER NUMBER.....__	GO TO D6A_1_X
ZERO 0	GO TO D6AA_X
DON'T KNOW.....77	GO TO D6AA_X
REFUSED.....99	GO TO SECT_D_TERM; INS_INTRO (on callback)

D6AA_x How many locations have provided health care for your child? Please include the hospital or birthing center where [he/she] was born, and any other clinics or doctor's offices that have seen [him/her]. ENTER 0 IF CHILD HAS NEVER SEEN A DOCTOR OR OTHER HEALTH CARE PROVIDER. ENTER 77 FOR DON'T KNOW AND 99 FOR REFUSED

ENTER NUMBER		GO TO D6A_1_X
ZERO	0	INS_INTRO
DON'T KNOW	77	GO TO SECT_D_TERM; INS_INTRO (on callback)
REFUSED	99	GO TO SECT_D_TERM; INS_INTRO (on callback)

D6 A_1_X Starting with the most recent, please tell me the contact information for each location. (Would you take a moment to find shot records, appointment cards, or other records you may have?)

Yes, continue on	1	GO TO PLU
No, can't find, continue	2	GO TO PLU
Refused	99	GO TO SECT_D_TERM; INS_INTRO (on callback)

NIS PROVIDER LOOKUP
Provider Search Information Screen
Please locate the (first/second/…) provider for (child name)

In order to help me accurately record the information for your child's health care provider, I will need to try and find that provider in a "lookup" database. The most efficient search is typically the doctor's last name in combination with the city and state where the office is located. Do you have that information?

READ IF R DOESN'T HAVE THE LAST NAME: Do you have the clinic or office name?

What is the last name of the (first/next) doctor? [variable: D6B1]
What city is that in? [variable: D6B6]
What state is that in? [variable: D6B7]
What is the zip code? [variable: D6B8]
Please tell me the name of the office or the clinic. [variable: D6B3]
What is their telephone number? [variable: D6B9]
Do you know the doctor's first name? [variable: D6B2]

SEARCH
DK
REF

Search Results Screen
READ IF NECESSARY: Thank you. I now have a list of possible matches and just need to find the correct listing. I can organize the list by many different categories, including the practice name, street address, telephone number and the doctor's first and last names.

SEARCH RESULTS: Name or Practice, City, State, First Name, Last Name, Phone Number, Address Information, Action
DK
REF
MODIFY SEARCH

ADD NEW PROVIDER

Provider Details Screen

To be certain I have the correct information I would like to confirm the name and mailing address of your provider:

EXACT MATCH	GO TO PLU FINISHED
UPDATE ADDRESS	GO TO MODIFY PROVIDER
UPDATE PROVIDER NAME	GO TO MODIFY PROVIDER
ADD NEW PROVIDER	GO TO MODIFY PROVIDER
DK.....	GO TO PLU FINISHED
REF	GO TO PLU FINISHED
MODIFY.....	GO TO MODIFY PROVIDER
MODIFY SEARCH	GO TO PROVIDER SEARCH SCREEN
CANCEL.....	GO TO SEARCH RESULTS

Modify Provider Screen:

To be certain I have the correct information I would like to confirm the name and mailing address of your provider:

Last Name
First Name
Practice
Address
Suite
City
State
Zip
Phone

SUBMIT
CANCEL
DK
REF

New Provider Screen:
I'm still unable to find an exact match in the data base for your child's health care provider. This happens occasionally, but I can add it now. Please give me the name, address and telephone number of that provider.
To be certain I have the correct information I would like to confirm the name and mailing address of your provider:

Last Name
LEAVE BLANK IF UNKNOWN
First Name
LEAVE BLANK IF UNKNOWN
Practice
LEAVE BLANK IF UNKNOWN
Address
LEAVE BLANK IF UNKNOWN
Suite
LEAVE BLANK IF UNKNOWN
City
LEAVE BLANK IF UNKNOWN
State
LEAVE BLANK IF UNKNOWN
Zip
LEAVE BLANK IF UNKNOWN
Phone
LEAVE BLANK IF UNKNOWN

POST-PROVIDER LOOKUP PATHS

IF D6>1…...D8 IF D6=0(NO VACCINATION PROVIDERS), D6AA>1…...D8M

D8_X [ASK IF D6_X GE 1] In order to help the doctor or clinic locate your child's vaccination records, we need to know the child's full name - first, middle and last name

IF RESPONDENT REFUSES WE CAN ACCEPT A FIRST INITIAL AND FULL LAST NAME.

Continue	1	GOT TO D8A_1
Refused	99	GO TO SECT_D_TERM

(*Note: The hardcopy variable below, D8M, appears as one of the two version of D8_x in Fusion. These two versions of D8_x depend on the value of D6.)

D8_X [ASK IF D6AA_X GE 1] Sometimes babies are given an immunization soon after birth or a young child may receive an immunization at a well-child visit. We would like to contact the places that have provided care for [CHILD] and request any vaccination information they may have.

In order to help the doctor or clinic locate your child's vaccination records, we need to know the child's full name- first, middle and last name.

IF RESPONDENT REFUSES WE CAN ACCEPT A FIRST INITIAL AND FULL LAST NAME.

Continue	1	GO TO D8A_X
Refused	99	SECT_D_TERM

D8A_X What is [NAME OF (FIRST ELIGIBLE CHILD]'s full name- first, middle and last name?

FIRST NAME: ENTER NAMES ONLY. *IF R IS REFUSING, GO BACK AND CODE AS AN ITEM LEVEL REFUSAL.* _____

D8B_X (What is the [NAME OF (FIRST) ELIGIBLE CHILD]'s full name – first, middle, and last name?)

MIDDLE NAME_____

D8C_X (What is the [NAME OF (FIRST) ELIGIBLE CHILD]'s full name – first, middle, and last name?)

LAST NAME: *ENTER NAMES ONLY. IF R IS REFUSING, GO BACK AND CODE AS AN ITEM LEVEL REFUSAL.* _____

D9 Could I know…what is your full name – first, middle, and last?

IF RESPONDENT REFUSES WE CAN ACCEPT A FIRST INITIAL AND FULL LAST NAME.

Continue	1	GO TO D9A
Refused	99	SECT_D_TERM

D9A (What is your full name- first, middle and last?) REPEAT IF NECESSARY

FIRST NAME: ENTER NAMES ONLY. IF R IS REFUSING, GO BACK AND CODE AS AN ITEM LEVEL REFUSAL._____

D9B (What is your full name- first, middle and last?) REPEAT IF NECESSARY

MIDDLE NAME:_____

D9C (What is your full name- first, middle and last?) REPEAT IF NECESSARY

LAST NAME: ENTER NAMES ONLY. IF R IS REFUSING, GO BACK AND CODE AS AN ITEM LEVEL REFUSAL._____

D9D_X. I need to verify that I am speaking with someone who can authorize the release of immunization records for [NAME OF ELIGIBLE CHILD(REN)]. Are you that person?

YES	1	GO TO D6_C
NO	2	GO TO D9D1
REFUSED	99	GO TO SECT_D_TERM

D6_C The vaccination records collected from the provider(s) will be kept in strict confidence.

D7_ID Capture Interviewer ID upon entering question D7

D7_X Do we have your permission to contact the provider(s) named in this interview, give the provider(s) basic information that identifies (Fill Var: name of first/second/...ninth child, from S3_5), and request that information relevant to (his/her) immunization history be sent to the Centers for Disease Control and Prevention or its contractors for study purposes only?

YES	1	GO TO DCG [OR D7G if registry flag=1]
NO (Only choose this when you have made all appropriate aversion attempts)	2	GO TO SECT_TERM_D

D7G_X Sometimes to get a complete record of your child(ren)'s vaccinations it would be helpful to contact your local immunization registry. This registry has information on children's vaccinations. The information we collect will be about your child(ren)'s vaccinations only.

Do we have your permission to contact your local immunization registry, give them basic information that identifies your child(ren), and request that information relevant to your child(ren)'s immunization history be sent to the Centers for Disease Control and Prevention or its contractors for study purposes only?

YES	1
NO	2
DON'T KNOW	77
REFUSED	99

(SUGGESTED TEXT IF THE RESPONDENT HAS A QUESTION)
WHAT IS A REGISTRY?
Immunization registries are confidential, population-based, computerized information systems that attempt to collect vaccination data about all children in a geographic area.

WHY DO YOU NEED TO CONTACT A REGISTRY?
Vaccination information from doctors and clinics sometimes is not complete or available. So, in order to get the most complete information possible about children's vaccinations, we also need to contact local registries to collect vaccination information.

D7_DATE Capture date at the time the answer to D7 is given

D7_TIME Capture time at the time the answer to D7 is given

D7_R We appreciate the information you have already provided, but without your consent, we cannot contact your health care provider. We are only requesting the dates and types of vaccinations your child(ren) has received and I can assure you that no further information will be provided to us. All information collected is kept confidential under federal law and the names of you and your child(ren) will be completely separated from the data released in study results. The doctor or health clinic will receive 2 forms, one that I have signed indicating your consent to collect immunization information, and one that looks similar to a shot record with only the names of the vaccines listed and blank spaces for the dates to be filled in.

Continue	1	GO TO D7_1
Respondent still refuses	2	GO TO SECT_D_TERM

DCG I would like to confirm that I have the correct information for you and the children in this household.

[INTERVIEWER: CONFIRM ALL NAMES AND SPELLINGS WITH THE RESPONDENT. IF LAST NAMES ARE THE SAME, MAKE SURE THEY HAVE THE SAME SPELLING]

DCG1_X I have your name as [FILL: CONSENT GIVER NAME FROM D9A-C]. Is this correct?

YES	1	GO TO DCG2
NO	2	GO TO D9A_C_X

D9A_C_X What is your full name – first, middle and last ?

FIRST NAME_____

D9B_C _X What is your full name – first, middle and last ?

MIDDLE NAME_____

D9C_C _X What is your full name – first, middle and last ?

LAST NAME _____

DCG2 The name I have for [FILL VAR: NAME OF FIRST/SECOND…/ NINTH CHILD, FROM S35] is [NAME OF (FIRST) ELIGIBLE CHILD] Is this correct?

YES	1	GO TO DCONFDOB_X
NO	2	GO TO D8A_X_C

D8A_X_XC What is [NAME OF (FIRST) ELIGIBLE CHILD]'s full name – first, middle and last name?

FIRST NAME_____

D8B_X_C (What is the [NAME OF (FIRST) ELIGIBLE CHILD]'s full name – first, middle, and last name?)

MIDDLE NAME_____

D8C_X_C (What is the [NAME OF (FIRST) ELIGIBLE CHILD]'s full name – first, middle, and last name?)

LAST NAME_____

DCONF
DOB_x The birth date I have for [FILL: FIRST CHILD'S NAME FROM D8A-C] is [FILL: BIRTH DATE FROM S3_3M_X]. Is this correct?

YES	1	GO TO NEXT CHILD OR INS INTRO
NO	2	GO TO DNEWDOB_1

DNEWDOB(M,D,Y)_X

What is the correct month, day and year of birth of [FILL: FIRST CHILD'S NAME FROM D8A-C]?

ENTER 77/77/7777 FOR DON'T KNOW AND 99/99/9999 FOR REFUSED
_____/_____/_____ (mm/dd/yyyy) [IF SNUMB=1, GO TO INS INTRO,
IF SNUMB>1, GO TO DCG3]

ASK ONLY IF D9D=2

D9D1 Please give me the full name of someone who can authorize the release of these immunization records.

Continue	1	GO TO D9D1F
Refusal	2	GO TO SECT_D_TERM; INS_INTRO (on callback)

D9D1F What is the full name of this person (who can authorize the release of these immunization records)- first middle and last name?

FIRST NAME_____

D9D1M What is the full name of this person (who can authorize the release of these immunization records)- first middle and last name?

MIDDLE NAME_____

D9D1L What is the full name of this person (who can authorize the release of these immunization records)- first middle and last name?

LAST NAME_____

D9DREL_X What is this person's relationship to [FILL VAR: NAME OF FIRST/SECOND…/ NINTH CHLD, FROM S3_5]?

MOTHER (STEP, FOSTER, ADOPTIVE) OR FEMALE GUARDIAN	01
FATHER (STEP, FOSTER, ADOPTIVE) OR MALE GUARDIAN	02
SISTER OR BROTHER (STEP/FOSTER/HALF/ADOPTIVE)	03
IN-LAW OF ANY TYPE	04
AUNT/UNCLE	05
GRANDPARENT	06
OTHER FAMILY MEMBER	07
FRIEND	08

D9D1A May I speak with that person now?

YES	1	GO TO D9D1NEW
NO	2	GO TO D9D2

D9D2 When would be a good time to call this person? SELECT APPOINTMENT AND ENTER THE APPROPRIATE DATE/TIME ON THE NEXT APPOINTMENT SCREEN

IF CALLBACK SELECT CONTINUE AND READ THE NEXT SCREEN STATEMENT FOR THE MOST KNOWLEDGEABLE RESPONDENT CALLBACK INTRODUCTION

Appointment	1	GO TO UNIVERSAL EXIT-CB1
Continue	2	GO TO D9D1NEW

SECT_D_TERM

Those are all the questions I have. You may be re-contacted in the future for some follow-up questions or to participate in future studies. If you are contacted to participate in future surveys, you have the right to refuse. I'd like to thank you again on behalf of the Centers for Disease Control and Prevention for the time and effort you've spent answering these questions. If you would like more information about the National Immunization Study, please call the study's toll-free number, 1-866-999-3340. If you have questions about your rights as a study participant, you may call 1-800-223-8118, toll-free, and leave a message asking to speak to the Chairperson of the Ethics Review Board.

READ WHEN NEW PERSON COMES TO THE PHONE
OR
FOR Authorized Consent Respondent CALLBACK INTRODUCTION

D9D1NEW Hello, my name is _____. Am I speaking with [NAME LISTED IN D9D1, WHO CAN AUTHORIZE RELEASE OF SHOT RECORDS]?

YES	1	GO TO D9D2ANEW
NO	2	GO TO D9D2

D9D2ANEW I'm calling on behalf of the Centers for Disease Control and Prevention. We talked with [FILL: NAME FROM D9A] and collected immunization and provider information for [NAME OF ELIGIBLE CHILD(REN)]. We understand that you could authorize the release of immunization information for [NAME OF ELIGIBLE CHILD(REN)]. This study is voluntary and is authorized by the U.S. Public Health Service Act. You may choose not to answer any question you don't wish to answer or stop at any time. The information you give will be kept in strict confidence and will be summarized for research purposes only.

D9D_1 I need to verify that I am speaking with someone who can authorize the release of immunization records for [NAME OF (FIRST) ELIGIBLE CHILD]. Are you that person?

YES	1	GO TO D6C
NO	2	RETURN TO D9D1
REFUSED	99	GO TO SECT_D_TERM

SECTION E
HEALTH INSURANCE MODULE

[IF S_NUMB IS > 1, THEN REPEAT NEXT SENTENCE AND INS-1 THROUGH INS-16 IN A LOOP FOR EACH AGE-ELIGIBLE CHILD.]

INS INTRO Next I'm going to ask you a few questions about (CHILD)'s health insurance.

INS_1_X At this time, is (CHILD) covered by health insurance that is provided through an employer or union?

READ ONLY IF NECESSARY: These plans may be provided in part or fully by a current employer, a former employer, a union, or a professional organization.

IF ONLY PLAN NAME OFFERED, PROBE (READ IF NECESSARY): Is this insurance provided through an employer or union? Do not include dental, vision, school, or accident insurance.

IF NECESSARY, TO HELP THE RESPONDENT DETERMINE WHAT KIND OF INSURANCE THEY HAVE, PROBE (READ IF NECESSARY): Did you get that insurance through an employer? Does it help pay for both doctor visits and hospital stays?

Yes	1	GO TO INS_1A_X
No	2	GO TO INS_2_X
Don't Know	77	GO TO INS_2_X
Refused	99	GO TO INS_2_X

INS_1A_X Does this health insurance help pay for both doctor visits and hospital stays?

Yes	1	GO TO INS_2X
No	2	GO TO INS_2X
Don't Know	77	GO TO INS_2X
Refused	99	GO TO INS_2X

INS_2 _X [IF STATE = AK, CT, DC, FL, HI, IL, IN, LA, ME, MA, MN, MO, NE, NM, NY, OH, OK, RI, SC, SD, TN, VT, or WI, THEN SKIP TO INS_3A_X]

At this time, is (CHILD) covered by any Medicaid plan? Medicaid is a health insurance program for persons with certain income levels and persons with disabilities. [FILL IF APPLICABLE: In this state, the program is sometimes called [FILL NAME FROM "TEXT FILLS" SPREADSHEET].

READ IF NECESSARY: Medicaid is a federal-state medical assistance program. It serves low-income people of every age. Medical bills are paid from federal, state and local tax funds. Patients usually pay no part of costs for covered medical expenses. It is run by state and local governments within federal guidelines.

IF NECESSARY, TO HELP THE RESPONDENT DETERMINE WHAT KIND OF INSURANCE THEY HAVE, PROBE (READ IF NECESSARY): Did you get that insurance through an employer? Does it help pay for both doctor visits and hospital stays?

Yes	1	GO TO GO TO INS_3_X
No	2	GO TO GO TO INS_3_X
Don't Know	77	GO TO GO TO INS_3_X
Refused	99	GO TO GO TO INS_3_X

INS_3_X At this time, is (CHILD) covered by the State Children's Health Insurance Program or S-CHIP? In this state, the program is sometimes called [FILL NAME FROM "TEXT FILLS" SPREADSHEET].

READ IF NECESSARY: The State Children's Health Insurance Program (S-CHIP), created under Title XXI of the Social Security Act, expands health coverage to uninsured children whose families earn too much for Medicaid but too little to afford private coverage.

IF NECESSARY, TO HELP THE RESPONDENT DETERMINE WHAT KIND OF INSURANCE THEY HAVE, PROBE (READ IF NECESSARY): Did you get that insurance through an employer? Does it help pay for both doctor visits and hospital stays?

Yes	1	GO TO GO TO INS_4_X
No	2	GO TO GO TO INS_4_X
Don't Know	77	GO TO GO TO INS_4_X
Refused	99	GO TO GO TO INS_4_X

INS_4_X At this time, is (CHILD) covered by the Indian Health Service?

Yes	1
No	2
Don't Know	77
Refused	99

INS_5_X At this time, is (CHILD) covered by military health care, TRICARE, CHAMPUS, OR CHAMP-V-A?

READ IF NECESSARY: CHAMPUS, CHAMP-V-A, and TRICARE are health care plans that are offered to persons in the military (and their dependents). TRICARE is a managed health care program for active duty and retired members of the uniformed services, their families, and survivors. CHAMPUS is a program of medical care for dependents of active or retired military personnel. CHAMP-V-A is medical insurance for dependents or survivors of disabled veterans.

Yes	1
No	2
Don't Know	77
Refused	99

INS_6_X Besides what you have already told me about, is (CHILD) covered by any other health insurance or health care plan?

[IF RESPONDENT REPORTS DENTAL, VISION, SCHOOL, OR ACCIDENT INSURANCE, MARK 'NO'.]

Yes	1	
No	2	GO TO INS_7_X
Don't Know	77	GO TO INS_7_X
Refused	99	GO TO INS_7_X

INS_6A_X Does this health insurance help pay for both doctor visits and hospital stays?

Yes	1	
No	2	GO TO INS_7_X
Don't Know	77	GO TO INS_7_X
Refused	99	GO TO INS_7_X

INS_6B_X Is this health insurance provided through an employer or union?

Yes	1	GO TO INS_11_X
No	2	
Don't Know	77	
Refused	99	

INS_6C_X Is this health insurance purchased directly from an insurance company?

Yes	1	GO TO INS_11_X
No	2	
Don't Know	77	
Refused	99	

INS_6D_X I recorded that (CHILD) was covered by some other health insurance. What is the name of the plan? ENTER 77 FOR DON'T KNOW OR 99 FOR REFUSED

CONTINUE	1	GO TO INS_6D_X _1
DON'T KNOW	77	GO TO INS_11_X
REFUSED	99	GO TO INS_11_X

INS-6D-X_1 Record verbatim response #1 _____
INS-6D-X_2 Record verbatim response #2 _____

NEXT SECTION: ASK INS-7 THROUGH INS-10 IF UNINSURED:

IF INS-1A, INS-2, INS-3, INS-3A, INS-4, INS-5, or INS-6A = 1, THEN SKIP TO INS-11

INS_7_X It appears that (CHILD) does not have any health insurance coverage to pay for both hospitals and doctors and other health professionals. Is that correct?

Yes	1	GO TO INS_8_X
No	2	
Don't Know	77	GO TO INS_11_X
Refused	99	GO TO INS_11_X

INS_7A_X At this time, what kind of health coverage does (CHILD) have? Any other kind? [MARK ALL THAT APPLY. MARK "SINGLE SERVICE PLAN" ONLY IF VOLUNTEERED AS TYPE OF HEALTH INSURANCE.]

Medicaid [Fill state program name, if applicable]	1
Medicare	2
S-CHIP [Fill state program name, if applicable]	3
Medigap	4
Military	5
INDIAN HEALTH SERVICE	6
Private INSURANCE	7
Single service plan (dental, vision, prescriptions, etc)	8
Other	9
DON'T KNOW	77
REFUSED	99

IF only (8, 77, 79) selected, skip to INS-8-X
ELSE if ins-7a = 1, 3, 5, or 6, skip to ins-11

ELSE IF INS-7A = 2, 4, 7, or 9 THEN ASK:

INS_7B_X Does this health insurance help pay for both doctor visits and hospital stays?

Yes	1	GO TO INS_11_X
No	2	
Don't Know	77	GO TO INS_11_X
Refused	99	GO TO INS_11_X

UNINSURED SUB SECTION

INS_8_X Since (CHILD)'s birth, has (CHILD) always been uninsured?

Yes	1	GO TO INS_14_X
No	2	
Don't Know	77	GO TO INS_14_X
Refused	99	GO TO INS_14_X

INS_9_X How old was (CHILD) THE FIRST TIME (CHILD) became uninsured?

[IF LESS THAN ONE MONTH, ROUND UP TO ONE MONTH]

UNINSURED AT BIRTH	44	GO TO INS_10_X
Don't Know	77	GO TO INS_10_X
Refused	99	GO TO INS_10_X

INS_9A_X ENTER PERIOD:

MONTH(S) 1
YEAR(S) 2

INS_10_X During the months when (CHILD) DID have health coverage, what kinds of health coverage did (CHILD) have? Medicaid, Medicare, S-CHIP, Medigap, Military, Indian Health Service, Private Health Insurance, or another insurance type?

CLICK ALL THAT APPLY.

Medicaid [Fill state program name, if applicable] 1
Medicare 2
S-CHIP [Fill state program name, if applicable] 3
Medigap 4
Military 5
Indian Health Service 6
Private Health Insurance 7
Other Insurance Type 8
DON'T KNOW 77
REFUSED 99

SKIP TO LAST SECTION (INS-14_X) IF INS-10-X WAS ASKED
NEXT SECTION: ASK INS-11 THROUGH INS-13 FOR CHILDREN WHO CAN EITHER BE ASCERTAINED AS BEING CURRENTLY INSURED OR OF UNKNOWN CURRENT INSURANCE STATUS

INS_11_X Since (CHILD)'s birth was there any time when (CHILD) was not covered by any health insurance for any reason?

Yes 1
No ..... 2 GO TO INS-13_X
Don't Know ..... 77 GO TO INS-13_X
Refused ..... 99 GO TO INS-13_X

INS_12_X How old was (CHILD) THE FIRST TIME (CHILD) became uninsured?

[IF LESS THAN ONE MONTH, ROUND UP TO ONE MONTH]

[ENTER 44 IF UNINSURED AT BIRTH]

[ENTER 77 FOR DON'T KNOW AND 99 FOR REFUSED]

UNINSURED AT BIRTH ..... 44 GO TO INS-13_X
Don't Know ..... 77 GO TO INS-13_X
Refused ..... 99 GO TO INS-13_X

INS_12A_X ENTER PERIOD:

MONTH(S) 1
YEAR(S) 2

[DO NOT ASK INS-13 IF CHILD IS CURRENTLY INSURED BY MEDICAID OR S-CHIP: IF INS-2 = 1 or INS-3 = 1 OR INS-3A = 1]

INS_13_X Has (CHILD) ever been covered by any Medicaid plan or the State Children's Health Insurance Program? [IF STATE = AK, CT, DC, FL, HI, IL, IN, LA, ME, MA, MN, MO, NE, NM, NY, OH, OK, RI, SC, SD, TN, VT, or WI, THEN ASK "In this state, it is sometimes called [FILL STATE PROGRAM IF APPLICABLE FROM "TEXT FILLS" SPREADSHEET, COLUMN G]."

Yes 1
No 2
Don't Know 77
Refused 99

INS_14_X Did cost of vaccinations ever cause you to delay or not get a vaccination for (CHILD)?

Yes 1
No 2
Don't Know 77
Refused 99

ASK INS-15 to INS-16 IF: [S6_X = 1 or B1_X = 1 or (if D6_X ≠ 0, 77, or 99)]

THESE QUESTIONS ARE ONLY FOR CHILDREN WHO EITHER HAVE A HOUSEHOLD REPORT OF VACCINE DOSES HAVING BEEN ADMINISTERED OR HAVE A HOUSEHOLD REPORT OF HAVING VACCINE PROVIDERS

[IF ALWAYS UNINSURED (INS-8=1), THEN TERMINATE; ELSE ASK INS-15]

INS_15_X When (CHILD) received (his/her) most recent vaccination, how much of the cost of that vaccination was paid by insurance, all, some, or none of the cost? Please do not include co-pays for office visits.

All of the cost ..... 1 GO TO D16
Some of the cost 2
None of the cost 3
DON'T KNOW 77
REFUSED 99

INS_16_X How much of the cost of the child's vaccinations did you pay, all, some, or none of the cost?

All of the cost	1	GO TO D16
Some of the cost	2	GO TO D16
None of the cost	3	GO TO D16
DON'T KNOW	77	GO TO D16
REFUSED	99	GO TO D16

D16 Those are all the questions I have. You may be re-contacted in the future to participate in related studies. If you are contacted to participate in future surveys, you have the right to refuse. I'd like to thank you again on behalf of the Centers for Disease Control and Prevention for the time and effort you've spent answering these questions. If you would like more information about the National Immunization Study, please call the study's toll-free number, 1-866-999-3340. If you have questions about your rights as a study participant, you may call 1-800-223-8118, toll-free, and leave a message asking to speak to the Chairperson of the Ethics Review Board.

[Note: Any Health Insurance Module paths that terminate will go to D16]

SECTION F
UNIVERSAL EXIT

NO_CONTACT

CONTINUE	1	GO TO INTRO_1
ANSWERING MACHINE -WILL LEAVE MESSAGE	2	GO TO MSG_Y_FLAG2
OTHER TECHNOLOGICAL CIRCUMSTANCES	3	GO TO CNOTES_1_1
DISCONNECTED/NUMBER NOT ASSIGNED/ CALL CAN'T BE COMPLETED	4	TERMINATE
FAX/MODEM/DATA LINE.	5	TERMINATE
CELL PHONE/MOBILE/GPS PHONE	6	TERMINATE
PRIVACY MANAGER/NO INCOMING CALLS/ CALL IS BLOCKED OR NOT ACCEPTED	7	GO TO UNIVERSAL EXIT-P1
FAST BUSY	8	TERMINATE
NUMBER CHANGED	9	TERMINATE
ENGAGED/BUSY/ALL CIRCUITS ARE BUSY	10	TERMINATE
NO REPLY/RING NO ANSWER	11	TERMINATE
SUPERVISOR REVIEW	12	GO TO CNOTES_1_1
RESPONDENT CALLED INTO 800 LINE	13	GO TO INTRO_1
NEUSTAR	14	TERMINATE
TEST SAMPLE	15	USE ONLY IF RESPONDENT INSTRUCTS THAT THIS CALL WAS A TEST

M1_NAME In order to send you a letter, I will need to collect your name and mailing address. The letter will contain a toll-free number that you may call to complete the interview at your convenience. (Read if necessary: If you feel uncomfortable giving me your name, I can send the letter to "Resident".)

Terminate the interview	1	GO TO CNOTES_1_1
R Refused to give information, terminate the interview	2	GO TO CNOTES_1_1
Continue…….	3	GO TO INTRO_1

T1 Did the respondent agree to a call back or say something to indicate he/she was too busy to participate? (Or do you need to code this case as a callback?)

Yes.	1	GO TO UNIVERSAL EXIT-CB1
No	2	GO TO UNIVERSAL EXIT-T2
Needs Spanish interviewer	3	GO TO UNIVERSAL EXIT-CB1
Needs other language interviewer	4	GO TO UNIVERSAL EXIT-L1
R requested letter	5	GO TO UNIVERSAL EXIT-M1_NAME
R will call 800 Line/Verify website	6	GO TO CNOTES_1_1
R confirmed number was a cell phone	7	GO TO CNOTES_1_1
Take Me Off Your List	8	GO TO CNOTES_1_1
Out of Scope	9	GO TO CNOTES_1_1
R not over 17/R does not live in HH	10	GO TO CNOTES_1_1

Test Sample- Use Only if Respondent Instructs that this Call was a Test……15

T2 Did the respondent say anything other than hello before he/she hung up?

Yes	1	GO TO UNIVERSAL EXIT-T3
No	2	TERMINATE

T3 Did a respondent convey that there were no eligible children before hanging up?

A respondent may convey that they have no children in range by making a general statement of no children: “I don’t have kids.” or “I live alone.” or a statement about the ages of children they do have: “My kids are all grown.” or “My youngest is 13.”, or a statement about their own age: “I am 84.” or “I am a senior citizen”.

Yes, No one under 18 lives in HH	1	TERMINATE
Yes, No children under 4, possibly children under 18	2	TERMINATE (if NIS_only sample; GOTO SUNDR_18)
No, did not say	3	GO TO UNIVERSAL EXIT-T4

T4 Did the respondent say this number was for a nationally recognized business, an academic, health, or government institution, or a home business that is not used for personal calls?

Yes-Business	1	TERMINATE
Yes-Dorm/Prison/Hostel	2	TERMINATE
No	3	GO TO UNIVERSAL EXIT-T5

T5 Did the respondent say something to indicate that he/she refused to participate? (Or did they just hang up?)

Yes	1	GO TO UNIVERSAL EXIT-R1
No	2	GO TO UNIVERSAL EXIT-T6

T6 CODE AS GENERAL CALL BACK OR SUPERVISOR REVIEW

GENERAL CALL BACK	1	GO TO CNOTES_1_1 &TERMINATE
SUPERVISOR REVIEW	2	GO TO CNOTES_1_1 & TERMINATE
FOSTER PARENT	3	GO TO CNOTES_1_1 & TERMINATE
31	4	GO TO CNOTES_1_1 & TERMINATE

CB1 Is there …

A specific time to call back	1	GO TO APPT SCREEN
A range of time to call back	2	GO TO APPT SCREEN
Someone else gave a time to call back	3	GO TO APPT SCREEN
No specific time to call back, say they were too busy …	4	GO TO CNOTES1_1& TERMINATE

CELL_1 I have called (FILL: PHONE NUMBER FROM TOP SCREEN), is this your cell phone number or has this number been forwarded to your cell phone?

Cell Phone	1	GO TO CELL_EXIT
Number forwarded to cell phone	2	GO TO UNIVERSAL EXIT-CB1
Respondent hung up before confirmation	3	TERMINATE
Go back to Intro_1	4	GO TO INTRO_1

CELL_EXIT We are interviewing only private residences. Thank you very much.

VERIFY_INFO REFER TO FAQ/JOB AID TO ANSWER RESPONDENT QUESTIONS

Terminate Interview (Hang up)	1	GO TO CNOTES_1_1
Continue Interview	2	GO TO INTRO_1

R1 Was respondent male or female?

Male 1
Female 2
Could not be determined 3

R2 What was the reason for refusing? (Multiple responses possible)

Too busy/Doing something else right now 1
Interview will take too long 2
Not interested 3
No solicitation wanted/Don't need anything/
Don't want to buy anything 4
Requested not to be called back 5
Concerned about confidentiality 6
Won't give information over the phone 7
Negative about government 8
Negative about surveys 9
Against vaccines 10
Teen line 11
On National Do Not Call List 12
Refused-Foster Parent ..... 13 GO TO CNOTES1_1
No reason given 14
None of the above 15

R3 What questions did the respondent ask? (multiple response possible)

The study purpose 1
NORC 2
Who is sponsoring the
study (NCHS, DHHS, CDC, NIP) 3
Source of name and address on letter 4
Questioned legitimacy of study 5
The use of the data 6
The confidentiality of the data 7
Access to study results. 8
How did you get my phone number? 9
Where are you calling from? 10
No questions 11
None of the above 12

R4 Did the respondent threaten legal or governmental action or use hostile words or a hostile tone? These are refusals that are so strong that we don't want to call them back.

Yes	1	GO TO CNOTES_1_1
No	2	GO TO CNOTES_1_1

L1 Did you confirm the language?

Arabic	1	GO TO L2
Cantonese	2	GO TO L2
French	3	GO TO L2
Haitian Creole	4	GO TO L2
Japanese	5	GO TO L2
Korean	6	GO TO L2
Mandarin	7	GO TO L2
Polish	8	GO TO L2
Portuguese	9	GO TO L2
Russian	10	GO TO L2
Vietnamese	11	GO TO L2
TTY	12	GO TO L2
Language Unknown	13	GO TO L2
Other Specify	14	GO TO L1_OTHER

L1_OTHER: ENTER OTHER SPECIFY

_____

L2 Did the respondent give a time to call back?

Yes	1	GO TO UNIVERSAL EXIT-CB1
No	2	GO TO CNOTES1_1

P1 [BLANK]

IF A PRIVACY MANAGER ASKS YOU TO STATE YOUR NAME, SAY "On behalf of the Centers for Disease Control and Prevention."
IF A PRIVACY MANAGER ASKS YOU TO ENTER THE NUMBER YOU ARE CALLING FROM, ENTER THE NIS TOLL FREE NUMBER (866-999-3340).

Continue Interview	1	GO TO INTRO_1
Answering Machine-WILL LEAVE MESSAGE	2	GO TO MSG_Y_FLAG2
Ring no answer	3	GO TO SASERV
Refused/ Number is invalid	4	GO TO SASERV
Take Me Off Your List	5	TERMINATE

Address Confirmation fields for all Token callbacks

[Pre-filled from sample preload file and confirmed (or edited) with respondent]

Those are all the questions I have. Thank you for participating in the National Immunization Survey. In appreciation of your time we would like to send you [IF INCENT_GRP=1, THEN "10 dollars"/IF INCENT_GRP=2, THEN "15 dollars"]. Can you please [IF INCENT_GRP=1, THEN "confirm"/IF INCENT_GRP=2, THEN "give me") your name and mailing address?

AC_NAME_____

AC_STREET_____

AC_CITY_____

AC_STATE _____

AC_ZIP _____

AC_Refused [BLANK]

Address correct and confirmed .....01 GO TO AC2

Refused to give/confirm address.....99 GO TO AC2

AC2 Thank you very much. If you have any questions, please call the toll-free telephone number 1-866-999-3340.

