National Immunization Survey

A User's Guide for the
2005 Public-Use Data File

Centers for Disease Control and Prevention

National Center for Immunization and
Respiratory Diseases (proposed)
and
National Center for Health Statistics

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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 (proposed) 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 2003). 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 (DTaP/DTP/DT), 4 doses; poliovirus vaccine (polio), 3 doses; measles containing vaccine (MCV)[1], 1 dose; Haemophilus influenzae type b vaccine (Hib), 3 doses; hepatitis B vaccine (Hep B), 3 doses; varicella zoster (chicken pox) vaccine, 1 dose; and pneumococcal vaccine, 4 doses. 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).

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[1] In the United States, MCV is usually measles/mumps/rubella vaccine (MMR).

The NIS collects data on each of these vaccines. All except varicella and pneumococcal have been included in the NIS from its start in 1994. Varicella vaccine was added in Quarter 3, 1996, and pneumococcal vaccine in Quarter 4, 2000. 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). Children in the 2005 NIS survey cohort, born during February 2002-July 2004, may have been affected by shortages of pneumococcal vaccine during 2001-2004, when recommendations to defer the 4th dose or the 3rd and 4th doses were in effect (CDC 2004a, 2004b, 2006). Unlike the 2001 NIS, all children in the 2005 NIS were eligible to receive pneumococcal vaccine. Starting in the first quarter of 2003, influenza vaccine and hepatitis A vaccine were added to the NIS. Influenza vaccine was recommended for children aged 6-23 months starting with the 2004-05 season (CDC 2003). Estimates of influenza vaccination coverage for this season can be obtained from the 2005 NIS.

The NIS uses a random digit dialing (RDD) telephone survey to identify households containing children in the target age range and interview the adult who is most knowledgeable about the child's vaccinations. With consent of the child's parent or guardian, the NIS Provider Record Check Study 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 78 Immunization Action Plan (IAP) areas. Of the 78 IAP areas, 28 (including the District of Columbia) are urban. The remaining 50 are either an entire state or a "rest of state" IAP area (where the state contains one or more urban IAP areas). This design makes it possible to produce annual estimates of vaccination coverage levels within each of the 78 IAP 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 IAP areas, the NIS produces comparable vaccination coverage levels among IAP areas and over time.

For the 2005 NIS, the household interviews began on February 6, 2005 and ended on March 18, 2006. Provider data collection extended from April 2005 to May 2005 and again from October 2005 to April 2006. A total sample of approximately 4.5 million telephone numbers yielded household interviews for 27,627 children, 17,563 of whom had provider data adequate to determine whether the child was up-to-date with respect to the recommended immunization schedule. The 2005 NIS public-use data file contains data for the 27,627 children with completed household interviews, and more extensive data for the 17,563 children with adequate provider data (including 115 zero-shot children).

Major changes to the NIS in 2005 include:

- Contractor change: In late 2004, the CDC selected NORC at the University of Chicago to conduct the NIS. The start of Quarter 1 data collection began in early February 2005, which is later than usual.

- Sample design: A key difference between 2004 and 2005 was the introduction of rotating IAP areas. In 2005, five newly defined IAP areas were rotated into the sample and five original areas were rotated out. The latter areas remained in the sampling design as sampling strata, but they were not allocated large enough sample sizes to support individual estimates. As the year began, the design would support direct estimation for 78 areas.

- Study design: 2004 saw extensive use of respondent incentives to increase response rates and lower overall costs, while incentives were not used in 2005. Further, part of 2004 used a dual-frame design with list-assisted RDD and a list sample more likely to include the target population, while 2005 used only a list-assisted RDD design.

A number of unique events occurred in 2005 that may also impact results:

- Changes in sample design during 2005: Because of delays in funding, the sample design was changed from one based on 78 IAP areas with full sample sizes in the 1st and 2nd quarters to one based 56 areas with full samples during the 3rd quarter. During the 4th quarter, the 78 IAP area design was

restored, and nearly twice as many interviews were completed in this quarter as were completed in each of the earlier quarters, in an attempt to reach the target number of completed interviews in each area. The net result was a lower total number of completed interviews than planned. Also, the 2005 sample contained a larger proportion of younger birth cohorts than previous years. Although the Provider Record Check Study was also delayed, virtually all provider data for children interviewed any time in the 2005 year were collected in 4th quarter 2005 and 1st quarter 2006.

• Weather: Hurricane Katrina (and several other major Atlantic hurricanes that preceded and followed Katrina) impacted data collection. Beginning in July 2005, as storms struck or threatened coastal IAP areas, the survey suspended dialing for varying lengths of time. Dialing resumed as quickly as possible after each crisis had passed. A full review of our hurricane actions can be found in the methodology report (NORC 2006). See also Section 6.6 (Imputation in Orleans Parish Due to Hurricane Katrina), which explains the hurricane's impact on the IAP area definition and estimation methodology for Louisiana.

Published tables of vaccination coverage estimates for 2005 are available on the National Center for Immunization and Respiratory Diseases (proposed) website, http://www.cdc.gov/nip/coverage, and are discussed in an *MMWR* report (CDC 2006).

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

Additional information on the NIS is available at:

www.cdc.gov/nis/
www.cdc.gov/nip/coverage

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

Dissemination Staff:

Information Dissemination Staff, NCHS
3311 Toledo Road
Hyattsville, MD 20782

Phone: 301-458-INFO (4636), toll free 1-866-441-NCHS (6247)

E-mail: nchsquery@cdc.gov

Internet: http://www.cdc.gov/nchs/

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 provider(s). 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 (2006).

2.1. The NIS RDD Telephone Survey

The NIS RDD telephone survey phase uses independent, quarterly samples of telephone numbers in the 78 IAP areas. Table I.1 (in Appendix I) lists the 78 IAP areas by state and shows the estimated number of children living in each state and IAP area in 2005.[2]

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). Also, most cellular telephone users have to pay for incoming calls, which makes it too burdensome for respondents to participate in the survey. Therefore, the NIS sampling frame excluded cellular telephone exchanges in 2005.

The target sample size of completed telephone interviews in each IAP area is designed to achieve an approximately equal coefficient of variation of 7.5 percent for an estimator of immunization coverage derived

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[2] As the year 2005 came to a close, the Orleans Parish IAP area, one of the areas identified for separate analysis, was devastated by Hurricane Katrina. Because of ensuing data limitations, we collapsed the Orleans Parish and Rest of Louisiana areas into a statewide Louisiana area. Thus, to be technically correct, only 77 areas will be identified for separate analysis, although we continue to refer to the 78 areas identified for separate analysis.

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 63.6 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. The percentage of children with adequate provider data varies among IAP areas. 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/sr02/ser2.htm. This modification to the NIS produces only small changes in vaccination coverage for IAP areas and states, because the number of unvaccinated children in the sample is very small (only 115 in 2005).

The design and implementation of the NIS sample involve four procedures. First, statistical models predict the number of sample telephone numbers needed in each IAP area to meet the target precision requirements. Second, the sample for an IAP area is divided into random sub-samples called replicates. By releasing replicates as needed, it is possible to spread the interviews for each IAP 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 2005 for the entire sample. Children ages 19 to 35 months during 2005 data collection were born between February 2002 and August 2004. The original sample (in replicates that were released for use) consisted of 4,465,261 telephone numbers. Of those, 1,871,599 were eliminated before release to the telephone centers by the automated procedure as non-working, non-residential, cell phone, or "take me off the list" numbers. The remaining 2,593,662 numbers were sent to the telephone centers to be dialed, and 1,085,040 households were identified, as shown in Rows 3 and 6. Among the identified households, 1,006,435 (92.8 percent) were successfully screened. Of these, 974,510 did not contain an age-eligible child, and 31,925 (3.17 percent) contained one or more age-eligible children. Among these households, 26,867 (84.2 percent) completed the household interview.

Table 1:   Selected Operational Results of Data Collection, National Immunization Survey, 2005

Row	Key Indicator	Number	Percent
	RDD Phase		
1	Total selected telephone numbers in released replicates	4,465,261	–
2	Telephone numbers resolved before release to the telephone centers	1,871,599	41.9% (Row 2/Row 1)
3	Total telephone numbers released to the telephone centers	2,593,662	–
4	Advance letters mailed	1,460,066	56.3% (Row 4/Row 3)
5	Resolved telephone numbers* – *Resolution rate*	3,721,224	83.3% (Row 5/Row 1)
6	Households identified	1,085,040	29.2% (Row 6/Row 5)
7	Households successfully screened for presence of age-eligible children – *Screening completion rate*	1,006,435	92.8% (Row 7/Row 6)
8	Households with no age-eligible children	974,510	96.8% (Row 8/Row 7)
9	Households with age-eligible children – *Eligibility rate*	31,925	3.2% (Row 9/Row 7)
10	Households with age-eligible children with completed household interviews – *Interview completion rate*	26,867	84.2% (Row 10/Row 9)
11	CASRO response rate**	NA	65.1% (Row 5 x Row 7 x Row 10)
12	Age-eligible children with completed household interviews***	27,627	–
	Provider Record Check Phase		
13	Children with consent to contact vaccination providers	21,692	78.5% (Row 13/Row 12)
14	Immunization history questionnaires mailed to providers	27,023	–
15	Immunization history questionnaires returned from providers	23,767	88.0% (Row 15/Row14)
16	Children with adequate provider data	17,563 (includes 115 unvaccinated children)	63.6% (Row 16/Row 12)

  *Includes telephone numbers resolved before release to the telephone centers (Row 2).
  **CASRO, Council of American Survey Research Organizations.
  ***Rows 12 through 16 exclude children found to be ineligible based on the provider-reported 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). In 2005, the CASRO response rate (Row 11) was 65.1 percent. The CASRO response rate equals the product of the resolution rate (83.3 percent, Row 5), the screening completion rate (92.8 percent, Row 7), and the interview completion rate among eligible households (84.2 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 27,627 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 – 78.5 percent in 2005. 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, 23,767 (88.0 percent, Row 15) were returned. Among the children with completed household interviews, 17,563 (63.6 percent, Row 16) had adequate vaccination histories based on provider reporting (17,448) or had no vaccinations based on household reporting (115). The other 36.4 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.

For each IAP area and each state, Table I.1 (see Appendix I) shows number of children with completed household interviews and 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) to participate in the household interview. 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), and the Privacy Act of 1974 (5 U.S. Code 552a)]. 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 2005 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 2005 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, 2005

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)

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.

At the conclusion 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 child and respondent, so that NIS personnel can contact the provider(s) and identify the child 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).

The household questionnaire used in Quarter 4 is included in Appendix B. Some minor changes were made to the NIS questionnaire during 2005. These are listed below:

- The State and Local Area Integrated Telephone Surveys' National Survey of Children with Special Health Care Needs (SLAITS NS-CSHCN) began in Quarter 2. Question SF9 was changed at that time to allow callbacks for households that may have a child under 18 which the survey had identified as ineligible for the NIS. Starting with Quarter 3, SF9 was used only after the respondent had hung up on the interviewer after indicating that they had no children.

- At the beginning of Quarter 2, three response options were added to the "other shots" questions. The response categories were Pneumococcal, Influenza, and Hepatitis A.

- Question S_NUMB2, which verifies the number of children between 12 and 36 months, was added at the beginning of Quarter 3. This item was added as a second chance for households with eligible children to enter the survey if they did not initially identify eligible children at item S_NUMB.

- The "other shots" questions were redesigned at the beginning of Quarter 3 to give them a similar flow to the previous shot questions.

- At the beginning of Quarter 3, a shorter introduction was implemented for all calls after a "hung up during introduction" outcome. The shortened introduction reads: "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." The goal of this change was to prevent more "hung up during introduction" outcomes and move more quickly to the questions that establish eligibility.

3.2. Content of the Immunization History Questionnaire

The 2005 immunization history questionnaire 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 (proposed). One change was made to the immunization history questionnaire in 2005. Question 5 on the immunization history questionnaire, which formerly asked the provider if he/she would be interested in completing the survey over a secure internet site, was replaced with a question asking how many physicians work in the practice.

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. At this point a check ensures that the provider filled out the questionnaire for the correct child and that the child is actually 19 to 35 months of age (from all sources of the date-of-birth information). 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 served 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 the extent possible without making the CATI system overly complicated, out-of-range and inconsistent responses produce a warning screen, allowing the interviewer to correct errors as they occur. 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.

Following creation of these files, a preliminary analysis of each file identifies out-of-range values and extraneous codes. 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 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 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.[3] The data from the hard-copy questionnaires are

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[3] Due to funding delays, the majority of the 2005 provider questionnaires were actually collected during Quarter 4, 2005 and Quarter 1, 2006.

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 contain 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 wrong 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 2005 NIS, the data user should be aware that some inconsistent data might remain in the 2005 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

To facilitate access to the contents of the public-use data file, the names of variables adhere to the SAS (Version 6.12) convention of having no more than 8 characters, and they follow a systematic pattern as much as possible. The code book for the public-use data file groups the variables into nine broad categories according to the source of the data (household or provider) and the content of the variable (NCHS 2006).

The household report of vaccinations received by the child is used to create household up-to-date indicator variables. The names of these variables begin with FULL. For example, FULL_HEP indicates whether the child has received three or more hepatitis B vaccinations. Additional household up-to-date variables combine each vaccine with use of a shot card. The names of these variables begin with C_. For example, C_HEP has five values, corresponding to up-to-date on hepatitis B from a shot card, not up-to-date on hepatitis B from a shot card, up-to-date on hepatitis B not from a shot card (i.e., from memory recall), not up-to-date on hepatitis B not from a shot card, and vaccination status on hepatitis B indeterminate.