Appendix A
Section D On-screen FAQs

D6AA_X

Why contact my doctor? Why give consent?

The information you've provided is very helpful and we appreciate your cooperation; however, to get the **most accurate vaccination history**, we need to contact your healthcare provider. They will be able to confirm the **dates** and **specific types** of each vaccination.

- The National Immunization Survey has been conducted for over 10 years (since 1994). Each year we receive immunization histories from over 20,000 doctors and clinics; in fact, your doctor may have already taken part.
- The National Immunization Survey is the **primary** source of vaccination data about preschool aged children in our country. Information collected helps to identify communities where additional resources may be needed for vaccination programs.
- Because vaccinations play an important role in reducing and eliminating childhood diseases, we need dependable, up to date statistics (from this study). Public health agencies in your area rely on this information when making decisions and evaluating health care programs in your area.
    - In 2001, there were shortages of the DTaP and MMR vaccines. Data collected by this survey indicated that certain populations were more affected by these shortages than others. Based on these findings, changes were made to ensure a more even distribution of vaccines during future shortages.
    - The Centers for Disease Control and Prevention uses the information we collect to determine if individual states are meeting the vaccination goals set for them by the Childhood Immunization Initiative.

Why can't I just get the information from my doctor and send it to you?

- In order to standardize the type of information that we receive, it is required that we contact providers directly. We also ask providers a few questions about the characteristics of their practice or clinic, so we can accept only immunization history forms filled out by health care professionals.

D8_X

Why do you need my child's name?

I understand and respect your concern about giving out the child's name. The **only** reason I am asking for a name is so your health care provider can locate your child's vaccination record.

- The U.S. Public Health Service Act requires that identifying information (such as names) can **not** be associated with the information you and your doctor provide. Once information is gathered, names are separated from the data and not used again.
- I am a professional interviewer for the National Immunization Survey and am prohibited by federal law to breach the confidentiality of any identifying information that you provide.
- If you would feel more comfortable, I could enter just the child's first initial and the full last name.

D6_X, D6 A_1_X, D7_x

What am I consenting to? What is going to happen if I say 'yes' to this?

With your permission, we'll send a letter of consent and an immunization history form to your health care provider. The form shows the names of vaccinations (like a shot card), and they will fill in the specific type and date for each immunization.

- We don't collect any additional medical information about your child. We are asking for your consent to collect only the immunization history.
- Once the form is returned, all identifiable information is separated from the immunization information. All data are reported in summary form and neither you nor the child will be identified as a participant in the National Immunization Survey.
- In order to collect complete data, we need information from both you and your doctor. The success of this survey depends on the voluntary cooperation of thousands of concerned households (like yours).
- Your household represents many others in your area because of the scientific process to randomly select telephone numbers. We hope that you will choose to participate because your household cannot be replaced.

Why contact my doctor? Why give consent?

The information you've provided is very helpful and we appreciate your cooperation; however, to get the **most accurate vaccination history**, we need to contact your healthcare provider. They will be able to confirm the **dates** and **specific types** of each vaccination.

- The National Immunization Survey has been conducted for over 10 years (since 1994). Each year we receive immunization histories from over 20,000 doctors and clinics; in fact, your doctor may have already taken part.
- The National Immunization Survey is the **primary** source of vaccination data about preschool aged children in our country. Information collected helps to identify communities where additional resources may be needed for vaccination programs.
- Because vaccinations play an important role in reducing and eliminating childhood diseases, we need dependable, up to date statistics (from this study). Public health agencies in your area rely on this information when making decisions and evaluating health care programs in your area.

Appendix C

NIS Immunization History Questionnaire

National Immunization Survey
Immunization History Questionnaire

Confidential Information. If received in error, please call 1-800-817-4316.

CDC
SAFER · HEALTHIER · PEOPLE™

START HERE ➡ **Please review your records and complete this questionnaire for the child identified on the label to the right. Complete pages 1 and 3 only. Return the questionnaire in the postage-paid envelope or fax toll-free to (866) 324-8659. This information is confidential, if faxing, please take extra care to dial the correct number.**

1. Which of the following best describes your immunization records for this child?

- ☐ You have all or partial immunization records for this child, for vaccines given by your practice or other practices.
  - → Was any of the immunization information for this child obtained from your community or state registry? ☐ Yes ☐ No ☐ Don't Know
  - Go to question 2 below.
- ☐ This facility gives immunizations only at birth (hospital).
  - Go to question 2 below.
- ☐ Other-Explain _____
- ☐ You have provided care to this child, but do not have immunization records.
- ☐ You have no record of providing care to this child.

Please complete item 9 and return form as instructed above.

2. According to your records, what is this child's date of birth?

Month | Day | Year

_____ | _____ | _____ ☐ Don't know

3. What was the date of this child's *first* visit, for any reason, to this place of practice?

Month | Day | Year

_____ | _____ | _____ ☐ Don't know

4. What was the date of this child's *most recent visit*, for any reason, to this place of practice?

Month | Day | Year

_____ | _____ | _____ ☐ Don't know

5. How many physicians work at this practice, including those who work part-time?

☐ 1 ☐ 3 ☐ 7-10
☐ 2 ☐ 4-6 ☐ 11 or more

6. Which of the following best describes this facility? Check only one box, representing the most specific description.

- ☐ Federally-qualified health center including community/migrant/rural/Indian health center
- ☐ Hospital-based clinic, including university clinic, or residency teaching practice.
- ☐ Private practice, including solo, group practice, or HMO.
- ☐ Public health department-operated clinic
- ☐ Military health care facility
- ☐ WIC clinic
- ☐ Other-Explain _____

7. Does your practice order vaccines from your state or local health department to administer to children?

☐ Yes ☐ No ☐ Don't know

8. Did you or your facility report any of this child's immunizations to your community or state registry?

☐ Yes ☐ No ☐ Don't know
☐ Not applicable (No registry in my community/state)

9. Contact information for the person returning this form.

Name: _____

☐ Physician ☐ Nurse
☐ Office Manager/ Receptionist ☐ Medical Records Administrator/Technician
☐ Other

Phone: ( ) _____ _____ ext. _____

Fax: ( ) _____ _____ ext. _____

10. Go to next page ➡

Please review the instructions and examples below. Then complete the "Shot Grid" on the next page.

Refer to your vaccination records for the child named on the labels on the front cover and next page of this form.

- Be sure to mark the box for the correct combination vaccine for each dose as shown in the example below. If the combination included both DTaP and Hib, DTP and Hib, or HepB and Hib, be sure to enter the information in both vaccine categories. Note that the same vaccine (a combination DTaP-Hib vaccine) is entered under both DTP and Hib in the example below.

EXAMPLE

Vaccine		Date Given Month	Day	Year	Given by other practice		Type of Vaccine (Mark one box for each vaccine dose)				
DTP	1	11	20	2005	☐ Yes	☒ No	☐ DTP	☐ DTaP	☒ DTaP-Hib	☐ DTP-Hib	☐ DTaP-HepB-IPV
	2	11	18	2006	☒ Yes	☐ No	☐ DTP	☒ DTaP	☐ DTaP-Hib	☐ DTP-Hib	☐ DTaP-HepB-IPV
Hib	1	11	20	2005	☐ Yes	☒ No	☐ Hib	☐ HepB-Hib	☒ DTaP-Hib	☐ DTP-Hib	
	2	11	18	2006	☒ Yes	☐ No	☒ Hib	☐ HepB-Hib	☐ DTaP-Hib	☐ DTP-Hib	

- Be sure to mark the "Yes" or "No" box under "Given by other practice?" for each vaccination (see example above).
- Be sure to mark the "Yes" or "No" box indicating "Given at birth?" for the first Hep B dose (see example below).

		Month	Day	Year			Mark one box for each vaccine dose		
Hepatitis B	1	07	19	2005	☒ Yes	☐ No	☒ HepB Only	☐ HepB-Hib	☐ DTaP-HepB-IPV
Dose 1 given at birth? ☒ *Yes* ☐ *No*									
	2				☐ Yes	☐ No	☐ HepB Only	☐ HepB-Hib	☐ DTaP-HepB-IPV

- Use the "Other" space to enter any vaccines not listed on the next page or any additional doses of listed vaccines that were given to this child (see example below).

		Month	Day	Year			Please enter a description of each vaccine dose.
Other	1	11	20	2006	☐ Yes	☒ No	BCG
	2				☐ Yes	☐ No	

- After completing the "Shot Grid" on the next page, please return this form in the envelope provided.

(Optional) You may also attach a copy of your immunization history records for this child to this form and send it back to the National Opinion Research Center, National Immunization Survey, 1 N State St FL 16, Chicago, IL 60602. If you choose this option, please answer all questions on page 1.

Or you may fax this confidential information to (866) 324-8659. If faxing this form, cut along fold to separate pages, then fax pages 1 and 3. Do not fax this page.

Vaccine		Date Given (Month / Day / Year)	Given by other practice?	Type of Vaccine
Hepatitis B	1		☐ Yes ☐ No	*Mark one box for each vaccine dose* ☐ HepB Only ☐ HepB-Hib ☐ DTaP-HepB-IPV
		Dose 1 given at birth? ☐ Yes ☐ No		
	2		☐ Yes ☐ No	☐ HepB Only ☐ HepB-Hib ☐ DTaP-HepB-IPV
	3		☐ Yes ☐ No	☐ HepB Only ☐ HepB-Hib ☐ DTaP-HepB-IPV
	4		☐ Yes ☐ No	☐ HepB Only ☐ HepB-Hib ☐ DTaP-HepB-IPV
DTP	1		☐ Yes ☐ No	*Mark one box for each vaccine dose* ☐ DTP ☐ DTaP ☐ DTaP-Hib ☐ DTP-Hib ☐ DTaP-HepB-IPV
	2		☐ Yes ☐ No	☐ DTP ☐ DTaP ☐ DTaP-Hib ☐ DTP-Hib ☐ DTaP-HepB-IPV
	3		☐ Yes ☐ No	☐ DTP ☐ DTaP ☐ DTaP-Hib ☐ DTP-Hib ☐ DTaP-HepB-IPV
	4		☐ Yes ☐ No	☐ DTP ☐ DTaP ☐ DTaP-Hib ☐ DTP-Hib ☐ DTaP-HepB-IPV
	5		☐ Yes ☐ No	☐ DTP ☐ DTaP ☐ DTaP-Hib ☐ DTP-Hib ☐ DTaP-HepB-IPV
Hib	1		☐ Yes ☐ No	*Mark one box for each vaccine dose* ☐ Hib ☐ HepB-Hib ☐ DTaP-Hib ☐ DTP-Hib
	2		☐ Yes ☐ No	☐ Hib ☐ HepB-Hib ☐ DTaP-Hib ☐ DTP-Hib
	3		☐ Yes ☐ No	☐ Hib ☐ HepB-Hib ☐ DTaP-Hib ☐ DTP-Hib
	4		☐ Yes ☐ No	☐ Hib ☐ HepB-Hib ☐ DTaP-Hib ☐ DTP-Hib
	5		☐ Yes ☐ No	☐ Hib ☐ HepB-Hib ☐ DTaP-Hib ☐ DTP-Hib
Polio	1		☐ Yes ☐ No	*Mark one box for each vaccine dose* ☐ OPV ☐ IPV ☐ DTaP-HepB-IPV
	2		☐ Yes ☐ No	☐ OPV ☐ IPV ☐ DTaP-HepB-IPV
	3		☐ Yes ☐ No	☐ OPV ☐ IPV ☐ DTaP-HepB-IPV
	4		☐ Yes ☐ No	☐ OPV ☐ IPV ☐ DTaP-HepB-IPV
Pneumo-coccal	1		☐ Yes ☐ No	*Mark one box for each vaccine dose* ☐ Conjugate ☐ Polysaccharide
	2		☐ Yes ☐ No	☐ Conjugate ☐ Polysaccharide
	3		☐ Yes ☐ No	☐ Conjugate ☐ Polysaccharide
	4		☐ Yes ☐ No	☐ Conjugate ☐ Polysaccharide
Rotavirus	1		☐ Yes ☐ No	
	2		☐ Yes ☐ No	
	3		☐ Yes ☐ No	
MMR	1		☐ Yes ☐ No	*Mark one box for each vaccine dose* ☐ MMR ☐ Measles only ☐ MMR-Varicella
	2		☐ Yes ☐ No	☐ MMR ☐ Measles only ☐ MMR-Varicella
Varicella	1		☐ Yes ☐ No	*Mark one box for each vaccine dose* ☐ Varicella only ☐ MMR-Varicella
	2		☐ Yes ☐ No	☐ Varicella only ☐ MMR-Varicella
Hepatitis A	1		☐ Yes ☐ No	***Please remember to answer all questions on page 1.***
	2		☐ Yes ☐ No	
Influenza	1		☐ Yes ☐ No	Injected flu vaccines (e.g., Fluzone): ☐ TIV Inhaled nasal flu spray (e.g., FluMist): ☐ LAIV
	2		☐ Yes ☐ No	☐ TIV ☐ LAIV
	3		☐ Yes ☐ No	☐ TIV ☐ LAIV
	4		☐ Yes ☐ No	☐ TIV ☐ LAIV
Other	1		☐ Yes ☐ No	Please enter a description of each vaccine dose.
	2		☐ Yes ☐ No	
	3		☐ Yes ☐ No	

If you need more space to report vaccines, please attach additional sheets.

Thank you!

Centers for Disease Control and Prevention

U.S. Department of Health and Human Services

Thank you for your help with this important study!

If you would like more information about the National Center for Immunization and Respiratory Diseases, including information about vaccine recommendations, or data and statistics from previous years of the National Immunization Survey, please visit the National Immunization Survey website at www.cdc.gov/vaccines.

If you would like more information about the National Immunization Survey, please visit the National Immunization Survey website at www.cdc.gov/nis. If you have any questions or comments about this study, please call (800) 817-4316 or email nis@cdc.gov.

Note: Do NOT send any confidential patient information, such as patient's name or date of birth, in an email message.

Appendix D

Summary Statistics for Sampling Weights by Estimation Area

Table D.1: Distribution of Sampling Weights for Children with Completed Household Interviews (RDDWT), National Immunization Survey, 2008

State/Estimation Area	n	Sum	Minimum	Maximum	Mean	Coefficient of Variation
Total U.S.	25,948	6,168,021.00	5.09	5,073.53	237.71	137.69
Alabama	490	89,650.93	37.36	711.98	182.96	58.21
Alaska	345	15,271.38	7.72	218.52	44.26	59.85
Arizona	394	150,253.77	57.99	1,446.95	381.35	63.24
Arkansas	475	57,579.87	14.38	596.73	121.22	81.80
California						
CA-Los Angeles County	462	224,944.61	70.35	1,265.08	486.89	40.65
CA-Northern CA	313	16,024.65	14.77	153.17	51.20	52.05
CA-Rest of State	342	542,735.16	40.15	5,073.53	1,586.94	52.71
CA-Santa Clara County	304	40,278.68	27.95	567.06	132.50	62.00
Colorado	437	103,235.38	32.07	1,528.29	236.24	111.96
Connecticut	332	62,501.34	21.96	597.93	188.26	53.70
Delaware	435	17,151.07	9.11	177.82	39.43	68.58
District of Columbia	404	11,030.10	6.91	128.24	27.30	60.02
Florida						
FL-Dade County	411	51,798.20	17.55	663.86	126.03	78.25
FL-Orange County	360	25,380.84	9.42	447.09	70.50	80.48
FL-Rest of State	332	270,017.21	13.30	4,578.62	813.30	80.30
Georgia	403	217,112.13	70.90	2,459.00	538.74	80.13
Hawaii	370	26,308.74	11.84	305.25	71.10	60.64
Idaho	354	33,939.45	28.49	343.44	95.87	49.36
Illinois						
IL-City of Chicago	477	66,315.75	15.44	646.60	139.03	66.35
IL-Madison & St. Clair	477	10,116.24	5.86	80.68	21.21	61.05
IL-Rest of State	471	184,460.63	10.84	1,850.91	391.64	75.79
Indiana	433	127,693.37	60.63	1,825.41	294.90	80.39
Iowa	342	56,769.76	93.28	526.94	165.99	44.78

Table D.1: Distribution of Sampling Weights for Children with Completed Household Interviews (RDDWT), National Immunization Survey, 2008

State/Estimation Area	n	Sum	Minimum	Maximum	Mean	Coefficient of Variation
Kansas	398	61,243.09	30.27	751.50	153.88	70.87
Kentucky	375	82,272.55	57.24	883.17	219.39	59.33
Louisiana	513	87,854.84	15.39	753.41	171.26	70.42
Maine	375	20,246.11	14.05	144.74	53.99	45.38
Maryland						
MD-City of Baltimore	427	14,151.68	8.43	98.61	33.14	58.56
MD-Rest of State	437	100,321.28	5.09	924.93	229.57	69.56
Massachusetts	385	114,230.27	17.43	1,140.29	296.70	65.29
Michigan	399	185,840.42	92.19	1,731.28	465.77	61.22
Mississippi	515	61,061.92	27.03	582.31	118.57	72.20
Missouri	454	116,004.89	60.70	979.54	255.52	62.02
Minnesota						
MN-Rest of State	155	46,110.58	71.57	987.90	297.49	66.98
MN-Twin City Area	345	59,555.69	48.93	564.01	172.63	58.11
Montana	363	17,516.54	17.53	134.91	48.25	49.98
Nebraska	400	37,751.58	16.21	277.51	94.38	51.29
Nevada	356	59,447.04	36.72	456.36	166.99	46.39
New Hampshire	346	21,224.87	17.03	157.25	61.34	40.16
New Jersey	489	170,612.29	19.72	1,846.81	348.90	61.49
New Mexico	383	41,344.66	18.60	491.30	107.95	77.72
New York						
NY-City of New York	434	175,786.23	58.74	1,356.88	405.04	46.88
NY-Rest of State	372	184,751.00	88.27	2,433.18	496.64	52.16
North Carolina	422	185,291.19	104.48	1,809.10	439.08	68.77
North Dakota	352	11,597.02	14.59	78.45	32.95	33.94
Ohio	400	217,535.13	111.25	1,925.58	543.84	61.29
Oklahoma	368	77,110.18	50.92	898.74	209.54	62.65
Oregon	283	70,067.80	60.55	949.11	247.59	61.80
Pennsylvania						
PA-Philadelphia County	491	33,028.94	18.45	225.39	67.27	44.95
PA-Rest of State	414	180,490.97	11.37	1,401.78	435.97	46.23
Rhode Island	308	19,606.26	17.75	241.68	63.66	66.57
South Carolina	471	87,485.92	33.68	728.74	185.75	62.44
South Dakota	417	16,355.15	13.19	173.92	39.22	53.86

Table D.1: Distribution of Sampling Weights for Children with Completed Household Interviews (RDDWT), National Immunization Survey, 2008

State/Estimation Area	n	Sum	Minimum	Maximum	Mean	Coefficient of Variation
Tennessee	452	122,672.20	34.13	1,548.33	271.40	79.97
Texas						
TX-Bexar County	384	37,909.70	14.38	559.28	98.72	77.92
TX-City of Houston	379	71,627.61	35.98	758.15	188.99	66.65
TX-Dallas County	413	65,320.06	31.78	750.98	158.16	68.86
TX-El Paso County	349	21,101.52	23.10	166.88	60.46	45.23
TX-Rest of State	347	381,167.77	47.09	4,923.34	1,098.47	66.77
Utah	299	73,182.49	28.31	1,167.25	244.76	73.27
Vermont	303	9,744.02	12.43	80.03	32.16	45.53
Virginia	358	157,490.04	7.55	2,265.76	439.92	79.38
Washington						
WA-Rest of State	270	88,176.48	36.88	1,328.74	326.58	59.89
WA-Western/Eastern WA	320	38,056.12	29.45	437.00	118.93	43.70
West Virginia	412	29,123.94	17.15	337.73	70.69	62.73
Wisconsin	307	105,348.16	114.51	1,226.49	343.15	53.17
Wyoming	345	10,635.55	11.24	95.77	30.83	47.28

Table D.2: Distribution of Sampling Weights for Children with Adequate Provider Data (PROVWT), National Immunization Survey, 2008

State/Estimation Area	n	Sum	Minimum	Maximum	Mean	Coefficient of Variation
Total U.S.	18,430	6,168,021.00	8.10	7,644.98	334.67	144.19
Alabama	339	89,650.93	58.15	1,392.01	264.46	64.52
Alaska	250	15,271.38	15.04	232.01	61.09	62.36
Arizona	275	150,253.77	91.65	2,328.39	546.38	64.49
Arkansas	347	57,579.87	18.01	955.76	165.94	86.56
California						
CA-Los Angeles County	291	224,944.61	103.13	1,952.03	773.01	38.11
CA-Northern CA	231	16,024.65	18.24	205.68	69.37	52.84
CA-Rest of State	220	542,735.16	68.13	6,486.63	2,466.98	50.38
CA-Santa Clara County	208	40,278.68	56.65	610.55	193.65	61.45
Colorado	305	103,235.38	49.29	2,578.73	338.48	113.85
Connecticut	227	62,501.34	68.22	1,101.26	275.34	62.17
Delaware	290	17,151.07	15.53	318.14	59.14	69.91
District of Columbia	269	11,030.10	9.26	194.79	41.00	66.91
Florida						
FL-Dade County	264	51,798.20	29.36	1,065.53	196.21	81.10
FL-Orange County	255	25,380.84	13.58	457.69	99.53	79.44
FL-Rest of State	237	270,017.21	21.01	5,913.02	1,139.31	78.41
Georgia	299	217,112.13	91.75	3,809.68	726.13	79.37
Hawaii	238	26,308.74	14.87	566.60	110.54	61.21
Idaho	282	33,939.45	35.73	498.08	120.35	53.94
Illinois						
IL-City of Chicago	318	66,315.75	47.85	1,030.07	208.54	67.66
IL-Madison & St. Clair	316	10,116.24	8.10	147.10	32.01	70.84
IL-Rest of State	335	184,460.63	13.64	2,845.15	550.63	80.46
Indiana	301	127,693.37	122.63	3,005.48	424.23	83.62
Iowa	262	56,769.76	116.89	665.69	216.68	41.86
Kansas	303	61,243.09	39.26	1,134.00	202.12	78.98
Kentucky	272	82,272.55	87.02	1,239.26	302.47	60.76
Louisiana	340	87,854.84	19.05	1,161.60	258.40	69.33
Maine	275	20,246.11	18.21	211.47	73.62	49.90
Maryland						
MD-City of Baltimore	294	14,151.68	10.62	202.23	48.13	68.19

Table D.2: Distribution of Sampling Weights for Children with Adequate Provider Data (PROVWT), National Immunization Survey, 2008

State/Estimation Area	n	Sum	Minimum	Maximum	Mean	Coefficient of Variation
MD-Rest of State	316	100,321.28	8.40	1,206.09	317.47	70.72
Massachusetts	266	114,230.27	28.77	1,650.06	429.44	70.99
Michigan	282	185,840.42	139.04	2,287.54	659.01	70.23
Mississippi	377	61,061.92	34.72	780.16	161.97	75.56
Missouri	315	116,004.89	93.51	1,279.02	368.27	61.02
Minnesota						
MN-Rest of State	117	46,110.58	124.10	1,351.05	394.11	65.78
MN-Twin City Area	245	59,555.69	70.51	966.81	243.08	59.90
Montana	268	17,516.54	26.20	205.49	65.36	48.84
Nebraska	316	37,751.58	19.71	390.73	119.47	59.63
Nevada	246	59,447.04	62.45	778.96	241.65	51.40
New Hampshire	241	21,224.87	23.05	232.18	88.07	36.86
New Jersey	322	170,612.29	40.24	2,131.81	529.85	68.70
New Mexico	280	41,344.66	32.50	923.18	147.66	79.21
New York	267	175,786.23	115.93	1,936.24	658.38	50.13
NY-City of New York						
NY-Rest of State	262	184,751.00	101.18	2,330.85	705.16	48.05
North Carolina	318	185,291.19	146.30	2,165.41	582.68	62.17
North Dakota	269	11,597.02	15.56	139.69	43.11	42.05
Ohio	300	217,535.13	134.11	2,720.72	725.12	69.64
Oklahoma	261	77,110.18	70.23	1,095.87	295.44	60.90
Oregon	224	70,067.80	70.54	1,116.69	312.80	64.66
Pennsylvania						
PA-Philadelphia County	320	33,028.94	27.64	420.56	103.22	51.95
PA-Rest of State	289	180,490.97	108.22	2,198.30	624.54	53.91
Rhode Island	224	19,606.26	22.51	311.57	87.53	65.78
South Carolina	345	87,485.92	48.77	1,009.85	253.58	64.52
South Dakota	305	16,355.15	18.39	235.58	53.62	57.04
Tennessee	335	122,672.20	65.13	1,845.83	366.19	80.30
Texas						
TX-Bexar County	288	37,909.70	17.43	870.27	131.63	79.58
TX-City of Houston	269	71,627.61	47.08	1,017.67	266.27	65.65
TX-Dallas County	299	65,320.06	34.74	919.48	218.46	68.32
TX-El Paso County	281	21,101.52	25.00	217.29	75.09	43.97

Table D.2: Distribution of Sampling Weights for Children with Adequate Provider Data (PROVWT), National Immunization Survey, 2008

State/Estimation Area	n	Sum	Minimum	Maximum	Mean	Coefficient of Variation
TX-Rest of State	240	381,167.77	51.30	7,644.98	1,588.20	80.17
Utah	232	73,182.49	32.75	1,551.91	315.44	81.13
Vermont	232	9,744.02	17.23	124.86	42.00	48.69
Virginia	225	157,490.04	12.91	3,820.37	699.96	89.70
Washington						
WA-Rest of State	193	88,176.48	45.13	1,882.41	456.87	60.17
WA-Western/Eastern WA	237	38,056.12	32.53	648.66	160.57	46.13
West Virginia	300	29,123.94	23.94	564.48	97.08	68.73
Wisconsin	222	105,348.16	132.83	1,667.23	474.54	57.61
Wyoming	259	10,635.55	14.46	134.75	41.06	43.63

Appendix E

Flags for Inconsistent Values in the Breastfeeding Data

Two different types of inconsistency can arise in breastfeeding data. The first is that the duration of any breastfeeding can exceed the age of the child, and the second is that the age of the child when first fed formula can exceed the age of child. BF_ENDR06 stores the duration of any breastfeeding, and BF_ENDFL06 flags the inconsistency; BF_FORMR08 stores the age of the child when first fed formula, and BF_FORMFL06 flags the inconsistency.

1. **Both BF_ENDR06 and BF_FORMR08 are formulated using the following conversion factors:**

   if unit=1(days) then BF_ENDR06 = number x 1
   if unit=2(weeks) then BF_ENDR06 = number x 7
   if unit=3(months) then BF_ENDR06 = number x 30.4375
   if unit=4(years) then BF_ENDR06 = number x 365.25

   if unit=1(days) then BF_FORMR08 = number x 1
   if unit=2(weeks) then BF_FORMR08 = number x 7
   if unit=3(months) then BF_FORMR08 = number x 30.4375
   if unit=4(years) then BF_FORMR08 = number x 365.25

2. **Flagging BF_ENDR06 when the duration of any breastfeeding exceeds the age in days with a buffer for different units:**

   if unit=1(days) flag when BF_ENDR06 > age + 1
   if unit=2(weeks) flag when BF_ENDR06 > age + 3
   if unit=3(months) flag when BF_ENDR06 > age + 15
   if unit=4(years) flag when BF_ENDR06 > age + 182

The different buffers allow for the impact of rounding durations upward in the specified units (for example, 50 days might be reported as 2 months).

3. **Flagging BF_FORMR08 when the age when first fed formula exceeds the age in days with a buffer for different units:**

   if unit=1(days) flag when BF_FORMR08 > age + 1
   if unit=2(weeks) flag when BF_FORMR08 > age + 3
   if unit=3(months) flag when BF_FORMR08 > age + 15
   if unit=4(years) flag when BF_FORMR08 > age + 182

The different buffers allow for the impact of rounding durations upward in the specified units (for example, 50 days might be reported as 2 months).

Appendix F

Disposition of Children with Respect to Provider Record Check

Table F.1: Disposition of Children with Respect to Provider Record Check, National Immunization Survey, 2008

Number of Children	Disposition Code Number and Definition
5,323	1 = All identified providers responded, no problems indicated in cross-check between household and provider shot dates.
11,898	2 = All identified providers responded, no NIS shot card to cross check.
329	3 = All identified providers responded, poor immunization history matching results.
57	4 = All identified providers responded, poor immunization history matching results, additional mismatch indicators present.
492	5 = Some but not all identified providers responded, but provider information indicates 4:3:1:3:3 up-to-date.
13	6 = Some but not all identified providers responded, but provider information matches NIS shot card immunization history.
85	7 = Some but not all identified providers responded, completeness of provider immunization history is unknown.
8	8 = Some but not all identified providers responded, but provider information indicates 4:3:1:3:3 up-to-date when post-RDD-interview immunizations are included.
12	9 = Some but not all identified providers responded, but provider information indicates at least as many doses for each vaccine as the RDD respondent (or at least 1 dose for MCV).
147	10 = Some but not all identified providers responded, but the household reported an inexact number of vaccinations ("All","Don't Know," "Refused," or missing) for one or more vaccines and any exact responses meet previous criteria (for DISPCODE 9).
0	11 = Some but not all identified providers responded, but a definite number of shots was reported by household not from a shot card for one or more vaccines and any other vaccines meet previous criteria (for DISPCODE 9 or 10).
18,364	TOTAL

Notes: The criteria for all dispositions (except 7) are applied in order. A case where some but not all providers responded is assigned disposition 7 if it does not qualify for dispositions 5, 6, 8, 9, 10 or 11.

When checking the criteria for dispositions 10 and 11, the provider history must contain at least three distinct vaccination dates (visits) for the provider immunization count to be accepted for vaccines for which an inexact response was reported, from recall, in the household survey.

Appendix G

Examples of the Use of SUDAAN, SAS and R to Estimate Vaccination Coverage Rates and their Standard Errors, and How to Produce a Cross-Tabulation and Chart