The provider data from the immunization history questionnaires are used to create numerous child level composite variables, as described later in Section 4.7 Composite Variables. 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 for 9 possible 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 9 possible doses of hepatitis B vaccine.

4.4. Missing Value Codes

Missing values codes for each variable can be found in the code book (NCHS 2006). 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 IAP 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 2006) 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 and the date of the birth dose of hepatitis B was not reported, the 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 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, 2005 – Quarter 4, 2005 a total of 14 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 9 children. For the remaining 5 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, 2005 – Quarter 4, 2005 with a provider-reported birth dose. A similar table is included in the 2000-2004 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, 2005

Age in Days at Birth Dose	Unweighted Percentage Of Birth Doses
0	48.6
1	28.6
2	13.1
3	3.6
4	2.4
5	1.5
6+	2.2

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 (proposed) 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 (e.g., FULL_DTP), race of child, household income, and up-to-date status on several vaccination series (e.g., ALL4SHOT). Many of these composite household 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, 2005

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	Under 20 years 20-29 years 30 years or older
FRSTBRN	No Yes
INCPOV1R – 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, C4, 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 2005 NIS public-use data files, however, contain only three categories: white alone; black alone; and all other races alone and 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 IAP areas, the 2002 through 2005 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 Race/Ethnicity of Children for the Race Categories and Corresponding 4:3:1:3, 4:3:1:3:3:1, Pneumococcal, and Varicella Vaccination Coverage, National Immunization Survey, 2005

(Single or Multiple) Race/Ethnicity Classification	Weighted Distribution of Children ages 19-35 Months in U.S.	Weighted Percentage 4:3:1:3 UTD	Weighted Percentage 4:3:1:3:3:1 UTD	Weighted Percentage 3+ Pneumococcal	Weighted Percentage 1+ Varicella by 12 Months
Hispanic	26.8	81.3	75.6	83.5	89.2
Non-Hispanic white only	51.7	83.6	76.0	83.2	86.2
Non-Hispanic black only	12.8	80.5	76.3	79.6	90.6
Non-Hispanic American Indian or Alaska Native only	0.8	75.9	72.0	75.1	82.2
Non-Hispanic Asian only	3.1	82.3	77.1	78.7	91.9
Non-Hispanic Native Hawaiian or Pacific Islander only	0.2	85.1	76.5	87.0	88.0
Multiracial	4.5	83.4	79.5	86.5	90.1
Non-Hispanic white/black	1.8	85.1	78.6	88.9	87.9
Non-Hispanic white/ American Indian or Alaska Native	0.9	74.2	72.8	73.9	86.7
Non-Hispanic white/Asian	0.9	84.2	80.5	90.9	93.6
Non-Hispanic other combination	0.9	88.4	87.1	89.9	94.3

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), participation in the Vaccines for Children program (VFC_PRO), and participation in state or community immunization registries (REGISTRY).

4.8. 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).

4.9. 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 manages 312 RDD samples annually (78 IAPs times 4 quarters) and uses 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 include 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 contribute 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) address quality assurance procedures.

The Provider Record Check component uses quality control measures at four junctions: prior to mailing packets to providers; during the telephone prompting effort; during the process of editing received questionnaires; and during and after their data entry. The final quality assurance activities occur during post-processing of the returned questionnaires or vaccination records. All returned questionnaires are 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 stages of data collection results in a sampling weight for the children who have data at that stage. 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 2005, 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 WGT_RDD in 2003 and 2004, RDD_WT in 2002, and HY_WGT in 1995-2001. The provider-phase sampling weights were called WGT in 2003 and 2004, WT in 2002, and W0 in 1995-2001.

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 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 IAP area divided by the total of telephone numbers that were randomly sampled from that sampling frame 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 or are not available at the time of the interview. Thus, the sum of the base sampling weights of children with completed household interviews will underestimate the size of the target population in the IAP 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 IAP 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 priority 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 IAP area.

6.4. Post-Stratification, Including Adjustment for Households Without 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. Although national coverage of landline telephones for age-eligible children is estimated to be approximately 93 percent, the coverage is known to be as low as about 85 percent in some IAP areas. The landline-telephone coverage is also decreasing rapidly as the number of households with wireless phone only increases. Further, data from the NHIS, which samples both "telephone" and "non-telephone" households, indicate that children living in households without telephones have significantly lower vaccination coverage. Thus, the adjustment to the sampling weights to compensate for non-coverage of non-telephone households may be particularly important in IAP areas in which the percentage of households that have 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-telephone parts of the population.

The first step in adjusting for households without telephones involves a post-stratification adjustment where two cells within each IAP area are formed based on the interruption status in telephone service. Then the weights are adjusted to the control totals of the respective groups within each IAP area. The weights of the children with interruption in telephone service are adjusted to the control total representing themselves and the children in non-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 2002, 2003). Because the Vital Statistics data give the counts of all live births in the U.S., regardless of whether the household has telephone service, the control totals include children in both telephone and non-telephone households. These counts are adjusted for infant mortality, immigration, and migration between IAPs. The control total for children in non-telephone households or in telephone households with interruption are derived from the IAP-level control total by estimating the percentage of children in non-telephone households and the percentage of children in telephone households with interruption within each IAP area. For 2005, 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 IAP area. These initial estimates are then adjusted by the estimates from the Current Population Survey (CPS). The CPS estimates by census region for 2000 and 2005 are used to make a ratio-adjustment of the PUMS estimates of the percentage of children in telephone households. The estimates of percentage of children in telephone households with interruption by IAP area are obtained from the NIS sample itself. These two percentage estimates are applied to the control total for the IAP area to estimate the control totals for the two post-stratification cells within the IAP 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 2002 and 2003 (children born between July 1, 2002 and November 30, 2003 would have been 19-35 months on June 30, 2005). 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 IAP 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 2005, the methodology is similar to that for 2003 and 2004 – 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 IAP 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 IAP-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 (2006) 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 27,627 children with a completed household interview, 17,563 (63.6 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 17,563 children with adequate provider data, 115 were unvaccinated children. Failure to obtain adequate provider data for the remaining 36.4 percent was attributable to:

- parent or guardian not giving consent to contact the child's vaccination provider(s) (21.3 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 (10.6 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 (4.5 percent).

The 10,064 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 IAP 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 IAP 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 IAP 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 IAP 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 including the 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 IAP 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 IAP-area-level trends over time are advised to interpret the results with appropriate caution.

6.6. Imputation in Orleans Parish Due to Hurricane Katrina

In 2005, hurricane Katrina devastated New Orleans, one of the 78 IAP areas, and impacted the IAP area definition and estimation methodology for Louisiana. Due to suspension of survey operations after Katrina, the sample size in New Orleans became less than adequate to keep it as a separate IAP area, and so New Orleans had to be merged with the rest of Louisiana for weighting and estimation. As a result, the actual number of IAP areas to be directly estimated was reduced to 77 from the initial 78. Also, the vaccination status was imputed for some children in New Orleans for whom not all providers could respond due to the

Katrina disruption. Of the 117 children with adequate provider data from Orleans Parish included on this public-use data file, 30 have reported provider data and 87 have imputed provider data. The imputation was done using the children's reported household data; a log-linear model linking provider-reported up-to-date statuses, household-reported up-to-date statuses, and covariates related to mother's education, mobility, and shot card use; and a hot-deck method to fill in all remaining items on the immunization history questionnaire. For more details, see the methodology report (NORC 2006). Provider data were not imputed for children in the rest of Louisiana. Thus, of the 556 children in statewide Louisiana with adequate provider data, 87 (15.6 percent) have imputed provider data, thus substantially increasing the number of children with adequate provider data over what would have been the case without imputation. It is expected that the actual variance with imputation would be smaller due to the larger sample size, and the imputation should reduce any bias due to the differential coverage between New Orleans and the rest of Louisiana. Some comparative results from an analysis to assess the impact of the imputation on the estimates for Louisiana are presented in Table 6. It shows that the imputation has a small impact on the estimates and the corresponding 95 percent confidence intervals.

Table 6: **Impact of Imputation of Vaccination Status of 87 Children in New Orleans on Some Vaccination Coverage Estimates and 95% Confidence Intervals††† for Louisiana, National Immunization Survey, 2005**

State	Children with Adequate Provider Data	4+DTP‡	3+Polio§	1+MMRǁ	3+Hib¶	4:3:1:3ǁǁǁǁ
Louisiana (with imputation)	556	80.5 (76.0, 84.3)	91.7 (88.5, 94.1)	89.2 (85.8, 91.9)	94.3 (91.4, 96.3)	77.1 (72.4, 81.2)
Louisiana (without imputation)	469	80.2 (75.3, 84.3)	91.9 (88.5, 94.4)	89.9 (86.3, 92.7)	93.9 (90.7, 96.1)	77.8 (72.8, 82.1)
Difference	87	-0.3	0.2	0.7	-0.4	0.7

††† 95% Confidence Intervals are within parentheses

‡ 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

llll 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

7. Analytic and Reporting Guidelines

Data from the NIS public-use data file can be used to produce national, state, and IAP 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 IAP area and state identifiers (ESTIAP and STATE). The sample is stratified by the 78 IAP areas; and the IAP area identifier and the coded household identifier (SEQNUMHH) are key variables for obtaining standard errors for IAP 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 IAP 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.

Several variables have been added, removed, or modified for the 2005 public-use data file. For example, because the 2005 IAP areas differ from those used in 1995-2004, a new IAP variable has been added (ESTIAP) and the old IAP variable (ITRUEIAP) dropped. In addition, some variables previously imputed

are not imputed in 2005. A full list of variables appearing on either the 2004 or 2005 public-use data file appears in Appendix H, along with the reason for the addition, subtraction, or modification of variables for 2005. 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 7 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 IAP area (ESTIAP), 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 7:   NIS Variables Commonly Used in Analyses or for Published Estimates

ID Variables	
SEQNUMC – unique child ID variable	
SEQNUMHH – unique household ID variable	
Geographic Variables	
ESTIAP – IAP area number (introduced in 2005; ITRUEIAP used through 2004)	
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

Table 7 (continued): NIS Variables Commonly Used in Analyses or for Published Estimates

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	Under 20 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
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 Refused Missing
BF_END – length of time in days child was fed breast milk	
BF_EXCL – length of time in days child was exclusively fed breast milk	

Table 7 (continued): NIS Variables Commonly Used in Analyses or for Published Estimates

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	
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_PRO – participation of child's provider(s) in VFC program	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_END), and length of time in days the child was exclusively fed breast milk (BF_EXCL). Two types of inconsistencies arise in the breastfeeding data: 1) duration of any

breastfeeding can exceed age of the child, and 2) age of introducing anything other than breast milk can exceed duration of any breastfeeding. BFENDFL is set equal to 1 when BF_END exceeds the age of the child. BFEXCLFL is set equal to 1 when duration of exclusive breastfeeding exceeds duration of any breastfeeding, with a buffer for respondent use of different time units in the two questions. 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 new influenza vaccine up-to-date variables have been created (NCHS 2006). 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.

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, or Hep B-containing vaccine. Varicella, 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, and MM; 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; and pneumococcal-containing vaccines have a vaccination type code of 70, 71, and 72. 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 vaccination date and age-at-vaccination variables that must be carried in the NIS 2005 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 discusses the naming conventions for these variables.

Table 8: Vaccination-Type Indicator Variables Used with Vaccination-Date Arrays and Age-at-Vaccination Arrays, National Immunization Survey, 2005

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
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

The final key set of provider variables relates to characteristics of the provider(s): provider facility type (PROV_FAC), participation in the Vaccines for Children (VFC) program (VFC_PRO), and an indicator of whether the child's vaccinations are reported to a community or state immunization registry (REGISTRY).

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 value of 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 jth child with adequate provider data in the ith sampled household in the hth stratum (IAP area) 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

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

where L denotes the number of strata (the 78 IAP areas), n_h denotes the number of sampled households containing children with adequate provider data in the hth IAP area, and m_{hi} denotes the number of age-eligible children with adequate provider data in the ith household in the hth stratum.

Letting L instead denote the number of IAP 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 IAP 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 IAP areas. Letting $Z_{hij} = \dfrac{W_{hij}(Y_{hij} - \hat{\theta})}{\displaystyle\sum_{h=1}^{L} \hat{T}_h}$, $Z_{hi} = \displaystyle\sum_{j=1}^{m_{hi}} Z_{hij}$, and $\overline{Z}_h = \dfrac{\displaystyle\sum_{i=1}^{n_h} Z_{hi}}{n_h}$

yields an estimator of the variance of the estimated vaccination coverage rate, $\hat{\theta}$, equal to

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

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 2004), SAS (SAS Institute Inc. 1999), and Stata (Stata Corporation 2005). Appendix G gives several examples of the use of SAS and SUDAAN to estimate vaccination coverage rates and their standard errors for IAP areas and states. For PROC CROSSTAB, the DESIGN = WR (with-replacement sampling of primary sampling units within stratum) option is used, because the sampling fractions for households within an IAP area are almost all quite small. Even when the sampling fractions are non-trivial (e.g., Newark), the variance will only be slightly overestimated (i.e., conservative). In these applications the IAP area (ESTIAP) is used as the stratum variable and the household identifier (SEQNUMHH) as the primary sampling unit identifier in the NEST statement. The data file should be sorted first on ESTIAP and then on SEQNUMHH within ESTIAP before running SUDAAN. 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 2005 NIS public-use data file, eleven 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 IAP 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 IAP 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; and provider-phase weights W0 in 1995-2001, WT in 2002, WGT in 2003-2004, PROVWT in 2005) 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 year 2005 brings an important new complication for variance estimation not encountered in previous NIS years, because some traditional IAP areas were removed and other new areas defined and introduced to the survey (see Section 2 above for more information about rotating IAP areas). The variance strata for 2004 and all prior files are defined by the variable ITRUEIAP, while the variance strata for 2005 are defined by the variable ESTIAP. Both ITRUEIAP and ESTIAP define 78 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 2004 and all prior years, while statewide Massachusetts is a stratum in 2005. Other areas, such as Chicago and Rest of Illinois, are strata in all years, including 2005.