A. SUDAAN

```
**********************;
title1 'SUD_IAP.SAS';
*********************************************************************
THIS PROGRAM WILL PRODUCE ESTIMATION AREA ESTIMATES AND STANDARD ERRORS
FOR PUTD4313 USING SAS CALLABLE SUDAAN.
SUDAAN NOTES:
1. ALL VARIABLES USED MUST BE NUMERIC.
2. VARIABLES IN THE SUBGROUP STATEMENT MUST HAVE VALUES 1,2,..K
WHERE K IS THE NUMBER OF LEVELS FOR EACH VARIABLE.
3. DATA MUST BE SORTED ACCORDING TO THE SAMPLE DESIGN VARIABLES
(STRATUM AND PRIMARY SAMPLING UNIT), SPECIFIED IN THE
NEST STATEMENT.
*********************************************************************;
options ps=78 ls=90 obs= max;

libname dd 'c\nispuf08'; *--- SPECIFY PATH TO SAS DATASET ---*;
libname library 'c:\nispuf08'; *--- IF DATASET WAS CREATED WITH FORMATS
STORED ---*;

*--- PERMANENTLY SPECIFY PATH TO LIBRARY ---*;
*--- OTHERWISE COMMENT THIS STATEMENT OUT ---*;
%let in_file=dd.nispuf08; *--- NAME OF SAS DATASET ---*;
%let estiap=estiap08; * --- ESTIMATION AREA VARIABLE TO USE ---*;
%let wt=provwt; * --- WEIGHT TO USE ---*;

data sud_file;
set &in_file(keep= seqnumhh seqnumc putd4313 &estiap &wt);
if putd4313=0 then putd4313=2; *--- CONVERT PUTD4313=0 TO PUTD4313=2 ---*;
nseqnumh=1*seqnumhh; *---CONVERT HOUSEHOLD ID SEQNUMHH FROM CHARACTER TO
NUMERIC ---*;
if &estiap.=774 then &estiap.=100; *--- RENUMBER ESTIMATION AREA 774 ---*;
```

```
run;


Proc format;
/*
THE FOLLOWING FORMAT WILL BE USED FOR PUTD4313.
ORIGINAL VALUES OF PUTD4313 ARE 1,0.
MUST BE CONVERTED TO 1,2 IN SUDAAN.
*/
value put4313f
1='4:3:1:3 Up-to-Date'
2='Not 4:3:1:3 Up-to-Date';

value estiapf
. = "Missing"
0 = "US Total"
1 = "CT"
2 = "MA"
4 = "ME"
5 = "NH"
6 = "RI"
7 = "VT"
8 = "NJ"
10 = "NY-REST OF STATE"
11 = "NY-CITY OF NEW YORK"
12 = "DC"
13 = "DE"
14 = "MD-REST OF STATE"
15 = "MD-CITY OF BALTIMORE"
16 = "PA-REST OF STATE"
17 = "PA-PHILADELPHIA COUNTY"
18 = "VA"
19 = "WV"
20 = "AL"
22 = "FL-REST OF STATE"
24 = "FL-MIAMI-DADE COUNTY"
25 = "GA"
27 = "KY"
28 = "MS"
29 = "NC"
30 = "SC"
31 = "TN"
34 = "IL-REST OF STATE"
35 = "IL-CITY OF CHICAGO"
36 = "IN"
38 = "MI"
40 = "MN-REST OF STATE"
41 = "OH"
44 = "WI"
46 = "AR"
47 = "LA"
49 = "NM"
50 = "OK"
51 = "TX-REST OF STATE"
52 = "TX-DALLAS COUNTY"
53 = "TX-EL PASO COUNTY"
```

```
54 = "TX-CITY OF HOUSTON"
55 = "TX-BEXAR COUNTY"
56 = "IA"
57 = "KS"
58 = "MO"
59 = "NE"
60 = "CO"
61 = "MT"
62 = "ND"
63 = "SD"
64 = "UT"
65 = "WY"
66 = "AZ"
68 = "CA-REST OF STATE"
69 = "CA-LOS ANGELES COUNTY"
70 = "CA-SANTA CLARA COUNTY"
72 = "HI"
73 = "NV"
74 = "AK"
75 = "ID"
76 = "OR"
77 = "WA-REST OF STATE"
85 = "CA-NORTHERN CA"
91 = "FL-ORANGE COUNTY"
92 = "IL-MADISON/ST. CLAIR COUNTIES"
93 = "MN-TWIN CITIES"
100 = "WA-EASTERN/WESTERN WA"
;
run;

*=== SORT BY NEST VARIABLES: ESTIAP (STRATUM) NSEQNUMH (PRIMARY SAMPLING
UNIT) ===*;
proc sort;
by &estiap nseqnumh;
proc crosstab data=sud_file filetype=sas design=wr;
weight &wt;
nest &estiap nseqnumh;
subgroup &estiap putd4313 ;
levels 100 2 ;
tables &estiap * putd4313 ;
print nsum wsum rowper serow/style=nchs ;
rtitle "4:3:1:3 ESTIMATES BY Estimation Area";
rformat &estiap estiapf.;
rformat putd4313 put4313f.;
output rowper serow/filename=sud_est filetype=sas;
proc print data=sud_est(where=(putd4313=1 and rowper ne .)) noobs label;
format &estiap estiapf.;
var &estiap rowper serow ;
label
rowper='Percent 4:3:1:3 Up-to-Date'
serow='Standard Error'
;
title "4:3:1:3 ESTIMATES BY Estimation Area";
run;
```

```
*********************;
title1 'SUDSTATE.SAS';
*************************************************************************
THIS PROGRAM WILL PRODUCE STATE ESTIMATES AND STANDARD ERRORS
FOR PUTD4313 USING SAS CALLABLE SUDAAN.
NOTE : THE STATE VARIABLE IS BASED ON FIPSTATE CODES ,THERE ARE
NO STATES WITH FIPS CODES 3,7,14,43,52.
SUDAAN NOTES:
1. ALL VARIABLES USED MUST BE NUMERIC.
2. VARIABLES IN THE SUBGROUP STATEMENT MUST HAVE VALUES 1,2,..K
WHERE K IS THE NUMBER OF LEVELS FOR EACH VARIABLE.
3. DATA MUST BE SORTED ACCORDING TO THE SAMPLE DESIGN VARIABLES
(STRATUM AND PRIMARY SAMPLING UNIT), SPECIFIED IN THE
NEST STATEMENT.
*************************************************************************;
options ps=78 ls=90 obs= max;

libname dd 'c:\nispuf08'; *--- SPECIFY PATH TO SAS DATASET ---*;
libname library 'c:\nispuf08'; *--- IF DATASET WAS CREATED WITH FORMATS
STORED ---*;

*--- PERMANENTLY SPECIFY PATH TO LIBRARY ---*;
*--- OTHERWISE COMMENT THIS STATEMENT OUT ---*;
%let in_file=dd.nispuf08; *--- NAME OF SAS DATASET ---*;
%let estiap=estiap08; * --- ESTIMATION VARIABLE TO USE ---*;
%let wt=provwt; *--- WEIGHT TO USE ---*;
PROC FORMAT;
/*
THE FOLLOWING FORMAT WILL BE USED FOR PUTD4313.
ORIGINAL VALUES OF PUTD4313 ARE 1,0.
MUST BE CONVERTED TO 1,2 IN SUDAAN.
*/
value put4313f
1='4:3:1:3 Up-to-Date'
2='Not 4:3:1:3 Up-to-Date'
;
value statef
0 ='U.S. Total'
1 ='Alabama '
2 ='Alaska '
4 ='Arizona '
5 ='Arkansas '
6 ='California '
8 ='Colorado '
9 ='Connecticut '
10 ='Delaware '
11 ='District of Columbia'
12 ='Florida '
13 ='Georgia '
15 ='Hawaii '
16 ='Idaho '
17 ='Illinois '
18 ='Indiana '
19 ='Iowa '
20 ='Kansas '
21 ='Kentucky '
```

```
22 ='Louisiana '
23 ='Maine '
24 ='Maryland '
25 ='Massachusetts '
26 ='Michigan '
27 ='Minnesota '
28 ='Mississippi '
29 ='Missouri '
30 ='Montana '
31 ='Nebraska '
32 ='Nevada '
33 ='New Hampshire '
34 ='New Jersey '
35 ='New Mexico '
36 ='New York '
37 ='North Carolina '
38 ='North Dakota '
39 ='Ohio '
40 ='Oklahoma '
41 ='Oregon '
42 ='Pennsylvania '
44 ='Rhode Island '
45 ='South Carolina '
46 ='South Dakota '
47 ='Tennessee '
48 ='Texas '
49 ='Utah '
50 ='Vermont '
51 ='Virginia '
53 ='Washington '
54 ='West Virginia '
55 ='Wisconsin '
56 ='Wyoming '
;
data sud_file;
set &in_file(keep= seqnumhh seqnumc putd4313 &estiap state &wt);
if putd4313=0 then putd4313=2; *** CONVERT PUTD4313=0 TO PUTD4313=2 ***;
nseqnumh=1*seqnumhh; *** CONVERT HOUSEHOLD ID SEQNUMH FROM CHARACTER TO
NUMERIC ***;
*=== SORT BY NEST VARIABLES: ESTIAP (STRATUM) NSEQNUMH (PRIMARY SAMPLING
UNIT) ===*;
proc sort;
by &estiap nseqnumh;
proc crosstab data=sud_file filetype=sas design=wr;
weight &wt;
nest &estiap nseqnumh;
subgroup state putd4313 ;
levels 56 2 ;
tables state * putd4313 ;
print nsum wsum rowper serow/style=nchs ;
rtitle "4:3:1:3 ESTIMATES BY STATE";
rformat state statef.;
rformat putd4313 put4313f.;
output rowper serow / filename=sud_est2 filetype=sas;
*** EXCLUDE 3,7,14,43,52 THERE ARE NO STATES WITH THESE FIPS CODES *** ;
proc print data=sud_est2(where=(putd4313=1
& state notin (3,7,14,43,52))) label noobs;
```

```
format state statef.;
var state rowper serow ;
label
rowper='Percent 4:3:1:3 Up-to-Date'
serow='Standard Error'
;
title "4:3:1:3 ESTIMATES BY STATE";
run;

**********************;
title1 'PROG_3.SAS';
*************************************************************************
THIS PROGRAM WILL PRODUCE A TABLE OF HAD_CPOX BY STATE FOR ALL RDD
COMPLETES USING RDDWT. THE PROGRAM USES SAS CALLABLE SUDAAN.
SUDAAN NOTES:
1. ALL VARIABLES USED MUST BE NUMERIC.
2. VARIABLES IN THE SUBGROUP STATEMENT MUST HAVE VALUES 1,2,..K
WHERE K IS THE NUMBER OF LEVELS FOR EACH VARIABLE.
3. DATA MUST BE SORTED ACCORDING TO THE SAMPLE DESIGN VARIABLES
(STRATUM AND PRIMARY SAMPLING UNIT), SPECIFIED IN THE
NEST STATEMENT.
*************************************************************************;
options ps=78 ls=90 obs= max;
options ps=78 ls=90 obs= max;

libname dd 'c:\nispuf08'; *--- SPECIFY PATH TO SAS DATASET ---*;
libname library 'c:nispuf08'; *--- IF DATASET WAS CREATED WITH FORMATS
STORED ---*;

*--- PERMANENTLY SPECIFY PATH TO LIBRARY ---*;
*--- OTHERWISE COMMENT THIS STATEMENT OUT ---*;
%let in_file=dd.nispuf08; *--- NAME OF SAS DATASET ---*;
%let estiap=estiap08; * --- ESTIMATION VARIABLE TO USE ---*;
%let wt=rddwt; *--- WEIGHT TO USE ---*;
PROC FORMAT;
/*
THE FOLLOWING FORMAT WILL BE USED FOR PUTD4313.
ORIGINAL VALUES OF PUTD4313 ARE 1,0.
MUST BE CONVERTED TO 1,2 IN SUDAAN.
*/
value hadcpoxf
1='Yes'
2='No'
;
value statef
0 ='U.S. Total '
1 ='Alabama '
2 ='Alaska '
4 ='Arizona '
5 ='Arkansas '
6 ='California '
8 ='Colorado '
9 ='Connecticut '
10 ='Delaware '
11 ='District of Columbia'
12 ='Florida '
13 ='Georgia '
```

```
15 ='Hawaii '
16 ='Idaho '
17 ='Illinois '
18 ='Indiana '
19 ='Iowa '
20 ='Kansas '
21 ='Kentucky '
22 ='Louisiana '
23 ='Maine '
24 ='Maryland '
25 ='Massachusetts '
26 ='Michigan '
27 ='Minnesota '
28 ='Mississippi '
29 ='Missouri '
30 ='Montana '
31 ='Nebraska '
32 ='Nevada '
33 ='New Hampshire '
34 ='New Jersey '
35 ='New Mexico '
36 ='New York '
37 ='North Carolina '
38 ='North Dakota '
39 ='Ohio '
40 ='Oklahoma '
41 ='Oregon '
42 ='Pennsylvania '
44 ='Rhode Island '
45 ='South Carolina '
46 ='South Dakota '
47 ='Tennessee '
48 ='Texas '
49 ='Utah '
50 ='Vermont '
51 ='Virginia '
53 ='Washington '
54 ='West Virginia '
55 ='Wisconsin '
56 ='Wyoming '
;
data sud_file;
set &in_file(keep= seqnumhh seqnumc &estiap state had_cpox &wt);
nseqnumh=1*seqnumhh; *** CONVERT HOUSEHOLD ID SEQNUMH FROM CHARACTER TO
NUMERIC ***;
*=== SORT BY NEST VARIABLES: ESTIAP (STRATUM) NSEQNUMH (PRIMARY SAMPLING
UNIT) ===*;
proc sort;
by &estiap nseqnumh;
proc crosstab data=sud_file filetype=sas design=wr;
weight &wt;
nest &estiap nseqnumh;
subgroup state had_cpox ;
levels 56 2 ;
tables state * had_cpox ;
print nsum wsum rowper serow/style=nchs ;
rtitle "HAD_CPOX ESTIMATES BY STATE";
```

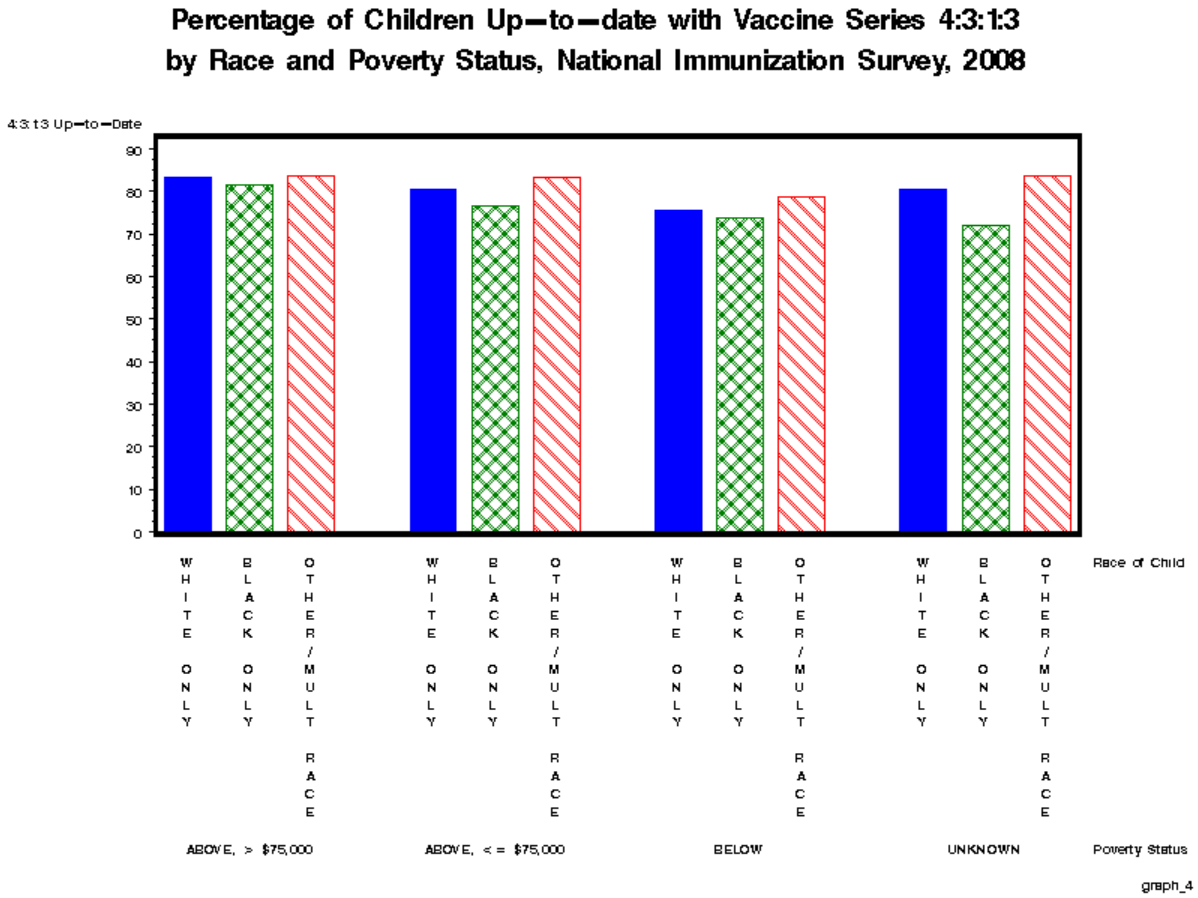
```
rtitle "WEIGHT = &WT";
rformat state statef.;
rformat had_cpox hadcpoxf.;
output rowper serow / filename=sud_est3 filetype=sas;
*** EXCLUDE 3,7,14,43,52 THERE ARE NO STATES WITH THESE FIPS CODES *** ;
proc print data=sud_est3(where=(had_cpox=1
& state notin (3,7,14,43,52))) label noobs;
format state statef.;
var state rowper serow ;
label
rowper='Percent HAD_CPOX = Yes'
serow='Standard Error'
;
title "CHILD HAD CHICKEN POX BY ESTIMATION AREA";
run;

**********;
title1 'PROG_4.SAS';
*********************************************************************
TABLE OF PUTD4313 BY INCPOV1 BY RACE_K. SAVE % UTD
ESTIMATES (NOT S.E.'S) FOR USE IN THE PROGRAM CHART_4.
THIS PROGRAM WILL PRODUCE ESTIMATES USING SAS CALLABLE SUDAAN.
SUDAAN NOTES:
1. ALL VARIABLES USED MUST BE NUMERIC.
2. VARIABLES IN THE SUBGROUP STATEMENT MUST HAVE VALUES 1,2,..K
WHERE K IS THE NUMBER OF LEVELS FOR EACH VARIABLE.
3. DATA MUST BE SORTED ACCORDING TO THE SAMPLE DESIGN VARIABLES
(STRATUM AND PRIMARY SAMPLING UNIT), SPECIFIED IN THE
NEST STATEMENT.
*********************************************************************;
options ps=78 ls=90 obs= max;

libname dd 'c:\nispuf08'; *--- SPECIFY PATH TO SAS DATASET ---*;
libname library 'c:\nispuf08'; *--- IF DATASET WAS CREATED WITH FORMATS
STORED ---*;

*--- PERMANENTLY SPECIFY PATH TO LIBRARY ---*;
*--- OTHERWISE COMMENT THIS STATEMENT OUT ---*;
/*libname out 'c:\nispuf06'; *--- SPECIFY THE PATH FOR WHERE YOU WANT THE
CHART OUTPUT TO GO ---*;*/

libname out 'c:\nispuf08'; *--- SPECIFY THE PATH FOR WHERE YOU WANT THE
CHART OUTPUT TO GO ---*;

%let in_file=dd.nispuf08; *--- NAME OF SAS DATASET ---*;
%let estiap=estiap08; * --- ESTIMATION VARIABLE TO USE ---*;
%let wt=provwt; *--- WEIGHT TO USE ---*;
%let qtr_lab=Q1/2008 - Q4/2008; *NIS 4 QUARTER PERIOD*;
PROC FORMAT;
/*
THE FOLLOWING FORMAT WILL BE USED FOR PUTD4313.
ORIGINAL VALUES OF PUTD4313 ARE 1,0.
MUST BE CONVERTED TO 1,2 IN SUDAAN.
*/
value put4313f
1='4:3:1:3 Up-to-date'
2='Not 4:3:1:3 Up-to-date'
```

```
;
VALUE RACE_KF
1 = "WHITE ONLY"
2 = "BLACK ONLY"
3 = "OTHER AND MULTIPLE RACE"
;
VALUE INCPVR2F
1 = "ABOVE, > $75,000"
2 = "ABOVE, <= $75,000"
3 = "BELOW"
4 = "UNKNOWN"
;
value statef
0 ='U.S. Total '
1 ='Alabama '
2 ='Alaska '
4 ='Arizona '
5 ='Arkansas '
6 ='California '
8 ='Colorado '
9 ='Connecticut '
10 ='Delaware '
11 ='District of Columbia'
12 ='Florida '
13 ='Georgia '
15 ='Hawaii '
16 ='Idaho '
17 ='Illinois '
18 ='Indiana '
19 ='Iowa '
20 ='Kansas '
21 ='Kentucky '
22 ='Louisiana '
23 ='Maine '
24 ='Maryland '
25 ='Massachusetts '
26 ='Michigan '
27 ='Minnesota '
28 ='Mississippi '
29 ='Missouri '
30 ='Montana '
31 ='Nebraska '
32 ='Nevada '
33 ='New Hampshire '
34 ='New Jersey '
35 ='New Mexico '
36 ='New York '
37 ='North Carolina '
38 ='North Dakota '
39 ='Ohio '
40 ='Oklahoma '
41 ='Oregon '
42 ='Pennsylvania '
44 ='Rhode Island '
45 ='South Carolina '
46 ='South Dakota '
47 ='Tennessee '
```

```
48 ='Texas '
49 ='Utah '
50 ='Vermont '
51 ='Virginia '
53 ='Washington '
54 ='West Virginia '
55 ='Wisconsin '
56 ='Wyoming '
;
data sud_file;
set &in_file(keep= seqnumhh seqnumc putd4313 &estiap race_k incpov1 &wt);
nseqnumh=1*seqnumhh; *** CONVERT HOUSEHOLD ID SEQNUMH FROM CHARACTER TO
NUMERIC ***;
if putd4313=0 then putd4313=2; *** CONVERT PUTD4313=0 TO PUTD4313=2 ***;
*=== SORT BY NEST VARIABLES: ESTIAP (STRATUM) NSEQNUMH (PRIMARY SAMPLING
UNIT) ===*;
proc sort;
by &estiap nseqnumh;
proc freq;
tables putd4313 incpov1 race_k;
title3 "Table 4A. &qtr_lab: Unweighted Frequencies";
proc crosstab data=sud_file filetype=sas design=wr;
weight &wt;
nest &estiap nseqnumh;
subgroup incpov1 race_k putd4313 ;
levels 4 3 2 ;
tables (incpov1 * race_k * putd4313) ;
print nsum wsum rowper="4:3:1:3 Up-to-Date (ROWPER)"
serow="Standard Error (SEROW)" /style=nchs ;
rtitle "Table 4B. &qtr_lab, Percent 4:3:1:3 Up-to-Date and Estimated
Standard Errors";
rtitle "WEIGHT = &WT";
rformat putd4313 put4313f.;
rformat incpov1 incpvr2f.;
rformat race_k race_kf.;
output rowper / filename=sud_est4 filetype=sas;
run;
data out.sud_est4;
set sud_est4(where=(putd4313=1 & incpov1 > 0 & race_k > 0));
keep incpov1 race_k rowper;
label rowper='4:3:1:3 Up-to-Date';
format rowper 5.1;
proc print data=out.sud_est4 label;
format race_k race_kf.;
format incpov1 incpvr2f.;
title "&qtr_lab: 4:3:1:3 ESTIMATES BY INCPOV1 BY RACE_K";
run;

**********;
title1 'SAS_GRAPH_4.SAS';
*******************************************************************
THIS PROGRAM BUILDS OFF OF THE PROGRAM SAS_PROG_4. IT PRODUCES A CHART OF
PUTD4313 BY INCPOV1 BY RACE_K. IT CREATES A BAR CHART IN SAS GRAPH FOR
THE 4X3 = 12 CELLS. THE OUTPUT OF THE FOLLOWING EXAMPLE IS ATTACHED AT THE
END.
*******************************************************************;
options ps=78 ls=90 obs= max;
```

```
libname dd 'c:\nispuf08'; *--- SPECIFY PATH TO SAS DATASET ---*;

%let out='c:\nispuf08'; *--- SPECIFY THE PATH FOR WHERE YOU WANT THE CHART
OUTPUT TO GO ---*;


%let in_file=dd.sud_est4; *--- NAME OF SAS DATASET OUTPUT FROM PROG_4 ---
*;
%let qtr_lab=Q1/2008 - Q4/2008; *NIS 4 QUARTER PERIOD*;
PROC FORMAT;
VALUE INCPVR2F
1 = "ABOVE, > $75,000"
2 = "ABOVE, <= $75,000"
3 = "BELOW"
4 = "UNKNOWN"
;
VALUE RACE_KF
1 = "WHITE ONLY"
2 = "BLACK ONLY"
3 = "OTHER/MULT RACE"
;
data sud_est4;
set &in_file;
format rowper 3.
race_k race_kf.
incpov1 incpvr2f.
;
label
race_k = 'Race of Child'
incpov1 = 'Poverty Status'
;
filename odsout &out;
ods listing close;
/* SET THE GRAPHICS ENVIRONMENT */
goptions reset=global gunit=pct border
ftext=swissb htitle=4 htext=1.5
device=gif
;
ods html body='graph_4_sud.html' path=odsout;
TITLE1 HEIGHT=3 "Percentage of Children Up-to-date with Vaccine Series
4:3:1:3";
TITLE2 HEIGHT=3 "by Race and Poverty Status, National Immunization Survey,
2008";
footnote j=r 'graph_4sud';
pattern1 value = solid color = blue;
pattern2 value = x3 color = green;
pattern3 value = l3 color = red;
pattern4 value = empty color = lib;
axis width = 3;
proc gchart data=sud_est4;
vbar race_k
/frame
discrete
sumvar=rowper
group=incpov1
gspace = 5
```

```
gaxis = axis
raxis = axis
name = 'graph_4_sud'
patternid = midpoint
;
run;
quit;
ods html close;
ods listing;
ods html close;
ods listing;
```



B. SAS

```
**********************;
title1 'SAS_IAP.SAS';
*********************************************************************
THIS PROGRAM WILL PRODUCE ESTIMATION AREA ESTIMATES AND STANDARD ERRORS
FOR PUTD4313 USING SAS.
*********************************************************************;
options ps=78 ls=90 obs= max;

libname dd 'c:\nispuf08'; *--- SPECIFY PATH TO SAS DATASET ---*;
libname library 'c:\nispuf08'; *--- IF DATASET WAS CREATED WITH FORMATS
STORED ---*;

*--- PERMANENTLY SPECIFY PATH TO LIBRARY ---*;
*--- OTHERWISE COMMENT THIS STATEMENT OUT ---*;
%let in_file=dd.nispuf08; *--- NAME OF SAS DATASET ---*;
%let estiap=estiap08; * --- ESTIMATION AREA VARIABLE TO USE ---*;
%let wt=provwt; * --- WEIGHT TO USE ---*;
proc format;
value put4313f
0='Not 4:3:1:3 Up-To-Date'
1='4:3:1:3 Up-To-Date';

value estiapf
. ="Missing"
0 = "US Total"
1 = "CT"
2 = "MA"
4 = "ME"
5 = "NH"
6 = "RI"
7 = "VT"
8 = "NJ"
10 = "NY-REST OF STATE"
11 = "NY-CITY OF NEW YORK"
12 = "DC"
13 = "DE"
14 = "MD-REST OF STATE"
15 = "MD-CITY OF BALTIMORE"
16 = "PA-REST OF STATE"
17 = "PA-PHILADELPHIA COUNTY"
18 = "VA"
19 = "WV"
20 = "AL"
22 = "FL-REST OF STATE"
24 = "FL-MIAMI-DADE COUNTY"
25 = "GA"
27 = "KY"
28 = "MS"
29 = "NC"
30 = "SC"
31 = "TN"
34 = "IL-REST OF STATE"
35 = "IL-CITY OF CHICAGO"
```

```
36 = "IN"
38 = "MI"
40 = "MN-REST OF STATE"
41 = "OH"
44 = "WI"
46 = "AR"
47 = "LA"
49 = "NM"
50 = "OK"
51 = "TX-REST OF STATE"
52 = "TX-DALLAS COUNTY"
53 = "TX-EL PASO COUNTY"
54 = "TX-CITY OF HOUSTON"
55 = "TX-BEXAR COUNTY"
56 = "IA"
57 = "KS"
58 = "MO"
59 = "NE"
60 = "CO"
61 = "MT"
62 = "ND"
63 = "SD"
64 = "UT"
65 = "WY"
66 = "AZ"
68 = "CA-REST OF STATE"
69 = "CA-LOS ANGELES COUNTY"
70 = "CA-SANTA CLARA COUNTY"
72 = "HI"
73 = "NV"
74 = "AK"
75 = "ID"
76 = "OR"
77 = "WA-REST OF STATE"
85 = "CA-NORTHERN CA"
91 = "FL-ORANGE COUNTY"
92 = "IL-MADISON/ST. CLAIR COUNTIES"
93 = "MN-TWIN CITIES"
774 = "WA-EASTERN/WESTERN WA"
;
run;
data sas_file;
set &in_file(keep= seqnumhh seqnumc putd4313 &estiap &wt);
proc sort data = sas_file;
by &estiap;
title1 '4:3:1:3 ESTIMATES BY Estimation Area';
ods output Statistics=sas_est;
proc surveymeans data = sas_file nobs sum mean stderr;
stratum &estiap;
cluster seqnumhh;
weight &wt;
class putd4313;
var putd4313;
by &estiap;
format putd4313 put4313f.;
format &estiap estiapf.;
data sas_est;
```

```
set sas_est;
mean = mean*100; *CONVERT TO PERCENT ESTIMATES;
stderr = stderr*100;
proc print data=sas_est(where=(varlevel='4:3:1:3 Up-To-Date')) noobs
label;
format &estiap estiapf.;
format mean stderr 5.2;
var &estiap mean stderr;
label
mean='Percent 4:3:1:3 Up-to-Date'
stderr='Standard Error';
title "4:3:1:3 ESTIMATES BY Estimation Area";
run;
**********************;
title1 'SASSTATE.SAS';
*********************************************************************
THIS PROGRAM WILL PRODUCE STATE ESTIMATES AND STANDARD ERRORS
FOR PUTD4313 USING SAS.
NOTE : THE STATE VARIABLE IS BASED ON FIPSTATE CODES ,THERE ARE
NO STATES WITH FIPS CODES 3,7,14,43,52.
*********************************************************************;
options ps=78 ls=90 obs= max;

libname dd 'c:\nispuf08'; *--- SPECIFY PATH TO SAS DATASET ---*;
libname library 'c:\nispuf08'; *--- IF DATASET WAS CREATED WITH FORMATS
STORED ---*;
*--- PERMANENTLY SPECIFY PATH TO LIBRARY ---*;
*--- OTHERWISE COMMENT THIS STATEMENT OUT ---*;

%let in_file=dd.nispuf08; *--- NAME OF SAS DATASET ---*;
%let estiap=estiap08; * --- ESTIMATION AREA VARIABLE TO USE ---*;
%let wt=provwt; * --- WEIGHT TO USE ---*;
proc format;
value put4313f
0='Not 4:3:1:3 Up-To-Date'
1='4:3:1:3 Up-To-Date';
value statef
. ="Missing"
0 ='U.S. Total '
1 ='Alabama '
2 ='Alaska '
4 ='Arizona '
5 ='Arkansas '
6 ='California '
8 ='Colorado '
9 ='Connecticut '
10 ='Delaware '
11 ='District of Columbia'
12 ='Florida '
13 ='Georgia '
15 ='Hawaii '
16 ='Idaho '
17 ='Illinois '
18 ='Indiana '
19 ='Iowa '
20 ='Kansas '
21 ='Kentucky '
```

```
22 ='Louisiana '
23 ='Maine '
24 ='Maryland '
25 ='Massachusetts '
26 ='Michigan '
27 ='Minnesota '
28 ='Mississippi '
29 ='Missouri '
30 ='Montana '
31 ='Nebraska '
32 ='Nevada '
33 ='New Hampshire '
34 ='New Jersey '
35 ='New Mexico '
36 ='New York '
37 ='North Carolina '
38 ='North Dakota '
39 ='Ohio '
40 ='Oklahoma '
41 ='Oregon '
42 ='Pennsylvania '
44 ='Rhode Island '
45 ='South Carolina '
46 ='South Dakota '
47 ='Tennessee '
48 ='Texas '
49 ='Utah '
50 ='Vermont '
51 ='Virginia '
53 ='Washington '
54 ='West Virginia '
55 ='Wisconsin '
56 ='Wyoming '
;
data sas_file;
set &in_file(keep= seqnumhh seqnumc putd4313 &estiap state &wt);
proc sort data = sas_file;
by state;
title1 '4:3:1:3 ESTIMATES BY STATE';
ods output Statistics=sas_est2;
proc surveymeans data = sas_file nobs sum mean stderr;
stratum &estiap;
cluster seqnumhh;
weight &wt;
class putd4313;
var putd4313;
by state;
format putd4313 put4313f.;
format state statef.;
data sas_est2;
set sas_est2;
mean = mean*100; *CONVERT TO PERCENT ESTIMATES;
stderr = stderr*100;
proc print data=sas_est2(where=(varlevel='4:3:1:3 Up-To-Date')) noobs
label;
format state statef.;
format mean stderr 5.2;
```

```
var state mean stderr;
label
mean='Percent 4:3:1:3 Up-to-Date'
stderr='Standard Error';
title "4:3:1:3 ESTIMATES BY STATE";
run;

**********************;
title1 'SAS_PROG_3.SAS';
*************************************************************************
THIS PROGRAM WILL PRODUCE A TABLE OF HAD_CPOX BY STATE FOR ALL RDD
COMPLETES USING RDDWT. THE PROGRAM USES SAS.
*************************************************************************;
options ps=78 ls=90 obs= max;

libname dd 'c:\nispuf08'; *--- SPECIFY PATH TO SAS DATASET ---*;
libname library 'c:\nispuf08'; *--- IF DATASET WAS CREATED WITH FORMATS
STORED ---*;
*--- PERMANENTLY SPECIFY PATH TO LIBRARY ---*;
*--- OTHERWISE COMMENT THIS STATEMENT OUT ---*;

%let in_file=dd.nispuf08; *--- NAME OF SAS DATASET ---*;
%let estiap=estiap08; * --- ESTIMATION VARIABLE TO USE ---*;
%let wt=rddwt; *--- WEIGHT TO USE ---*;
PROC FORMAT;
value hadcpoxf
1='Yes'
2='No'
;
value statef
0 ='U.S. Total '
1 ='Alabama '
2 ='Alaska '
4 ='Arizona '
5 ='Arkansas '
6 ='California '
8 ='Colorado '
9 ='Connecticut '
10 ='Delaware '
11 ='District of Columbia'
12 ='Florida '
13 ='Georgia '
15 ='Hawaii '
16 ='Idaho '
17 ='Illinois '
18 ='Indiana '
19 ='Iowa '
20 ='Kansas '
21 ='Kentucky '
22 ='Louisiana '
23 ='Maine '
24 ='Maryland '
25 ='Massachusetts '
26 ='Michigan '
27 ='Minnesota '
28 ='Mississippi '
29 ='Missouri '
```