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.

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 Immunization Action Plan) 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 CONSTRAST 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 ESTIAP, ITRUEIAP, and Least Common Denominator Immunization Action Plan (LCDIAP), National Immunization Survey, 2005

LCDIAP	IAP Name	ESTIAP	ITRUEIAP
	Alabama		
21	AL-Jefferson County	21	21
20	AL-Rest of State	20	20
74	Alaska	74	74
	Arizona		
67	AZ-Maricopa County	67	67
66	AZ-Rest of State	66	66
46	Arkansas	46	46
	California		
69	CA-Los Angeles County	69	69
68	CA-San Diego County	68	71
68	CA-Santa Clara County	68	70
68	CA-San Bernardino County	80	68
68	CA-Alameda County	79	68
68	CA-Rest of State	68	68
	Colorado		
60	CO-Denver	81	60
60	CO-Rest of State	60	60
01	Connecticut	01	01
13	Delaware	13	13
12	District of Columbia	12	12
	Florida		
22	FL-Miami-Dade County	22	24
23	FL-Duval County	23	23
22	FL-Rest of State	22	22
	Georgia		
26	GA-Fulton/DeKalb Counties	26	26
25	GA-Rest of State	25	25

Table 9 (continued): Cross-Walk Between ESTIAP, ITRUEIAP, and LCDIAP, National Immunization Survey, 2005

LCDIAP	IAP Name	ESTIAP	ITRUEIAP
72	Hawaii	72	72
75	Idaho	75	75
	Illinois		
35	IL-City of Chicago	35	35
34	IL-Rest of State	34	34
	Indiana		
36	IN-Marion County	36	37
36	IN-Rest of State	36	36
56	Iowa	56	56
57	Kansas	57	57
27	Kentucky	27	27
	Louisiana		
47	LA-Orleans Parish	47	48
47	LA-Rest of State	47	47
04	Maine	04	04
	Maryland		
15	MD-City of Baltimore	15	15
14	MD-Rest of State	14	14
	Massachusetts		
02	MA-City of Boston	02	03
02	MA-Rest of State	02	02
	Michigan		
39	MI-City of Detroit	39	39
38	MI-Rest of State	38	38
40	Minnesota	40	40
28	Mississippi	28	28
	Missouri		
58	MO-St. Louis County/City	82	58
58	MO-Rest of State	58	58
61	Montana	61	61
59	Nebraska	59	59

LCDIAP	IAP Name	ESTIAP	ITRUEIAP
	Nevada		
73	NV-Clark County	83	73
73	NV-Rest of State	73	73
05	New Hampshire	05	05
	New Jersey		
09	NJ-City of Newark	09	09
08	NJ-Rest of State	08	08
49	New Mexico	49	49
	New York		
11	NY-City of New York	11	11
10	NY-Rest of State	10	10
29	North Carolina	29	29
62	North Dakota	62	62
	Ohio		
42	OH-Cuyahoga County	42	42
43	OH-Franklin County	43	43
41	OH-Rest of State	41	41
50	Oklahoma	50	50
76	Oregon	76	76
	Pennsylvania		
17	PA-Philadelphia County	17	17
16	PA-Rest of State	16	16
06	Rhode Island	06	06
30	South Carolina	30	30
63	South Dakota	63	63
	Tennessee		
33	TN-Davidson County	33	33
32	TN-Shelby County	32	32
31	TN-Rest of State	31	31

Table 9 (continued): Cross-Walk Between ESTIAP, ITRUEIAP, and LCDIAP, National Immunization Survey, 2005

LCDIAP	IAP Name	ESTIAP	ITRUEIAP
	Texas		
55	TX-Bexar County	55	55
54	TX-City of Houston	54	54
52	TX-Dallas County	52	52
53	TX-El Paso County	53	53
51	TX-Rest of State	51	51
64	Utah	64	64
07	Vermont	07	07
18	Virginia	18	18
	Washington		
78	WA-King County	78	78
77	WA-Rest of State	77	77
19	West Virginia	19	19
	Wisconsin		
45	WI-Milwaukee County	45	45
44	WI-Rest of State	44	44
65	Wyoming	65	65

8. Summary Tables

Appendix I contains seven tables. Appendix Table I.1 lists the 78 IAP areas by state. For the U.S. and for each state and IAP area, it gives the estimated population total of children ages 19 to 35 months in 2005, and (from 2005 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 income (Appendix Table I.3), age group by race/ethnicity (Appendix Table I.4), and age group by gender (Appendix Table I.5). 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.6 gives unweighted counts of children for shot card use by presence of adequate provider data.

Appendix Table I.7 presents estimates of vaccination coverage and asymmetric 95-percent confidence intervals obtained from SUDAAN. The data user should obtain the same estimates from the 2005 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.

9. Citations for NIS Data

In publications please acknowledge the original data source. The citation for the 2005 NIS public-use data file is:

U.S. Department of Health and Human Services (DHHS). National Center for Health Statistics. The 2005 National Immunization Survey, Hyattsville, MD: Centers for Disease Control and Prevention, 2006.

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

The NIS public-use data file is located at www.cdc.gov/nis/datafiles.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

Appendix A

Glossary of Abbreviations and Terms

3:3:1	The series of 3 or more DTP vaccinations, 3 or more polio immunizations, and 1 or more MCV vaccinations
4:3:1	The series of 4 or more DTP vaccinations, 3 or more polio immunizations, and 1 or more MCV vaccinations
4:3:1:3	The series of 4 or more DTP 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 DTP 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 DTP 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
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 (pending)
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
SC	Shot card
UTD	Up-to-date
VFC	Vaccinations for Children program
VRC	Varicella vaccine

Appendix B

NIS Household Questionnaire

NIS Hard Copy Questionnaire

Q4/2005

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

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

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

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 very 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 S1

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

BUSINESS .... 1 TERMINATE
HOUSEHOLD... 2 TERMINATE
COULD NOT DETERMINE .... 3 TERMINATE
CONTINUE INTERVIEW .... 4 GO TO S1
ANSWERING MACHINE SAID
"TAKE ME OFF YOUR LIST" .... 5 GO TO SASERV

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

I AM THAT PERSON .... 1 GO TO S_NUMB
THIS IS A BUSINESS .... 2 GO TO SALZ_BUS
NEW PERSON COMES TO PHONE .... 3 GO TO INTRO_1
DOESN'T LIVE IN HOUSEHOLD 8   GO TO INSTRUCTION: ASK FOR ANOTHER PERSON OR SCHEDULE APPOINTMENT ON THE NEXT SCREEN

NO PERSON AT HOME WHO IS AT OVER 17.... 9 GO TO S2_B
EMERGENCY – NO KIDS .... 88 GO TO SF9
REFUSED .... 99 GO TO REFUSAL CONVERSION

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?

YES... 1 When would be a good time for me to call back and talk to that person? [SCHEDULE APPOINTMENT]

NO .... 2 GO TO S3_TERM
TEEN LINE... 3 GO TO S2_C
EMERGENCY – NO KIDS .... 88 GO TO SF9

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 COMMENTS AND TERMINATE

SF9   Just to make sure I have this correct, are there any children between the ages of 18
months and 36 months old living or staying in your household?

(HANG UP) No one under 18 lives in HH................ 3 GO TO S3_TERM- CASE
                                                          INELIGIBLE FOR NIS
                                                          AND SLAITS

(HANG UP) Could not be determined if
anyone under 18 lives in HH .... 4 GO TO S_UNDR18 in
                                                          SLAITS ROSTER

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,
ENTER # OF CHILDREN .... _____   (01 to 09)
NO CHILDREN 00   GO TO S3_NUMB2

Don't Know... 77   GO TO INSTRUCTION:
                                                          ASK FOR ANOTHER PERSON
                                                          OR SCHEDULE APPOINTMENT
                                                          ON THE NEXT SCREEN
Refused 99   GO TO COMMENTS
(Hang Up) Emergency-No Kids 88   GO TO SF9

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

Yes.. 1 IF S-NUMB =0 GO TO
                                                          CSHCN, IF 1-9 GO TO
                                                          S3_LTR
No 2   GO TO S_NUMB
Don't Know 77   GO TO INSTRUCTION:
                                                          ASK FOR ANOTHER PERSON
                                                          OR SCHEDULE APPOINTMENT
                                                          ON THE NEXT SCREEN
Refused .... 99 GO TO COMMENTS

S3_LTR   A letter describing this study may have been sent to your home recently. Do you remember seeing the letter?

        YES.. 1

        NO 2

        DON'T KNOW 77

        REFUSED 99

S3_INTRO   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 want to answer or end the interview at any time. We are required by federal laws to keep your answers strictly private. I can describe these laws if you want. They guarantee that your answers will be used only for statistical research. In order to review my work, my supervisor may record and 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...................2   GO TO S3_LAW

S3_EVAL_R   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   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.

        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 (first) child in your household who is between 12 months and 3 years old.

        AGREE.. 1

        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 FIRST 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
                                                              OR S3_TERM
NO .... 2 GO TO INSTRUCTION:
                                                              PLEASE CORRECT
                                                              DATE OF BIRTH AND
                                                              THEN S3_3M/D/Y_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
RETURN TO QUESTIONNAIRE............................ 2 GO TO S3

YEARQUIT_X Since we need a birth date 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 HARDSOFTREF

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
NO .... 2 GO TO WHEN_CALL

PERSON_X   May I speak with this person now?

Yes.. 1 GO TO S3_3M/D/Y_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 APPT SCREEN
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 [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 (name(s) of eligible children) listed between the age of 19 and 35 months old.
              Do you have any other children between 12 months and 3 years old living or staying
              in this household?

              YES.. 1 GO TO INSTRUCTION:
                                                                                         PLEASE CORRECT THE
                                                                                         NUMBER OF CHILDREN
                                                                                         IN THE HOUSEHOLD –
                                                                                         THEN GO TO S_NUMB
              NO .... 2 GO TO ELIG_GRID

ELIGIBILITY GRID: TABLE OF CHILDREN BETWEEN THE AGES OF 19 AND 35 MONTHS OLD. Primary eligible children are born from Month/Year to Month/Year

Child	Date of Birth	Sex MALE/ FEMALE	S3.5 First Name/ Initials	Eligible YES/NO
1	_____/_____/_____			
2	_____/_____/_____			
3	_____/_____/_____			
4	_____/_____/_____			
5	_____/_____/_____			
6	_____/_____/_____			
7	_____/_____/_____			
8	_____/_____/_____			
9	_____/_____/_____			

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 spend 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. 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 S5_EVAL_R
            Respondent Asks For Description of Law................. 2 GO TO S5_LAW THEN
                                                                                   TO S5_EVAL_R

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.

S5_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]. Because the Centers for Disease Control and Prevention needs accurate information on immunizations children receive, we would like you to refer to shot records.

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

            YES... 1 GO TO NEXT CHILD
                                                                                   OR S7_A
            NO .... 2 GO TO NEXT CHILD
                                                                                   OR BINTRO
            DK .... 77 GO TO S7_A
            REF... 99 GO TO S7_A

S7_A   Some children receive many shots, and the name and dates of those shots can be difficult to remember. It would be helpful if you could bring [NAMES OF ALL CHILDREN WITH SHOT RECORDS]'s shot record(s) to the phone. (IF NECESSARY: I'll be happy to wait while you go get it/them)?

YES... 1 GO TO S7_B

CAN'T/WON'T BRING SR TO PHONE .... 2 GO TO NEXT CHILD OR BINTRO

S7_B_X   Am I correct that you have the shot records for [NAMES OF ALL CHILDREN WITH SHOT RECORDS]?

YES... 1 GO TO NEXT CHILD OR AINTRO

NO .... 2 GO TO INSTRUCTION: PLEASE CORRECT SHOT RECORDS EXISTENCE THEN TO S6_1

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.

        First Name:_____

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)
        _____

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
                                                  APPOINTMENT
                                                  SCREEN
        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 15 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 AD1_X[M,D,Y]_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 AN2_X
REFUSED	GO TO 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,D,Y]_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 AN3_X
REFUSED	GO TO 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,D,Y]_X
NONE………...0	GO TO AN4_X
DON'T KNOW…...77	GO TO AN4_x
REFUSED…………..99	GO TO AN4_x

AD3X [M,YD,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 AM3_X
DON'T KNOW .... GO TO AN4_X
REFUSED .... GO TO AN4_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 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,D,Y]_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 AN5_X
REFUSED ....   GO TO 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,D,Y]_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 AN6_X
    REFUSED ....   GO TO 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,D,Y]_X
    NONE………...0   GO TO A5C_X
    DON'T KNOW…...77   GO TO A5C_X
    REFUSED…………...99   GO TO A5C_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 A5_C_X

REFUSED .... GO TO 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 A6_X
DON'T KNOW……………………… 77   GO TO A6_X
REFUSED………………………… 99   GO TO A6_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 A6_X
DON'T KNOW .... 77 GO TO A5_F_X
REFUSED .... 99 GO TO A6_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 to18 months old? 03

…19 to24 months old? 04

…25 to30 months old? 05

…31 to35months old? 06

DON'T KNOW 77

REFUSED 99

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 not listed on the shot records that I have not asked?

YES…………………………	1	GO TO
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_X   What is the name of the [FIRST/SECOND/THIRD/FOURTH/FIFTH] other shot listed on the record?

FOUR-IN-ONE..	02	GO TO A7_NEWX_X
BCG (TUBERCULOSIS)…	03	GO TO A7_NEWX_X
TYPHOID..	04	GO TO A7_NEWX_X
YELLOW FEVER..	05	GO TO A7_NEWX_X
MALARIA	06	GO TO A7_NEWX_X
DTaP...	07	GO TO A7_NEWX_X
DTP/HiB...	08	GO TO A7_NEWX_X
DTP/HepB	09	GO TO A7_NEWX_X
PNEUMOCOCCAL	10	GO TO A7_NEWX_X
INFLUENZA...	11	GO TO A7_NEWX_X
HEPATITIS A	12	GO TO A7_NEWX_X
OTHER (SPECIFY)	55	GO TO A7_NEWX_X
NO OTHER SHOTS	70	GO TO NEXT CHILD OR CWIC_INTRO
DON'T KNOW..	77	GO TO NEXT SHOT, NEXT CHILD, OR CWIC_INTRO
REFUSED	99	GO TO NEXT SHOT, NEXT CHILD, OR CWIC_INTRO

A7_NEWX_X   How many times has Dora received the [shot name from A6_B_X] shot?
ENTER 77 FOR DON'T KNOW AND 99 FOR REFUSED

Number	_____	GO TO
DON'T KNOW	77	GO TO NEXT SHOT, NEXT CHILD, OR CWIC_INTRO
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 this shot?
                  Enter 777/77/7777 FOR DON'T KNOW AND 999/99/9999 FO 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 10 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)?

YES…………………………………...	1	GO TO B2_A_X
NO………………………………….	2	GO TO B3_X
DON'T KNOW……………………….	77	GO TO B3_X
REFUSED…………………………….	99	GO TO B3_X

B2_A_X   How many D-T-P, D-T-A-P or D-T shots did [FILL VAR: NAME OF FIRST/SECOND…NINTH CHILD, FROM S3.5.] ever receive?

ENTER 50 FOR "ALL SHOTS', 77 FOR DON'T KNOW AND 99 FOR REFUSED.

NUMBER OF SHOTS........................	___
ALL SHOTS	50
DON'T KNOW..................................	77
REFUSED...	99

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?

YES…………………………………...	1	GO TO B3_A_X
NO………………………………….	2	GO TO B4_X
DON'T KNOW……………………….	77	GO TO B4_X
REFUSED…………………………….	99	GO TO B4_X

B3_A_x   How many polio vaccinations did [FILL VAR: NAME OF FIRST/SECOND…NINTH CHILD, FROM S3.5.] ever receive?

ENTER 50 FOR "ALL SHOTS', 77 FOR DON'T KNOW AND 99 FOR REFUSED

NUMBER OF SHOTS	____
ALL SHOTS..	50
DON'T KNOW	77
REFUSED	99

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?

YES……………………………………..	1	GO TO B4_A_X
NO……………………………………..	2	GO TO B5_X
DON'T KNOW………………………	77	GO TO B5_X
REFUSED……………………………	99	GO TO B5_X

B4_A_x   How many measles or M-M-R shots did [FILL VAR: NAME OF FIRST/SECOND…NINTH CHILD, FROM S3.5.] ever receive?

ENTER 50 FOR "ALL SHOTS', 77 FOR DON'T KNOW AND 99 FOR REFUSED

NUMBER OF SHOTS ....____		IF 1, GOTO B4_B_X, IF 2 OR MORE,GO TO B5_X
ALL SHOTS..	50	GO TO B5_X
DON'T KNOW	77	GO TO B5_X
REFUSED	99	GO TO B5_X

B4_B_x   Was that shot measles only or M-M-R only?

MEASLES ONLY	1
M-M-R ONLY...	2
DON'T KNOW	77
REFUSED	99

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)?

YES……………………………………..	1	GO TO B5_A_X
NO……………………………………..	2	GO TO B5_X
DON'T KNOW………………………	77	GO TO B5_X
REFUSED……………………………	99	GO TO B5_X

B5_A_x   How many H-I-B shots did [FILL VAR: NAME OF FIRST/ SECOND…NINTH CHILD, FROM S3.5.] ever receive?

ENTER 50 FOR "ALL SHOTS', 77 FOR DON'T KNOW AND 99 FOR REFUSED.

NUMBER OF SHOTS .... ____
ALL SHOTS.. 50
DON'T KNOW 77
REFUSED 99

B6_x   Has [FILL VAR: NAME OF FIRST/SECOND…NINTH CHILD, FROM S3.5.] ever received a hepatitis B shot? This shot is for meningitis and is often called HepB.

YES……………………………………...   1   GO TO B6_A_X
NO…………………………………….   2   GO TO B6_X
DON'T KNOW…………………………   77   GO TO B6_X
REFUSED…………………………….   99   GO TO B6_X

B6_A_x   How many hepatitis B shots did [FILL VAR: NAME OF FIRST/SECOND… NINTH CHILD, FROM S3.5.] ever receive?

ENTER 50 FOR "ALL SHOTS', 77 FOR DON'T KNOW AND 99 FOR REFUSED.

NUMBER OF SHOTS .... ____

ALL SHOTS.. 50

DON'T KNOW 77

REFUSED 99

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_C_X
NO   2   GO TO B6_D_X
DON'T KNOW ....   77 GO TO B6_D_X
REFUSED ....   99 GO TO B6_D_X

B6_C_x   How many chicken pox shots did [FILL VAR: NAME OF FIRST/SECOND… NINTH CHILD, FROM S3.5.] ever receive?

ENTER 50 FOR "ALL SHOTS', 77 FOR DON'T KNOW AND 99 FOR REFUSED.

NUMBER OF SHOTS	____
ALL SHOTS..	50
DON'T KNOW	77
REFUSED	99

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 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

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..	_____ GO TO NEXT CHILD OR CWIC_INTRO
DON'T KNOW	77 GO TO B6_F_X
REFUSED	99 GO TO NEXT CHILD OR CWIC_INTRO

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

GO TO NEXT CHILD OR CWIC_INTRO

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	3	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
NO	2

CBF_INTRO   Now I have a couple of questions on breastfeeding.

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 long was [FILL VAR: NAME OF FIRST/SECOND…NINTH CHILD, FROM S3.5.] breastfed or fed breastmilk?
ENTER 777 FOR DON'T KNOW AND 999 FOR REFUSED

    Number   .... _____   GO TO CBF_02RU_X
    0   ....   GO TO CBF_N_X
    DON'T KNOW 777   GO TO CBF_02_R_X
    REFUSED 999   GO TO CBF_N_X

CBF_02RU_X   ENTER PERIOD:
    DAYS ....   1 GO TO CBF_N_X
    WEEKS ....   2 GO TO CBF_N_X
    MONTHS ....   3 GO TO CBF_N_X
    YEARS ....   4 GO TO CBF_N_X

CBF_02R_X   Can you remember if you or [FILL VAR: NAME OF FIRST/SECOND…NINTH CHILD, FROM S3.5.]'s mother breastfed (him/her) for:

    Under one month   1
    Between one month and six months   2
    Between six months and one year   3
    Over 1 year   4

CBF_N_X   How old was [FILL VAR: NAME OF FIRST/SECOND…NINTH CHILD, FROM S3.5.] when (he/she) was first fed something other than breastmilk? This includes formula, juice, solid foods, cow's milk, water, sugar water, or anything else.
ENTER 777 FOR DON'T KNOW AND 999 FOR REFUSED

    ENTER NUMBER ....   _____
    DON'T KNOW   777
    REFUSED   999

CBF_U   ENTER PERIOD:

    DAYS   1
    WEEKS   2
    MONTHS   3
    YEARS   4

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
                        NO...   2
                        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_X   Is [FILL VAR: NAME OF FIRST/SECOND…NINTH CHILD, FROM S3.5] of
                Spanish, Hispanic, or Latino origin, that is Mexican, Mexican-American, Central
                American, South American or Puerto Rican, Cuban, or other Spanish-Caribbean?
                CLICK ALL THAT APPLY

                        NOT SPANISH/HISPANIC   1
                        MEXICAN/MEXICANO   2
                        MEXICAN-AMERICAN   3
                        CENTRAL AMERICAN...   4
                        SOUTH AMERICAN...   5
                        PUERTO RICAN..   7
                        CUBAN/CUBAN AMERICAN   8
                        SPANISH-CARIBBEAN…………………………..   9
                        OTHER SPANISH/HISPANIC (SPECIFY)…………   10 GO TO C2_OTHR1
                        DON'T KNOW...   77
                        REFUSED...   99

C2_OTHR1   ENTER OTHER SPECIFY

_____

C3_str   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 8   GO TO C3_OTHR1
             DON'T KNOW... 77
             REFUSED... 99

C3_OTHR1   ENTER OTHER SPECIFY

_____

[IF MORE THAN ONE ANSWER AT C3, ASK C4, ONLY INCLUDE RESPONSE
CATEGORIES CHOSEN IN C3]

C4_x   Which do you feel best describes [FILL VAR: NAME OF FIRST/SECOND…
            NINTH CHILD, FROM S3.5]'s race?

    WHITE.. 1
    BLACK/AFRICAN AMERICAN 2
    AMERICAN INDIAN 3
    ALASKA NATIVE 4
    ASIAN 5
    NATIVE HAWAIIAN.. 6
    PACIFIC ISLANDER 7
    OTHER 8
    C4_OTHR1 9
    DON'T KNOW.. 77
    REFUSED... 99

C5   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_x   What is the highest grade or year of regular school (you have /[FILL VAR: NAME OF FIRST/SECOND…/NINTH CHILD, FROM S3.5]'s mother has) ever completed?

1-16. 1-16
17 OR MORE YEARS 17
NEVER ATTENDED/KINDERGARTEN 41
ELEMENTARY……….. 51
HIGH SCHOOL 61
COLLEGE 71
DON'T KNOW 77
GRADUATE…... 81
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_X   (Are you/is [FILL VAR: NAME OF FIRST/SECOND…/NINTH CHILD, FROM S3.5]'s mother) of Spanish, Hispanic, or Latino origin, that is, Mexican, Mexican-American, Central American, South American, Chicano or Puerto Rican, Cuban, or other Spanish-Caribbean? CLICK ALL THAT APPLY

NOT SPANISH/HISPANIC…………………………………….. 1

MEXICAN/MEXICANO……………………………….… 2

MEXICAN-AMERICAN…………………………………….… 3

CENTRAL AMERICAN……………………………………… 4

SOUTH AMERICAN……………………………………….. 5

PUERTO RICAN…………………………………………….. 7

CUBAN/CUBAN-AMERICAN…………………………… 8

SPANISH-CARIBBEAN……………………………………. 9

OTHER SPANISH/HISPANIC (SPECIFY)…………………..10 GO TO C8_OTHR1

DON'T KNOW…………………………………………….. 77

REFUSED…………………………………………………….. 99

C8_OTHR1   ENTER OTHER SPECIFY

_____

C9_str   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 ANSWER AT C9, ASK C10; OTHERWISE SKIP TO C10A.]

C10_1   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 (SPECIFY)	8
C9_OTHR1	9
DON'T KNOW	77
REFUSED	99

C10Aymd   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. OTHERWISE, SKIP TO C11.]

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 2004 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? **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 2004 more or less thaN $20,000?

More than $20,000.. 1 GO TO C16

$20,000.. 2 GO TO C19

Less than $20,000 .... 3 GO TO C13

DON'T KNOW... 77 GO TO C19

REFUSED.. 99 GO TO C19

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 2004 more or less than $20,000?

More than $20,000.. 1 GO TO C16

$20,000.. 2 GO TO C19

Less than $20,000 .... 3 GO TO C13

DON'T KNOW... 77 GO TO C19

REFUSED.. 99 GO TO C19

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 C19

Less than $10,000 .... 3 GO TO C14_A

DON'T KNOW... 77 GO TO C19

REFUSED.. 99 GO TO C19

C14_A   Was it more than $7,500?

YES..	1	GO TO C19
NO…..…………...….….....................................	2	GO TO C19
DON'T KNOW...	77	GO TO C19
REFUSED…………..……….....................................	99	GO TO C19

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 C19
REFUSED..	99	GO TO C19

C15_A   Was it more than $17,500?

YES..	1	GO TO C19
NO..	2	GO TO C19
DON'T KNOW...	77	GO TO C19
REFUSED..	99	GO TO C19

C15_B   Was it more than $12,500?