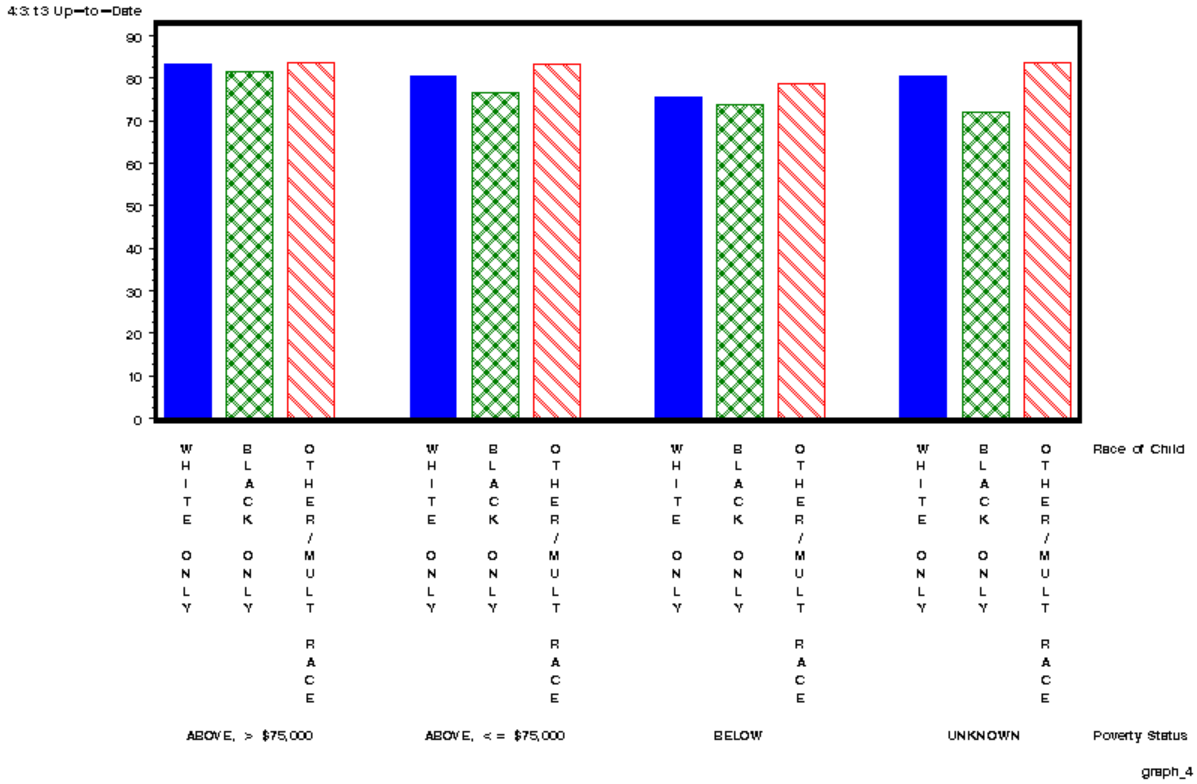
```
30 ='Montana '
31 ='Nebraska '
32 ='Nevada '
33 ='New Hampshire '
34 ='New Jersey '
35 ='New Mexico '
36 ='New York '
37 ='North Carolina '
38 ='North Dakota '
39 ='Ohio '
40 ='Oklahoma '
41 ='Oregon '
42 ='Pennsylvania '
44 ='Rhode Island '
45 ='South Carolina '
46 ='South Dakota '
47 ='Tennessee '
48 ='Texas '
49 ='Utah '
50 ='Vermont '
51 ='Virginia '
53 ='Washington '
54 ='West Virginia '
55 ='Wisconsin '
56 ='Wyoming '
;
data sas_file;
set &in_file(keep= seqnumhh seqnumc &estiap state had_cpox &wt);
proc sort data = sas_file;
by state;
title1 'HAD_CPOX ESTIMATES BY STATE';
ods output Statistics=sas_est3;
proc surveymeans data = sas_file nobs sum mean stderr;
stratum &estiap;
cluster seqnumhh;
weight &wt;
class had_cpox;
var had_cpox;
by state;
format had_cpox hadcpoxf.;
format state statef.;
data sas_est3;
set sas_est3;
mean = mean*100; *CONVERT TO PERCENT ESTIMATES;
stderr = stderr*100;
proc print data=sas_est3(where=(varlevel='Yes')) noobs label;
format state statef.;
format mean stderr 5.2;
var state mean stderr;
label
mean='Percent HAD_CPOX = Yes'
stderr='Standard Error';
title "CHILD HAD CHICKEN POX BY ESTIMATION AREA";
run;
```

```
**********************;
title1 'SAS_PROG_4.SAS';
*************************************************************************
TABLE OF PUTD4313 BY INCPOV1 BY RACE_K. SAVE % UTD
ESTIMATES (NOT S.E.'S) FOR USE IN THE PROGRAM SAS_GRAPH_4.
THIS PROGRAM WILL PRODUCE ESTIMATES USING SAS.
*************************************************************************;
options ps=78 ls=90 obs= max;

libname dd 'c:\nispuf08'; *--- SPECIFY PATH TO SAS DATASET ---*;
libname library 'c:\nispuf08'; *--- IF DATASET WAS CREATED WITH FORMATS
STORED ---*;
*--- PERMANENTLY SPECIFY PATH TO LIBRARY ---*;
*--- OTHERWISE COMMENT THIS STATEMENT OUT ---*;

libname out 'c:\nispuf08'; *--- SPECIFY THE PATH FOR
WHERE YOU WANT THE CHART OUTPUT TO GO ---*;

%let in_file=dd.nispuf08; *--- NAME OF SAS DATASET ---*;
%let estiap=estiap08; * --- ESTIMATION VARIABLE TO USE ---*;
%let wt=provwt; *--- WEIGHT TO USE ---*;
%let qtr_lab=Q1/2008 - Q4/2008; *NIS 4 QUARTER PERIOD*;
PROC FORMAT;
value put4313f
0='Not 4:3:1:3 Up-To-Date'
1='4:3:1:3 Up-To-Date'
;
VALUE RACE_KF
1 = "WHITE ONLY"
2 = "BLACK ONLY"
3 = "OTHER AND MULTIPLE RACE"
;
VALUE INCPVR2F
1 = "ABOVE, > $75,000"
2 = "ABOVE, <= $75,000"
3 = "BELOW"
4 = "UNKNOWN"
;
data sas_file;
set &in_file(keep= seqnumhh seqnumc putd4313 &estiap race_k incpov1 &wt);
proc sort data = sas_file;
by incpov1 race_k;
proc freq;
tables putd4313 incpov1 race_k;
title1 "Table 4A. &qtr_lab: Unweighted Frequencies";
run;
data sas_file;
set sas_file;
if putd4313 < 0 | incpov1 < 0 | race_k < 0 | provwt < 0 then delete;
run;
proc surveymeans data = sas_file nobs sum mean stderr;
ods output Statistics=sas_est4;
stratum &estiap;
cluster seqnumhh;
weight &wt;
class putd4313;
var putd4313;
```

```
by incpov1 race_k;
format putd4313 put4313f.;
format incpov1 incpvr2f.;
format race_k race_kf.;
data sas_est4;
set sas_est4;
mean = mean*100; *CONVERT TO PERCENT ESTIMATES;
stderr = stderr*100;
proc print data=sas_est4(where=(varlevel='4:3:1:3 Up-To-Date')) noobs
label;
format incpov1 incpvr2f.;
format race_k race_kf.;
format mean stderr 5.2;
var incpov1 race_k mean stderr;
label
mean='4:3:1:3 Up-To-Date'
stderr='Standard Error';
title1 "Table 4B. &qtr_lab, Percent 4:3:1:3 Up-to-Date and Estimated
Standard Errors";
run;
data out.sas_est4;
set sas_est4(where=(varlevel='4:3:1:3 Up-To-Date'));
keep incpov1 race_k mean;
label mean='4:3:1:3 Up-to-Date';
format mean 5.2;
proc print data=out.sas_est4 label;
format race_k race_kf.;
format incpov1 incpvr2f.;
title "&qtr_lab: 4:3:1:3 ESTIMATES BY INCPOV1 BY RACE_K";
run;
proc freq data=sas_file;
tables putd4313;
run;

**********************;
title1 'SAS_GRAPH_4.SAS';
*************************************************************************
THIS PROGRAM BUILDS OFF OF THE PROGRAM SAS_PROG_4. IT PRODUCES A CHART OF
PUTD4313 BY INCPOV1 BY RACE_K. IT CREATES A BAR CHART IN SAS GRAPH FOR
THE 4X3 = 12 CELLS. THE OUTPUT OF THE FOLLOWING EXAMPLE IS ATTACHED AT THE
END.
*************************************************************************;
options ps=78 ls=90 obs= max;

libname dd 'c:\nispuf08'; *--- SPECIFY PATH TO SAS DATASET ---*;

%let out='c:\nispuf08'; *--- SPECIFY THE PATH FOR WHERE YOU WANT THE CHART
OUTPUT TO GO ---*;


%let in_file=dd.sas_est4; *--- NAME OF SAS DATASET OUTPUT FROM PROG_4 ---
*;
%let qtr_lab=Q1/2008 - Q4/2008; *NIS 4 QUARTER PERIOD*;
PROC FORMAT;
VALUE INCPVR2F
1 = "ABOVE, > $75,000"
2 = "ABOVE, <= $75,000"
```

```
3 = "BELOW"
4 = "UNKNOWN"
;
VALUE RACE_KF
1 = "WHITE ONLY"
2 = "BLACK ONLY"
3 = "OTHER/MULT RACE"
;
data sas_est4;
set &in_file;
format mean 3.
race_k race_kf.
incpov1 incpvr2f.
;
label
race_k = 'Race of Child'
incpov1 = 'Poverty Status'
;
filename odsout &out;
ods listing close;
/* SET THE GRAPHICS ENVIRONMENT */
goptions reset=global gunit=pct border
ftext=swissb htitle=4 htext=1.5
device=gif
;
ods html body='graph_4.html' path=odsout;
TITLE1 HEIGHT=3 "Percentage of Children Up-to-date with Vaccine Series
4:3:1:3";
TITLE2 HEIGHT=3 "by Race and Poverty Status, National Immunization Survey,
2008";
footnote j=r 'graph_4';
pattern1 value = solid color = blue;
pattern2 value = x3 color = green;
pattern3 value = l3 color = red;
pattern4 value = empty color = lib;
axis width = 3;
proc gchart data=sas_est4;
vbar race_k
/frame
discrete
sumvar=mean
group=incpov1
gspace = 5
gaxis = axis
raxis = axis
name = 'graph_4'
patternid = midpoint
;
run;
quit;
ods html close;
ods listing;
```

Percentage of Children Up—to—date with Vaccine Series 4:3:1:3 by Race and Poverty Status, National Immunization Survey, 2008



C. ‘R’

```
######################
title <- "R_IAP.R"
#########################################################################
#THIS PROGRAM WILL PRODUCE ESTIMATION AREA ESTIMATES AND STANDARD ERRORS
#FOR PUTD4313 USING R.
#
#R NOTES:
#1. R IS CASE SENSITIVE.
#2. A FILE PATH IS SEPERATED BY SLASH(/)
#########################################################################
library(survey) #TO USE svydesign(), svymean(), and svyby()
library(Hmisc) #TO USE prn()


dd <- "c:/nispuf08" #"path-to-dataset"


#--- NAME OF R DATASET ---#
in.file <- paste(dd,"/NISPUF08.RData",sep="")
#---READ R DATASET---#
load(in.file)
#---FORMAT---#
UTD4313levels=c(0,1)
UTD4313labels=c("NOT 4:3:1:3 UTD", "4:3:1:3 UTD")
ESTIAPlevels=c(1, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 2, 20, 22, 24, 25, 27,
28, 29, 30, 31, 34, 35, 36, 38, 4, 40, 41, 44, 46, 47, 49, 5, 50, 51, 52, 53, 54,
55, 56, 57, 58, 59, 6, 60, 61, 62, 63, 64, 65, 66, 68, 69, 7, 70, 72, 73, 74, 75,
76, 77,
774, 8, 85, 91, 92, 93)
ESTIAPlabels=c("CT", "NY-REST OF STATE", "NY-CITY OF NEW YORK", "DC", "DE", "MD-
REST OF STATE", "MD-CITY OF BALTIMORE", "PA-REST OF STATE", "PA-PHILADELPHIA
COUNTY", "VA", "WV", "MA", "AL", "FL-REST OF STATE", "FL-MIAMI-DADE COUNTY", "GA",
"KY", "MS",
"NC", "SC", "TN", "IL-REST OF STATE", "IL-CITY OF CHICAGO", "IN", "MI", "ME", "MN-
REST OF STATE", "OH", "WI", "AR", "LA", "NM", "NH", "OK", "TX-REST OF STATE", "TX-
DALLAS COUNTY", "TX-EL PASO COUNTY", "TX-CITY OF HOUSTON", "TX-BEXAR COUNTY", "IA",
"KS",
"MO", "NE", "RI", "CO", "MT", "ND", "SD", "UT", "WY", "AZ", "CA-REST OF STATE",
"CA-LOS ANGELES COUNTY", "VT", "CA-SANTA CLARA COUNTY", "HI", "NV", "AK", "ID",
"OR", "WA-REST OF STATE", "WA-EASTERN/WESTERN WA", "NJ", "CA-NORTHERN CA", "FL-
ORANGE COUNTY",
"IL-MADISON/ST. CLAIR COUNTIES", "MN-TWIN CITIES")

#PROVWT WILL BE USED AS A WEIGHT
R_FILE <- subset(NISPUF08, select=c(SEQNUMHH, SEQNUMC, PUTD4313, ESTIAP08,
PROVWT))
names(R_FILE) <- c("SEQNUMHH", "SEQNUMC", "PUTD4313", "ESTIAP", "WT")
R_FILE <- na.omit(R_FILE)
#---ASSIGN LABELS---#
R_FILE$PUTD4313 <- factor(R_FILE$PUTD4313, levels=UTD4313levels,
labels=UTD4313labels)
R_FILE$ESTIAP <- factor(R_FILE$ESTIAP, levels=ESTIAPlevels,
labels=ESTIAPlabels)

#---SPECIFY A SAMPLING DESIGN---#
svydsg <- svydesign(id=~SEQNUMHH, strata=~ESTIAP, weights=~WT,
data=R_FILE)

#---U.S. TOTAL ESTIMATES AND STANDARD ERRORS---#
r_nation <- svymean(~PUTD4313, svydsg)
```

```
PERCENT_UTD <- round(r_nation*100,2) #CONVERT INTO PERCENT ESTIMATES(MEAN)
SE_UTD <- round(SE(r_nation)*100,2) #CONVERT INTO PERCENT ESTIMATES(SE)
r_nation_est <- cbind(PERCENT_UTD, SE_UTD)
title <- "PERCENT 4:3:1:3 ESTIMATES AT A NATIONWIDE LEVEL"
prn(r_nation_est, title)

#---ESTIMATION AREA ESTIMATES AND STANDARD ERRORS---#
r_est <- svyby(~PUTD4313, ~ESTIAP, svydsg, svymean)
r_est[,-c(1)] <- round(r_est[,-c(1)]*100,2) #CONVERT INTO PERCENT ESTIMATES
r_est <- subset(r_est, select=c(1,3,5))


#SELECT ESTIMATES FOR UP-TO-DATE CASES
names(r_est) <- c("ESTIMATION AREA", "PERCENT 4:3:1:3 UTD", "STANDARD ERROR UTD")
title <- "PERCENT 4:3:1:3 ESTIMATES BY ESTIMATION AREA"
prn(r_est, title)

######################
title <- "R_STATE.R"
#########################################################################
#THIS PROGRAM WILL PRODUCE STATE ESTIMATES AND STANDARD ERRORS
#FOR PUTD4313 USING R.
#
#NOTE : THE STATE VARIABLE IS BASED ON FIPSTATE CODES ,THERE ARE
#NO STATES WITH FIPS CODES 3,7,14,43,52.
#
#R NOTES:
#1. R IS CASE SENSITIVE.
#2. A FILE PATH IS SEPERATED BY SLASH(/)
#########################################################################
library(survey) #TO USE svydesign(), svymean(), and svyby()
library(Hmisc) #TO USE prn()


dd <- "c:/nispuf08" #"path-to-data"


#--- NAME OF R DATASET ---#
in.file <- paste(dd,"/NISPUF08.RData",sep="")
#---READ R DATASET---#
load(in.file)
#---FORMAT---#
UTD4313levels=c(0,1)
UTD4313labels=c("NOT 4:3:1:3 UTD", "4:3:1:3 UTD")
STATElevels=c(1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17,
18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35,
36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53,
54, 55, 56)
STATElabels=c(
"ALABAMA",
"ALASKA",
" ",
"ARIZONA",
"ARKANSAS",
"CALIFORNIA",
" ",
"COLORADO",
"CONNECTICUT",
"DELAWARE",
"DISTRICT OF COLUMBIA",
"FLORIDA",
"GEORGIA",
" ",
```

```
"HAWAII",
"IDAHO",
"ILLINOIS",
"INDIANA",
"IOWA",
"KANSAS",
"KENTUCKY",
"LOUISIANA",
"MAINE",
"MARYLAND",
"MASSACHUSETTS",
"MICHIGAN",
"MINNESOTA",
"MISSISSIPPI",
"MISSOURI",
"MONTANA",
"NEBRASKA",
"NEVADA",
"NEW HAMPSHIRE",
"NEW JERSEY",
"NEW MEXICO",
"NEW YORK",
"NORTH CAROLINA",
"NORTH DAKOTA",
"OHIO",
"OKLAHOMA",
"OREGON",
"PENNSYLVANIA",
" ",
"RHODE ISLAND",
"SOUTH CAROLINA",
"SOUTH DAKOTA",
"TENNESSEE",
"TEXAS",
"UTAH",
"VERMONT",
"VIRGINIA",
" ",
"WASHINGTON",
"WEST VIRGINIA",
"WISCONSIN",
"WYOMING")
#PROVWT WILL BE USED AS A WEIGHT
R_FILE <- subset(NISPUF08, select=c(SEQNUMHH, SEQNUMC, PUTD4313, ESTIAP08,
STATE, PROVWT))
names(R_FILE) <- c("SEQNUMHH", "SEQNUMC", "PUTD4313", "ESTIAP", "STATE",
"WT")
R_FILE <- na.omit(R_FILE)
#---ASSIGN LABELS---#
R_FILE$PUTD4313 <- factor(R_FILE$PUTD4313, levels=UTD4313levels,
labels=UTD4313labels)
R_FILE$STATE <- factor(R_FILE$STATE, levels=STATElevels,
labels=STATElabels)
#---SPECIFY A SAMPLING DESIGN---#
svydsg <- svydesign(id=~SEQNUMHH, strata=~ESTIAP, weights=~WT,
data=R_FILE)
#---STATE ESTIMATES AND STANDARD ERRORS---#
r_est2 <- svyby(~PUTD4313, ~STATE, svydsg, svymean)
r_est2[,-c(1)] <- round(r_est2[,-c(1)]*100,2) #CONVERT INTO PERCENT
ESTIMATES
r_est2 <- subset(r_est2, select=c(1,3,5)) #SELECT ESTIMATES FOR UP-TO-DATE
CASES
names(r_est2) <- c("STATE", "PERCENT 4:3:1;3 UTD", "STANDARD ERROR UTD")
```

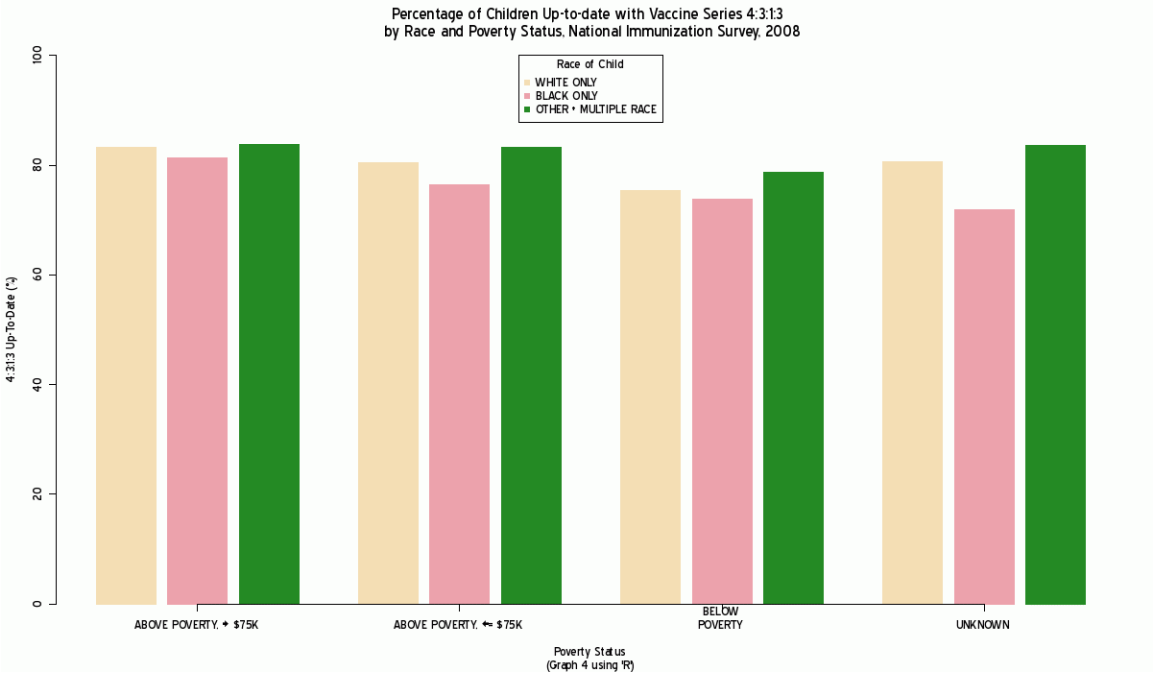
```
prn(r_est2, '4:3:1:3 ESTIMATES BY STATE')
#######################
title <- "R_PROG_3.R"
#############################################################################
#THIS PROGRAM WILL PRODUCE A TABLE OF HAD_CPOX BY STATE FOR ALL RDD
#COMPLETES USING RDDWT. THE PROGRAM USES R.
#
#R NOTES:
#1. R IS CASE SENSITIVE.
#2. A FILE PATH IS SEPERATED BY SLASH(/)
#############################################################################
library(survey) #TO USE svydesign(), svymean(), and svyby()
library(Hmisc) #TO USE prn()
library(prettyR) #TO USE freq()

#dd <- “c:/nispuf08” #"path-to-dataset"


#--- NAME OF R DATASET ---#
in.file <- paste(dd,"/NISPUF08.RData",sep="")
#---READ R DATASET---#
load(in.file)
#---FORMAT---#
HAD_CPOXlevels=c(1,2,77,99)
HAD_CPOXlabels=c("YES", "NO", "DON'T KNOW", "REFUSED")
STATElevels=c(1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17,
18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35,
36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53,
54, 55, 56)
STATElabels=c(
"ALABAMA",
"ALASKA",
" ",
"ARIZONA",
"ARKANSAS",
"CALIFORNIA",
" ",
"COLORADO",
"CONNECTICUT",
"DELAWARE",
"DISTRICT OF COLUMBIA",
"FLORIDA",
"GEORGIA",
" ",
"HAWAII",
"IDAHO",
"ILLINOIS",
"INDIANA",
"IOWA",
"KANSAS",
"KENTUCKY",
"LOUISIANA",
"MAINE",
"MARYLAND",
"MASSACHUSETTS",
"MICHIGAN",
"MINNESOTA",
"MISSISSIPPI",
"MISSOURI",
"MONTANA",
"NEBRASKA",
"NEVADA",
"NEW HAMPSHIRE",
```

```
"NEW JERSEY",
"NEW MEXICO",
"NEW YORK",
"NORTH CAROLINA",
"NORTH DAKOTA",
"OHIO",
"OKLAHOMA",
"OREGON",
"PENNSYLVANIA",
" ",
"RHODE ISLAND",
"SOUTH CAROLINA",
"SOUTH DAKOTA",
"TENNESSEE",
"TEXAS",
"UTAH",
"VERMONT",
"VIRGINIA",
" ",
"WASHINGTON",
"WEST VIRGINIA",
"WISCONSIN",
"WYOMING")

#RDDWT WILL BE USED AS A WEIGHT
R_FILE <- subset(NISPUF08, select=c(SEQNUMHH, SEQNUMC, ESTIAP08, STATE,
HAD_CPOX, RDDWT))
names(R_FILE) <- c("SEQNUMHH", "SEQNUMC", "ESTIAP", "STATE", "HAD_CPOX",
"WT")

#---ASSIGN LABELS---#
R_FILE$HAD_CPOX <- factor(R_FILE$HAD_CPOX, levels=HAD_CPOXlevels,
labels=HAD_CPOXlabels)
R_FILE$STATE <- factor(R_FILE$STATE, levels=STATElevels,
labels=STATElabels)
R_FILE <- na.omit(R_FILE)
summary(R_FILE$HAD_CPOX)

#---SPECIFY A SAMPLING DESIGN---#
svydsg <- svydesign(id=~SEQNUMHH, strata=~ESTIAP, weights=~WT,
data=R_FILE)

#---U.S. TOTAL ESTIMATES AND STANDARD ERRORS---#
r_nation <- svymean(~HAD_CPOX, svydsg)
PERCENT_UTD <- round(r_nation*100,2) #CONVERT INTO PERCENT ESTIMATES(MEAN)
SE_UTD <- round(SE(r_nation)*100,2) #CONVERT INTO PERCENT ESTIMATES(SE)
r_nation_est3 <- cbind(PERCENT_UTD, SE_UTD)
prn(r_nation_est3, "PERCENT HAD_CPOX = YES ESTIMATES AT A NATIONWIDE
LEVEL\n")

#---HAD_CPOX = YES ESTIMATES BY STATE---#
r_est3 <- svyby(~HAD_CPOX, ~STATE, svydsg, svymean)
r_est3[,-c(1)] <- round(r_est3[,-c(1)]*100,2) #CONVERT INTO PERCENT ESTIMATES
r_est3 <- subset(r_est3, select=c(1,2,6)) #SELECT ESTIMATES FOR HAD_CPOX=YES
names(r_est3) <- c("STATE", "PERCENT HAD_CPOX=YES", "STANDARD ERROR
HAD_CPOX=Y")
prn(r_est3, 'PERCENT HAD_CPOX ESTIMATES BY STATE')
```

```
######################
title <- "PROG_4.R"
#############################################################################
#TABLE OF PUTD4313 BY INCPOV1 BY RACE_K. SAVE % UTD
#ESTIMATES (NOT S.E.'S) FOR USE IN THE PROGRAM GRAPH_4.
#
#THIS PROGRAM WILL PRODUCE ESTIMATES USING R.
#
#R NOTES:
#1. R IS CASE SENSITIVE.
#2. A FILE PATH IS SEPERATED BY SLASH(/)
#############################################################################
library(survey) #TO USE svydesign(), svymean(), and svyby()
library(Hmisc) #TO USE prn()


dd <- "c:/nispuf08" #"path-to-dataset"

out <-"c:/nispuf08" #"path-to-dataset"



#--- NAME OF R DATASET ---#
in.file <- paste(dd,"/NISPUF08.RData",sep="")
#---READ R DATASET---#
load(in.file)
#---FORMAT---#
UTD4313levels=c(0,1)
UTD4313labels=c("NOT 4:3:1:3 UTD", "4:3:1:3 UTD")
RACE_PUFlevels=c(1,2,3)
RACE_PUFlabels=c("WHITE ONLY", "BLACK ONLY", "OTHER + MULTIPLE RACE")
INCPOVlevels=c(1,2,3,4)
INCPOVlabels=c("ABOVE POVERTY, > $75K", "ABOVE POVERTY, <= $75K", "BELOW
POVERTY", "UNKNOWN")
#PROVWT WILL BE USED AS A WEIGHT
R_FILE <- subset(NISPUF08, select=c(SEQNUMHH, SEQNUMC, PUTD4313, ESTIAP08, RACE_K,
INCPOV1, PROVWT))
names(R_FILE) <- c("SEQNUMHH", "SEQNUMC", "PUTD4313", "ESTIAP", "RACE_K",
"INCPOV1", "WT")
#---ASSIGN LABELS---#
R_FILE$PUTD4313 <- factor(R_FILE$PUTD4313, levels=UTD4313levels,
labels=UTD4313labels, exclude=NULL)
R_FILE$RACE_K <- factor(R_FILE$RACE_K, levels=RACE_PUFlevels,
labels=RACE_PUFlabels, exclude=NULL)
R_FILE$INCPOV1 <- factor(R_FILE$INCPOV1, levels=INCPOVlevels,labels=INCPOVlabels,
exclude=NULL)
#---UNWEIGHTED FREQUENCIES---#
unwt_freq <- function(UNWT.VAR){#FUNCTION TO PRINT UNWEIGHTED FREQUENCIES
unwt.tab <- wtd.table(UNWT.VAR, weights= NULL, type='table')
unwtd.freq <- data.frame(cbind(
unwt.tab, round(unwt.tab/sum(unwt.tab)*100,2),
cumsum(unwt.tab), cumsum(round(unwt.tab/sum(unwt.tab)*100,2))))
names(unwtd.freq) <- c("Frequency", "Percent", "Cumulative Frequency", "Cumulative
Percent")
unwtd.title <- paste('Table 4A. Q1/2006 - Q4/2006', 'UNWEIGHTED FREQUENCIES',
label(UNWT.VAR), sep="\n")
label(unwtd.freq) <- unwtd.title
print(unwtd.freq)
}
unwt_freq(R_FILE$PUTD4313)
unwt_freq(R_FILE$INCPOV1)
unwt_freq(R_FILE$RACE_K)
```

```
R_FILE <- na.omit(R_FILE)
#---SPECIFY A SAMPLING DESIGN---#
svydsg <- svydesign(id=~SEQNUMHH, strata=~ESTIAP, weights=~WT,
data=R_FILE)
#---PERCENT 4:3:1:3 UP-TO-DATE AND ESTIMATED STANDARD ERRORS---#
r_est4 <- svyby(~PUTD4313, ~RACE_K+INCPOV1, svydsg, svymean)
r_est4[,-c(1,2)] <- round(r_est4[,-c(1,2)]*100,2) #CONVERT INTO PERCENT
ESTIMATES
r_est4 <- subset(r_est4, select=c(1,2,4,6)) #SELECT ESTIMATES FOR UP-TODATE CASES
names(r_est4) <- c("RACE", "INCOME", "PERCENT_UTD", "STANDARD_ERROR_UTD")
title <- "Table 4B. Q1/2006 - Q4/2006, Percent 4:3:1:3 UTD and Estimated Standard
Errors"
prn(r_est4, title)
#---SAVE PERCENT UP-TO-DATE ESTIMATES FOR USE IN THE PROGRAM GRAPH_4---#
r_est4 <- subset(r_est4, select=c(RACE, INCOME, PERCENT_UTD))
title <- "4:3:1:3 ESTIMATES BY INCPOV1 BY RACE_K"
prn(r_est4, title)
save(r_est4, file=paste(out, "/r_est4_08", sep=""))
```

```
######################
title <- "GRAPH_4.R"
#############################################################################
#THIS PROGRAM BUILDS OFF OF THE PROGRAM PROG_4. IT PRODUCES A CHART OF
#PUTD4313 BY INCPOV1 BY RACE_K. IT CREATES A BAR CHART IN R GRAPH FOR
#THE 4X3 = 12 CELLS.
#R NOTES:
#1. R IS CASE SENSITIVE.
#2. A FILE PATH IS SEPERATED BY SLASH(/)
#############################################################################
library(survey) #TO USE svydesign(), svymean(), and svyby()
library(Hmisc) #TO USE prn()
library(GDD) # TO USE GDD()

#dd <- "path-to-dataset" #---SPECIFY PATH TO R DATASET THAT WAS THE OUTPUT OF
R_PROG_4---#

dd <- "c:/nifpuf08"

#out <- "path-to-dataset" #---SPECIFY THE PATH FOR WHERE YOU WANT THE CHART OUTPUT
TO GO---#

out <- "c:/nispuf08"

#---NAME OF R DATASET OUTPUT FROM R_PROG_4---#
in.file <- paste(dd,"/r_est4_08",sep="")
#---READ R DATASET---#
load(in.file)
#---BARCHART---#
#NOTE:R DOES NOT SUPPORT CREATING A HTML FILE CONTAINING A BARCHART#
#CREATE A DATA MATRIX FOR DRAWING A BARCHART#
utd4313 <- matrix(r_est4$PERCENT_UTD, nrow=3, ncol=4, byrow=F,
dimnames=list(levels(r_est4$RACE), levels(r_est4$INCOME)))
#CREATE GRAPH_4.GIF#
GDD(paste(out,"/graph_4_08R.gif",sep=""), type="gif", width=1200, height=700)
barplot(utd4313, beside=TRUE, space=c(0.2,1),
col = c("wheat", "lightpink2", "forestgreen"),
axis.lty = 1,
sub="(Graph 4 using 'R')", cex.sub=1, ylim=c(0,100),
xlab="Poverty Status",
ylab="4:3:1:3 Up-To-Date (%)", cex=1, cex.names=1, border=NA)
legend("top", rownames(utd4313), col=c("wheat", "lightpink2",
"forestgreen"), title="Race of Child", pch=15, cex=1)
title1 <- "Percentage of Children Up-to-date with Vaccine Series 4:3:1:3 \n"
title2 <- "by Race and Poverty Status, National Immunization Survey, 2008\n"
mtext(paste(title1,title2), cex=1.3)
dev.off()
```


Percentage of Children Up-to-date with Vaccine Series 4:3:1:3
by Race and Poverty Status, National Immunization Survey, 2008
Race of Child
WHITE ONLY
BLACK ONLY
OTHER • MULTIPLE RACE
4:3:1:3 Up-To-Date (%)
0
20
40
60
80
100
ABOVE POVERTY, • $75K
ABOVE POVERTY, ⇐ $75K
BELOW POVERTY
UNKNOWN
Poverty Status
(Graph 4 using 'R')

Appendix H

Alphabetical Listing of Variables that are in the 2004-2008 Public-Use Data Files

Table H.1 Alphabetical Listing of Variables that are in the 2004-2007 Public-Use Data Files[1]

Variable Name	Variable Label[2]	Year of Data Collection					Notes[3]
		2004	2005	2006	2007	2008	
AGECPOXR	AGE IN MONTHS AT CHICKEN POX DISEASE (RECODE)		Y	Y	Y	Y	Replaces IAGECPXR starting 2005. This version is not imputed.
AGEGRP	AGE CATEGORY OF CHILD (19-23, 24-29, 30-35 MO) (RECODE)	Y	Y	Y	Y	Y	
ALL4SHOT	HH REPORT OF 4:3:1:3 UP-TO-DATE	Y	Y				Dropped starting in 2006 because no longer possible to derive due to shortened Section B.
BF_ENDR	DURATION OF BREAST FEEDING IN DAYS (TOPCODE)	Y	Y				Dropped starting in 2006 because of question wording change. Replaced by BF_ENDR06.
BF_ENDR06	DURATION OF BREAST FEEDING IN DAYS (TOPCODE)			Y	Y	Y	Replaces BF_ENDR starting 2006.
BF_EXCLR	DURATION OF EXCLUSIVE BREAST FEEDING IN DAYS (TOPCODE)	Y	Y				Dropped starting in 2006 because of question wording change. Replaced by BF_EXCLR06.
BF_EXCLR06	DURATION OF EXCLUSIVE BREAST/FORMULA FEEDING IN DAYS (TOPCODE)			Y	Y	Y	Replaces BF_EXCLR starting 2006.
BF_FORMR06	AGE IN DAYS WHEN CHILD FIRST FED FORMULA (TOPCODE)			Y	Y		Question CBF_03_X added starting 2006. Replaced by BF_FORMR06 starting 2008.
BF_FORMR08	AGE IN DAYS WHEN CHILD FIRST FED FORMULA (TOPCODE)					Y	Replaces BF_FORMR06 to add a "never fed formula" code.
BFENDFL	DURATION OF BREAST FEEDING EXCEEDS CHILD AGE IN DAYS, WITH BUFFER	Y	Y				Dropped starting in 2006 because of question wording change. Replaced by BFENDFL06.
BFENDFL06	DURATION OF BREAST FEEDING EXCEEDS CHILD AGE IN DAYS, WITH BUFFER			Y	Y	Y	Replaces BFENDFL starting 2006.
BFEXCLFL	DURATION OF EXCLUSIVE BREAST FEEDING EXCEEDS TOTAL BREASTFEEDING, WITH BUFFER	Y	Y				Dropped starting in 2006 because question wording change do not allow it to be derived.
BFFORMFL06	AGE IN DAYS WHEN CHILD FIRST FED FORMULA EXCEEDS CHILD AGE IN DAYS, WITH BUFFER			Y	Y	Y	Question CBF_03_X added starting 2006.
C_431	HH REPORT OF 4:3:1 UP-TO-DATE BY SHOT CARD USE	Y	Y				Dropped starting in 2006 because no longer possible to derive due to shortened Section B.
C_4313	HH REPORT OF 4:3:1:3 UP-TO-DATE BY SHOT CARD USE	Y	Y				Dropped starting in 2006 because no longer possible to derive due to shortened Section B.
C_DTP	HH REPORT OF 4+ DT-CONTAINING UP-TO-DATE BY SHOT CARD USE	Y	Y				Dropped starting in 2006 because no longer possible to derive due to shortened Section B.
C_HEP	HH REPORT OF 3+ HEPATITIS B-CONTAINING UP-TO-DATE BY SHOT CARD USE	Y	Y				Dropped starting in 2006 because no longer possible to derive due to shortened Section B.
C_HIB	HH REPORT OF 3+ HIB-CONTAINING UP-TO-DATE BY SHOT CARD USE	Y	Y				Dropped starting in 2006 because no longer possible to derive due to shortened Section B.
C_MMR	HH REPORT OF 1+ MEASLES-CONTAINING UP-TO-DATE BY SHOT CARD USE	Y	Y				Dropped starting in 2006 because no longer possible to derive due to shortened Section B.
C_POL	HH REPORT OF 3+ POLIO-CONTAINING UP-TO-DATE BY SHOT CARD USE	Y	Y				Dropped starting in 2006 because no longer possible to derive due to shortened Section B.
C_VRC	HH REPORT OF 1+ VARICELLA-CONTAINING UP-TO-DATE BY SHOT CARD USE	Y	Y				Dropped starting in 2006 because no longer possible to derive due to shortened Section B.
C1R	NUMBER OF PEOPLE IN HOUSEHOLD (TOPCODE)	Y	Y	Y	Y	Y	
C5R	RELATIONSHIP OF RESPONDENT TO CHILD (RECODE)	Y	Y	Y	Y	Y	
CBF_01	WAS CHILD EVER BREAST FED OR FED BREAST MILK?	Y	Y	Y	Y	Y	

Table H.1 **Alphabetical Listing of Variables that are in the 2004-2007 Public-Use Data Files[1]**

Variable Name	Variable Label[2]	Year of Data Collection					Notes[3]
		2004	2005	2006	2007	2008	
CEN_REG	CENSUS REGION BASED ON TRUE STATE OF RESIDENCE	Y	Y	Y	Y	Y	
CHILDNM	NUMBER OF CHILDREN LESS THAN 18 YEARS IN HH (RECODE)	Y	Y	Y	Y	Y	
CWIC_01	CHILD EVER RECEIVED WIC BENEFITS?	Y	Y	Y	Y	Y	
CWIC_02	CHILD CURRENTLY RECEIVING WIC BENEFITS?	Y	Y	Y	Y	Y	
D6R	NUMBER OF VACCINATION PROVIDERS IDENTIFIED BY RESPONDENT (TOPCODE)	Y	Y	Y	Y	Y	
D7	CONSENT TO OBTAIN CHILD'S IMMUNIZATION RECORDS FROM PROVIDERS	Y	Y	Y	Y	Y	
DDTP1	AGE IN DAYS OF PROV-REPTD DT-CONTAINING SHOT #1	Y	Y	Y	Y	Y	
DDTP2	AGE IN DAYS OF PROV-REPTD DT-CONTAINING SHOT #2	Y	Y	Y	Y	Y	
DDTP3	AGE IN DAYS OF PROV-REPTD DT-CONTAINING SHOT #3	Y	Y	Y	Y	Y	
DDTP4	AGE IN DAYS OF PROV-REPTD DT-CONTAINING SHOT #4	Y	Y	Y	Y	Y	
DDTP5	AGE IN DAYS OF PROV-REPTD DT-CONTAINING SHOT #5	Y	Y	Y	Y	Y	
DDTP6	AGE IN DAYS OF PROV-REPTD DT-CONTAINING SHOT #6	Y	Y	Y	Y	Y	
DDTP7	AGE IN DAYS OF PROV-REPTD DT-CONTAINING SHOT #7	Y	Y	Y	Y	Y	
DDTP8	AGE IN DAYS OF PROV-REPTD DT-CONTAINING SHOT #8	Y	Y	Y	Y	Y	
DDTP9	AGE IN DAYS OF PROV-REPTD DT-CONTAINING SHOT #9		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
DFLU1	AGE IN DAYS OF PROV-REPTD FLU-CONTAINING SHOT #1	Y	Y	Y	Y	Y	
DFLU2	AGE IN DAYS OF PROV-REPTD FLU-CONTAINING SHOT #2	Y	Y	Y	Y	Y	
DFLU3	AGE IN DAYS OF PROV-REPTD FLU-CONTAINING SHOT #3	Y	Y	Y	Y	Y	
DFLU4	AGE IN DAYS OF PROV-REPTD FLU-CONTAINING SHOT #4	Y	Y	Y	Y	Y	
DFLU5	AGE IN DAYS OF PROV-REPTD FLU-CONTAINING SHOT #5	Y	Y	Y	Y	Y	
DFLU6	AGE IN DAYS OF PROV-REPTD FLU-CONTAINING SHOT #6	Y	Y	Y	Y	Y	
DFLU7	AGE IN DAYS OF PROV-REPTD FLU-CONTAINING SHOT #7	Y	Y	Y	Y	Y	
DFLU8	AGE IN DAYS OF PROV-REPTD FLU-CONTAINING SHOT #8	Y	Y	Y	Y	Y	
DFLU9	AGE IN DAYS OF PROV-REPTD FLU-CONTAINING SHOT #9		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
DHEPA1	AGE IN DAYS OF PROV-REPTD HEPATITIS A-CONTAINING SHOT #1	Y	Y	Y	Y	Y	
DHEPA2	AGE IN DAYS OF PROV-REPTD HEPATITIS A-CONTAINING SHOT #2	Y	Y	Y	Y	Y	
DHEPA3	AGE IN DAYS OF PROV-REPTD HEPATITIS A-CONTAINING SHOT #3	Y	Y	Y	Y	Y	
DHEPA4	AGE IN DAYS OF PROV-REPTD HEPATITIS A-CONTAINING SHOT #4	Y	Y	Y	Y	Y	

Table H.1 Alphabetical Listing of Variables that are in the 2004-2007 Public-Use Data Files[1]

Variable Name	Variable Label[2]	Year of Data Collection					Notes[3]
		2004	2005	2006	2007	2008	
DHEPA5	AGE IN DAYS OF PROV-REPTD HEPATITIS A-CONTAINING SHOT #5	Y	Y	Y	Y	Y	
DHEPA6	AGE IN DAYS OF PROV-REPTD HEPATITIS A-CONTAINING SHOT #6	Y	Y	Y	Y	Y	
DHEPA7	AGE IN DAYS OF PROV-REPTD HEPATITIS A-CONTAINING SHOT #7	Y	Y	Y	Y	Y	
DHEPA8	AGE IN DAYS OF PROV-REPTD HEPATITIS A-CONTAINING SHOT #8	Y	Y	Y	Y	Y	
DHEPA9	AGE IN DAYS OF PROV-REPTD HEPATITIS A-CONTAINING SHOT #9		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
DHEPB1	AGE IN DAYS OF PROV-REPTD HEPATITIS B-CONTAINING SHOT #1	Y	Y	Y	Y	Y	
DHEPB2	AGE IN DAYS OF PROV-REPTD HEPATITIS B-CONTAINING SHOT #2	Y	Y	Y	Y	Y	
DHEPB3	AGE IN DAYS OF PROV-REPTD HEPATITIS B-CONTAINING SHOT #3	Y	Y	Y	Y	Y	
DHEPB4	AGE IN DAYS OF PROV-REPTD HEPATITIS B-CONTAINING SHOT #4	Y	Y	Y	Y	Y	
DHEPB5	AGE IN DAYS OF PROV-REPTD HEPATITIS B-CONTAINING SHOT #5	Y	Y	Y	Y	Y	
DHEPB6	AGE IN DAYS OF PROV-REPTD HEPATITIS B-CONTAINING SHOT #6	Y	Y	Y	Y	Y	
DHEPB7	AGE IN DAYS OF PROV-REPTD HEPATITIS B-CONTAINING SHOT #7	Y	Y	Y	Y	Y	
DHEPB8	AGE IN DAYS OF PROV-REPTD HEPATITIS B-CONTAINING SHOT #8	Y	Y	Y	Y	Y	
DHEPB9	AGE IN DAYS OF PROV-REPTD HEPATITIS B-CONTAINING SHOT #9		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
DHIB1	AGE IN DAYS OF PROV-REPTD HIB-CONTAINING SHOT #1	Y	Y	Y	Y	Y	
DHIB2	AGE IN DAYS OF PROV-REPTD HIB-CONTAINING SHOT #2	Y	Y	Y	Y	Y	
DHIB3	AGE IN DAYS OF PROV-REPTD HIB-CONTAINING SHOT #3	Y	Y	Y	Y	Y	
DHIB4	AGE IN DAYS OF PROV-REPTD HIB-CONTAINING SHOT #4	Y	Y	Y	Y	Y	
DHIB5	AGE IN DAYS OF PROV-REPTD HIB-CONTAINING SHOT #5	Y	Y	Y	Y	Y	
DHIB6	AGE IN DAYS OF PROV-REPTD HIB-CONTAINING SHOT #6	Y	Y	Y	Y	Y	
DHIB7	AGE IN DAYS OF PROV-REPTD HIB-CONTAINING SHOT #7	Y	Y	Y	Y	Y	
DHIB8	AGE IN DAYS OF PROV-REPTD HIB-CONTAINING SHOT #8	Y	Y	Y	Y	Y	
DHIB9	AGE IN DAYS OF PROV-REPTD HIB-CONTAINING SHOT #9		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
DISPCODE	NIS PROVIDER RECORD-CHECK DISPOSITION CODE	Y	Y	Y	Y	Y	
DMMR1	AGE IN DAYS OF PROV-REPTD MEASLES-CONTAINING SHOT #1	Y	Y	Y	Y	Y	
DMMR2	AGE IN DAYS OF PROV-REPTD MEASLES-CONTAINING SHOT #2	Y	Y	Y	Y	Y	
DMMR3	AGE IN DAYS OF PROV-REPTD MEASLES-CONTAINING SHOT #3	Y	Y	Y	Y	Y	
DMMR4	AGE IN DAYS OF PROV-REPTD MEASLES-CONTAINING SHOT #4	Y	Y	Y	Y	Y	

Table H.1 **Alphabetical Listing of Variables that are in the 2004-2007 Public-Use Data Files[1]**

Variable Name	Variable Label[2]	Year of Data Collection					Notes[3]
		2004	2005	2006	2007	2008	
DMMR5	AGE IN DAYS OF PROV-REPTD MEASLES-CONTAINING SHOT #5		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
DMMR6	AGE IN DAYS OF PROV-REPTD MEASLES-CONTAINING SHOT #6		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
DMMR7	AGE IN DAYS OF PROV-REPTD MEASLES-CONTAINING SHOT #7		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
DMMR8	AGE IN DAYS OF PROV-REPTD MEASLES-CONTAINING SHOT #8		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
DMMR9	AGE IN DAYS OF PROV-REPTD MEASLES-CONTAINING SHOT #9		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
DMP1	AGE IN DAYS OF PROV-REPTD MUMPS-ONLY SHOT #1	Y	Y	Y	Y	Y	
DMP2	AGE IN DAYS OF PROV-REPTD MUMPS-ONLY SHOT #2	Y	Y	Y	Y	Y	
DMP3	AGE IN DAYS OF PROV-REPTD MUMPS-ONLY SHOT #3	Y	Y	Y	Y	Y	
DMP4	AGE IN DAYS OF PROV-REPTD MUMPS-ONLY SHOT #4	Y	Y	Y	Y	Y	
DMP5	AGE IN DAYS OF PROV-REPTD MUMPS-ONLY SHOT #5		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
DMP6	AGE IN DAYS OF PROV-REPTD MUMPS-ONLY SHOT #6		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
DMP7	AGE IN DAYS OF PROV-REPTD MUMPS-ONLY SHOT #7		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
DMP8	AGE IN DAYS OF PROV-REPTD MUMPS-ONLY SHOT #8		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
DMP9	AGE IN DAYS OF PROV-REPTD MUMPS-ONLY SHOT #9		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
DMPRB1	AGE IN DAYS OF PROV-REPTD (MUMPS/RUBELLA)-ONLY SHOT #1	Y	Y	Y	Y	Y	
DMPRB2	AGE IN DAYS OF PROV-REPTD (MUMPS/RUBELLA)-ONLY SHOT #2	Y	Y	Y	Y	Y	
DMPRB3	AGE IN DAYS OF PROV-REPTD (MUMPS/RUBELLA)-ONLY SHOT #3	Y	Y	Y	Y	Y	
DMPRB4	AGE IN DAYS OF PROV-REPTD (MUMPS/RUBELLA)-ONLY SHOT #4	Y	Y	Y	Y	Y	
DMPRB5	AGE IN DAYS OF PROV-REPTD (MUMPS/RUBELLA)-ONLY SHOT #5		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
DMPRB6	AGE IN DAYS OF PROV-REPTD (MUMPS/RUBELLA)-ONLY SHOT #6		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
DMPRB7	AGE IN DAYS OF PROV-REPTD (MUMPS/RUBELLA)-ONLY SHOT #7		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
DMPRB8	AGE IN DAYS OF PROV-REPTD (MUMPS/RUBELLA)-ONLY SHOT #8		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
DMPRB9	AGE IN DAYS OF PROV-REPTD (MUMPS/RUBELLA)-ONLY SHOT #9		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
DPCV1	AGE IN DAYS OF PROV-REPTD PNEUMOCOCCAL-CONTAINING SHOT #1	Y	Y	Y	Y	Y	
DPCV2	AGE IN DAYS OF PROV-REPTD PNEUMOCOCCAL-CONTAINING SHOT #2	Y	Y	Y	Y	Y	
DPCV3	AGE IN DAYS OF PROV-REPTD PNEUMOCOCCAL-CONTAINING SHOT #3	Y	Y	Y	Y	Y	
DPCV4	AGE IN DAYS OF PROV-REPTD PNEUMOCOCCAL-CONTAINING SHOT #4	Y	Y	Y	Y	Y	
DPCV5	AGE IN DAYS OF PROV-REPTD PNEUMOCOCCAL-CONTAINING SHOT #5	Y	Y	Y	Y	Y	

Table H.1 Alphabetical Listing of Variables that are in the 2004-2007 Public-Use Data Files[1]

Variable Name	Variable Label[2]	Year of Data Collection					Notes[3]
		2004	2005	2006	2007	2008	
DPCV6	AGE IN DAYS OF PROV-REPTD PNEUMOCOCCAL-CONTAINING SHOT #6	Y	Y	Y	Y	Y	
DPCV7	AGE IN DAYS OF PROV-REPTD PNEUMOCOCCAL-CONTAINING SHOT #7	Y	Y	Y	Y	Y	
DPCV8	AGE IN DAYS OF PROV-REPTD PNEUMOCOCCAL-CONTAINING SHOT #8	Y	Y	Y	Y	Y	
DPCV9	AGE IN DAYS OF PROV-REPTD PNEUMOCOCCAL-CONTAINING SHOT #9		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
DPOLIO1	AGE IN DAYS OF PROV-REPTD POLIO-CONTAINING SHOT #1	Y	Y	Y	Y	Y	
DPOLIO2	AGE IN DAYS OF PROV-REPTD POLIO-CONTAINING SHOT #2	Y	Y	Y	Y	Y	
DPOLIO3	AGE IN DAYS OF PROV-REPTD POLIO-CONTAINING SHOT #3	Y	Y	Y	Y	Y	
DPOLIO4	AGE IN DAYS OF PROV-REPTD POLIO-CONTAINING SHOT #4	Y	Y	Y	Y	Y	
DPOLIO5	AGE IN DAYS OF PROV-REPTD POLIO-CONTAINING SHOT #5	Y	Y	Y	Y	Y	
DPOLIO6	AGE IN DAYS OF PROV-REPTD POLIO-CONTAINING SHOT #6	Y	Y	Y	Y	Y	
DPOLIO7	AGE IN DAYS OF PROV-REPTD POLIO-CONTAINING SHOT #7	Y	Y	Y	Y	Y	
DPOLIO8	AGE IN DAYS OF PROV-REPTD POLIO-CONTAINING SHOT #8	Y	Y	Y	Y	Y	
DPOLIO9	AGE IN DAYS OF PROV-REPTD POLIO-CONTAINING SHOT #9		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
DRB1	AGE IN DAYS OF PROV-REPTD RUBELLA-ONLY SHOT #1	Y	Y	Y	Y	Y	
DRB2	AGE IN DAYS OF PROV-REPTD RUBELLA-ONLY SHOT #2	Y	Y	Y	Y	Y	
DRB3	AGE IN DAYS OF PROV-REPTD RUBELLA-ONLY SHOT #3	Y	Y	Y	Y	Y	
DRB4	AGE IN DAYS OF PROV-REPTD RUBELLA-ONLY SHOT #4	Y	Y	Y	Y	Y	
DRB5	AGE IN DAYS OF PROV-REPTD RUBELLA-ONLY SHOT #5	Y	Y	Y	Y	Y	
DRB6	AGE IN DAYS OF PROV-REPTD RUBELLA-ONLY SHOT #6	Y	Y	Y	Y	Y	
DRB7	AGE IN DAYS OF PROV-REPTD RUBELLA-ONLY SHOT #7	Y	Y	Y	Y	Y	
DRB8	AGE IN DAYS OF PROV-REPTD RUBELLA-ONLY SHOT #8	Y	Y	Y	Y	Y	
DRB9	AGE IN DAYS OF PROV-REPTD RUBELLA-ONLY SHOT #9		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
DROT1	AGE IN DAYS OF PROV-REPTD ROTAVIRUS-CONTAINING SHOT #1	Y	Y	Y	Y	Y	
DROT2	AGE IN DAYS OF PROV-REPTD ROTAVIRUS-CONTAINING SHOT #2	Y	Y	Y	Y	Y	
DROT3	AGE IN DAYS OF PROV-REPTD ROTAVIRUS-CONTAINING SHOT #3	Y	Y	Y	Y	Y	
DROT4	AGE IN DAYS OF PROV-REPTD ROTAVIRUS-CONTAINING SHOT #4	Y	Y	Y	Y	Y	
DROT5	AGE IN DAYS OF PROV-REPTD ROTAVIRUS-CONTAINING SHOT #5	Y	Y	Y	Y	Y	
DROT6	AGE IN DAYS OF PROV-REPTD ROTAVIRUS-CONTAINING SHOT #6	Y	Y	Y	Y	Y	

Table H.1 Alphabetical Listing of Variables that are in the 2004-2007 Public-Use Data Files[1]

Variable Name	Variable Label[2]	Year of Data Collection					Notes[3]
		2004	2005	2006	2007	2008	
DROT7	AGE IN DAYS OF PROV-REPTD ROTAVIRUS-CONTAINING SHOT #7	Y	Y	Y	Y	Y [i]	
DROT8	AGE IN DAYS OF PROV-REPTD ROTAVIRUS-CONTAINING SHOT #8	Y	Y	Y	Y	Y	
DROT9	AGE IN DAYS OF PROV-REPTD ROTAVIRUS-CONTAINING SHOT #9		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
DTP_SOUR	SHOT CARD USED FOR DTP REPORTING	Y					Dropped starting in 2005 because this variable is redundant with variable SHOTCARD.
DTP1_AGE	AGE IN MONTHS OF PROV-REPTD DTP-CONTAINING SHOT #1	Y	Y	Y	Y	Y	
DTP2_AGE	AGE IN MONTHS OF PROV-REPTD DTP-CONTAINING SHOT #2	Y	Y	Y	Y	Y	
DTP3_AGE	AGE IN MONTHS OF PROV-REPTD DTP-CONTAINING SHOT #3	Y	Y	Y	Y	Y	
DTP4_AGE	AGE IN MONTHS OF PROV-REPTD DTP-CONTAINING SHOT #4	Y	Y	Y	Y	Y	
DTP5_AGE	AGE IN MONTHS OF PROV-REPTD DTP-CONTAINING SHOT #5	Y	Y	Y	Y	Y	
DTP6_AGE	AGE IN MONTHS OF PROV-REPTD DTP-CONTAINING SHOT #6	Y	Y	Y	Y	Y	
DTP7_AGE	AGE IN MONTHS OF PROV-REPTD DTP-CONTAINING SHOT #7	Y	Y	Y	Y	Y [i]	
DTP8_AGE	AGE IN MONTHS OF PROV-REPTD DTP-CONTAINING SHOT #8	Y	Y	Y	Y	Y	
DTP9_AGE	AGE IN MONTHS OF PROV-REPTD DTP-CONTAINING SHOT #9		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
DVRC1	AGE IN DAYS OF PROV-REPTD VARICELLA-CONTAINING SHOT #1	Y	Y	Y	Y	Y	
DVRC2	AGE IN DAYS OF PROV-REPTD VARICELLA-CONTAINING SHOT #2	Y	Y	Y	Y	Y	
DVRC3	AGE IN DAYS OF PROV-REPTD VARICELLA-CONTAINING SHOT #3	Y	Y	Y	Y	Y [i]	
DVRC4	AGE IN DAYS OF PROV-REPTD VARICELLA-CONTAINING SHOT #4	Y	Y	Y	Y	Y [i]	
DVRC5	AGE IN DAYS OF PROV-REPTD VARICELLA-CONTAINING SHOT #5		Y	Y	Y	Y [i]	Starting in 2005, nine shot variables are included for each vaccine category.
DVRC6	AGE IN DAYS OF PROV-REPTD VARICELLA-CONTAINING SHOT #6		Y	Y	Y	Y [i]	Starting in 2005, nine shot variables are included for each vaccine category.
DVRC7	AGE IN DAYS OF PROV-REPTD VARICELLA-CONTAINING SHOT #7		Y	Y	Y	Y [i]	Starting in 2005, nine shot variables are included for each vaccine category.
DVRC8	AGE IN DAYS OF PROV-REPTD VARICELLA-CONTAINING SHOT #8		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
DVRC9	AGE IN DAYS OF PROV-REPTD VARICELLA-CONTAINING SHOT #9		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
EDUC1	EDUCATION OF MOTHER (CATEGORIES RECODED)	Y	Y	Y	Y	Y	
ENTRY2	CHILD LIVES IN STATE WITH HEPATITIS B STATE ENTRY LAW FOR DAY CARE/HEAD START (2001-2002 SCHOOL YEAR)	Y					Dropped starting in 2005.
ESTIAP	ESTIMATION IAP AREA OF RESIDENCE		Y				New IAP variable starting in 2005. Replaced ITRUEIAP. Dropped starting 2006 because estimation IAP areas were modified.
ESTIAP06	ESTIMATION IAP AREA OF RESIDENCE			Y			New starting 2006 because estimation IAP areas were modified.
ESTIAP07	ESTIMATION AREA OF RESIDENCE				Y		New starting 2007 because estimation areas were modified.
ESTIAP08	ESTIMATION AREA OF RESIDENCE					Y	New starting 2008 because estimation areas were modified.

Table H.1 **Alphabetical Listing of Variables that are in the 2004-2007 Public-Use Data Files[1]**

Variable Name	Variable Label[2]	Year of Data Collection					Notes[3]
		2004	2005	2006	2007	2008	
FLU1_AGE	AGE IN MONTHS OF PROV-REPTD FLU-CONTAINING VACCINATION #1	Y	Y	Y	Y	Y	
FLU2_AGE	AGE IN MONTHS OF PROV-REPTD FLU-CONTAINING VACCINATION #2	Y	Y	Y	Y	Y	
FLU3_AGE	AGE IN MONTHS OF PROV-REPTD FLU-CONTAINING VACCINATION #3	Y	Y	Y	Y	Y	
FLU4_AGE	AGE IN MONTHS OF PROV-REPTD FLU-CONTAINING VACCINATION #4	Y	Y	Y	Y	Y	
FLU5_AGE	AGE IN MONTHS OF PROV-REPTD FLU-CONTAINING VACCINATION #5	Y	Y	Y	Y	Y	
FLU6_AGE	AGE IN MONTHS OF PROV-REPTD FLU-CONTAINING VACCINATION #6	Y	Y	Y	Y	Y	
FLU7_AGE	AGE IN MONTHS OF PROV-REPTD FLU-CONTAINING VACCINATION #7	Y	Y	Y	Y	Y[i]	
FLU8_AGE	AGE IN MONTHS OF PROV-REPTD FLU-CONTAINING VACCINATION #8	Y	Y	Y	Y	Y	
FLU9_AGE	AGE IN MONTHS OF PROV-REPTD FLU-CONTAINING VACCINATION #9		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
FRSTBRN	FIRST BORN STATUS OF CHILD	Y	Y	Y	Y	Y	
FUL2_MMR	HOUSEHOLD REPORT OF 1+ MMR AT ANY AGE	Y					Replaced by FULL_MMR starting in 2005.
FULL_CPO	HH REPORT OF 1+ VARICELLA-CONTAINING SHOT AT ANY AGE	Y	Y				Starting 2005, a code of 88 added for children with unknown UTD status. Dropped starting in 2006 because no longer possible to derive due to shortened Section B.
FULL_DTP	HH REPORT OF 4+ DT-CONTAINING SHOT	Y	Y				Starting 2005, a code of 88 added for children with unknown UTD status. Dropped starting in 2006 because no longer possible to derive due to shortened Section B.
FULL_HEP	HH REPORT OF 3+ HEPATITIS B-CONTAINING SHOTS	Y	Y				Starting 2005, a code of 88 added for children with unknown UTD status. Dropped starting in 2006 because no longer possible to derive due to shortened Section B.
FULL_HIB	HH REPORT OF 3+ HIB-CONTAINING SHOTS	Y	Y				Starting 2005, a code of 88 added for children with unknown UTD status. Dropped starting in 2006 because no longer possible to derive due to shortened Section B.
FULL_MMR	HH REPORT OF 1+ MEASLES-CONTAINING SHOT AT ANY AGE		Y				Replaced FUL2_MMR starting in 2005. A code of 88 added for children with unknown UTD status. Dropped starting in 2006 because no longer possible to derive due to shortened Section B.
FULL_POL	HH REPORT OF 3+ POLIO-CONTAINING SHOTS	Y	Y				Starting 2005, a code of 88 added for children with unknown UTD status. Dropped starting in 2006 because no longer possible to derive due to shortened Section B.
HAD_CPOX	CHILD EVER HAD CHICKEN POX DISEASE?		Y	Y	Y	Y	Replaces _HADCPX starting in 2005. This version is not imputed.
HEA1_AGE	AGE IN MONTHS OF PROV-REPTD HEPATITIS A-CONTAINING SHOT #1	Y	Y	Y	Y	Y	
HEA2_AGE	AGE IN MONTHS OF PROV-REPTD HEPATITIS A-CONTAINING SHOT #2	Y	Y	Y	Y	Y	
HEA3_AGE	AGE IN MONTHS OF PROV-REPTD HEPATITIS A-CONTAINING SHOT #3	Y	Y	Y	Y	Y	
HEA4_AGE	AGE IN MONTHS OF PROV-REPTD HEPATITIS A-CONTAINING SHOT #4	Y	Y	Y	Y	Y	
HEA5_AGE	AGE IN MONTHS OF PROV-REPTD HEPATITIS A-CONTAINING SHOT #5	Y	Y	Y	Y	Y	
HEA6_AGE	AGE IN MONTHS OF PROV-REPTD HEPATITIS A-CONTAINING SHOT #6	Y	Y	Y	Y	Y	
HEA7_AGE	AGE IN MONTHS OF PROV-REPTD HEPATITIS A-CONTAINING SHOT #7	Y	Y	Y	Y	Y	

Table H.1 **Alphabetical Listing of Variables that are in the 2004-2007 Public-Use Data Files[1]**

Variable Name	Variable Label[2]	Year of Data Collection					Notes[3]
		2004	2005	2006	2007	2008	
HEA8_AGE	AGE IN MONTHS OF PROV-REPTD HEPATITIS A-CONTAINING SHOT #8	Y	Y	Y	Y	Y	
HEA9_AGE	AGE IN MONTHS OF PROV-REPTD HEPATITIS A-CONTAINING SHOT #9		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
HEP_BRTH	HEPATITIS B-CONTAINING SHOT GIVEN AT BIRTH FLAG	Y	Y	Y	Y	Y	
HEP_FLAG	HEPATITIS B BIRTH SHOT DATE IMPUTATION FLAG	Y	Y	Y	Y	Y	
HEP1_AGE	AGE IN MONTHS OF PROV-REPTD HEPATITIS B-CONTAINING SHOT #1	Y	Y	Y	Y	Y	
HEP2_AGE	AGE IN MONTHS OF PROV-REPTD HEPATITIS B-CONTAINING SHOT #2	Y	Y	Y	Y	Y	
HEP3_AGE	AGE IN MONTHS OF PROV-REPTD HEPATITIS B-CONTAINING SHOT #3	Y	Y	Y	Y	Y	
HEP4_AGE	AGE IN MONTHS OF PROV-REPTD HEPATITIS B-CONTAINING SHOT #4	Y	Y	Y	Y	Y	
HEP5_AGE	AGE IN MONTHS OF PROV-REPTD HEPATITIS B-CONTAINING SHOT #5	Y	Y	Y	Y	Y	
HEP6_AGE	AGE IN MONTHS OF PROV-REPTD HEPATITIS B-CONTAINING SHOT #6	Y	Y	Y	Y	Y	
HEP7_AGE	AGE IN MONTHS OF PROV-REPTD HEPATITIS B-CONTAINING SHOT #7	Y	Y	Y	Y	Y	
HEP8_AGE	AGE IN MONTHS OF PROV-REPTD HEPATITIS B-CONTAINING SHOT #8	Y	Y	Y	Y	Y	
HEP9_AGE	AGE IN MONTHS OF PROV-REPTD HEPATITIS B-CONTAINING SHOT #9		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
HH_DTP	HH REPORT OF NUMBER OF DT-CONTAINING SHOTS RECEIVED			Y	Y	Y	Added in 2006 as a partial replacement for the "FULL" and "C_" variables.
HH_FLU	HH REPORT OF NUMBER OF FLU VACCINATIONS RECEIVED				Y	Y	FLU questions added to the HH questionnaire starting in 2007.
HH_HEPB	HH REPORT OF NUMBER OF HEPATITIS B-CONTAINING SHOTS RECEIVED			Y	Y	Y	Added in 2006 as a partial replacement for the "FULL" and "C_" variables.
HH_HIB	HH REPORT OF NUMBER OF HIB-CONTAINING SHOTS RECEIVED			Y	Y	Y	Added in 2006 as a partial replacement for the "FULL" and "C_" variables.
HH_MCV	HH REPORT OF NUMBER OF MEASLES-CONTAINING SHOTS RECEIVED			Y	Y	Y	Added in 2006 as a partial replacement for the "FULL" and "C_" variables.
HH_POL	HH REPORT OF NUMBER OF POLIO-CONTAINING SHOTS RECEIVED			Y	Y	Y	Added in 2006 as a partial replacement for the "FULL" and "C_" variables.
HH_VRC	HH REPORT OF NUMBER OF VARICELLA-CONTAINING SHOTS RECEIVED			Y	Y	Y	Added in 2006 as a partial replacement for the "FULL" and "C_" variables.
HIB1_AGE	AGE IN MONTHS OF PROV-REPTD HIB-CONTAINING SHOT #1	Y	Y	Y	Y	Y	
HIB2_AGE	AGE IN MONTHS OF PROV-REPTD HIB-CONTAINING SHOT #2	Y	Y	Y	Y	Y	
HIB3_AGE	AGE IN MONTHS OF PROV-REPTD HIB-CONTAINING SHOT #3	Y	Y	Y	Y	Y	
HIB4_AGE	AGE IN MONTHS OF PROV-REPTD HIB-CONTAINING SHOT #4	Y	Y	Y	Y	Y	
HIB5_AGE	AGE IN MONTHS OF PROV-REPTD HIB-CONTAINING SHOT #5	Y	Y	Y	Y	Y	
HIB6_AGE	AGE IN MONTHS OF PROV-REPTD HIB-CONTAINING SHOT #6	Y	Y	Y	Y	Y	
HIB7_AGE	AGE IN MONTHS OF PROV-REPTD HIB-CONTAINING SHOT #7	Y	Y	Y	Y	Y	
HIB8_AGE	AGE IN MONTHS OF PROV-REPTD HIB-CONTAINING SHOT #8	Y	Y	Y	Y	Y	

Table H.1 **Alphabetical Listing of Variables that are in the 2004-2007 Public-Use Data Files[1]**

Variable Name	Variable Label[2]	Year of Data Collection					Notes[3]
		2004	2005	2006	2007	2008	
HIB9_AGE	AGE IN MONTHS OF PROV-REPTD HIB-CONTAINING SHOT #9		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
HUTD4313	HOUSEHOLD REPORT OF 4:3:1:3 UTD (UP-TO-DATE)	Y					Dropped starting in 2005 because this variable is redundant with variable ALL4SHOT.
I_HADCPX	DID CHILD EVER HAVE CHICKEN POX?	Y					Replaced by HAD_CPOX starting in 2005.
I_HISP_K	HISPANIC ORIGIN OF CHILD	Y	Y	Y	Y	Y	
IAGECPXR	AGE IN MONTHS WHEN CHILD HAD CHICKEN POX (RECODE)	Y					Replaced by AGECPOXR starting in 2005.
INCPORAR	INCOME TO POVERTY RATIO (TOP- AND BOTTOMCODE)		Y	Y	Y	Y	Replaces INCPORAT starting 2005. INCPORAT used categories whereas INCPORAR is continuous. INCPORAR has been top- and bottom-coded.
INCPORAT	INCOME TO POVERTY RATIO	Y					Replaced by INCPORAR starting in 2005.
INCPOV1	POVERTY STATUS		Y	Y	Y	Y	Replaces INCPOV1R starting in 2005. INCPOV1R used two categores whereas INCPOV1 uses three.
INCPOV1R	POVERTY STATUS (RECODE)	Y					Replaced by INCPOV1 starting in 2005.
INCQ298A	FAMILY INCOME CATEGORIES (RECODE)		Y	Y	Y	Y	Replaces INCQ298R starting in 2005. INCQ298A uses different categories than were used by INCQ298R.
INCQ298R	FAMILY INCOME CATEGORIES (RECODE)	Y					Replaced by INCQ298A starting in 2005.
INOPHONR	LENGTH OF INTERRUPTION IN TELEPHONE SERVICE IN DAYS (RECODE)	Y	Y	Y	Y	Y	
INS_1	IS CHILD COVERED BY HEALTH INSURANCE PROVIDED THROUGH EMPLOYER OR UNION?				Y	Y	
INS_2	IS CHILD COVERED BY ANY MEDICAID PLAN?				Y	Y	
INS_3	IS CHILD COVERED BY S-CHIP?				Y	Y	
INS_3A	IS CHILD COVERED BY ANY MEDICAID PLAN OR S-CHIP?				Y	Y	
INS_4	IS CHILD COVERED BY INDIAN HEALTH SERVICE?				Y	Y	
INS_5	IS CHILD COVERED BY MILITARY HEALTH CARE, TRICARE, CHAMPUS, OR CHAMP-VA?				Y	Y	
INS_6	IS CHILD COVERED BY ANY OTHER HEALTH INSURANCE OR HEALTH CARE PLAN?				Y	Y	
INS_11	ANY TIME WHEN CHILD WAS NOT COVERED BY ANY HEALTH INSURANCE?				Y	Y	
INTRP	PHONE INTERRUPTION OF 7 DAYS OR MORE IN PAST YEAR?	Y	Y	Y	Y	Y	
ITRUEIAP	IAP AREA OF CURRENT RESIDENCE	Y					The new IAP area variable starting in 2005 is ESTIAP.
LANGUAGE	LANGUAGE IN WHICH INTERVIEW WAS CONDUCTED	Y	Y	Y	Y	Y	
M_AGEGRP	AGE OF MOTHER CATEGORIES	Y	Y	Y	Y	Y	
MARITAL	MARITAL STATUS OF MOTHER CATEGORIES (RECODE)	Y	Y	Y	Y	Y	
MMR1_AGE	AGE IN MONTHS OF PROV-REPTD MEASLES-CONTAINING SHOT #1	Y	Y	Y	Y	Y	
MMR2_AGE	AGE IN MONTHS OF PROV-REPTD MEASLES-CONTAINING SHOT #2	Y	Y	Y	Y	Y	
MMR3_AGE	AGE IN MONTHS OF PROV-REPTD MEASLES-CONTAINING SHOT #3	Y	Y	Y	Y	Y	

Table H.1 Alphabetical Listing of Variables that are in the 2004-2007 Public-Use Data Files[1]