YES..	1	GO TO C19
NO..	2	GO TO C19
DON'T KNOW...	77	GO TO C19
REFUSED..	99	GO TO C19

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
Less than $40,000	3	GO TO C17
DON'T KNOW...	77	GO TO C19
REFUSED..	99	GO TO C19

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 C19
Less than $60,000	3	GO TO C16_B
DON'T KNOW	77	GO TO C19
REFUSED	99	GO TO C19

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

More than $50,000.	1	GO TO C19
$50,000.	2	GO TO C19
Less than $50,000	3	GO TO C16_C
DON'T KNOW	77	GO TO C19
REFUSED	99	GO TO C19

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

More than $45,000.	1	GO TO C19
$45,000.	2	GO TO C19
Less than $45,000	3	GO TO C19
DON'T KNOW	77	GO TO C19
REFUSED	99	GO TO C19

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 C19
Less than $30,000	3	GO TO C17_B
DON'T KNOW	77	GO TO C19
REFUSED	99	GO TO C19

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

More than $35,000.	1	GO TO C19
$35,000.	2	GO TO C19
Less than $35,000	3	GO TO C19
DON'T KNOW	77	GO TO C19
REFUSED	99	GO TO C19

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

More than $25,000 .... 1 GO TO C19

$25,000 .... 2 GO TO C19

Less than $25,000 .... 3 GO TO C19

DON'T KNOW .... 77 GO TO C19

REFUSED .... 99 GO TO C19

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

More than $75,000 .... 1 GO TO C19

$75,000 .... 2 GO TO C19

Less than $75,000 .... 3 GO TO C19

DON'T KNOW .... 77 GO TO C19

REFUSED .... 99 GO TO C19

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

YES. .... 1 GO TO C19

NO .... 2 GO TO CFAMINC

DON'T KNOW .... 77 GO TO C12DONTKNOW

REFUSED .... 99 GO TO C12REFUSED

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

ENTER CITY _____

ENTER COUNTY_____

ENTER STATE_____

C19A   What is your zip code?
         ENTER 77777 FOR DON'T KNOW AND 99999 FOR REFUSED

_____ _____ _____ _____ _____

DON'T KNOW 77777

REFUSED 99999

C19B   Do you live within the city limits?

YES 1

NO 2

C20　　　　　The next few questions are about the telephone numbers in your household. Do you have any other home phone numbers in addition to [FILL VAR: AREA CODE/TELEPHONE NUMBER FROM SAMPLE TELEPHONE NUMBER]. Please do not include cellular phones in your answer.

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

C20_A　　　Is this second number for home use only, for business use only, or for both home and business use?

HOME ONLY.. 1
BUSINESS ONLY....................................... 2
BOTH HOME AND BUSINESS 3
DON'T KNOW.. 77
REFUSED.. 99

C21_A　　　Is this second number used only for computer or fax communication?

YES 1
NO... 2
DON'T KNOW... 77
REFUSED... 99

C22　　　　　Do you have a third home phone number in addition to the two you have already told me about? Please do not include cellular phones in your answer.

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

C23　　　　　Is this third number for home use only, for business use only, or for both home and business use?

HOME ONLY.. 1
BUSINESS ONLY....................................... 2 GO TO CNOSERV
BOTH HOME AND BUSINESS 3
DON'T KNOW.. 77 GO TO CNOSERV
REFUSED.. 99 GO TO CNOSERV

C23_A   Is this third number used only for computer or fax communication?

            YES 1
            NO 2
            DON'T KNOW 3
            REFUSED 4

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
            NO .... 2 GO TO D5
            DON'T KNOW .... 77 GO TO D5
            REFUSED .... 99 GO TO D5

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 D5
            REFUSED .... 99 GO TO D5

CHOWLONG2   ENTER PERIOD   _____

            DAY(S) .... 1 GO TO D5
            WEEK(S) .... 2 GO TO D5
            MONTH(S) .... 3 GO TO D5

SECTION D

Provider Questions

D5   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 for your (children/child).

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 REFUSED

ENTER NUMBER	GO TO D6A_1_X
ZERO..	GO TO D6AA_X
DON'T KNOW	77 GO TO D6AA_X
REFUSED..	99 GO TO D6_R

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 THER HEALTH CARE PROVIDER.
ENTER 77 FOR DON'T KNOW AND 99 REFUSED

ENTER NUMBER	GO TO D6A_1_X
ZERO..	GO TO SECT_D_TERM
DON'T KNOW	77 GO TO SECT_D_TERM OR SLAITS
REFUSED..	99 GO TO SECT_D_TERM OR SLAITS

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 D6_R

D6_R   Vaccination information from doctors and clinics is often the most up-to-date and comprehensive. So, in order to obtain the most complete information possible about children's vaccinations, we need to collect the vaccination histories from both the parents or guardians of the children and the doctors and clinics that provide the immunizations.
             All information about your child and your child's health care provider is held in strict confidence and used for study purposes only. Any names of children, as well as any names of doctors or clinics, will not be used in reporting the study results. We will never release any information that may identify you or your child.

             Continue………………….. 1 GO TO D6_1_X
             Respondent still refuses.............…………………... 2 GO TO SECT_D_TERM
                                                                            OR SLAITS

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?
What city is that in?
What state is that in?
Please tell me the name of the office or the clinic.
What is the zip code?
What is their telephone number?
Do you know the doctor's first name?

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:
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

EXACT MATCH (MATCH=A)   …………………..GO TO PLU FINISHED
UPDATE ADDRESS (MATCH=B) …………………..GO TO MODIFY PROVIDER
UPDATE PROVIDER NAME (MATCH=C)………………….. GO TO MODIFY PROVIDER
ADD NEW PROVIDER (MATCH=D) ………………….. GO TO MODIFY PROVIDER

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

First Name
Last Name
Practice
Address
Suite
City
State
Zip
Phone

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:

First Name
LEAVE BLANK IF UNKNOWN
Last 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   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

            Continue.. 1 GOT TO D8A_1
            Refused .... 99 GO TO D15B

D15B.   (SUGGESTED SCRIPT) The only reason we need your child's full name is so that
            the doctor or clinic can locate the correct vaccination records for your child. Once
            vaccination data have been collected, all names are completely separated from the
            data, and we will not use your child's name again.

            All information is held in strict confidence and is used for study purposes only. I
            assure you that any names of children, as well as any names of doctors or clinics,
            will not be used in any study results. We will not release any information that may
            identify you or your child.

            Yes…………………………….................................... 1 CONTINUE TO D8_x
            Respondent still refuses .... 2 GO TO SECT_D_TERM
                                                                                  OR SLAITS

                  RETURN TO QUESTION, IF R STILL REFUSES, GO TO D16

D8M   [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.

D8A_X   In order to help the doctor or clinic locate your child's vaccination records, what is
            [NAME OF (FIRST) ELIGIBLE CHILD]'s full name – first, middle and last name?

            FIRST NAME: *IF R REFUSES LEAVE BLANK*

            _____

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

MIDDLE NAME: *IF R REFUSES LEAVE BLANK*

_____

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

LAST NAME: *IF R REFUSES LEAVE BLANK*

_____

D9A   Could I know…what is your full name – first, middle, and last?

Continue.. 1 GO TO D9A
Refused .... 99 GO TO D15C

D9A   What is your first name?

FIRST_____

D9B   What is your middle name?

MIDDLE_____

D9C   What is your last name?

LAST_____

D15C   (SUGGESTED SCRIPT) The only reason we need your full name is so that the doctor or clinic can locate the correct vaccination records for your child. Once vaccination data have been collected, all names are completely separated from the data, and we will not use your child's name again.

All information is held in strict confidence and is used for study purposes only. I assure you that any names of children, as well as any names of doctors or clinics, will not be used in any study results. We will not release any information that may identify you or your child.

Continue……………………….……………….... 1 GO TO D9
Respondent still refuses …………………….….. 2 GO TO SECT_D_TERM
                                                              OR SLAITS

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 D6C
NO...	2	GO TO D9D1
REFUSED..	99	GO TO D9D_R

D9D_R   (SUGGESTED SCRIPT) Vaccination information from doctors and clinics is often the most up-to-date and comprehensive. So, in order to obtain the most complete information possible about children's vaccinations, we need to collect the vaccination histories from both the parents and guardians of the children and the doctors and clinics that provide the immunizations.

All information about your child and your child's health care provider is held in strict confidence and used for study purposes only. Any names of children, as well as any names of doctors or clinics, will not be used in reporting the study results. We will never release any information that may identify you or your child

Continue……………………..………………....	1	GO TO D9D_X
Respondent still refuses……………………....	2	GO TO SECT_D_TERM OR SLAITS

D6C   The vaccination records collected from the provider(s) will be kept in strict confidence.

D7_ID   Capture Interviewer ID upon entering question D7

D7   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
NO...	2	GO TO D7_R

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 GOT TO D9D1

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

YES.. 1 GO TO DCG2_X

NO.. 2 GO TO D9A_C_X

DCG2_x The name I have for the first child is [FILL VAR: NAME OF FIRST/SECOND…/ NINTH CHILD, FROM S3.5]. Is this correct?

YES.. 1 GO TO DCONFDOB_X

NO.. 2 GO TO D8A_X_C

DCONFDOB_x The birth date I have for [FILL: FIRST CHILD'S NAME FROM D8A-C1-PAGE 2] is [FILL: BIRTH DATE FROM S33_3]. Is this correct?

YES.. 1 GO TO NEXT CHILD OR D16

NO.. 2 GO TO DNEWDOB_1

DNEWDOB_X What is the correct month, day and year of birth of [FILL: FIRST CHILD'S NAME FROM D8A-C1-PAGE2]?

_____/_____/_____ (mm/dd/yyyy)   [IF SNUMB=1, GO TO D16, IF SNUMB>1, GO TO DCG3]

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 ask to speak to the Ethics Review Board Chairperson. Say that you are calling about Protocol #2000-17.

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 OR SLAITS

D9D1F   What is the first name?

FIRST_____

D9D1M   What is the middle name?

MIDDLE_____

D9D1L   What is the last name?

LAST_____

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 CREATE APPOINTMENT

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

Continue.. 2

      D9D2_1 DATE_____
      D9D2_2 TIME_____

[GO TO D16]

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 want 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.

D9DNEW   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 D9D_R

Appendix C

Immunization History Questionnaire

National Immunization Survey
Immunization History Questionnaire

CDC
SAFER·HEALTHIER·PEOPLE™

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

START HERE ➡ Please review your records and complete this questionnaire for the child identified on the label to the right. Then return the questionnaire in the postage-paid envelope provided or fax toll-free to (866) 324-8659. These medical records are 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. 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   ☐ 4-6
☐ 2   ☐ 7-10
☐ 3   ☐ 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. Is this facility a Vaccines for Children provider?

☐ 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/   ☐ Medical Records
    Receptionist   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			Given by **other** practice?	Type of Vaccine — *Mark one box for each vaccine dose*				
		Month	**Day**	**Year**						
DTP	1	11	20	2000	☐ Yes	☐ DTP	☐ DTaP	☒ DTaP-Hib	☐ DTP-Hib	☐ DTaP-HepB-IPV
	2	11	18	2001	☒ Yes	☐ DTP	☒ DTaP	☐ DTaP-Hib	☐ DTP-Hib	☐ DTaP-HepB-IPV

		Month	**Day**	**Year**		*Mark one box for each vaccine dose*				
Hib	1	11	20	2000	☐ Yes	☐ Hib	☐ HepB-Hib	☒ DTaP-Hib	☐ DTP-Hib
	2	11	18	2001	☒ Yes	☒ Hib	☐ HepB-Hib	☐ DTaP-Hib	☐ DTP-Hib

▶ **Be sure to mark the "Yes" box under "Given by other practice?" for vaccinations given by another practice (see example above).**

▶ **Be sure to mark the "Yes" box under "Given at birth?" If the first dose of HepB was given at birth (see example below).**

		Month	**Day**	**Year**	Given at birth?	*Mark one box for each vaccine dose*		
Hepatitis B	1	07	19	2000	☒ Yes	☐ HepB Only	☐ HepB-Hib	☐ DTaP-HepB-IPV
	2					☐ 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	2001	☐ Yes		BCG
	2				☐ Yes		

▶ **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.

Or you may fax the 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			Given by other practice?	Type of Vaccine
		Month	**Day**	**Year**		*Mark one box for each vaccine dose*

DTP
Dose	Month	Day	Year	Given by other practice?	Type of Vaccine
1				☐ Yes	☐ DTP ☐ DTaP ☐ DTaP-Hib ☐ DTP-Hib ☐ DTaP-HepB-IPV
2				☐ Yes	☐ DTP ☐ DTaP ☐ DTaP-Hib ☐ DTP-Hib ☐ DTaP-HepB-IPV
3				☐ Yes	☐ DTP ☐ DTaP ☐ DTaP-Hib ☐ DTP-Hib ☐ DTaP-HepB-IPV
4				☐ Yes	☐ DTP ☐ DTaP ☐ DTaP-Hib ☐ DTP-Hib ☐ DTaP-HepB-IPV
5				☐ Yes	☐ DTP ☐ DTaP ☐ DTaP-Hib ☐ DTP-Hib ☐ DTaP-HepB-IPV

Hib
Mark one box for each vaccine dose
Dose	Month	Day	Year	Given by other practice?	Type of Vaccine
1				☐ Yes	☐ Hib ☐ HepB-Hib ☐ DTaP-Hib ☐ DTP-Hib
2				☐ Yes	☐ Hib ☐ HepB-Hib ☐ DTaP-Hib ☐ DTP-Hib
3				☐ Yes	☐ Hib ☐ HepB-Hib ☐ DTaP-Hib ☐ DTP-Hib
4				☐ Yes	☐ Hib ☐ HepB-Hib ☐ DTaP-Hib ☐ DTP-Hib
5				☐ Yes	☐ Hib ☐ HepB-Hib ☐ DTaP-Hib ☐ DTP-Hib

Hepatitis B
Given at birth? — *Mark one box for each vaccine dose*
Dose	Month	Day	Year	Given by other practice?	Given at birth?	Type of Vaccine
1				☐ Yes	☐ Yes	☐ HepB Only ☐ HepB-Hib ☐ DTaP-HepB-IPV
2				☐ Yes		☐ HepB Only ☐ HepB-Hib ☐ DTaP-HepB-IPV
3				☐ Yes		☐ HepB Only ☐ HepB-Hib ☐ DTaP-HepB-IPV
4				☐ Yes		☐ HepB Only ☐ HepB-Hib ☐ DTaP-HepB-IPV

MMR
Mark one box for each vaccine dose
Dose	Month	Day	Year	Given by other practice?	Type of Vaccine
1				☐ Yes	☐ MMR ☐ Measles only
2				☐ Yes	☐ MMR ☐ Measles only

Polio
Mark one box for each vaccine dose
Dose	Month	Day	Year	Given by other practice?	Type of Vaccine
1				☐ Yes	☐ OPV ☐ IPV ☐ DTaP-HepB-IPV
2				☐ Yes	☐ OPV ☐ IPV ☐ DTaP-HepB-IPV
3				☐ Yes	☐ OPV ☐ IPV ☐ DTaP-HepB-IPV
4				☐ Yes	☐ OPV ☐ IPV ☐ DTaP-HepB-IPV

Varicella
Dose	Month	Day	Year	Given by other practice?
1				☐ Yes
2				☐ Yes

Pneumococcal
Mark one box for each vaccine dose
Dose	Month	Day	Year	Given by other practice?	Type of Vaccine
1				☐ Yes	☐ Conjugate ☐ Polysaccharide
2				☐ Yes	☐ Conjugate ☐ Polysaccharide
3				☐ Yes	☐ Conjugate ☐ Polysaccharide
4				☐ Yes	☐ Conjugate ☐ Polysaccharide

Hepatitis A
Dose	Month	Day	Year	Given by other practice?
1				☐ Yes
2				☐ Yes

Please remember to answer question 9 on page 1.

Influenza
Dose	Month	Day	Year	Given by other practice?
1				☐ Yes
2				☐ Yes
3				☐ Yes

Other
Please enter a description of each vaccine dose.
Dose	Month	Day	Year	Given by other practice?	Description
1				☐ Yes	
2				☐ Yes	
3				☐ Yes	
4				☐ Yes	

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 Immunization Program, 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/nip/coverage.**
>
> **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 IAP Area

Appendix D

Summary Statistics for Sampling Weights by IAP Area

Table D.1: Distribution of Sampling Weights for Children with Completed Household Interviews (RDDWT), National Immunization Survey, 2005

State/IAP Area	n	Sum	Minimum	Maximum	Mean	Coefficient of Variation
TOTAL U.S.	27,627	5,935,946.53	2.58	4,634.82	214.86	128.56
Alaska	287	14,212.57	25.90	139.16	49.52	39.86
AL-Jefferson County	300	12,752.12	23.99	108.55	42.51	44.76
AL-Rest of State	349	72,023.15	40.71	799.78	206.37	61.46
Arkansas	261	54,121.82	81.96	1,025.23	207.36	71.11
AZ-Maricopa County	376	88,680.80	90.41	780.70	235.85	57.64
AZ-Rest of State	306	46,748.02	54.98	757.07	152.77	68.54
CA-Alameda County	352	32,190.48	42.18	279.41	91.45	51.72
CA-Los Angeles County	392	226,028.44	342.35	1,874.02	576.60	40.86
CA-Rest of State	406	490,021.09	63.88	4,634.82	1,206.95	64.96
CA-San Bernardino County	326	44,046.74	64.41	373.80	135.11	37.53
CO-Denver	303	44,518.82	61.63	435.87	146.93	61.98
CO-Rest of State	289	56,576.42	93.47	465.34	195.77	48.44
Connecticut	318	63,969.19	109.55	698.20	201.16	50.36
Delaware	284	16,567.14	33.14	185.89	58.33	44.15
District of Columbia	483	10,978.36	10.29	62.40	22.73	46.34
FL-Duval County	465	18,056.44	15.22	129.66	38.83	62.56
FL-Rest of State	421	294,711.87	296.14	2,008.47	700.03	55.41
GA-Fulton/DeKalb Counties	359	36,846.15	47.37	492.73	102.64	76.65
GA-Rest of State	428	163,403.03	53.86	1,404.30	381.78	59.30
Hawaii	328	25,402.94	39.72	233.10	77.45	47.62
Idaho	306	30,666.03	65.84	251.39	100.22	31.04
IL-City of Chicago	467	69,818.20	62.48	586.39	149.50	60.28
IL-Rest of State	277	193,118.48	329.08	2,091.14	697.18	66.47
Indiana	330	124,286.02	140.83	1,557.34	376.62	70.40
Iowa	300	54,025.86	106.08	638.12	180.09	49.12
Kansas	372	58,982.58	84.38	511.84	158.56	49.36
Kentucky	343	78,532.25	99.78	956.10	228.96	64.11

Table D.1 (continued):   Distribution of Sampling Weights for Children with Completed Household Interviews (RDDWT), National Immunization Survey, 2005

State/IAP Area	n	Sum	Minimum	Maximum	Mean	Coefficient of Variation
Louisiana	880	92,140.62	31.03	474.94	104.71	61.19
Maine	269	19,817.65	43.36	186.76	73.67	34.13
Massachusetts	349	117,977.79	101.68	1,279.69	338.05	59.77
MD-City of Baltimore	335	13,641.27	11.22	118.49	40.72	60.66
MD-Rest of State	365	96,291.30	133.08	1,202.10	263.81	64.17
MI-City of Detroit	321	20,455.50	23.33	184.24	63.72	54.02
MI-Rest of State	410	168,760.25	31.36	1,885.75	411.61	59.21
Minnesota	315	100,755.94	199.82	1,031.93	319.86	46.30
Mississippi	418	57,724.92	68.03	458.30	138.10	51.86
Montana	347	16,271.03	21.05	197.54	46.89	57.25
MO-Rest of State	384	85,584.31	120.05	755.81	222.88	48.21
MO-St. Louis County/City	391	24,740.42	28.61	293.05	63.27	61.83
Nebraska	319	36,669.98	44.59	589.16	114.95	60.42
New Hampshire	352	21,106.91	44.07	166.94	59.96	36.04
New Mexico	331	39,093.87	47.13	406.49	118.11	59.62
NJ-City of Newark	424	7,051.68	5.53	62.06	16.63	61.49
NJ-Rest of State	416	165,331.68	7.36	1,752.97	397.43	63.86
North Carolina	331	172,387.66	218.17	2,187.59	520.81	58.95
North Dakota	387	10,707.25	15.39	88.44	27.67	43.74
NV-Clark County	313	37,759.48	71.24	295.99	120.64	33.64
NV-Rest of State	291	13,395.18	22.24	136.88	46.03	41.00
NY-City of New York	408	175,333.21	229.41	1,312.52	429.74	48.56
NY-Rest of State	360	189,968.84	265.25	1,593.96	527.69	45.43
OH-Cuyahoga County	399	25,114.86	31.37	228.45	62.94	53.64
OH-Franklin County	282	25,047.51	52.46	255.36	88.82	41.56
OH-Rest of State	396	165,852.56	40.77	1,602.80	418.82	54.64
Oklahoma	422	73,393.14	86.54	562.18	173.92	53.17
Oregon	282	67,488.86	159.89	691.34	239.32	42.23
PA-Philadelphia County	309	31,721.72	53.99	292.67	102.66	42.93
PA-Rest of State	346	177,703.09	234.64	2,021.41	513.59	54.51
Rhode Island	412	20,112.64	29.27	138.54	48.82	37.15
South Carolina	416	79,712.89	77.26	738.89	191.62	59.32
South Dakota	401	15,290.40	19.01	124.41	38.13	58.11

Table D.1 (continued): Distribution of Sampling Weights for Children with Completed Household Interviews (RDDWT), National Immunization Survey, 2005

State/IAP Area	n	Sum	Minimum	Maximum	Mean	Coefficient of Variation
TN-Davidson County	320	12,956.29	19.38	124.62	40.49	49.32
TN-Rest of State	336	81,440.98	35.95	856.78	242.38	58.87
TN-Shelby County	417	20,888.71	12.10	254.15	50.09	83.58
TX-Bexar County	363	36,054.83	38.06	274.71	99.32	57.46
TX-City of Houston	412	67,647.63	72.81	484.60	164.19	44.66
TX-Dallas County	271	63,906.98	94.01	772.34	235.82	54.37
TX-El Paso County	374	20,872.94	23.35	176.87	55.81	48.79
TX-Rest of State	527	361,264.21	204.07	2,741.03	685.51	57.51
Utah	286	68,963.22	100.99	968.59	241.13	66.34
Vermont	242	10,048.89	24.22	102.47	41.52	39.38
Virginia	424	148,103.77	159.53	1,405.65	349.30	73.91
WA-King County	270	33,414.66	46.94	471.49	123.76	82.59
WA-Rest of State	305	84,263.64	105.81	1,066.01	276.27	53.93
West Virginia	345	28,882.18	52.26	221.46	83.72	45.35
WI-Milwaukee County	314	21,460.25	29.87	359.70	68.34	69.13
WI-Rest of State	314	80,425.71	111.21	891.38	256.13	53.44
Wyoming	298	9,662.22	16.26	85.72	32.42	42.86

Table D.2: Distribution of Sampling Weights for Children with Adequate Provider Data (PROVWT), National Immunization Survey, 2005

State/IAP Area	n	Sum	Minimum	Maximum	Mean	Coefficient of Variation
TOTAL U.S.	17,563	5,935,946.53	4.24	8,923.86	337.98	140.15
Alaska	186	14,212.57	23.50	167.90	76.41	39.78
AL-Jefferson County	208	12,752.12	16.31	167.43	61.31	52.50
AL-Rest of State	211	72,023.15	28.87	1,625.04	341.34	74.18
Arkansas	174	54,121.82	67.73	2,107.69	311.04	78.20
AZ-Maricopa County	222	88,680.80	61.81	1,787.69	399.46	65.76
AZ-Rest of State	210	46,748.02	35.17	860.51	222.61	71.30
CA-Alameda County	185	32,190.48	41.60	713.76	174.00	70.92
CA-Los Angeles County	216	226,028.44	189.44	3,393.30	1,046.43	42.86
CA-Rest of State	241	490,021.09	56.88	8,923.86	2,033.28	68.93
CA-San Bernardino County	174	44,046.74	64.37	595.79	253.14	42.21
CO-Denver	198	44,518.82	37.72	741.15	224.84	72.74
CO-Rest of State	196	56,576.42	55.08	994.82	288.66	61.79
Connecticut	212	63,969.19	112.34	1,078.55	301.74	50.29
Delaware	171	16,567.14	31.97	399.97	96.88	56.74
District of Columbia	296	10,978.36	8.84	161.63	37.09	58.74
FL-Duval County	285	18,056.44	9.96	287.63	63.36	72.84
FL-Rest of State	241	294,711.87	20.27	3,825.69	1,222.87	58.31
GA-Fulton/DeKalb Counties	228	36,846.15	25.73	817.06	161.61	96.79
GA-Rest of State	275	163,403.03	18.21	2,531.61	594.19	64.03
Hawaii	195	25,402.94	33.92	445.06	130.27	53.48
Idaho	227	30,666.03	70.75	350.84	135.09	29.75
IL-City of Chicago	275	69,818.20	46.11	1,227.08	253.88	66.02
IL-Rest of State	159	193,118.48	130.32	4,772.30	1,214.58	76.96
Indiana	212	124,286.02	36.65	2,245.24	586.25	78.14
Iowa	206	54,025.86	88.35	1,126.31	262.26	61.19
Kansas	255	58,982.58	71.85	982.58	231.30	61.84
Kentucky	214	78,532.25	91.96	1,671.33	366.97	75.70
Louisiana	556	92,140.62	12.16	917.67	165.72	63.80
Maine	189	19,817.65	39.64	301.94	104.86	42.40
Massachusetts	233	117,977.79	67.41	2,484.86	506.34	61.27
MD-City of Baltimore	209	13,641.27	15.72	211.10	65.27	63.30
MD-Rest of State	224	96,291.30	10.95	1,492.33	429.87	72.79

Table D.2 (continued):   Distribution of Sampling Weights for Children with Adequate Provider Data (PROVWT), National Immunization Survey, 2005

State/ESTIAP Area	n	Sum	Minimum	Maximum	Mean	Coefficient of Variation
MI-City of Detroit	159	20,455.50	26.99	525.48	128.65	66.18
MI-Rest of State	271	168,760.25	15.97	1,990.37	622.73	63.65
Minnesota	213	100,755.94	41.89	1,702.88	473.03	52.73
Mississippi	267	57,724.92	78.75	852.73	216.20	62.04
Montana	260	16,271.03	21.40	265.81	62.58	53.23
MO-Rest of State	259	85,584.31	83.36	1,367.22	330.44	54.63
MO-St. Louis County/City	263	24,740.42	19.74	357.31	94.07	67.97
Nebraska	222	36,669.98	44.14	635.51	165.18	55.59
New Hampshire	237	21,106.91	24.66	314.00	89.06	41.01
New Mexico	203	39,093.87	44.55	657.61	192.58	59.85
NJ-City of Newark	257	7,051.68	4.52	100.93	27.44	64.22
NJ-Rest of State	248	165,331.68	4.24	3,181.40	666.66	60.12
North Carolina	216	172,387.66	257.05	3,140.17	798.09	61.17
North Dakota	270	10,707.25	16.19	144.31	39.66	53.64
NV-Clark County	179	37,759.48	57.17	504.03	210.95	37.77
NV-Rest of State	168	13,395.18	18.65	242.30	79.73	47.83
NY-City of New York	205	175,333.21	208.12	3,022.05	855.28	59.18
NY-Rest of State	228	189,968.84	199.03	3,419.65	833.20	59.05
OH-Cuyahoga County	249	25,114.86	26.68	511.84	100.86	74.84
OH-Franklin County	175	25,047.51	47.37	459.15	143.13	47.68
OH-Rest of State	249	165,852.56	20.29	2,354.59	666.07	70.98
Oklahoma	279	73,393.14	96.08	931.43	263.06	57.50
Oregon	203	67,488.86	104.06	849.58	332.46	44.89
PA-Philadelphia County	177	31,721.72	39.01	634.96	179.22	52.83
PA-Rest of State	222	177,703.09	45.66	3,504.35	800.46	58.19
Rhode Island	267	20,112.64	25.10	219.73	75.33	35.34
South Carolina	276	79,712.89	49.90	1,182.96	288.81	66.51
South Dakota	262	15,290.40	18.41	203.55	58.36	58.17
TN-Davidson County	232	12,956.29	18.20	249.62	55.85	66.83
TN-Rest of State	222	81,440.98	17.63	1,232.40	366.85	59.92
TN-Shelby County	259	20,888.71	7.89	532.36	80.65	99.91
TX-Bexar County	218	36,054.83	34.43	614.93	165.39	66.24
TX-City of Houston	252	67,647.63	77.05	1,162.62	268.44	53.37
TX-Dallas County	168	63,906.98	84.58	1,144.73	380.40	53.61