Variable Name	Variable Label[2]	Year of Data Collection					Notes[3]
		2004	2005	2006	2007	2008	
MMR4_AGE	AGE IN MONTHS OF PROV-REPTD MEASLES-CONTAINING SHOT #4	Y	Y	Y	Y	Y	
MMR5_AGE	AGE IN MONTHS OF PROV-REPTD MEASLES-CONTAINING SHOT #5		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
MMR6_AGE	AGE IN MONTHS OF PROV-REPTD MEASLES-CONTAINING SHOT #6		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
MMR7_AGE	AGE IN MONTHS OF PROV-REPTD MEASLES-CONTAINING SHOT #7		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
MMR8_AGE	AGE IN MONTHS OF PROV-REPTD MEASLES-CONTAINING SHOT #8		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
MMR9_AGE	AGE IN MONTHS OF PROV-REPTD MEASLES-CONTAINING SHOT #9		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
MOBIL	GEOGRAPHIC MOBILITY STATUS: STATE OF RESIDENCE OF CHILD AT BIRTH VERSUS CURRENT STATE	Y					Replaced by MOBIL_I starting in 2005.
MOBIL_I	GEOGRAPHIC MOBILITY STATUS: STATE OF RESIDENCE OF CHILD AT BIRTH VERSUS CURRENT STATE		Y	Y	Y	Y	Replaces MOBIL starting in 2005. This version is imputed.
MP1_AGE	AGE IN MONTHS OF PROV-REPTD MUMPS-ONLY SHOT #1	Y	Y	Y	Y	Y	
MP2_AGE	AGE IN MONTHS OF PROV-REPTD MUMPS-ONLY SHOT #2	Y	Y	Y	Y	Y	
MP3_AGE	AGE IN MONTHS OF PROV-REPTD MUMPS-ONLY SHOT #3	Y	Y	Y	Y	Y	
MP4_AGE	AGE IN MONTHS OF PROV-REPTD MUMPS-ONLY SHOT #4	Y	Y	Y	Y	Y	
MP5_AGE	AGE IN MONTHS OF PROV-REPTD MUMPS-ONLY SHOT #5		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
MP6_AGE	AGE IN MONTHS OF PROV-REPTD MUMPS-ONLY SHOT #6		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
MP7_AGE	AGE IN MONTHS OF PROV-REPTD MUMPS-ONLY SHOT #7		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
MP8_AGE	AGE IN MONTHS OF PROV-REPTD MUMPS-ONLY SHOT #8		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
MP9_AGE	AGE IN MONTHS OF PROV-REPTD MUMPS-ONLY SHOT #9		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
MPR1_AGE	AGE IN MONTHS OF PROV-REPTD (MUMPS/RUBELLA)-ONLY SHOT #1	Y	Y	Y	Y	Y	
MPR2_AGE	AGE IN MONTHS OF PROV-REPTD (MUMPS/RUBELLA)-ONLY SHOT #2	Y	Y	Y	Y	Y	
MPR3_AGE	AGE IN MONTHS OF PROV-REPTD (MUMPS/RUBELLA)-ONLY SHOT #3	Y	Y	Y	Y	Y	
MPR4_AGE	AGE IN MONTHS OF PROV-REPTD (MUMPS/RUBELLA)-ONLY SHOT #4	Y	Y	Y	Y	Y	
MPR5_AGE	AGE IN MONTHS OF PROV-REPTD (MUMPS/RUBELLA)-ONLY SHOT #5		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
MPR6_AGE	AGE IN MONTHS OF PROV-REPTD (MUMPS/RUBELLA)-ONLY SHOT #6		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
MPR7_AGE	AGE IN MONTHS OF PROV-REPTD (MUMPS/RUBELLA)-ONLY SHOT #7		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
MPR8_AGE	AGE IN MONTHS OF PROV-REPTD (MUMPS/RUBELLA)-ONLY SHOT #8		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
MPR9_AGE	AGE IN MONTHS OF PROV-REPTD (MUMPS/RUBELLA)-ONLY SHOT #9		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
N_PRVR	NUMBER OF PROVIDERS RESPONDING WITH VACCINATION DATA FOR CHILD (TOPCODE)	Y	Y	Y	Y	Y	

Table H.1 **Alphabetical Listing of Variables that are in the 2004-2007 Public-Use Data Files[1]**

Variable Name	Variable Label[2]	Year of Data Collection					Notes[3]
		2004	2005	2006	2007	2008	
P_NUHEPX	NUMBER OF HEPATITIS B-ONLY SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW DATE.	Y	Y	Y	Y	Y	
P_NUHIBX	NUMBER OF HIB-ONLY SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW DATE.			Y	Y	Y	
P_NUHPHB	NUMBER OF HEPATITIS B/HIB COMBO SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW DATE.	Y	Y	Y	Y	Y	
P_NUMDAH	NUMBER OF DTAP/HIB COMBO SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW DATE.	Y	Y	Y	Y	Y	
P_NUMDHB	NUMBER OF DTP/HIB CONTAINING SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW DATE.	Y	Y	Y	Y	Y	
P_NUMDHI	NUMBER OF DTAP/HEPB/IPV COMBO SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RRD INTERVIEW DATE.			Y	Y	Y	
P_NUMDHM	NUMBER OF DTP/HIB COMBO SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW DATE.	Y	Y	Y	Y	Y	
P_NUMDTA	NUMBER OF DTAP-ONLY SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW DATE.	Y	Y	Y	Y	Y	
P_NUMDTM	NUMBER OF DT-ONLY SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW DATE.	Y	Y	Y	Y	Y	
P_NUMDTP	NUMBER OF DT-CONTAINING SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW DATE.	Y	Y	Y	Y	Y	
P_NUMFLU	NUMBER OF FLU-CONTAINING VACCINATIONS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW DATE.	Y	Y	Y	Y	Y	
P_NUMFLUL	NUMBER OF FLU-CONTAINING VACCINATIONS OF UNKNOWN TYPE DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW					Y	Starting in 2008, influenza type boxes were added to the IHQ shot grid.
P_NUMFLUM	NUMBER OF FLU SPRAY VACCINATIONS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW DATE.					Y	Starting in 2008, influenza type boxes were added to the IHQ shot grid.
P_NUMFLUN	NUMBER OF INJECTED FLU VACCINATIONS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW DATE.					Y	Starting in 2008, influenza type boxes were added to the IHQ shot grid.
P_NUMHEA	NUMBER OF HEPATITIS A-CONTAINING SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW DATE.	Y	Y	Y	Y	Y	
P_NUMHEN	NUMBER OF HEPATITIS B-CONTAINING SHOTS OF UNKNOWN TYPE DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW			Y	Y	Y	
P_NUMHEP	NUMBER OF HEPATITIS B-CONTAINING SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW DATE.	Y	Y	Y	Y	Y	
P_NUMHIB	NUMBER OF HIB-CONTAINING SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW DATE.	Y	Y	Y	Y	Y	
P_NUMHIN	NUMBER OF HIB-CONTAINING SHOTS OF UNKNOWN TYPE DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW DATE.			Y	Y	Y	

Table H.1 **Alphabetical Listing of Variables that are in the 2004-2007 Public-Use Data Files[1]**

Variable Name	Variable Label[2]	Year of Data Collection					Notes[3]
		2004	2005	2006	2007	2008	
P_NUMIPV	NUMBER OF IPV-ONLY SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW DATE.	Y	Y	Y	Y	Y	
P_NUMMCN	NUMBER OF MEASLES-CONTAINING SHOTS OF UNKNOWN TYPE DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW DATE.			Y	Y	Y	
P_NUMMMR	NUMBER OF MEASLES-CONTAINING SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW DATE.	Y	Y	Y	Y	Y	
P_NUMMMRX	NUMBER OF MMR-ONLY SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW DATE.			Y	Y	Y	
P_NUMMMX	NUMBER OF MMR COMBO SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW DATE.	Y	Y	Y	Y	Y	
P_NUMMP	NUMBER OF MUMPS-ONLY SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW DATE.	Y	Y	Y	Y	Y	
P_NUMMPR	NUMBER OF (MUMPS/RUBELLA)-ONLY SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW DATE.	Y	Y	Y	Y	Y	
P_NUMMRV	NUMBER OF MMR/VARICELLA COMBO SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW DATE.			Y	Y	Y	
P_NUMMS	NUMBER OF MEASLES-ONLY SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW DATE.	Y	Y	Y	Y	Y	
P_NUMMSM	NUMBER OF MEASLES/MUMPS COMBO SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW DATE.	Y	Y	Y	Y	Y	
P_NUMMSR	NUMBER OF MEASLES/RUBELLA COMBO SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW DATE.	Y	Y	Y	Y	Y	
P_NUMOLN	NUMBER OF POLIO SHOTS OF UNKNOWN TYPE DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW DATE.	Y	Y	Y	Y	Y	
P_NUMOPV	NUMBER OF OPV-ONLY SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW DATE.	Y	Y	Y	Y	Y	
P_NUMPCC	NUMBER OF PCV CONJUGATE SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW DATE.	Y	Y	Y	Y	Y	
P_NUMPCN	NUMBER OF PCV SHOTS OF UNKNOWN TYPE DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW DATE.	Y	Y	Y	Y	Y	
P_NUMPCP	NUMBER OF PCV POLYSACCHARIDE SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW DATE.	Y	Y	Y	Y	Y	
P_NUMPCV	NUMBER OF PNEUMOCOCCAL-CONTAINING SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW DATE.	Y	Y	Y	Y	Y	
P_NUMPOL	NUMBER OF POLIO-CONTAINING SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW DATE.	Y	Y	Y	Y	Y	
P_NUMRB	NUMBER OF RUBELLA-ONLY SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW DATE.	Y	Y	Y	Y	Y	

Table H.1 **Alphabetical Listing of Variables that are in the 2004-2007 Public-Use Data Files[1]**

Variable Name	Variable Label[2]	Year of Data Collection					Notes[3]
		2004	2005	2006	2007	2008	
P_NUMROT	NUMBER OF ROTAVIRUS-CONTAINING SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW DATE.	Y	Y	Y	Y	Y	
P_NUMTPM	NUMBER OF DTP-ONLY SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW DATE.	Y	Y	Y	Y	Y	
P_NUMTPN	NUMBER OF DT-CONTAINING SHOTS OF UNKNOWN TYPE DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW DATE.	Y	Y	Y	Y	Y	
P_NUMVRC	NUMBER OF VARICELLA-CONTAINING SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW DATE.	Y	Y	Y	Y	Y	
P_NUMVRN	NUMBER OF VARICELLA-CONTAINING SHOTS OF UNKNOWN TYPE DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW DATE.			Y	Y	Y	
P_NUMVRX	NUMBER OF VARICELLA-ONLY SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE HH INTERVIEW DATE.			Y	Y	Y	
P_U12VRC	UTD (UP-TO-DATE) FLAG FOR PROVIDER 1+ VARICELLA-CONTAINING SHOT AT 12+ MONTHS	Y	Y	Y	Y	Y	
P_UTD331	UTD (UP-TO-DATE) FLAG FOR PROVIDER 3:3:1	Y	Y	Y	Y	Y	
P_UTD431	UTD (UP-TO-DATE) FLAG FOR PROVIDER 4:3:1	Y	Y	Y	Y	Y	
P_UTDFL1	UTD FLAG FOR PROVIDER INFLUENZA VARIABLE 1	Y	Y	Y	Y	Y	
P_UTDFL2	UTD FLAG FOR PROVIDER INFLUENZA VARIABLE 2	Y	Y	Y	Y	Y	
P_UTDFL3	UTD FLAG FOR PROVIDER INFLUENZA VARIABLE 3				Y	Y	
P_UTDHEP	UTD (UP-TO-DATE) FLAG FOR PROVIDER 3+ HEPATITIS B-CONTAINING SHOTS	Y	Y	Y	Y	Y	
P_UTDHIB	UTD (UP-TO-DATE) FLAG FOR PROVIDER 3+ HIB-CONTAINING SHOTS	Y	Y	Y	Y	Y	
P_UTDMCV	UTD (UP-TO-DATE) FLAG FOR PROVIDER 1+ MEASLES-CONTAINING SHOT	Y	Y	Y	Y	Y	
P_UTDMMX	UTD FLAG FOR PROVIDER 1+ MMR COMBO SHOT	Y	Y	Y	Y	Y	
P_UTDPC3	UTD (UP-TO-DATE) FLAG FOR PROVIDER 3+ PNEUMOCOCCAL-CONTAINING SHOTS	Y	Y	Y	Y	Y	
P_UTDPCV	UTD (UP-TO-DATE) FLAG FOR PROVIDER 4+ PNEUMOCOCCAL-CONTAINING SHOTS	Y	Y	Y	Y	Y	
P_UTDPOL	UTD (UP-TO-DATE) FLAG FOR PROVIDER 3+ POLIO-CONTAINING SHOTS	Y	Y	Y	Y	Y	
P_UTDTP3	UTD (UP-TO-DATE) FLAG FOR PROVIDER 3+ DT-CONTAINING SHOTS	Y	Y	Y	Y	Y	
P_UTDTP4	UTD (UP-TO-DATE) FLAG FOR PROVIDER 4+ DT-CONTAINING SHOTS	Y	Y	Y	Y	Y	
PCV1_AGE	AGE IN MONTHS OF PROV-REPTD PNEUMOCOCCAL-CONTAINING SHOT #1	Y	Y	Y	Y	Y	
PCV2_AGE	AGE IN MONTHS OF PROV-REPTD PNEUMOCOCCAL-CONTAINING SHOT #2	Y	Y	Y	Y	Y	
PCV3_AGE	AGE IN MONTHS OF PROV-REPTD PNEUMOCOCCAL-CONTAINING SHOT #3	Y	Y	Y	Y	Y	
PCV4_AGE	AGE IN MONTHS OF PROV-REPTD PNEUMOCOCCAL-CONTAINING SHOT #4	Y	Y	Y	Y	Y	

Table H.1 Alphabetical Listing of Variables that are in the 2004-2007 Public-Use Data Files[1]

Variable Name	Variable Label[2]	Year of Data Collection					Notes[3]
		2004	2005	2006	2007	2008	
PCV5_AGE	AGE IN MONTHS OF PROV-REPTD PNEUMOCOCCAL-CONTAINING SHOT #5	Y	Y	Y	Y	Y	
PCV6_AGE	AGE IN MONTHS OF PROV-REPTD PNEUMOCOCCAL-CONTAINING SHOT #6	Y	Y	Y	Y	Y	
PCV7_AGE	AGE IN MONTHS OF PROV-REPTD PNEUMOCOCCAL-CONTAINING SHOT #7	Y	Y	Y	Y	Y	
PCV8_AGE	AGE IN MONTHS OF PROV-REPTD PNEUMOCOCCAL-CONTAINING SHOT #8	Y	Y	Y	Y	Y	
PCV9_AGE	AGE IN MONTHS OF PROV-REPTD PNEUMOCOCCAL-CONTAINING SHOT #9		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
PDAT	CHILD HAS ADEQUATE PROVIDER DATA	Y	Y	Y	Y	Y	
POL1_AGE	AGE IN MONTHS OF PROV-REPTD POLIO-CONTAINING SHOT #1	Y	Y	Y	Y	Y	
POL2_AGE	AGE IN MONTHS OF PROV-REPTD POLIO-CONTAINING SHOT #2	Y	Y	Y	Y	Y	
POL3_AGE	AGE IN MONTHS OF PROV-REPTD POLIO-CONTAINING SHOT #3	Y	Y	Y	Y	Y	
POL4_AGE	AGE IN MONTHS OF PROV-REPTD POLIO-CONTAINING SHOT #4	Y	Y	Y	Y	Y	
POL5_AGE	AGE IN MONTHS OF PROV-REPTD POLIO-CONTAINING SHOT #5	Y	Y	Y	Y	Y	
POL6_AGE	AGE IN MONTHS OF PROV-REPTD POLIO-CONTAINING SHOT #6	Y	Y	Y	Y	Y	
POL7_AGE	AGE IN MONTHS OF PROV-REPTD POLIO-CONTAINING SHOT #7	Y	Y	Y	Y	Y	
POL8_AGE	AGE IN MONTHS OF PROV-REPTD POLIO-CONTAINING SHOT #8	Y	Y	Y	Y	Y	
POL9_AGE	AGE IN MONTHS OF PROV-REPTD POLIO-CONTAINING SHOT #9		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
PROV_FAC	PROVIDER FACILITY TYPE	Y	Y	Y	Y	Y	
PROVWT	WEIGHT FOR CHILDREN WITH ADEQUATE PROVIDER DATA AND UNVACCINATED CHILDREN		Y	Y	Y	Y	Replaces GT starting in 2005.
PU431331	UTD FLAG FOR PROVIDER 4:3:1:3:3:1 (INCLUDES 1+ VARICELLA AT AGE 12+ MTHS)	Y	Y	Y	Y	Y	
PU4313313	UTD FLAG FOR PROVIDER 4:3:1:3:3:1:3 (INCLUDES 1+ VARICELLA AT AGE 12+ MTHS)				Y	Y	
PU4313314	UTD FLAG FOR PROVIDER 4:3:1:3:3:1:4 (INCLUDES 1+ VARICELLA AT AGE 12+ MTHS)				Y	Y	
PUT43133	UTD FLAG FOR PROVIDER 4:3:1:3:3	Y	Y	Y	Y	Y	
PUTD4313	UTD FLAG FOR PROVIDER 4:3:1:3	Y	Y	Y	Y	Y	
Q5WEB1	INTEREST IN IHQ ON WEBSITE PROVIDER #1	Y					Question was not asked starting in 2005.
Q5WEB2	INTEREST IN IHQ ON WEBSITE PROVIDER #2	Y					Question was not asked starting in 2005.
Q5WEB3	INTEREST IN IHQ ON WEBSITE PROVIDER #3	Y					Question was not asked starting in 2005.
Q5WEB4	INTEREST IN IHQ ON WEBSITE PROVIDER #4	Y					Question was not asked starting in 2005.
Q5WEB5	INTEREST IN IHQ ON WEBSITE PROVIDER #5	Y					Question was not asked starting in 2005.
RACE_K	RACE OF CHILD RECODE)	Y	Y	Y	Y	Y	

Table H.1 O C (**Alphabetical Listing of Variables that are in the 2004-2007 Public-Use Data Files[1]**

Variable Name	Variable Label[2]	Year of Data Collection					Notes[3]
		2004	2005	2006	2007	2008	
RACEETHK	RACE/ETHNICITY F HILD RECODE)	Y	Y	Y	Y	Y	
RB1_AGE	AGE N ONTHS F ROV-REPTD UBELLA-ONLY HOT 1	Y	Y	Y	Y	Y	
RB2_AGE	AGE N ONTHS F ROV-REPTD UBELLA-ONLY HOT 2	Y	Y	Y	Y	Y	
RB3_AGE	AGE N ONTHS F ROV-REPTD UBELLA-ONLY HOT 3	Y	Y	Y	Y	Y	
RB4_AGE	AGE N ONTHS F ROV-REPTD UBELLA-ONLY HOT 4	Y	Y	Y	Y	Y	
RB5_AGE	AGE N ONTHS F ROV-REPTD UBELLA-ONLY HOT 5	Y	Y	Y	Y	Y	
RB6_AGE	AGE N ONTHS F ROV-REPTD UBELLA-ONLY HOT 6	Y	Y	Y	Y	Y	
RB7_AGE	AGE N ONTHS F ROV-REPTD UBELLA-ONLY HOT 7	Y	Y	Y	Y	Y i	
RB8_AGE	C AGE N ONTHS W F ROV-REPTD UBELLA-ONLY HOT 8	Y	Y	Y	Y	Y W s i	
RB9_AGE	AGE N ONTHS F ROV-REPTD UBELLA-ONLY HOT 9		Y	Y	Y	Y	Starting n 2005, nine shot variables are included for each vaccine category.
RDDWT	HH-PHASE HILD NTERVIEW EIGHT		Y	Y	Y	Y	Replaces GT_RDD tarting n 2005.
REGISTRY	CHILD'S PROVIDERS REPORTED CHILD'S VACCINATIONS TO IMMUNIZATION REGISTRY	Y	Y	Y	Y	Y	
ROT1_AGE	AGE IN MONTHS OF PROV-REPTD ROTAVIRUS-CONTAINING SHOT #1	Y	Y	Y	Y	Y	
ROT2_AGE	AGE IN MONTHS OF PROV-REPTD ROTAVIRUS-CONTAINING SHOT #2	Y	Y	Y	Y	Y	
ROT3_AGE	AGE IN MONTHS OF PROV-REPTD ROTAVIRUS-CONTAINING SHOT #3	Y	Y	Y	Y	Y	
ROT4_AGE	AGE IN MONTHS OF PROV-REPTD ROTAVIRUS-CONTAINING SHOT #4	Y	Y	Y	Y	Y	
ROT5_AGE	AGE IN MONTHS OF PROV-REPTD ROTAVIRUS-CONTAINING SHOT #5	Y	Y	Y	Y	Y	
ROT6_AGE	AGE IN MONTHS OF PROV-REPTD ROTAVIRUS-CONTAINING SHOT #6	Y	Y	Y	Y	Y	
ROT7_AGE	AGE IN MONTHS OF PROV-REPTD ROTAVIRUS-CONTAINING SHOT #7	Y	Y	Y	Y	Y i	
ROT8_AGE	AGE IN MONTHS OF PROV-REPTD ROTAVIRUS-CONTAINING SHOT #8	Y	Y	Y	Y	Y	
ROT9_AGE	AGE IN MONTHS OF PROV-REPTD ROTAVIRUS-CONTAINING SHOT #9		Y	Y	Y	Y	Starting n 2005, nine shot variables are included for each vaccine category.
SC_431	HH SHOT CARD REPORT OF 4:3:1 UP-TO-DATE			Y	Y	Y	Added in 2006 as a partial replacement for the "FULL" and "C_" variables.
SC_4313	HH SHOT CARD REPORT OF 4:3:1:3 UP-TO-DATE			Y	Y	Y	Added in 2006 as a partial replacement for the "FULL" and "C_" variables.
SC_43133	HH SHOT CARD REPORT OF 4:3:1:3:3 UP-TO-DATE			Y	Y	Y	Added in 2006 as a partial replacement for the "FULL" and "C_" variables.
SC_DTP	HH SHOT CARD REPORT OF 4+ DT-CONTAINING UP-TO-DATE			Y	Y	Y	Added in 2006 as a partial replacement for the "FULL" and "C_" variables.
SC_HEPB	HH SHOT CARD REPORT OF 3+ HEPATITIS B-CONTAINING UP-TO-DATE			Y	Y	Y	Added in 2006 as a partial replacement for the "FULL" and "C_" variables.
SC_HIB	HH SHOT CARD REPORT OF 3+ HIB-CONTAINING UP-TO-DATE			Y	Y	Y	Added in 2006 as a partial replacement for the "FULL" and "C_" variables.
SC_MCV	HH SHOT CARD REPORT OF 1+ MEASLES-CONTAINING UP-TO-DATE			Y	Y	Y	Added in 2006 as a partial replacement for the "FULL" and "C_" variables.

Table H.1 Alphabetical Listing of Variables that are in the 2004-2007 Public-Use Data Files[1]

Variable Name	Variable Label[2]	Year of Data Collection					Notes[3]
		2004	2005	2006	2007	2008	
SC_POL	HH SHOT CARD REPORT OF 3+ POLIO-CONTAINING UP-TO-DATE			Y	Y	Y	Added in 2006 as a partial replacement for the "FULL" and "C_" variables.
SC_VRC	HH SHOT CARD REPORT OF 1+ VARICELLA-CONTAINING UP-TO-DATE			Y	Y	Y	Added in 2006 as a partial replacement for the "FULL" and "C_" variables.
SEQNUMC	UNIQUE CHILD IDENTIFIER	Y	Y	Y	Y	Y	
SEQNUMHH	UNIQUE HOUSEHOLD IDENTIFIER	Y	Y	Y	Y	Y	
SEX	GENDER OF CHILD	Y	Y	Y	Y	Y	
SHORT	Q1/2004 SHORT QUESTIONNAIRE EXPERIMENT FLAG	Y					There was no short questionnaire experiment in 2005.
SHOTCARD	SHOT CARD SEEN FLAG	Y	Y	Y	Y	Y	
STATE	TRUE STATE OF RESIDENCE (STATE FIPS CODE)	Y	Y	Y	Y	Y	
VFC_ORDER	DO CHILD'S PROVIDERS ORDER VACCINES FROM STATE/LOCAL HEALTH DEPT?			Y	Y	Y	
VFC_PRO	PARTICIPATION OF CHILD'S PROVIDERS IN VACCINES FOR CHILDREN PROGRAM	Y	Y				Question was not asked starting in 2006.
VRC1_AGE	AGE IN MONTHS OF PROV-REPTD VARICELLA-CONTAINING SHOT #1	Y	Y	Y	Y	Y	
VRC2_AGE	AGE IN MONTHS OF PROV-REPTD VARICELLA-CONTAINING SHOT #2	Y	Y	Y	Y	Y	
VRC3_AGE	AGE IN MONTHS OF PROV-REPTD VARICELLA-CONTAINING SHOT #3	Y	Y	Y	Y	Y	
VRC4_AGE	AGE IN MONTHS OF PROV-REPTD VARICELLA-CONTAINING SHOT #4	Y	Y	Y	Y	Y[i]	
VRC5_AGE	AGE IN MONTHS OF PROV-REPTD VARICELLA-CONTAINING SHOT #5		Y	Y	Y	Y[i]	Starting in 2005, nine shot variables are included for each vaccine category.
VRC6_AGE	AGE IN MONTHS OF PROV-REPTD VARICELLA-CONTAINING SHOT #6		Y	Y	Y	Y[i]	Starting in 2005, nine shot variables are included for each vaccine category.
VRC7_AGE	AGE IN MONTHS OF PROV-REPTD VARICELLA-CONTAINING SHOT #7		Y	Y	Y	Y[i]	Starting in 2005, nine shot variables are included for each vaccine category.
VRC8_AGE	AGE IN MONTHS OF PROV-REPTD VARICELLA-CONTAINING SHOT #8		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
VRC9_AGE	AGE IN MONTHS OF PROV-REPTD VARICELLA-CONTAINING SHOT #9		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
WGT	NEW WEIGHT FOR CHILDREN WITH ADEQUATE PROVIDER DATA AND UNVACCINATED CHILDREN	Y					Replaced by PROVWT starting in 2005.
WGT_RDD	RDD CHILD INTERVIEW WEIGHT	Y					Replaced by RDDWT starting in 2005.
XDTPTY1	DTP-CONTAINING VACCINATION #1 TYPE CODE	Y	Y	Y	Y	Y	
XDTPTY2	DTP-CONTAINING VACCINATION #2 TYPE CODE	Y	Y	Y	Y	Y	
XDTPTY3	DTP-CONTAINING VACCINATION #3 TYPE CODE	Y	Y	Y	Y	Y	
XDTPTY4	DTP-CONTAINING VACCINATION #4 TYPE CODE	Y	Y	Y	Y	Y	
XDTPTY5	DTP-CONTAINING VACCINATION #5 TYPE CODE	Y	Y	Y	Y	Y	
XDTPTY6	DTP-CONTAINING VACCINATION #6 TYPE CODE	Y	Y	Y	Y	Y	
XDTPTY7	DTP-CONTAINING VACCINATION #7 TYPE CODE	Y	Y	Y	Y	Y	

Table H.1 **Alphabetical Listing of Variables that are in the 2004-2007 Public-Use Data Files[1]**

Variable Name	Variable Label[2]	Year of Data Collection					Notes[3]
		2004	2005	2006	2007	2008	
XDTPTY8	DT-CONTAINING VACCINATION #8 TYPE CODE	Y	Y	Y	Y	Y	
XDTPTY9	DT-CONTAINING VACCINATION #9 TYPE CODE		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
XFLUTY1	FLU-CONTAINING VACCINATION #1 TYPE CODE					Y	Starting in 2008, influenza type boxes were added to the IHQ shot grid.
XFLUTY2	FLU-CONTAINING VACCINATION #2 TYPE CODE					Y	Starting in 2008, influenza type boxes were added to the IHQ shot grid.
XFLUTY3	FLU-CONTAINING VACCINATION #3 TYPE CODE					Y	Starting in 2008, influenza type boxes were added to the IHQ shot grid.
XFLUTY4	FLU-CONTAINING VACCINATION #4 TYPE CODE					Y	Starting in 2008, influenza type boxes were added to the IHQ shot grid.
XFLUTY5	FLU-CONTAINING VACCINATION #5 TYPE CODE					Y	Starting in 2008, influenza type boxes were added to the IHQ shot grid.
XFLUTY6	FLU-CONTAINING VACCINATION #6 TYPE CODE					Y	Starting in 2008, influenza type boxes were added to the IHQ shot grid.
XFLUTY7	FLU-CONTAINING VACCINATION #7 TYPE CODE					Y	Starting in 2008, influenza type boxes were added to the IHQ shot grid.
XFLUTY8	FLU-CONTAINING VACCINATION #8 TYPE CODE					Y	Starting in 2008, influenza type boxes were added to the IHQ shot grid.
XFLUTY9	FLU-CONTAINING VACCINATION #9 TYPE CODE					Y	Starting in 2008, influenza type boxes were added to the IHQ shot grid.
XHEPTY1	HEPATITIS B-CONTAINING VACCINATION #1 TYPE CODE	Y	Y	Y	Y	Y	
XHEPTY2	HEPATITIS B-CONTAINING VACCINATION #2 TYPE CODE	Y	Y	Y	Y	Y	
XHEPTY3	HEPATITIS B-CONTAINING VACCINATION #3 TYPE CODE	Y	Y	Y	Y	Y	
XHEPTY4	HEPATITIS B-CONTAINING VACCINATION #4 TYPE CODE	Y	Y	Y	Y	Y	
XHEPTY5	HEPATITIS B-CONTAINING VACCINATION #5 TYPE CODE	Y	Y	Y	Y	Y	
XHEPTY6	HEPATITIS B-CONTAINING VACCINATION #6 TYPE CODE	Y	Y	Y	Y	Y	
XHEPTY7	HEPATITIS B-CONTAINING VACCINATION #7 TYPE CODE	Y	Y	Y	Y	Y	
XHEPTY8	HEPATITIS B-CONTAINING VACCINATION #8 TYPE CODE	Y	Y	Y	Y	Y	
XHEPTY9	HEPATITIS B-CONTAINING VACCINATION #9 TYPE CODE		Y	Y	Y	Y	Starting in 2005, nine shot variables are included for each vaccine category.
XHIBTY1	HIB-CONTAINING VACCINATION #1 TYPE CODE	Y	Y	Y	Y	Y	
XHIBTY2	HIB-CONTAINING VACCINATION #2 TYPE CODE	Y	Y	Y	Y	Y	
XHIBTY3	HIB-CONTAINING VACCINATION #3 TYPE CODE	Y	Y	Y	Y	Y	
XHIBTY4	HIB-CONTAINING VACCINATION #4 TYPE CODE	Y	Y	Y	Y	Y	
XHIBTY5	HIB-CONTAINING VACCINATION #5 TYPE CODE	Y	Y	Y	Y	Y	
XHIBTY6	HIB-CONTAINING VACCINATION #6 TYPE CODE	Y	Y	Y	Y	Y	
XHIBTY7	HIB-CONTAINING VACCINATION #7 TYPE CODE	Y	Y	Y	Y	Y	
XHIBTY8	HIB-CONTAINING VACCINATION #8 TYPE CODE	Y	Y	Y	Y	Y	

Table H.1 **Alphabetical Listing of Variables that are in the 2004-2007 Public-Use Data Files[1]**

Variable Name	Variable Label[2]	Year of Data Collection					Notes[3]
		2004	2005	2006	2007	2008	
XHIBTY9	HIB-CONTAINING ACCINATION 9 YPE ODE		Y	Y	Y	Y	Starting n 2005, nine shot variables are included for each vaccine category.
XMMRTY1	MEASLES-CONTAINING ACCINATION 1 YPE ODE	Y	Y	Y	Y	Y	
XMMRTY2	MEASLES-CONTAINING ACCINATION 2 YPE ODE	Y	Y	Y	Y	Y	
XMMRTY3	MEASLES-CONTAINING ACCINATION 3 YPE ODE	Y	Y	Y	Y	Y i	
XMMRTY4	MEASLES-CONTAINING ACCINATION 4 YPE ODE	Y	Y	Y	Y	Y i	
XMMRTY5	MEASLES-CONTAINING ACCINATION 5 YPE ODE		Y	Y	Y	Y i	Starting n 2005, nine shot variables are included for each vaccine category.
XMMRTY6	MEASLES-CONTAINING ACCINATION 6 YPE ODE		Y	Y	Y	Y i	Starting n 2005, nine shot variables are included for each vaccine category.
XMMRTY7	MEASLES-CONTAINING ACCINATION 7 YPE ODE		Y	Y	Y	Y i	Starting n 2005, nine shot variables are included for each vaccine category.
XMMRTY8	MEASLES-CONTAINING ACCINATION 8 YPE ODE		Y	Y	Y	Y	Starting n 2005, nine shot variables are included for each vaccine category.
XMMRTY9	MEASLES-CONTAINING ACCINATION 9 YPE ODE		Y	Y	Y	Y	Starting n 2005, nine shot variables are included for each vaccine category.
XPCVTY1	PNEUMOCOCCAL-CONTAINING VACCINATION #1 TYPE CODE	Y	Y	Y	Y	Y	
XPCVTY2	PNEUMOCOCCAL-CONTAINING VACCINATION #2 TYPE CODE	Y	Y	Y	Y	Y	
XPCVTY3	PNEUMOCOCCAL-CONTAINING VACCINATION #3 TYPE CODE	Y	Y	Y	Y	Y	
XPCVTY4	PNEUMOCOCCAL-CONTAINING VACCINATION #4 TYPE CODE	Y	Y	Y	Y	Y	
XPCVTY5	PNEUMOCOCCAL-CONTAINING VACCINATION #5 TYPE CODE	Y	Y	Y	Y	Y	
XPCVTY6	PNEUMOCOCCAL-CONTAINING VACCINATION #6 TYPE CODE	Y	Y	Y	Y	Y	
XPCVTY7	PNEUMOCOCCAL-CONTAINING VACCINATION #7 TYPE CODE	Y	Y	Y	Y	Y i	
XPCVTY8	PNEUMOCOCCAL-CONTAINING VACCINATION #8 TYPE CODE	Y	Y	Y	Y	Y	
XPCVTY9	PNEUMOCOCCAL-CONTAINING VACCINATION #9 TYPE CODE		Y	Y	Y	Y	Starting n 2005, nine shot variables are included for each vaccine category.
XPOLTY1	POLIO-CONTAINING ACCINATION 1 YPE ODE	Y	Y	Y	Y	Y	
XPOLTY2	POLIO-CONTAINING ACCINATION 2 YPE ODE	Y	Y	Y	Y	Y	
XPOLTY3	POLIO-CONTAINING ACCINATION 3 YPE ODE	Y	Y	Y	Y	Y	
XPOLTY4	POLIO-CONTAINING ACCINATION 4 YPE ODE	Y	Y	Y	Y	Y	
XPOLTY5	POLIO-CONTAINING ACCINATION 5 YPE ODE	Y	Y	Y	Y	Y	
XPOLTY6	POLIO-CONTAINING ACCINATION 6 YPE ODE	Y	Y	Y	Y	Y	
XPOLTY7	POLIO-CONTAINING ACCINATION 7 YPE ODE	Y	Y	Y	Y	Y i	
XPOLTY8	POLIO-CONTAINING ACCINATION 8 YPE ODE	Y	Y	Y	Y	Y	
XPOLTY9	POLIO-CONTAINING ACCINATION 9 YPE ODE		Y	Y	Y	Y	Starting n 2005, nine shot variables are included for each vaccine category.