Table D.2 (continued): Distribution of Sampling Weights for Children with Adequate Provider Data (PROVWT), National Immunization Survey, 2005

State/IAP Area	n	Sum	Minimum	Maximum	Mean	Coefficient of Variation
TX-El Paso County	253	20,872.94	19.82	278.13	82.50	50.92
TX-Rest of State	308	361,264.21	22.08	6,134.90	1,172.94	74.01
Utah	204	68,963.22	50.58	1,916.19	338.06	85.67
Vermont	173	10,048.89	14.31	186.02	58.09	48.06
Virginia	266	148,103.77	23.19	2,637.49	556.78	84.52
WA-King County	190	33,414.66	7.40	755.19	175.87	77.94
WA-Rest of State	207	84,263.64	86.48	1,300.55	407.07	58.08
West Virginia	223	28,882.18	34.81	380.81	129.52	45.84
WI-Milwaukee County	209	21,460.25	20.51	608.47	102.68	83.80
WI-Rest of State	208	80,425.71	24.06	1,664.12	386.66	54.68
Wyoming	204	9,662.22	11.51	144.66	47.36	48.25

Appendix E

Flags for Inconsistent Values in the Breastfeeding Data

Appendix E

Flags for Inconsistent Values in the Breastfeeding Data

Two different types of inconsistency arise in breastfeeding data. The first one is that the duration of any breastfeeding exceeds the age of the child, and the second one is that the age of introducing anything other than breast milk exceeds the duration of any breastfeeding. BF_END is used for flagging the former inconsistency, and BF_EXCL is used to flag the latter inconsistency.

1. **Both BF_END and BF_EXCL should be formulated using the following conversion factors:**

   if unit=1(days)   then BF_END = number x 1
   if unit=2(weeks)   then BF_END = number x 7
   if unit=3(months)   then BF_END = number x 30.4375
   if unit=4(years)   then BF_END = number x 365.25

   if unit=1(days)   then BF_EXCL = number x 1
   if unit=2(weeks)   then BF_EXCL = number x 7
   if unit=3(months)   then BF_EXCL = number x 30.4375
   if unit=4(years) then BF_EXCL = number x 365.25

2. **Flagging BF_END when the duration of any breastfeeding exceeds the age in days with a buffer for different units:**

   if unit=1(days)   flag when BF_END > age + 1
   if unit=2(weeks)   flag when BF_END > age + 3
   if unit=3(months)   flag when BF_END > age + 15
   if unit=4(years)   flag when BF_END > 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_EXCL whenever the duration of exclusive breastfeeding (BF_EXCL) exceeds the duration of any breastfeeding (BF_END) with a buffer for different units. Because respondents may answer the two questions using different units of time, the buffers allow for rounding in either variable. There are a total of 12 combinations and the basis for flagging the inconsistent data is listed in the following table:**

Table E.1   Rules for Assigning BFEXCLFL=1, As a Function of the Units in Which BF_END and BF_EXCL Were Reported

BF_END is converted by different units (X1)	BF_EXCL is converted by different units (X2)	The basis for flagging BF_EXCL
In days	In days	$X2>X1+1$
	In weeks	$X2>X1+3$
	In months	$X2>X1+15$
	In years	$X2>X1+182$
In weeks	In days	$X2>X1+3$
	In weeks	$X2-3>X1+3$
	In months	$X2-15>X1+3$
	In years	$X2-182>X1+3$
In months	In days	$X2>X1+15$
	In weeks	$X2-3>X1+15$
	In months	$X2-15>X1+15$
	In years	$X2-182>X1+15$
In years	In days	$X2>X1+182$
	In weeks	$X2-3>X1+182$
	In months	$X2-15>X1+182$
	In years	$X2-182>X1+182$

Appendix F

**Disposition of Children with Respect to
Provider Record Check**

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, 2005

Number of Children	Disposition Code Number and Definition
6,819	1 = All identified providers responded, no problems indicated in cross-check between household and provider shot dates.
8,976	2 = All identified providers responded, no NIS shot card to cross check.
447	3 = All identified providers responded, poor immunization history matching results.
51	4 = All identified providers responded, poor immunization history matching results, additional mismatch indicators present.
823	5 = Some but not all identified providers responded, but provider information indicates 4:3:1:3:3 up-to-date.
97	6 = Some but not all identified providers responded, but provider information matches NIS shot card immunization history.
223	7 = Some but not all identified providers responded, completeness of provider immunization history is unknown.
21	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.
44	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).
87	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).
83	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).
17,671	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 SAS and SUDAAN to Estimate Vaccination Coverage Rates and Their Standard Errors, and How to Produce a Cross-Tabulation and Chart

Appendix G

Examples of the Use of SAS and SUDAAN to Estimate Vaccination Coverage Rates and their Standard Errors, and How to Produce a Cross-Tabulation and Chart

```sas
********************;
title1 'SUD_IAP.SAS';
**********************************************************************
THIS PROGRAM WILL PRODUCE IAP 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:\nispuf05'; *--- SPECIFY PATH TO SAS DATASET ---*;
libname library 'c:\nispuf05';  *--- IF DATASET WAS CREATED WITH FORMATS STORED ---*;
                *--- PERMANENTLY SPECIFY PATH TO LIBRARY ---*;
                *--- OTHERWISE COMMENT THIS STATEMENT OUT ---*;
%let in_file=dd.nispuf05; *--- NAME OF SAS DATASET ---*;
%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 estiapf
0 ='U.S Total'
01='Connecticut'
02='Massachusetts'
04='Maine'
05='New Hampshire'
06='Rhode Island'
07='Vermont'
08='NJ-Rest of State'
09='NJ-City of Newark'
10='NY-Rest of State'
11='NY-City of New York'
12='District of Columbia'
13='Delaware'
14='MD-Rest of State'
15='MD-City of Baltimore'
16='PA-Rest of State'
17='PA-Philadelphia County'
18='Virginia'
```

```
19='West Virginia'
20='AL-Rest of State'
21='AL-Jefferson County'
22='FL-Rest of State'
23='FL-Duval County'
25='GA-Rest of State'
26='GA-Fulton/Dekalb Counties'
27='Kentucky'
28='Mississippi'
29='North Carolina'
30='South Carolina'
31='TN-Rest of State'
32='TN-Shelby County'
33='TN-Davidson County'
34='IL-Rest of State'
35='IL-City Chicago'
36='Indiana'
38='MI-Rest of State'
39='MI-City of Detroit'
40='Minnesota'
41='OH-Rest of State'
42='OH-Cuyahoga County'
43='OH-Franklin County'
44='WI-Rest of State'
45='WI-Milwaukee County'
46='Arkansas'
47='Louisiana'
49='New Mexico'
50='Oklahoma'
51='TX-Rest of State'
52='TX-Dallas County'
53='TX-El Paso County'
54='TX-City Houston'
55='TX-Bexar County'
56='Iowa'
57='Kansas'
58='MO-Rest of State'
59='Nebraska'
60='CO-Rest of State'
61='Montana'
62='North Dakota'
63='South Dakota'
64='Utah'
65='Wyoming'
66='AZ-Rest of State'
67='AZ-Maricopa County'
68='CA-Rest of State'
69='CA-Los Angeles County'
72='Hawaii'
73='NV-Rest of State'
74='Alaska'
75='Idaho'
76='Oregon'
77='WA-Rest of State'
78='WA-King County'
79='CA-Alameda County'
80='CA-San Bernardino County'
81='CO-Denver'
82='MO-St. Louis County/City'
83='NV-Clark County';

data sud_file;
set &in_file(keep= seqnumhh seqnumc putd4313 estiap &wt);
```

```sas
if putd4313=0 then putd4313=2; *--- CONVERT PUTD4313=0 TO PUTD4313=2 ---*;
nseqnumh=1*seqnumhh; *---CONVERT HOUSEHOLD ID SEQNUMHH 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 estiap putd4313 ;
levels 83 2 ;
tables estiap * putd4313 ;
print nsum wsum rowper serow/style=nchs ;
rtitle "4:3:1:3 ESTIMATES BY IAP";
rformat estiap estiapf.;
rformat putd4313 put4313f.;
output rowper serow/filename=sud_est filetype=sas;
proc print data=sud_est(where=(putd4313=1 & estiap notin (3,24,37,48,70,71))) 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 IAP";
run;
```

```sas
**********************;
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:\nispuf05'; *--- SPECIFY PATH TO SAS DATASET ---*;
libname library 'c:\nispuf05';  *--- IF DATASET WAS CREATED WITH FORMATS STORED ---*;
                                *--- PERMANENTLY SPECIFY PATH TO LIBRARY ---*;
                                *--- OTHERWISE COMMENT THIS STATEMENT OUT ---*;
%let in_file=dd.nispuf05; *--- NAME OF SAS DATASET ---*;
%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;
```

```sas
**********************;
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;
libname dd 'c:\nispuf05'; *--- SPECIFY PATH TO SAS DATASET ---*;
libname library 'c:\nispuf05'; *--- IF DATASET WAS CREATED WITH FORMATS STORED ---*;
                               *--- PERMANENTLY SPECIFY PATH TO LIBRARY ---*;
                               *--- OTHERWISE COMMENT THIS STATEMENT OUT ---*;
%let in_file=dd.nispuf05; *--- NAME OF SAS DATASET ---*;
%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 putd4313f
1='4:3:1:3 Up-to-Date'
2='Not 4:3:1:3 Up-to-Date'
;
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 putd4313 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 IAP AREA";
run;
```

```sas
*********************;
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:\nispuf05'; *--- SPECIFY PATH TO SAS DATASET ---*;
libname library 'c:\nispuf05';  *--- IF DATASET WAS CREATED WITH FORMATS STORED ---*;
                                *--- PERMANENTLY SPECIFY PATH TO LIBRARY ---*;
                                *--- OTHERWISE COMMENT THIS STATEMENT OUT ---*;
libname out 'c:\nispuf05'; *--- SPECIFY PATH WHERE YOU WANT OUTPUT TO GO ---*;
%let in_file=dd.nispuf05; *--- NAME OF SAS DATASET ---*;
%let wt=provwt; *--- WEIGHT TO USE ---*;
%let qtr_lab=Q1/2005 - Q4/2005; *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 '
```

8

```
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.;
```

```sas
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 'GRAPH_4.SAS';
*********************************************************************
THIS PROGRAM BUILDS OFF OF THE PROGRAM PROG_4.  IT PRODUCES A CHART  OF
PUTD4313 BY INPOV1R BY RACE_K.  IT CREATES A BAR CHART IN SAS GRAPH FOR
THE 4X3 = 12 CELLS.

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:\nispuf05'; *--- SPECIFY PATH TO SAS DATASET THAT WAS THE OUTPUT OF
PROG_4 ---*;
%let out='c:\nispuf05'; *--- 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=Q1/2005 - Q4/2005; *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 AND MULTIPLE RACE"
;


data sud_est4;
set &in_file;
format rowper 3.
      race_k race_kf.
      incpov1r 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=2
             device=gif
             ;
ods html body='graph_4.html' path=odsout;
title1 HEIGHT=3 "&qtr_lab";
TITLE2 HEIGHT=3 "4:3:1:3 Up-to-Date for Race and Poverty Status";
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=sud_est4;
        vbar race_k
                /frame
                discrete
                sumvar=rowper
                group=incpov1
                gspace = 5
                gaxis = axis
                raxis = axis
                name = 'graph_4'
                patternid = midpoint
                ;
run;
quit;
ods html close;
ods listing;
```

Appendix H

**Alphabetical Listing of Variables that are in
Either the 2004 or 2005 Public-Use Data Files**

Appendix H

Alphabetical Listing of Variables that are in Either the 2004 or 2005 Public-Use Data Files

Table H.1 Alphabetical Listing of Variables that are in Either the 2004 or 2005 Public-Use Data Files[1]