Table H.1 **Alphabetical Listing of Variables that are in the 2004-2007 Public-Use Data Files[1]**

Variable Name	Variable Label[2]	Year of Data Collection					Notes[3]
		2004	2005	2006	2007	2008	
XVRCTY1	VARICELLA-CONTAINING VACCINATION #1 TYPE CODE			Y	Y	Y	Varicella vaccination types were added to the IHQ starting 2006.
XVRCTY2	VARICELLA-CONTAINING VACCINATION #2 TYPE CODE			Y	Y	Y	Varicella vaccination types were added to the IHQ starting 2006.
XVRCTY3	VARICELLA-CONTAINING VACCINATION #3 TYPE CODE			Y	Y	Y	Varicella vaccination types were added to the IHQ starting 2006.
XVRCTY4	VARICELLA-CONTAINING VACCINATION #4 TYPE CODE			Y	Y	Y	Varicella vaccination types were added to the IHQ starting 2006.
XVRCTY5	VARICELLA-CONTAINING VACCINATION #5 TYPE CODE			Y	Y	Y	Varicella vaccination types were added to the IHQ starting 2006.
XVRCTY6	VARICELLA-CONTAINING VACCINATION #6 TYPE CODE			Y	Y	Y	Varicella vaccination types were added to the IHQ starting 2006.
XVRCTY7	VARICELLA-CONTAINING VACCINATION #7 TYPE CODE			Y	Y	Y	Varicella vaccination types were added to the IHQ starting 2006.
XVRCTY8	VARICELLA-CONTAINING VACCINATION #8 TYPE CODE			Y	Y	Y	Varicella vaccination types were added to the IHQ starting 2006.
XVRCTY9	VARICELLA-CONTAINING VACCINATION #9 TYPE CODE			Y	Y	Y	Varicella vaccination types were added to the IHQ starting 2006.
YEAR	YEAR OF INTERVIEW	Y	Y	Y	Y	Y	

1 For a list of variables that appeared in one or more (but not all) public use files from 1995-2004, see "Alphabetical Listing of Variables that are Not Available in All Public-Use Data Files, National Immunization Survey, 1995-2004": http://www.cdc.gov/nis/pdfs/pufvariables1995to2004.pdf

2 If the variable appeared in the 2008 public use file, then the 2008 label is given; otherwise the label from the most recent public use file in which the variable appeared is given.

3 Starting in 2005, a code of 77 is used for "Don't Know" responses and a code of 99 is used for "Refused" responses.

Appendix I

Summary Tables

Table I.1: Estimated Population Totals and Sample Sizes of Children 19-35 Months of Age by State and Estimation Area, National Immunization Survey, 2008

State/Estimation Area[1]	ESTIAP08	Estimated Population Total of Children	Number of Children with Complete Household Interviews	Number of Children with Adequate Provider Data	Percent of Children with Adequate Provider Data
Total U.S.		6,168,021.00	25,948	18,430	71.03
Alabama	20	89,650.93	490	339	69.18
Alaska	74	15,271.38	345	250	72.46
Arizona	66	150,253.77	394	275	69.80
Arkansas	46	57,579.87	475	347	73.05
California		823,983.09	1,421	950	66.85
CA-Los Angeles County	69	224,944.61	462	291	62.99
CA-Northern CA	85	16,024.65	313	231	73.80
CA-Rest of State	68	542,735.16	342	220	64.33
CA-Santa Clara County	70	40,278.68	304	208	68.42
Colorado	60	103,235.38	437	305	69.79
Connecticut	1	62,501.34	332	227	68.37
Delaware	13	17,151.07	435	290	66.67
District of Columbia	12	11,030.10	404	269	66.58
Florida		347,196.26	1,103	756	68.54
FL-Dade County	24	51,798.20	411	264	64.23
FL-Orange County	91	25,380.84	360	255	70.83
FL-Rest of State	22	270,017.21	332	237	71.39
Georgia	25	217,112.13	403	299	74.19
Hawaii	72	26,308.74	370	238	64.32
Idaho	75	33,939.45	354	282	79.66
Illinois		260,892.63	1,425	969	68.00
IL-City of Chicago	35	66,315.75	477	318	66.67
IL-Madison & St. Clair	92	10,116.24	477	316	66.25
IL-Rest of State	34	184,460.63	471	335	71.13
Indiana	36	127,693.37	433	301	69.52
Iowa	56	56,769.76	342	262	76.61
Kansas	57	61,243.09	398	303	76.13
Kentucky	27	82,272.55	375	272	72.53
Louisiana	47	87,854.84	513	340	66.28
Maine	4	20,246.11	375	275	73.33
Maryland		114,472.96	864	610	70.60
MD-City of Baltimore	15	14,151.68	427	294	68.85
MD-Rest of State	14	100,321.28	437	316	72.31
Massachusetts	2	114,230.27	385	266	69.09
Michigan	38	185,840.42	399	282	70.68
Mississippi	28	61,061.92	515	377	73.20
Missouri	58	116,004.89	454	315	69.38
Minnesota		105,666.27	500	362	72.40
MN-Rest of State	40	46,110.58	155	117	75.48

Table I.1: Estimated Population Totals and Sample Sizes of Children 19-35 Months of Age by State and Estimation Area, National Immunization Survey, 2008

State/Estimation Area[1]	ESTIAP08	Estimated Population Total of Children	Number of Children with Complete Household Interviews	Number of Children with Adequate Provider Data	Percent of Children with Adequate Provider Data
MN-Twin City Area	93	59,555.69	345	245	71.01
Montana	61	17,516.54	363	268	73.83
Nebraska	59	37,751.58	400	316	79.00
Nevada	73	59,447.04	356	246	69.10
New Hampshire	5	21,224.87	346	241	69.65
New Jersey	8	170,612.29	489	322	65.85
New Mexico	49	41,344.66	383	280	73.11
New York		360,537.23	806	529	65.63
NY-City of New York	11	175,786.23	434	267	61.52
NY-Rest of State	10	184,751.00	372	262	70.43
North Carolina	29	185,291.19	422	318	75.36
North Dakota	62	11,597.02	352	269	76.42
Ohio	41	217,535.13	400	300	75.00
Oklahoma	50	77,110.18	368	261	70.92
Oregon	76	70,067.80	283	224	79.15
Pennsylvania		213,519.91	905	609	67.29
PA-Philadelphia County	17	33,028.94	491	320	65.17
PA-Rest of State	16	180,490.97	414	289	69.81
Rhode Island	6	19,606.26	308	224	72.73
South Carolina	30	87,485.92	471	345	73.25
South Dakota	63	16,355.15	417	305	73.14
Tennessee	31	122,672.20	452	335	74.12
Texas		577,126.67	1,872	1,377	73.56
TX-Bexar County	55	37,909.70	384	288	75.00
TX-City of Houston	54	71,627.61	379	269	70.98
TX-Dallas County	52	65,320.06	413	299	72.40
TX-El Paso County	53	21,101.52	349	281	80.52
TX-Rest of State	51	381,167.77	347	240	69.16
Utah	64	73,182.49	299	232	77.59
Vermont	7	9,744.02	303	232	76.57
Virginia	18	157,490.04	358	225	62.85
Washington		126,232.59	590	430	72.88
WA-Rest of State	77	88,176.48	270	193	71.48
WA-Western/Eastern WA	774	38,056.12	320	237	74.06
West Virginia	19	29,123.94	412	300	72.82
Wisconsin	44	105,348.16	307	222	72.31
Wyoming	65	10,635.55	345	259	75.07

[1] Bold font indicates areas that were added as estimation areas for 2008. The estimation areas for 2007 that were dropped for 2008 are: Alameda County, CA; San Bernardino County, CA; and Marion County, IN. Western WA, an estimation area in 2007 was merged with Eastern WA.

Table I.2: Estimated Population Totals and Sample Sizes for Age Group by Maternal Education, National Immunization Survey, 2008

Age Group in Months	Maternal Education	Children with Completed Household Interviews		Children with Adequate Provider Data	
		Unweighted Completes	Weighted Completes	Unweighted Completes	Weighted Completes
19-23	<12 Years	900	363,407.4	669	372,383.6
19-23	12 Years	1,528	601,111.1	1,104	606,650.4
19-23	>12, Non College Graduate	1,968	349,271.2	1,396	346,428.8
19-23	College Grad	3,298	579,819.6	2,366	568,146.4
24-29	<12 Years	1,004	424,039.8	718	420,289.2
24-29	12 Years	1,680	640,332.6	1,157	632,918.0
24-29	>12, Non College Graduate	2,491	422,589.6	1,743	419,448.9
24-29	College Grad	3,899	620,283.5	2,795	634,589.4
30-35	<12 Years	1,005	458,268.9	698	449,022.4
30-35	12 Years	1,681	640,298.0	1,176	646,194.2
30-35	>12, Non College Graduate	2,507	437,659.3	1,810	439,837.7
30-35	College Grad	3,987	630,940.0	2,798	632,111.9
Total		25,948	6,168,021.0	18,430	6,168,021.0

Table I.3: Estimated Population Totals and Sample Sizes for Age Group by Poverty Status, National Immunization Survey, 2008

Age Group in Months	Poverty Status	Children with Completed Household Interviews		Children with Adequate Provider Data	
		Unweighted Completes	Weighted Completes	Unweighted Completes	Weighted Completes
19-23 Months	Above poverty, > $75K	2,546	491,462.6	1,826	487,145.3
19-23 Months	Above poverty, <= $75K	3,114	722,518.3	2,255	707,923.9
19-23 Months	Below poverty	1,585	552,054.0	1,208	567,719.3
19-23 Months	Unknown	449	127,574.3	246	130,820.8
24-29 Months	Above poverty, > $75K	2,957	548,077.0	2,133	550,710.1
24-29 Months	Above poverty, <= $75K	3,796	803,125.7	2,707	820,151.9
24-29 Months	Below poverty	1,788	605,998.1	1,309	588,996.1
24-29 Months	Unknown	533	150,044.7	264	147,387.5
30-35 Months	Above poverty, > $75K	3,144	560,230.5	2,325	579,413.0
30-35 Months	Above poverty, <= $75K	3,802	865,190.4	2,673	871,474.5
30-35 Months	Below poverty	1,729	613,058.8	1,249	610,851.5
30-35 Months	Unknown	505	128,686.5	235	105,427.2
Total		25,948	6,168,021.0	18,430	6,168,021.0

Table I.4: Estimated Population Totals and Sample Sizes for Race/Ethnicity by Poverty Status, National Immunization Survey, 2008

Race/Ethnicity*	Poverty Status	Children with Completed Household Interviews		Children with Adequate Provider Data	
		Unweighted Completes	Weighted Completes	Unweighted Completes	Weighted Completes
Hispanic	Above poverty, > $75K	835	193,752.8	555	196,419.4
Hispanic	Above poverty, <= $75K	1,741	533,515.3	1,227	532,793.8
Hispanic	Below poverty	2,008	853,963.9	1,507	839,417.2
Hispanic	Unknown	390	145,582.2	239	158,259.6
Non-Hispanic White Only	Above poverty, > $75K	6,482	1,136,587.6	4,806	1,150,634.1
Non-Hispanic White Only	Above poverty, <= $75K	6,918	1,378,691.2	5,077	1,400,147.7
Non-Hispanic White Only	Below poverty	1,393	418,065.8	1,057	418,106.4
Non-Hispanic White Only	Unknown	735	176,048.5	352	157,698.4
Non-Hispanic Black Only	Above poverty, > $75K	422	99,199.7	259	94,538.2
Non-Hispanic Black Only	Above poverty, <= $75K	1,092	272,221.3	701	270,006.1
Non-Hispanic Black Only	Below poverty	1,178	359,747.3	805	367,834.4
Non-Hispanic Black Only	Unknown	210	53,083.8	82	41,925.0
Non-Hispanic Other & Multi-Racial	Above poverty, > $75K	908	170,230.0	664	175,676.8
Non-Hispanic Other & Multi-Racial	Above poverty, <= $75K	961	206,406.5	630	196,602.7
Non-Hispanic Other & Multi-Racial	Below poverty	523	139,334.0	397	142,208.8
Non-Hispanic Other & Multi-Racial	Unknown	152	31,591.0	72	25,752.5
Total		25,948	6,168,021.0	18,430	6,168,021.0

***Race/Ethnicity is self-reported and mutually exclusive.**

Table I.5: Estimated Population Totals and Sample Sizes for Age Group by Race/Ethnicity, National Immunization Survey, 2008

Age Group in Months	Race/Ethnicity of Child*	Children with Completed Household Interviews		Children with Adequate Provider Data	
		Unweighted Completes	Weighted Completes	Unweighted Completes	Weighted Completes
19-23 Months	Hispanic	1,502	510,282.5	1,084	520,356.0
19-23 Months	Non-Hispanic White Only	4,531	957,546.0	3,321	960,110.3
19-23 Months	Non-Hispanic Black Only	894	241,324.3	609	242,904.6
19-23 Months	Non-Hispanic Other & Multi-Racial	767	184,456.4	521	170,238.4
24-29 Months	Hispanic	1,696	567,625.4	1,206	570,570.2
24-29 Months	Non-Hispanic White Only	5,501	1,090,751.4	3,956	1,091,538.5
24-29 Months	Non-Hispanic Black Only	1,006	262,630.5	634	257,097.4
24-29 Months	Non-Hispanic Other & Multi-Racial	871	186,238.3	617	188,039.5
30-35 Months	Hispanic	1,776	648,906.2	1,238	635,963.7
30-35 Months	Non-Hispanic White Only	5,496	1,061,095.7	4,015	1,074,937.8
30-35 Months	Non-Hispanic Black Only	1,002	280,297.3	604	274,301.7
30-35 Months	Non-Hispanic Other & Multi-Racial	906	176,867.0	625	181,962.9
Total		25,948	6,168,021.0	18,430	6,168,021.0

***Race/Ethnicity is self-reported and mutually exclusive.**

Table I.6: Estimated Population Totals and Sample Sizes for Age Group by Gender, National Immunization Survey, 2008

Age Group in Months	Gender	Children with Completed Household Interviews		Children with Adequate Provider Data	
		Unweighted Completes	Weighted Completes	Unweighted Completes	Weighted Completes
19-23 Months	Male	3,948	980,893.1	2,851	983,315.8
19-23 Months	Female	3,746	912,716.2	2,684	910,293.4
24-29 Months	Male	4,695	1,098,726.4	3,338	1,108,962.4
24-29 Months	Female	4,379	1,008,519.2	3,075	998,283.1
30-35 Months	Male	4,657	1,077,674.2	3,290	1,065,017.1
30-35 Months	Female	4,523	1,089,492.0	3,192	1,102,149.1
Total		25,948	6,168,021.0	18,430	6,168,021.0

Table I.7: Sample Sizes for Shot Card Use by Presence of Adequate Provider Data, National Immunization Survey, 2008

Shot Card Use	Presence of Adequate Provider Data	Unweighted RDD Completes	Percent	Weighted RDD Completes	Percent
Shot card	Adequate provider data	5,937	22.9	1,466,609.2	23.8
Shot card	Non-adequate provider data	1,505	5.8	385,018.4	6.2
Not shot card	Adequate provider data	12,493	48.1	2,842,606.6	46.1
Not shot card	Non-adequate provider data	6,013	23.2	1,473,786.8	23.9
Total		25,948	100.0	6,168,021.0	100.0

Appendix I.8: Estimated Vaccination Coverage with Individual Vaccines and Selected Vaccination Series Among Children 19-35 Months of Age by State and Local Area US, National Immunization Survey, PROVWT, Q1/2008-Q4/2008*

	3+DTP[†]	4+DTP[‡]	3+Polio[§]	1+MMR[‖]	3+Hib[¶]	3+HepB[**]	1+Var[††]	3+PCV[‡‡]	4+PCV[‡‡‡]	4:3:1[§§]	4:3:1:3[‖‖]	4:3:1:3:3[¶¶]	4:3:1:3:3:1***	4:3:1:3:3:1:3[ϵ]	4:3:1:3:3:1:3[ϵϵ]
US National	96.2 (95.6,96.7)	84.6 (83.7,85.6)	93.6 (93.0,94.2)	92.1 (91.4,92.8)	90.9 (90.1,91.6)	93.5 (92.8,94.2)	90.7 (90.0,91.4)	92.8 (92.1,93.4)	80.1 (79.0,81.1)	82.5 (81.5,83.5)	79.6 (78.5,80.6)	78.2 (77.1,79.2)	76.1 (75.0,77.1)	74.3 (73.2,75.4)	68.4 (67.2,69.6)
Alabama	95.4 (90.6,97.8)	83.1 (76.5,88.2)	92.1 (87.1,95.3)	93.6 (88.6,96.5)	91.3 (86.4,94.5)	91.0 (85.9,94.4)	92.9 (87.9,96.0)	91.2 (86.3,94.5)	76.3 (69.6,81.9)	81.5 (74.9,86.7)	79.2 (72.7,84.5)	76.3 (69.7,81.8)	75.1 (68.5,80.7)	72.3 (65.6,78.2)	67.2 (60.4,73.3)
Alaska	93.0 (88.6,95.8)	79.2 (72.5,84.6)	91.9 (87.2,94.9)	88.4 (82.4,92.6)	89.6 (84.7,93.1)	93.1 (88.6,95.9)	77.8 (70.8,83.5)	92.1 (87.5,95.1)	77.6 (71.0,83.0)	77.6 (70.8,83.2)	76.2 (69.4,81.9)	76.2 (69.4,81.9)	69.2 (62.0,75.6)	69.2 (62.0,75.6)	63.4 (56.0,70.2)
Arizona	95.2 (90.9,97.5)	84.6 (78.1,89.5)	92.4 (86.9,95.7)	92.2 (86.5,95.6)	91.5 (86.6,94.8)	94.2 (90.4,96.5)	91.1 (85.6,94.6)	90.9 (84.9,94.6)	79.0 (72.2,84.6)	83.7 (77.2,88.7)	80.6 (73.9,85.9)	79.2 (72.5,84.7)	76.4 (69.6,82.1)	74.8 (67.9,80.6)	69.1 (62.1,75.4)
Arkansas	93.1 (87.8,96.2)	81.4 (75.0,86.5)	91.6 (86.3,95.0)	92.2 (87.0,95.4)	89.3 (83.2,93.3)	94.3 (90.3,96.7)	90.0 (83.7,94.0)	92.0 (86.7,95.3)	74.8 (68.0,80.5)	80.7 (74.3,85.8)	78.7 (72.3,84.0)	78.0 (71.5,83.3)	75.5 (68.6,81.3)	74.9 (68.0,80.7)	64.9 (57.9,71.4)
California	97.8 (95.9,98.8)	86.8 (82.9,89.9)	95.7 (93.1,97.3)	92.7 (89.4,95.1)	94.1 (91.4,96.0)	94.7 (91.5,96.7)	92.4 (89.2,94.8)	95.0 (92.6,96.7)	83.0 (78.8,86.5)	83.9 (79.7,87.4)	82.0 (77.7,85.6)	80.6 (76.2,84.3)	78.7 (74.2,82.6)	77.4 (72.9,81.4)	70.5 (65.6,74.9)
CA-Los Angeles County	98.3 (96.4,99.2)	86.5 (81.7,90.2)	95.6 (92.4,97.4)	91.1 (86.7,94.1)	93.5 (89.9,95.8)	95.8 (92.8,97.6)	92.2 (88.2,94.8)	95.3 (92.0,97.3)	80.2 (74.6,84.8)	82.9 (77.7,87.1)	79.7 (74.3,84.3)	78.6 (73.1,83.3)	76.2 (70.5,81.0)	75.3 (69.6,80.3)	67.6 (61.5,73.2)
CA-Northern CA	94.9 (91.1,97.2)	76.5 (70.1,82.0)	90.9 (85.9,94.3)	87.7 (82.3,91.6)	89.8 (85.2,93.2)	92.1 (87.9,95.0)	85.9 (80.3,90.1)	83.4 (77.0,88.3)	69.2 (62.3,75.3)	72.0 (65.3,77.9)	70.9 (64.1,76.8)	70.8 (64.0,76.7)	68.5 (61.6,74.6)	62.8 (55.7,69.4)	58.1 (51.0,65.0)
CA-Santa Clara County	97.6 (93.6,99.1)	90.6 (85.2,94.2)	95.9 (91.9,98.0)	93.7 (89.5,96.3)	91.4 (83.8,95.6)	97.3 (93.4,99.0)	90.8 (85.4,94.4)	93.4 (88.7,96.2)	85.3 (79.4,89.8)	89.3 (83.8,93.1)	84.4 (77.0,89.8)	84.1 (76.6,89.5)	80.9 (73.2,86.7)	78.8 (71.0,84.9)	73.6 (65.7,80.2)
CA-Rest of State	97.7 (94.5,99.0)	87.0 (81.1,91.2)	95.8 (91.8,97.9)	93.5 (88.2,96.5)	94.7 (90.4,97.1)	94.1 (89.1,96.9)	92.9 (87.8,95.9)	95.4 (91.5,97.5)	84.4 (78.1,89.1)	84.3 (78.0,89.1)	83.1 (76.8,88.0)	81.4 (74.9,86.5)	79.9 (73.3,85.2)	78.6 (72.0,84.0)	71.8 (64.6,78.0)
Colorado	97.4 (93.9,98.9)	86.5 (79.1,91.5)	94.9 (91.1,97.2)	92.3 (84.9,96.2)	87.3 (79.9,92.3)	94.6 (90.3,97.1)	90.1 (83.0,94.5)	93.7 (89.2,96.4)	82.5 (75.0,88.1)	84.7 (77.3,89.9)	81.3 (73.7,87.1)	80.7 (73.1,86.6)	79.4 (71.8,85.4)	77.2 (69.4,83.5)	74.3 (66.4,80.8)
Connecticut	99.6 (98.3,99.9)	88.2 (82.9,92.0)	99.5 (98.2,99.9)	95.3 (91.1,97.6)	82.6 (75.6,88.0)	98.1 (95.7,99.2)	93.2 (87.9,96.3)	97.9 (95.4,99.0)	91.5 (86.8,94.7)	86.9 (81.3,91.0)	73.4 (66.0,79.7)	72.5 (65.1,78.9)	69.8 (62.2,76.5)	69.2 (61.6,75.9)	66.0 (58.3,73.0)
Delaware	98.0 (95.1,99.2)	84.3 (77.4,89.4)	91.8 (85.7,95.4)	93.1 (87.0,96.4)	87.5 (81.8,91.5)	96.0 (92.1,98.0)	94.4 (90.7,96.7)	93.0 (87.1,96.3)	79.8 (72.8,85.3)	81.1 (74.0,86.5)	74.1 (66.7,80.3)	73.0 (65.7,79.2)	71.8 (64.6,78.1)	70.8 (63.6,77.1)	63.9 (56.6,70.6)
District of Columbia	92.5 (87.3,95.6)	84.6 (78.3,89.4)	89.7 (84.4,93.4)	89.7 (84.4,93.3)	90.7 (85.0,94.4)	92.8 (88.1,95.8)	90.4 (85.3,93.9)	91.1 (86.2,94.4)	78.8 (72.5,83.9)	81.6 (74.9,86.8)	79.9 (72.9,85.4)	78.6 (71.5,84.3)	77.6 (70.5,83.4)	76.9 (69.8,82.7)	68.8 (61.4,75.3)
Florida	96.3 (93.3,98.0)	88.5 (83.8,91.9)	92.9 (89.3,95.4)	91.7 (87.5,94.6)	92.0 (88.1,94.7)	94.8 (91.6,96.8)	90.7 (86.2,93.8)	92.6 (89.2,95.0)	78.9 (73.3,83.5)	85.4 (80.4,89.2)	83.0 (78.0,87.1)	81.8 (76.7,86.0)	79.9 (74.6,84.3)	77.6 (72.2,82.2)	71.0 (65.2,76.2)
FL-Miami-Dade County	96.0 (89.4,98.5)	87.1 (80.3,91.9)	91.8 (85.8,95.4)	88.6 (82.4,92.8)	93.2 (87.4,96.5)	95.4 (91.9,97.4)	87.8 (81.4,92.2)	89.4 (83.1,93.5)	67.0 (57.8,75.0)	83.5 (76.5,88.7)	81.3 (74.2,86.7)	79.8 (72.8,85.4)	77.7 (70.6,83.5)	73.2 (66.0,79.3)	59.2 (50.5,67.5)
FL-Orange County	96.5 (93.0,98.3)	87.2 (80.2,91.9)	95.1 (89.9,97.7)	91.2 (85.4,94.8)	93.5 (88.4,96.4)	95.5 (91.8,97.5)	92.9 (88.6,95.7)	90.9 (84.2,95.0)	79.4 (71.3,85.6)	85.3 (78.4,90.2)	82.8 (75.7,88.1)	81.7 (74.6,87.1)	79.1 (71.9,84.9)	76.5 (68.8,82.8)	69.8 (61.5,77.0)
FL-Rest of State	96.3 (92.4,98.2)	88.8 (82.8,92.9)	92.9 (88.2,95.8)	92.3 (86.7,95.7)	91.7 (86.6,95.0)	94.6 (90.4,97.0)	91.1 (85.1,94.8)	93.4 (88.9,96.1)	81.1 (74.0,86.6)	85.8 (79.4,90.4)	83.4 (76.9,88.3)	82.2 (75.6,87.3)	80.3 (73.6,85.7)	78.5 (71.7,84.1)	73.3 (66.0,79.6)
Georgia	96.1 (92.4,98.1)	79.0 (71.6,84.9)	93.1 (88.6,95.9)	92.7 (88.1,95.6)	86.1 (80.2,90.5)	93.6 (88.7,96.5)	90.6 (84.5,94.4)	93.5 (88.8,96.4)	81.6 (75.1,86.7)	78.3 (70.8,84.2)	73.5 (66.1,79.7)	72.7 (65.3,79.0)	71.9 (64.5,78.3)	71.6 (64.3,78.0)	67.4 (60.0,74.1)
Hawaii	95.5 (91.7,97.6)	81.5 (74.0,87.2)	92.8 (87.9,95.8)	94.8 (91.0,97.0)	89.4 (84.2,93.0)	91.2 (84.3,95.2)	92.6 (87.3,95.8)	94.5 (90.6,96.9)	84.1 (77.2,89.2)	81.0 (73.5,86.7)	78.6 (71.1,84.5)	78.3 (70.8,84.2)	77.4 (70.0,83.5)	77.4 (70.0,83.5)	74.4 (67.0,80.7)
Idaho	92.7 (88.2,95.5)	77.6 (71.1,83.0)	91.8 (87.3,94.8)	86.1 (79.9,90.7)	77.6 (71.0,83.1)	93.3 (88.9,96.0)	80.7 (74.2,85.8)	89.5 (84.2,93.1)	74.8 (68.1,80.6)	73.5 (66.7,79.3)	66.4 (59.5,72.6)	65.9 (59.0,72.2)	60.4 (53.5,66.9)	58.6 (51.8,65.1)	54.2 (47.5,60.8)
Illinois	95.9 (93.3,97.6)	82.2 (77.7,86.1)	92.4 (89.1,94.7)	91.0 (87.9,93.4)	92.7 (90.1,94.7)	94.7 (92.2,96.5)	88.3 (84.6,91.3)	90.6 (86.5,93.5)	76.2 (71.1,80.7)	80.4 (75.8,84.3)	78.7 (74.1,82.7)	78.1 (73.5,82.1)	74.8 (69.9,79.1)	71.5 (66.4,76.2)	65.0 (59.8,69.9)
IL-City of Chicago	93.3 (88.6,96.1)	84.2 (77.4,89.3)	92.2 (87.6,95.2)	89.0 (84.7,92.2)	89.1 (83.7,92.9)	93.3 (88.7,96.1)	89.2 (85.1,92.3)	90.9 (86.0,94.3)	76.0 (69.0,81.9)	82.5 (75.7,87.7)	80.1 (73.2,85.6)	79.7 (72.8,85.2)	78.1 (71.3,83.7)	76.7 (69.8,82.4)	70.4 (63.4,76.5)
IL-Madison and St. Clair Counties	96.5 (92.5,98.4)	82.3 (76.0,87.2)	93.2 (88.9,95.9)	90.5 (85.7,93.8)	90.3 (85.4,93.7)	95.8 (92.5,97.7)	88.5 (83.3,92.2)	90.8 (85.9,94.1)	81.0 (74.9,85.8)	81.0 (74.7,86.0)	77.7 (71.3,82.9)	77.3 (70.9,82.6)	74.9 (68.5,80.4)	72.5 (66.0,78.2)	68.4 (61.7,74.4)
IL-Rest of State	96.9 (93.0,98.6)	81.5 (75.3,86.4)	92.4 (87.8,95.3)	91.7 (87.3,94.7)	94.1 (90.7,96.3)	95.2 (91.7,97.3)	88.0 (82.7,91.8)	90.4 (84.7,94.2)	76.0 (69.1,81.8)	79.6 (73.4,84.6)	78.3 (72.1,83.4)	77.5 (71.4,82.7)	73.6 (67.1,79.2)	69.6 (62.8,75.7)	62.9 (56.0,69.4)
Indiana	96.7 (93.9,98.3)	85.3 (79.9,89.4)	95.2 (91.9,97.3)	88.0 (82.3,92.1)	89.3 (84.3,92.9)	95.6 (92.1,97.6)	87.9 (82.5,91.8)	93.5 (89.3,96.1)	79.5 (72.9,84.8)	82.6 (76.8,87.2)	78.4 (72.1,83.7)	78.4 (72.1,83.7)	75.5 (68.9,81.0)	74.7 (68.1,80.4)	70.3 (63.4,76.4)
Iowa	94.3 (90.2,96.8)	84.2 (78.2,88.8)	92.3 (87.5,95.4)	91.4 (85.9,94.9)	88.4 (83.0,92.3)	93.5 (89.3,96.2)	87.8 (82.1,91.9)	90.3 (85.2,93.8)	81.6 (75.5,86.4)	82.1 (76.0,87.0)	77.6 (71.3,82.9)	77.3 (70.9,82.6)	74.7 (68.2,80.2)	70.8 (64.1,76.7)	67.2 (60.4,73.3)
Kansas	96.0 (92.2,98.0)	85.7 (79.7,90.1)	95.4 (91.6,97.5)	91.9 (87.5,94.9)	93.7 (89.9,96.1)	94.4 (90.4,96.8)	90.1 (84.4,93.9)	90.7 (86.0,94.0)	80.7 (75.0,85.4)	83.2 (77.0,88.0)	80.6 (74.4,85.7)	78.2 (71.8,83.5)	76.7 (70.3,82.1)	73.0 (66.3,78.8)	69.5 (62.7,75.6)
Kentucky	95.8 (91.5,97.9)	86.0 (80.4,90.3)	94.1 (89.9,96.6)	90.2 (84.8,93.9)	86.3 (80.1,90.8)	92.7 (87.6,95.8)	87.7 (81.8,91.9)	89.4 (84.4,93.0)	79.6 (73.4,84.6)	84.4 (78.6,88.9)	78.5 (72.0,83.8)	76.8 (70.3,82.3)	74.1 (67.2,79.9)	69.5 (62.5,75.7)	66.4 (59.4,72.8)
Louisiana	98.2 (95.2,99.3)	87.7 (83.1,91.2)	97.0 (94.2,98.5)	94.2 (91.1,96.3)	92.9 (89.0,95.5)	95.3 (91.9,97.3)	95.0 (92.0,96.9)	96.1 (93.1,97.8)	78.0 (72.1,83.0)	86.5 (81.8,90.1)	85.1 (80.3,88.8)	83.0 (78.0,87.1)	81.9 (76.8,86.1)	81.0 (75.9,85.3)	72.5 (66.4,77.8)
Maine	97.0 (93.9,98.6)	90.3 (86.0,93.4)	95.4 (92.0,97.4)	91.8 (87.4,94.7)	86.1 (80.9,90.1)	91.4 (87.0,94.4)	90.1 (85.7,93.3)	93.4 (89.2,96.1)	84.3 (78.5,88.7)	88.3 (83.7,91.8)	80.5 (74.9,85.2)	76.2 (70.3,81.3)	73.6 (67.6,78.8)	71.8 (65.6,77.2)	66.5 (60.0,72.5)
Maryland	96.9 (94.0,98.4)	89.1 (84.3,92.5)	95.6 (92.4,97.4)	94.5 (91.5,96.5)	93.9 (90.7,96.1)	93.5 (89.5,96.0)	92.2 (88.8,94.6)	93.4 (88.8,96.2)	84.3 (79.1,88.4)	87.6 (82.8,91.2)	85.2 (80.3,89.1)	82.6 (77.3,86.8)	80.2 (74.8,84.7)	77.6 (71.8,82.5)	73.6 (67.6,78.8)
MD-City of Baltimore	94.6 (90.1,97.1)	88.6 (83.6,92.2)	94.5 (90.3,97.0)	89.9 (85.0,93.3)	88.7 (83.5,92.5)	95.8 (92.6,97.7)	87.5 (81.6,91.8)	93.0 (87.8,96.1)	81.8 (75.4,86.8)	85.1 (79.6,89.3)	79.1 (72.9,84.1)	78.6 (72.4,83.7)	74.6 (68.1,80.1)	73.1 (66.5,78.8)	68.2 (61.6,74.3)
MD-Rest of State	97.2 (93.6,98.8)	89.1 (83.6,93.0)	95.7 (92.0,97.7)	95.2 (91.6,97.3)	94.7 (90.8,97.0)	93.2 (88.6,96.0)	92.9 (88.9,95.5)	93.5 (88.1,96.5)	84.7 (78.7,89.2)	88.0 (82.4,91.9)	86.1 (80.4,90.3)	83.1 (77.1,87.9)	81.0 (74.8,85.9)	78.2 (71.6,83.7)	74.3 (67.5,80.2)
Massachusetts	98.4 (96.0,99.4)	87.2 (81.3,91.4)	98.2 (95.8,99.2)	94.4 (88.4,97.4)	98.4 (96.1,99.4)	96.8 (93.2,98.5)	95.3 (92.0,97.3)	95.6 (91.0,97.9)	88.0 (82.5,92.0)	86.0 (79.9,90.4)	85.6 (79.6,90.1)	83.9 (77.6,88.7)	82.3 (75.9,87.2)	79.8 (73.0,85.2)	76.2 (69.3,81.9)
Michigan	95.1 (91.2,97.3)	86.4 (80.2,90.8)	93.8 (89.8,96.3)	88.1 (82.9,91.9)	87.3 (81.7,91.3)	93.9 (90.0,96.3)	87.4 (81.8,91.5)	92.8 (88.4,95.7)	82.5 (76.0,87.5)	83.3 (77.1,88.1)	77.6 (70.7,83.2)	76.8 (69.9,82.5)	74.5 (67.5,80.4)	73.5 (66.4,79.5)	69.8 (62.6,76.1)
Minnesota	97.2 (94.4,98.6)	87.3 (82.4,91.0)	96.0 (93.1,97.8)	91.8 (87.6,94.6)	85.8 (81.0,89.6)	94.6 (90.9,96.9)	90.1 (86.0,93.1)	92.9 (88.9,95.5)	79.2 (73.6,83.9)	85.0 (79.8,89.1)	77.9 (72.3,82.6)	77.4 (71.9,82.2)	74.6 (68.9,79.6)	73.5 (67.7,78.5)	66.8 (60.8,72.3)
MN-Twin Cities	95.5 (90.6,97.9)	86.4 (79.4,91.3)	94.4 (89.5,97.1)	92.3 (87.0,95.5)	82.5 (75.6,87.8)	94.1 (89.5,96.8)	89.9 (84.2,93.7)	89.8 (83.4,93.9)	80.0 (72.9,85.6)	85.6 (78.6,90.5)	78.4 (71.3,84.2)	77.9 (70.8,83.7)	75.2 (67.9,81.3)	73.6 (66.3,79.8)	68.5 (61.1,75.0)
MN-Rest of State	99.4 (97.8,99.9)	88.4 (81.0,93.2)	98.2 (94.7,99.4)	91.2 (83.2,95.5)	90.0 (82.9,94.4)	95.3 (87.4,98.3)	90.4 (83.7,94.5)	96.9 (92.8,98.7)	78.2 (68.3,85.6)	84.3 (75.6,90.3)	77.2 (67.8,84.4)	76.9 (67.5,84.2)	73.8 (64.2,81.5)	73.3 (63.8,81.1)	64.7 (54.4,73.8)
Mississippi	96.0 (93.0,97.7)	82.4 (76.5,87.0)	93.7 (89.7,96.2)	89.3 (84.2,92.8)	83.0 (76.4,88.0)	95.7 (92.6,97.5)	92.1 (87.6,95.1)	90.1 (86.0,93.1)	74.7 (67.8,80.6)	81.1 (75.3,85.8)	76.5 (69.7,82.2)	76.5 (69.7,82.2)	75.8 (69.0,81.5)	72.5 (65.7,78.4)	68.9 (62.0,75.0)
Missouri	95.1 (90.5,97.5)	82.0 (76.2,86.6)	91.7 (86.5,95.0)	91.7 (86.6,94.9)	89.0 (83.7,92.7)	91.1 (85.9,94.5)	88.1 (82.8,92.0)	87.1 (81.5,91.1)	74.8 (68.6,80.1)	80.1 (74.1,84.9)	77.5 (71.5,82.6)	76.0 (69.9,81.2)	72.9 (66.0,78.8)	67.4 (60.4,73.6)	61.5 (54.6,67.9)
Montana	92.3 (87.0,95.6)	74.4 (67.8,80.1)	88.5 (82.4,92.7)	85.9 (80.0,90.2)	81.1 (74.8,86.0)	86.6 (80.3,91.1)	77.7 (71.1,83.1)	86.7 (80.9,90.9)	71.7 (64.9,77.6)	73.2 (66.5,78.9)	68.0 (61.2,74.1)	65.5 (58.7,71.8)	59.2 (52.4,65.8)	57.7 (50.8,64.3)	56.0 (49.1,62.7)
Nebraska	95.1 (91.2,97.4)	84.9 (79.9,88.9)	92.5 (87.9,95.4)	91.9 (87.9,94.7)	83.0 (77.5,87.3)	92.9 (88.6,95.7)	89.2 (84.8,92.4)	92.1 (87.8,94.9)	77.5 (71.3,82.6)	83.3 (78.0,87.6)	75.6 (69.7,80.8)	74.8 (68.7,80.0)	71.5 (65.4,77.0)	69.5 (63.2,75.1)	63.0 (56.6,69.1)
Nevada	91.8 (87.0,95.0)	76.0 (69.5,81.5)	89.9 (84.9,93.3)	88.0 (82.9,91.7)	85.2 (79.6,89.5)	84.9 (79.3,89.3)	86.8 (81.4,90.8)	81.8 (76.0,86.5)	63.6 (56.7,70.0)	74.5 (67.9,80.0)	73.3 (66.8,79.0)	70.1 (63.4,76.0)	67.8 (61.0,74.0)	61.8 (54.9,68.3)	54.2 (47.2,61.1)
New Hampshire	97.0 (93.7,98.6)	90.0 (85.0,93.4)	95.0 (91.2,97.2)	94.8 (90.9,97.1)	95.6 (91.9,97.7)	94.9 (91.3,97.1)	91.3 (87.0,94.2)	93.8 (89.9,96.3)	86.6 (81.2,90.6)	87.2 (81.9,91.1)	85.4 (79.9,89.6)	85.0 (79.5,89.3)	81.0 (75.2,85.7)	80.2 (74.4,85.0)	74.6 (68.3,80.1)
New Jersey	95.4 (90.3,97.8)	80.6 (74.1,85.8)	89.6 (84.2,93.3)	89.9 (84.6,93.5)	94.7 (89.9,97.2)	92.0 (87.0,95.2)	85.9 (80.3,90.0)	92.3 (87.0,95.6)	74.8 (67.9,80.6)	76.3 (69.8,81.7)	75.5 (69.0,81.0)	72.8 (66.2,78.4)	68.5 (61.9,74.4)	67.0 (60.4,73.0)	59.7 (53.0,66.0)
New Mexico	92.9 (87.0,96.2)	85.2 (78.8,89.8)	91.3 (85.4,94.9)	90.6 (85.2,94.2)	89.0 (83.2,92.9)	91.3 (85.7,94.9)	89.3 (83.7,93.1)	93.6 (88.1,96.6)	83.3 (77.0,88.1)	82.7 (76.2,87.7)	80.6 (74.1,85.8)	79.1 (72.5,84.4)	77.0 (70.3,82.6)	77.0 (70.3,82.6)	72.9 (66.0,78.8)
New York	97.5 (95.5,98.6)	84.4 (80.7,87.6)	94.6 (91.9,96.5)	92.2 (89.5,94.3)	91.0 (88.0,93.3)	92.7 (89.8,94.9)	88.2 (84.6,91.0)	92.7 (89.8,94.8)	80.2 (76.2,83.7)	81.7 (77.8,85.1)	77.8 (73.7,81.4)	76.2 (72.1,79.9)	73.3 (68.9,77.3)	71.1 (66.5,75.2)	65.1 (60.4,69.5)
NY-City of New York	97.9 (95.3,99.1)	86.0 (80.9,89.9)	94.7 (91.1,96.9)	93.4 (89.6,95.9)	90.2 (85.8,93.3)	93.2 (89.1,95.8)	90.6 (86.1,93.8)	90.9 (86.5,94.0)	78.3 (72.4,83.2)	83.4 (78.0,87.7)	79.2 (73.5,83.9)	77.3 (71.5,82.2)	75.4 (69.1,80.8)	72.4 (66.0,78.0)	66.6 (60.0,72.7)
NY-Rest of State	97.1 (93.4,98.8)	83.0 (77.2,87.5)	94.5 (90.0,97.1)	91.2 (86.8,94.2)	91.7 (87.2,94.7)	92.3 (87.6,95.3)	85.8 (80.1,90.1)	94.4 (90.0,96.9)	82.0 (76.1,86.7)	80.1 (74.2,84.9)	76.5 (70.4,81.7)	75.2 (69.0,80.5)	71.3 (64.9,77.0)	69.8 (63.2,75.6)	63.7 (57.0,69.9)
North Carolina	96.3 (92.0,98.3)	84.1 (77.5,89.0)	94.6 (90.4,97.0)	92.2 (87.8,95.2)	83.6 (77.3,88.5)	93.6 (88.5,96.5)	92.3 (87.6,95.3)	94.5 (90.1,97.0)	82.6 (76.0,87.7)	81.8 (75.3,87.0)	75.1 (68.5,80.7)	72.4 (65.6,78.2)	70.8 (64.1,76.7)	70.0 (63.3,75.9)	64.4 (57.5,70.8)
North Dakota	96.0 (92.8,97.8)	81.0 (74.9,86.0)	95.1 (91.7,97.1)	90.6 (85.9,93.8)	85.2 (79.7,89.4)	95.5 (92.3,97.4)	85.0 (79.8,89.1)	91.7 (86.7,94.9)	80.9 (74.9,85.8)	79.9 (73.7,84.9)	74.5 (68.2,80.0)	74.2 (67.9,79.7)	69.8 (63.4,75.6)	67.9 (61.4,73.7)	65.5 (59.0,71.5)
Ohio	97.2 (94.4,98.6)	86.1 (79.1,91.0)	96.5 (93.7,98.1)	93.9 (90.0,96.4)	95.2 (87.7,98.2)	92.9 (86.0,96.6)	93.3 (89.5,95.8)	94.8 (91.4,96.9)	78.6 (71.5,84.4)	84.7 (77.7,89.8)	84.4 (77.4,89.5)	82.9 (75.9,88.2)	81.8 (74.9,87.2)	79.5 (72.5,85.0)	71.5 (64.3,77.8)
Oklahoma	90.9 (84.1,94.9)	78.7 (71.4,84.5)	88.4 (81.6,93.0)	92.3 (86.9,95.6)	86.3 (79.5,91.1)	90.3 (84.2,94.2)	90.5 (85.0,94.1)	85.9 (79.1,90.7)	65.7 (57.8,72.8)	77.1 (69.8,83.0)	75.4 (68.0,81.6)	73.6 (66.2,79.8)	71.7 (64.4,78.1)	68.2 (60.9,74.8)	56.4 (48.8,63.7)
Oregon	97.2 (94.0,98.7)	79.7 (72.4,85.4)	94.8 (90.4,97.2)	92.0 (87.2,95.1)	87.2 (80.1,92.0)	92.6 (87.9,95.5)	90.4 (85.6,93.8)	90.7 (84.0,94.8)	79.4 (71.6,85.5)	79.7 (72.4,85.4)	73.5 (65.6,80.1)	72.3 (64.4,79.0)	71.0 (63.1,77.8)	70.7 (62.8,77.5)	68.3 (60.3,75.3)
Pennsylvania	97.6 (95.5,98.8)	88.1 (83.7,91.5)	94.1 (89.8,96.7)	92.2 (88.5,94.7)	91.6 (87.4,94.5)	92.6 (88.0,95.5)	92.4 (88.8,94.9)	92.6 (88.9,95.2)	83.8 (78.9,87.8)	85.2 (80.2,89.1)	82.5 (77.4,86.7)	80.4 (75.0,84.9)	77.7 (72.3,82.4)	75.0 (69.4,79.9)	71.3 (65.5,76.4)
PA-Philadelphia County	97.2 (94.4,98.6)	84.5 (79.1,88.7)	95.8 (92.6,97.7)	93.1 (88.9,95.7)	94.8 (91.2,97.0)	97.1 (94.7,98.4)	93.6 (89.7,96.1)	92.0 (87.7,94.9)	79.7 (74.0,84.4)	82.9 (77.5,87.3)	82.4 (76.9,86.9)	81.5 (75.9,86.0)	79.5 (73.8,84.1)	77.0 (71.3,81.9)	71.6 (65.5,76.9)

Appendix I.8: Estimated Vaccination Coverage with Individual Vaccines and Selected Vaccination Series Among Children 19-35 Months of Age by State and Local Area US, National Immunization Survey, PROVWT, Q1/2008-Q4/2008*

	3+DTP†	4+DTP‡	3+Polio§	1+MMRll	3+Hib¶	3+HepB**	1+Var††	3+PCV‡‡	4+PCV‡‡‡	4:3:1§§	4:3:1:3lll	4:3:1:3:3¶¶	4:3:1:3:3:1***	4:3:1:3:3:1:3c	4:3:1:3:3:1:3cc
PA-Rest of State	97.7 (95.0,99.0)	88.8 (83.5,92.6)	93.8 (88.5,96.7)	92.0 (87.7,94.9)	91.0 (86.0,94.4)	91.8 (86.4,95.2)	92.2 (87.9,95.1)	92.7 (88.2,95.6)	84.6 (78.7,89.1)	85.6 (79.6,90.0)	82.6 (76.4,87.4)	80.2 (73.8,85.3)	77.4 (71.0,82.8)	74.7 (68.0,80.3)	71.2 (64.5,77.1)
Rhode Island	97.1 (93.2,98.8)	88.4 (82.9,92.4)	97.1 (93.1,98.8)	93.7 (89.1,96.4)	89.0 (84.1,92.5)	97.0 (94.0,98.5)	93.0 (87.8,96.0)	96.2 (90.9,98.5)	83.9 (76.5,89.4)	86.4 (80.5,90.8)	80.1 (73.7,85.3)	79.5 (73.0,84.7)	77.5 (70.8,83.0)	75.1 (67.9,81.1)	68.6 (60.8,75.5)
South Carolina	96.0 (92.3,98.0)	84.7 (78.9,89.1)	94.6 (90.2,97.1)	88.5 (83.1,92.4)	90.2 (85.3,93.6)	95.8 (92.1,97.8)	89.2 (83.8,93.0)	92.4 (87.9,95.3)	80.5 (74.1,85.6)	82.2 (76.4,86.9)	79.2 (73.4,84.0)	78.8 (72.9,83.6)	78.4 (72.6,83.3)	76.0 (70.0,81.2)	70.6 (64.2,76.3)
South Dakota	95.7 (92.4,97.7)	84.3 (78.5,88.7)	94.5 (89.4,97.2)	93.7 (89.6,96.3)	91.2 (85.8,94.6)	95.0 (90.0,97.6)	90.1 (85.7,93.3)	91.7 (87.8,94.4)	73.0 (66.7,78.5)	82.6 (76.7,87.3)	80.8 (74.7,85.7)	80.8 (74.7,85.7)	77.4 (71.2,82.5)	75.4 (69.2,80.7)	62.7 (56.1,68.9)
Tennessee	95.5 (90.6,97.9)	87.7 (82.4,91.6)	94.6 (90.0,97.2)	95.6 (91.3,97.8)	92.8 (88.1,95.7)	92.2 (86.4,95.6)	92.7 (88.1,95.6)	95.0 (90.6,97.4)	85.7 (80.4,89.8)	87.2 (81.9,91.1)	84.8 (79.4,89.0)	83.1 (77.2,87.8)	81.2 (75.1,86.0)	80.4 (74.3,85.3)	73.6 (67.2,79.2)
Texas	95.4 (90.8,97.8)	83.0 (78.0,87.0)	92.1 (87.5,95.1)	93.7 (90.7,95.8)	92.7 (88.3,95.5)	93.0 (88.6,95.9)	93.1 (90.1,95.3)	93.8 (89.6,96.4)	79.2 (73.6,83.9)	81.6 (76.6,85.7)	79.7 (74.6,84.0)	78.6 (73.5,82.9)	77.8 (72.7,82.2)	77.3 (72.2,81.7)	70.5 (64.8,75.5)
TX-Bexar County	95.8 (90.6,98.2)	80.5 (73.5,86.0)	92.9 (87.6,96.1)	92.8 (87.9,95.8)	93.0 (87.6,96.2)	95.7 (91.3,97.9)	95.4 (91.3,97.6)	91.1 (85.4,94.8)	84.3 (78.0,89.0)	78.7 (71.6,84.4)	77.9 (70.7,83.7)	77.2 (70.0,83.1)	76.0 (68.8,82.0)	74.5 (67.2,80.6)	70.9 (63.6,77.3)
TX-City of Houston	95.8 (91.8,97.9)	81.2 (74.3,86.6)	92.7 (88.0,95.7)	90.8 (85.6,94.2)	90.4 (84.9,94.0)	91.4 (86.4,94.7)	90.0 (84.3,93.7)	94.4 (89.8,97.0)	76.9 (70.2,82.5)	78.9 (72.0,84.4)	76.3 (69.2,82.1)	73.8 (66.7,79.9)	72.0 (64.8,78.2)	70.8 (63.6,77.1)	64.1 (56.8,70.8)
TX-Dallas County	92.4 (88.1,95.3)	81.8 (75.9,86.6)	89.4 (84.7,92.9)	91.4 (86.6,94.5)	91.1 (86.6,94.1)	86.4 (80.5,90.7)	88.9 (83.8,92.5)	88.6 (83.3,92.4)	76.9 (70.4,82.3)	80.1 (74.0,85.0)	79.9 (73.9,84.9)	74.9 (68.2,80.5)	74.2 (67.6,79.9)	73.0 (66.3,78.7)	69.0 (62.2,75.1)
TX-El Paso County	96.4 (93.6,98.1)	80.7 (75.3,85.1)	93.3 (89.7,95.7)	93.0 (89.6,95.3)	95.1 (91.9,97.1)	95.3 (92.2,97.2)	92.5 (88.8,95.0)	92.9 (89.0,95.5)	77.2 (71.4,82.1)	78.3 (72.8,83.0)	77.8 (72.3,82.5)	76.5 (70.8,81.3)	74.9 (69.2,79.9)	72.4 (66.5,77.6)	66.8 (60.6,72.5)
TX-Rest of State	95.7 (87.2,98.7)	83.8 (76.1,89.5)	92.4 (84.7,96.4)	94.7 (89.7,97.4)	93.3 (85.8,96.9)	94.1 (86.1,97.6)	94.3 (89.3,97.0)	94.9 (87.1,98.1)	79.7 (71.0,86.3)	82.8 (75.0,88.5)	80.6 (72.8,86.6)	80.4 (72.6,86.4)	79.8 (72.0,85.9)	79.8 (72.0,85.9)	72.1 (63.5,79.3)
Utah	92.6 (85.6,96.3)	83.1 (75.0,88.9)	89.0 (81.8,93.6)	90.8 (84.6,94.6)	90.6 (83.9,94.7)	91.7 (85.9,95.2)	92.7 (87.5,95.9)	87.9 (80.9,92.6)	76.3 (67.9,83.0)	81.8 (73.6,87.8)	80.9 (72.8,87.1)	78.1 (70.0,84.5)	76.6 (68.6,83.1)	72.4 (64.3,79.3)	65.5 (56.9,73.3)
Vermont	94.9 (90.1,97.5)	79.8 (73.2,85.0)	91.3 (86.2,94.7)	88.1 (82.6,92.0)	92.6 (87.2,95.8)	92.2 (87.9,95.1)	77.0 (70.5,82.5)	89.9 (84.4,93.7)	84.1 (78.0,88.7)	76.0 (69.3,81.6)	74.7 (67.9,80.5)	74.4 (67.6,80.2)	64.5 (57.4,71.0)	64.0 (56.9,70.5)	60.8 (53.6,67.5)
Virginia	96.2 (88.4,98.8)	80.3 (71.4,86.9)	89.9 (82.9,94.2)	92.3 (85.2,96.2)	92.6 (84.9,96.5)	92.8 (86.1,96.4)	93.0 (86.4,96.5)	94.8 (87.7,97.9)	81.7 (73.4,87.9)	76.6 (67.7,83.7)	74.3 (65.2,81.7)	73.2 (64.2,80.7)	72.9 (63.9,80.4)	72.9 (63.9,80.4)	68.1 (58.9,76.0)
Washington	93.2 (89.4,95.7)	82.7 (77.1,87.1)	88.7 (83.9,92.2)	91.2 (87.0,94.1)	89.6 (85.0,92.8)	88.8 (84.2,92.1)	86.8 (82.1,90.4)	89.9 (85.7,93.0)	77.2 (71.2,82.3)	80.8 (75.2,85.4)	80.5 (74.8,85.1)	77.7 (72.0,82.5)	73.5 (67.3,78.9)	72.2 (65.9,77.6)	67.3 (60.8,73.2)
WA-Eastern/Western WA	93.2 (89.2,95.7)	83.6 (77.8,88.1)	89.2 (84.6,92.6)	89.6 (85.0,93.0)	91.3 (86.9,94.3)	89.6 (85.0,92.8)	86.4 (81.1,90.5)	90.1 (85.6,93.2)	78.1 (72.0,83.3)	81.1 (75.2,85.9)	81.1 (75.2,85.9)	78.7 (72.6,83.7)	75.6 (69.3,81.0)	74.3 (67.9,79.8)	68.7 (62.0,74.7)
WA-Rest of State	93.2 (87.6,96.4)	82.3 (74.4,88.1)	88.5 (81.6,93.0)	91.9 (85.8,95.5)	88.8 (82.3,93.1)	88.4 (81.9,92.8)	87.0 (80.3,91.6)	89.8 (83.7,93.8)	76.9 (68.5,83.5)	80.7 (72.9,86.7)	80.2 (72.3,86.2)	77.3 (69.4,83.7)	72.6 (64.0,79.7)	71.3 (62.7,78.5)	66.7 (57.8,74.6)
West Virginia	97.5 (94.7,98.8)	84.8 (78.5,89.5)	94.5 (90.7,96.8)	88.3 (82.3,92.5)	94.1 (90.0,96.6)	96.1 (93.0,97.8)	89.3 (83.4,93.2)	90.4 (85.9,93.6)	72.4 (64.8,78.9)	81.6 (75.2,86.6)	78.8 (72.2,84.2)	78.0 (71.5,83.4)	76.5 (69.9,82.0)	71.5 (64.8,77.3)	62.8 (55.3,69.8)
Wisconsin	94.4 (88.8,97.2)	88.2 (81.2,92.8)	94.1 (88.5,97.0)	94.3 (88.9,97.1)	88.3 (81.6,92.7)	94.8 (89.2,97.6)	88.3 (81.9,92.7)	93.2 (87.4,96.5)	84.9 (78.1,89.9)	87.9 (81.0,92.5)	83.9 (76.8,89.1)	83.6 (76.5,88.9)	79.6 (72.2,85.3)	78.0 (70.6,84.0)	72.6 (64.9,79.1)
Wyoming	91.7 (86.9,94.8)	73.7 (67.4,79.1)	90.7 (85.9,93.9)	87.6 (82.6,91.4)	80.7 (74.7,85.6)	91.2 (86.7,94.3)	84.6 (79.4,88.6)	87.3 (82.0,91.3)	69.2 (62.7,75.0)	71.9 (65.5,77.5)	67.6 (61.0,73.5)	67.6 (61.0,73.5)	64.6 (58.0,70.6)	64.0 (57.4,70.1)	56.2 (49.5,62.7)

* Children in the Q1/2008-Q4/2008 National Immunization Survey were born between January 2005 and July 2007.

† Three or more doses of any diphtheria and tetanus toxoids and pertussis vaccines including diphtheria and tetanus toxoids, and any acellular pertussis vaccine (DTP/DTaP/DT)

‡ Four or more doses of any diphtheria and tetanus toxoids and pertussis vaccines including diphtheria and tetanus toxoids, and any acellular pertussis vaccine (DTP/DTaP/DT)

§ Three or more doses of any poliovirus vaccine

ll One or more doses of measles-mumps-rubella vaccine

¶ Three or more doses of *Haemophilus influenzae* type b (Hib) vaccine

** Three or more doses of hepatitis B vaccine

†† One or more doses of varicella at or after child's first birthday, unadjusted for history of varicella illness

‡‡ Three or more doses of pneumococcal-containing vaccine

‡‡‡ Four or more doses of pneumococcal-containing vaccine

§§ Four or more doses of DTP, three or more doses of poliovirus vaccine, and one or more doses of any MCV.

lll Four or more doses of DTP, three or more doses of poliovirus vaccine, one or more doses of any MCV, and three or more doses of Hib

¶¶ Four or more doses of DTP, three or more doses of poliovirus vaccine, one or more doses of any MCV, three or more doses of Hib, and three or more doses of HepB

***Four or more doses of DTP, three or more doses of poliovirus vaccine, one or more doses of any MCV, three or more doses of Hib, three or more doses of HepB, and one or more doses of varicella (varicella dose must be after first birthday)

cFour or more doses of DTP, three or more doses of poliovirus vaccine, one or more doses of any MCV, three or more doses of Hib, three or more doses of HepB, one or more doses of varicella, and three or more doses of pneumococcal-containing vaccine (varicella dose must be after first birthday)

ccFour or more doses of DTP, three or more doses of poliovirus vaccine, one or more doses of any MCV, three or more doses of Hib, three or more doses of HepB, one or more doses of varicella, and four or more doses of pneumococcal-containing vaccine (varicella dose must be after first birthday)

††† 95% Confidence Interval

Appendix J

Trends in the NIS Response Rates and Vaccination Coverage Rates, 1995-2008

Table J.1: Key Indicators* from Household and Provider Data Collection by Survey Year, National Immunization Survey, 1995-2008

Survey Year	Resolution Rate (%)	Screener Completion Rate (%)	Interview Completion Rate (%)	CASRO Response Rate (%)	Children with Adequate Provider Data (%)
1995	96.5	96.4	93.5	87.1	50.6
1996	94.3	96.8	94.0	85.8	63.4
1997	92.1	97.9	93.8	84.6	69.7
1998	90.4	97.8	93.6	82.7	67.1
1999	88.6	97.0	93.4	80.2	65.4
2000	88.1	96.0	93.1	78.7	67.4
2001	86.8	96.2	91.1	76.1	70.4
2002	84.8	96.6	90.6	74.2	67.6
2003	83.6	94.0	88.7	69.8	68.9
2004	83.8	94.8	92.0	73.1	71.0
2005	83.3	92.8	84.2	65.1	63.6
2006	83.3	90.5	85.6	64.5	70.4
2007	82.9	90.2	86.8	64.9	68.6
2008	82.3	90.3	85.1	63.2	71.0

*For the definition of the key indicators see Table 1 of NIS Data User's Guides for the survey year of interest.

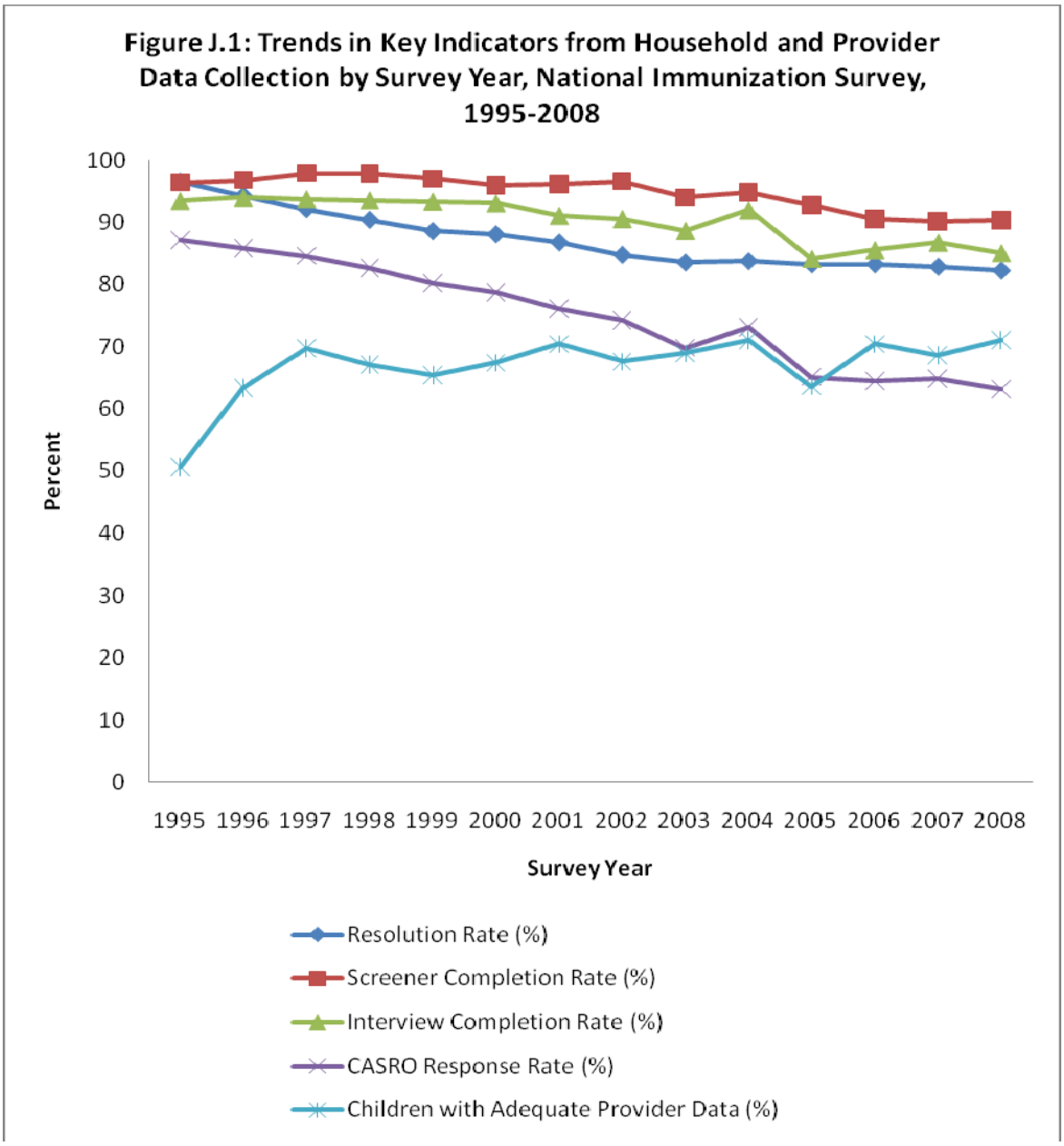


Figure J.1 provides a graphical representation of the data contained in table J.1. It shows how selected key indicators from the household and provider data collection performed throughout the years, from 1995 to present. We observe that the trend in the data collection rates is going downward, with the exception of the collection rate for children with adequate provider data, which has been essentially flat since 1997.

Table J.2: Vaccine-Specific Coverage Levels Among Children Age 19-35 months in the United States by Survey Year, National Immunization Survey, 1995-2008

Survey Year	4+ DTaP	3+ Polio	1+ MCV	3+ Hib	3+ Hep B	1+ Varicella*	3+ PCV	4:3:1†	4:3:1:3‡
1995	78.4	87.8	89.8	91.2	67.9	N.A.	N.A.	76.0	73.7
1996	81.1	91.0	90.6	91.4	81.8	12.0	N.A.	78.4	76.4
1997	81.5	90.7	90.4	92.5	83.6	25.8	N.A.	77.9	76.2
1998	83.9	90.8	92.0	93.4	87.0	43.2	N.A.	80.6	79.2
1999	83.3	89.6	91.5	93.5	88.1	57.5	N.A.	79.9	78.4
2000	81.7	89.5	90.5	93.4	90.3	67.8	N.A.	77.6	76.2
2001	82.1	89.4	91.4	93.0	88.9	76.3	N.A.	78.6	77.2
2002	81.6	90.2	91.6	93.1	89.9	80.6	40.8	78.5	77.5
2003	84.8	91.6	93.0	93.9	92.4	84.8	68.1	82.2	81.3
2004	85.5	91.6	93.0	93.5	92.4	87.5	73.2	83.5	82.5
2005	85.7	91.7	91.5	93.9	92.9	87.9	82.8	83.1	82.4
2006	85.2	92.8	92.3	93.4	93.3	89.2	86.9	83.1	82.2
2007	84.5	92.6	93.2	92.6	92.7	90.0	90.0	82.8	80.1
2008	84.6	93.6	92.1	90.9	93.5	90.7	92.8	82.5	79.6

* Varicella was added to the NIS in 1996.
† Four or more doses of DTaP, three or more doses of poliovirus vaccine, and one or more doses of any MCV.
‡ Four or more doses of DTaP, three or more does of poliovirus vaccine, and one or more doses of any MCV, and three or more doses of Hib.

Source: http://www.cdc.gov/nip/coverage

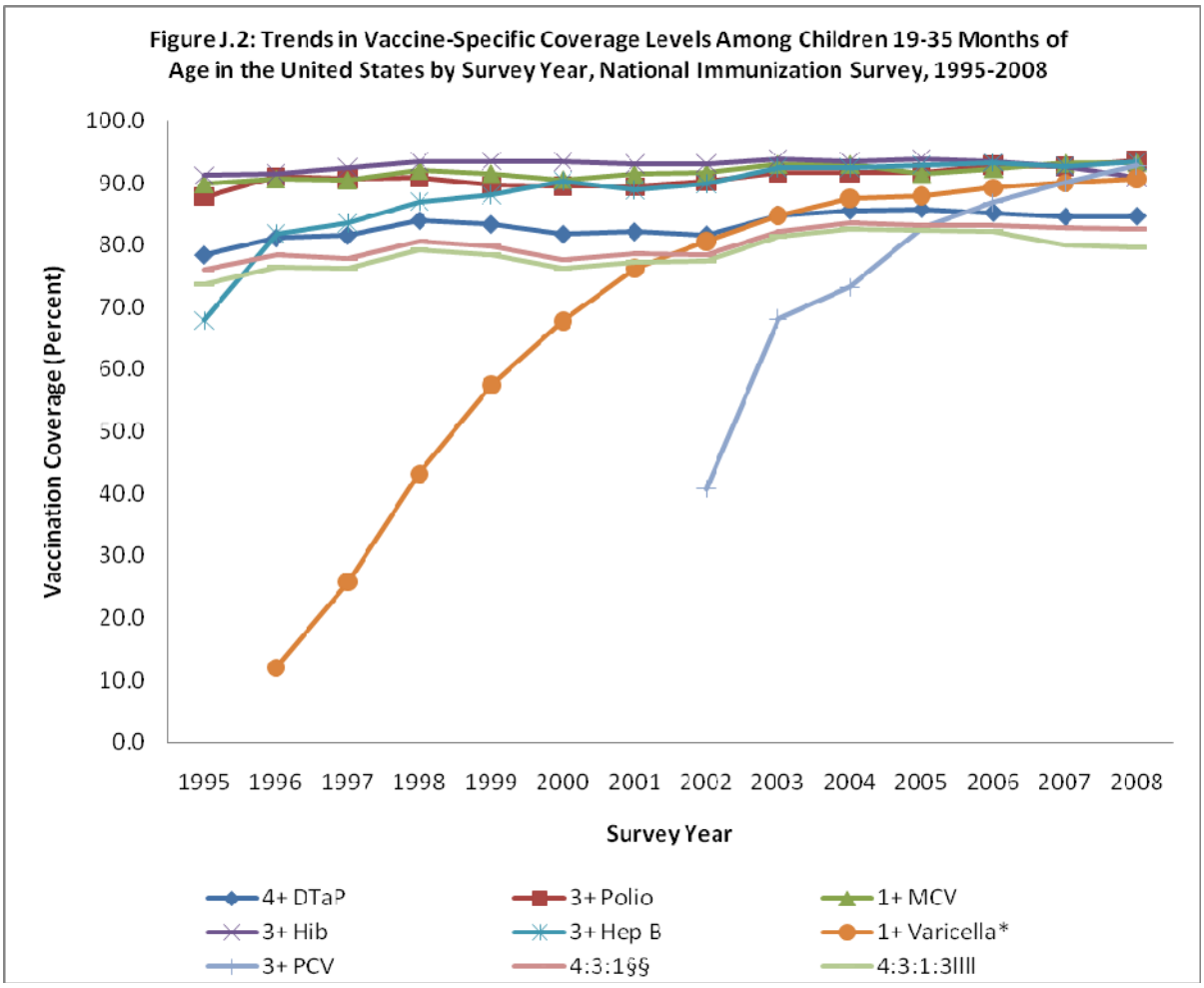


Figure J.2 provides a graphical representation of the data contained in Figure J.2. It displays the trend in vaccine-specific coverage levels among children age 19-35 months from 1995 to 2008. We observe that the trend in the data collection rates is slightly upward for the longer established vaccines, while the early trends for new vaccines show strong upward trends.

Appendix K

Vaccine Type Codes

Table K.1: 2008 NIS Vaccine Type Codes

Vaccine Code	Description
01	DT
02	DTP
03	DT-containing, unknown type
04	DTaP
05	DTP-Hib
07	DTaP-Hib
08	DTaP-HepB-IPV
20	OPV
21	IPV
22	Polio, unknown type
30	Measles-mumps-rubella
31	Measles only
32	Measles-mumps
33	Measles-rubella
43	HepB-Hib
44	Hib
60	HepB
70	Pneumococcal conjugate
71	Pneumococcal polysaccharide
72	Pneumococcal, unknown type
FL	Influenza, unknown type
FM	Influenza spray
FN	Injected influenza
HB	HepB, unknown type
HI	Hib, unknown type
MM	Measles-containing, unknown type
VA	Varicella-containing, unknown type
VM	MMR-varicella
VO	Varicella only