Variable Name	Variable Label[2]	Year of Data Collection 2004	Year of Data Collection 2005	Notes[3]
AGECPOXR	AGE IN MONTHS AT CHICKEN POX DISEASE (RECODE)		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	
ALL4SHOT	HH REPORT OF 4:3:1:3 UP-TO-DATE	Y	Y	
BF_ENDR	DURATION OF BREAST FEEDING IN DAYS (TOPCODE)	Y	Y	
BF_EXCLR	DURATION OF EXCLUSIVE BREAST FEEDING IN DAYS (TOPCODE)	Y	Y	
BFENDFL	DURATION OF BREAST FEEDING EXCEEDS CHILD AGE IN DAYS, WITH BUFFER	Y	Y	
BFEXCLFL	DURATION OF EXCLUSIVE BREAST FEEDING EXCEEDS TOTAL BREASTFEEDING, WITH BUFFER+B123	Y	Y	
C_431	HH REPORT OF 4:3:1 UP-TO-DATE BY SHOT CARD USE	Y	Y	
C_4313	HH REPORT OF 4:3:1:3 UP-TO-DATE BY SHOT CARD USE	Y	Y	
C_DTP	HH REPORT OF 4+ DT-CONTAINING UP-TO-DATE BY SHOT CARD USE	Y	Y	
C_HEP	HH REPORT OF 3+ HEPATITIS B-CONTAINING UP-TO-DATE BY SHOT CARD USE	Y	Y	
C_HIB	HH REPORT OF 3+ HIB-CONTAINING UP-TO-DATE BY SHOT CARD USE	Y	Y	
C_MMR	HH REPORT OF 1+ MEASLES-CONTAINING UP-TO-DATE BY SHOT CARD USE	Y	Y	
C_POL	HH REPORT OF 3+ POLIO-CONTAINING UP-TO-DATE BY SHOT CARD USE	Y	Y	
C_VRC	HH REPORT OF 1+ VARICELLA-CONTAINING UP-TO-DATE BY SHOT CARD USE	Y	Y	
C1R	NUMBER OF PEOPLE IN HOUSEHOLD (TOPCODE)	Y	Y	
C5R	RELATIONSHIP OF RESPONDENT TO CHILD (RECODE)	Y	Y	
CBF_01	WAS CHILD EVER BREAST FED OR FED BREAST MILK?	Y	Y	

Table H.1   Alphabetical Listing of Variables that are in Either the 2004 or 2005 Public-Use Data Files[1]

| Variable Name | Variable Label[2] | Year of Data Collection | | Notes[3] |
		2004	2005	
CEN_REG	CENSUS REGION BASED ON TRUE STATE OF RESIDENCE	Y	Y	
CHILDNM	NUMBER OF CHILDREN LESS THAN 18 YEARS IN HH (RECODE)	Y	Y	
CWIC_01	CHILD EVER RECEIVED WIC BENEFITS?	Y	Y	
CWIC_02	CHILD CURRENTLY RECEIVING WIC BENEFITS?	Y	Y	
D6R	NUMBER OF VACCINATION PROVIDERS IDENTIFIED BY RESPONDENT (TOPCODE)	Y	Y	
D7	CONSENT TO OBTAIN CHILD'S IMMUNIZATION RECORDS FROM PROVIDERS	Y	Y	
DDTP1	AGE IN DAYS OF PROV-REPTD DT-CONTAINING SHOT #1	Y	Y	
DDTP2	AGE IN DAYS OF PROV-REPTD DT-CONTAINING SHOT #2	Y	Y	
DDTP3	AGE IN DAYS OF PROV-REPTD DT-CONTAINING SHOT #3	Y	Y	
DDTP4	AGE IN DAYS OF PROV-REPTD DT-CONTAINING SHOT #4	Y	Y	
DDTP5	AGE IN DAYS OF PROV-REPTD DT-CONTAINING SHOT #5	Y	Y	
DDTP6	AGE IN DAYS OF PROV-REPTD DT-CONTAINING SHOT #6	Y	Y	
DDTP7	AGE IN DAYS OF PROV-REPTD DT-CONTAINING SHOT #7	Y	Y	
DDTP8	AGE IN DAYS OF PROV-REPTD DT-CONTAINING SHOT #8	Y	Y	
DDTP9	AGE IN DAYS OF PROV-REPTD DT-CONTAINING SHOT #9		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	
DFLU2	AGE IN DAYS OF PROV-REPTD FLU-CONTAINING SHOT #2	Y	Y	
DFLU3	AGE IN DAYS OF PROV-REPTD FLU-CONTAINING SHOT #3	Y	Y	
DFLU4	AGE IN DAYS OF PROV-REPTD FLU-CONTAINING SHOT #4	Y	Y	
DFLU5	AGE IN DAYS OF PROV-REPTD FLU-CONTAINING SHOT #5	Y	Y	
DFLU6	AGE IN DAYS OF PROV-REPTD FLU-CONTAINING SHOT #6	Y	Y	
DFLU7	AGE IN DAYS OF PROV-REPTD FLU-CONTAINING SHOT #7	Y	Y	
DFLU8	AGE IN DAYS OF PROV-REPTD FLU-CONTAINING SHOT #8	Y	Y	

Table H.1   Alphabetical Listing of Variables that are in Either the 2004 or 2005 Public-Use Data Files[1]

Variable Name	Variable Label[2]	Year of Data Collection		Notes[3]
		2004	2005	
DFLU9	AGE IN DAYS OF PROV-REPTD FLU-CONTAINING SHOT #9		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	
DHEPA2	AGE IN DAYS OF PROV-REPTD HEPATITIS A-CONTAINING SHOT #2	Y	Y	
DHEPA3	AGE IN DAYS OF PROV-REPTD HEPATITIS A-CONTAINING SHOT #3	Y	Y	
DHEPA4	AGE IN DAYS OF PROV-REPTD HEPATITIS A-CONTAINING SHOT #4	Y	Y	
DHEPA5	AGE IN DAYS OF PROV-REPTD HEPATITIS A-CONTAINING SHOT #5	Y	Y	
DHEPA6	AGE IN DAYS OF PROV-REPTD HEPATITIS A-CONTAINING SHOT #6	Y	Y	
DHEPA7	AGE IN DAYS OF PROV-REPTD HEPATITIS A-CONTAINING SHOT #7	Y	Y	
DHEPA8	AGE IN DAYS OF PROV-REPTD HEPATITIS A-CONTAINING SHOT #8	Y	Y	
DHEPA9	AGE IN DAYS OF PROV-REPTD HEPATITIS A-CONTAINING SHOT #9		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	
DHEPB2	AGE IN DAYS OF PROV-REPTD HEPATITIS B-CONTAINING SHOT #2	Y	Y	
DHEPB3	AGE IN DAYS OF PROV-REPTD HEPATITIS B-CONTAINING SHOT #3	Y	Y	
DHEPB4	AGE IN DAYS OF PROV-REPTD HEPATITIS B-CONTAINING SHOT #4	Y	Y	
DHEPB5	AGE IN DAYS OF PROV-REPTD HEPATITIS B-CONTAINING SHOT #5	Y	Y	
DHEPB6	AGE IN DAYS OF PROV-REPTD HEPATITIS B-CONTAINING SHOT #6	Y	Y	
DHEPB7	AGE IN DAYS OF PROV-REPTD HEPATITIS B-CONTAINING SHOT #7	Y	Y	
DHEPB8	AGE IN DAYS OF PROV-REPTD HEPATITIS B-CONTAINING SHOT #8	Y	Y	
DHEPB9	AGE IN DAYS OF PROV-REPTD HEPATITIS B-CONTAINING SHOT #9		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	
DHIB2	AGE IN DAYS OF PROV-REPTD HIB-CONTAINING SHOT #2	Y	Y	
DHIB3	AGE IN DAYS OF PROV-REPTD HIB-CONTAINING SHOT #3	Y	Y	
DHIB4	AGE IN DAYS OF PROV-REPTD HIB-CONTAINING SHOT #4	Y	Y	

Table H.1   Alphabetical Listing of Variables that are in Either the 2004 or 2005 Public-Use Data Files[1]

Variable Name	Variable Label[2]	Year of Data Collection 2004	Year of Data Collection 2005	Notes[3]
DHIB5	AGE IN DAYS OF PROV-REPTD HIB-CONTAINING SHOT #5	Y	Y	
DHIB6	AGE IN DAYS OF PROV-REPTD HIB-CONTAINING SHOT #6	Y	Y	
DHIB7	AGE IN DAYS OF PROV-REPTD HIB-CONTAINING SHOT #7	Y	Y	
DHIB8	AGE IN DAYS OF PROV-REPTD HIB-CONTAINING SHOT #8	Y	Y	
DHIB9	AGE IN DAYS OF PROV-REPTD HIB-CONTAINING SHOT #9		Y	Starting in 2005, nine shot variables are included for each vaccine category.
DISPCODE	NIS PROVIDER RECORD-CHECK DISPOSITION CODE	Y	Y	
DMMR1	AGE IN DAYS OF PROV-REPTD MEASLES-CONTAINING SHOT #1	Y	Y	
DMMR2	AGE IN DAYS OF PROV-REPTD MEASLES-CONTAINING SHOT #2	Y	Y	
DMMR3	AGE IN DAYS OF PROV-REPTD MEASLES-CONTAINING SHOT #3	Y	Y	
DMMR4	AGE IN DAYS OF PROV-REPTD MEASLES-CONTAINING SHOT #4	Y	Y	
DMMR5	AGE IN DAYS OF PROV-REPTD MEASLES-CONTAINING SHOT #5		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	Starting in 2005, nine shot variables are included for each vaccine category.
DMMR7	AGE IN DAYS OF PROV-REPTD MEASLES-CONTAINING SHOT #7		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	Starting in 2005, nine shot variables are included for each vaccine category.
DMMR9	AGE IN DAYS OF PROV-REPTD MEASLES-CONTAINING SHOT #9		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	
DMP2	AGE IN DAYS OF PROV-REPTD MUMPS-ONLY SHOT #2	Y	Y	
DMP3	AGE IN DAYS OF PROV-REPTD MUMPS-ONLY SHOT #3	Y	Y	
DMP4	AGE IN DAYS OF PROV-REPTD MUMPS-ONLY SHOT #4	Y	Y	
DMP5	AGE IN DAYS OF PROV-REPTD MUMPS-ONLY SHOT #5		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	Starting in 2005, nine shot variables are included for each vaccine category.
DMP7	AGE IN DAYS OF PROV-REPTD MUMPS-ONLY SHOT #7		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	Starting in 2005, nine shot variables are included for each vaccine category.

Table H.1   Alphabetical Listing of Variables that are in Either the 2004 or 2005 Public-Use Data Files[1]

Variable Name	Variable Label[2]	Year of Data Collection 2004	Year of Data Collection 2005	Notes[3]
DMP9	AGE IN DAYS OF PROV-REPTD MUMPS-ONLY SHOT #9		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	
DMPRB2	AGE IN DAYS OF PROV-REPTD (MUMPS/RUBELLA)-ONLY SHOT #2	Y	Y	
DMPRB3	AGE IN DAYS OF PROV-REPTD (MUMPS/RUBELLA)-ONLY SHOT #3	Y	Y	
DMPRB4	AGE IN DAYS OF PROV-REPTD (MUMPS/RUBELLA)-ONLY SHOT #4	Y	Y	
DMPRB5	AGE IN DAYS OF PROV-REPTD (MUMPS/RUBELLA)-ONLY SHOT #5		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	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	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	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	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	
DPCV2	AGE IN DAYS OF PROV-REPTD PNEUMOCOCCAL-CONTAINING SHOT #2	Y	Y	
DPCV3	AGE IN DAYS OF PROV-REPTD PNEUMOCOCCAL-CONTAINING SHOT #3	Y	Y	
DPCV4	AGE IN DAYS OF PROV-REPTD PNEUMOCOCCAL-CONTAINING SHOT #4	Y	Y	
DPCV5	AGE IN DAYS OF PROV-REPTD PNEUMOCOCCAL-CONTAINING SHOT #5	Y	Y	
DPCV6	AGE IN DAYS OF PROV-REPTD PNEUMOCOCCAL-CONTAINING SHOT #6	Y	Y	
DPCV7	AGE IN DAYS OF PROV-REPTD PNEUMOCOCCAL-CONTAINING SHOT #7	Y	Y	
DPCV8	AGE IN DAYS OF PROV-REPTD PNEUMOCOCCAL-CONTAINING SHOT #8	Y	Y	
DPCV9	AGE IN DAYS OF PROV-REPTD PNEUMOCOCCAL-CONTAINING SHOT #9		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	
DPOLIO2	AGE IN DAYS OF PROV-REPTD POLIO-CONTAINING SHOT #2	Y	Y	
DPOLIO3	AGE IN DAYS OF PROV-REPTD POLIO-CONTAINING SHOT #3	Y	Y	
DPOLIO4	AGE IN DAYS OF PROV-REPTD POLIO-CONTAINING SHOT #4	Y	Y	

Table H.1   Alphabetical Listing of Variables that are in Either the 2004 or 2005 Public-Use Data Files[1]

Variable Name	Variable Label[2]	Year of Data Collection 2004	2005	Notes[3]
DPOLIO5	AGE IN DAYS OF PROV-REPTD POLIO-CONTAINING SHOT #5	Y	Y	
DPOLIO6	AGE IN DAYS OF PROV-REPTD POLIO-CONTAINING SHOT #6	Y	Y	
DPOLIO7	AGE IN DAYS OF PROV-REPTD POLIO-CONTAINING SHOT #7	Y	Y	
DPOLIO8	AGE IN DAYS OF PROV-REPTD POLIO-CONTAINING SHOT #8	Y	Y	
DPOLIO9	AGE IN DAYS OF PROV-REPTD POLIO-CONTAINING SHOT #9		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	
DRB2	AGE IN DAYS OF PROV-REPTD RUBELLA-ONLY SHOT #2	Y	Y	
DRB3	AGE IN DAYS OF PROV-REPTD RUBELLA-ONLY SHOT #3	Y	Y	
DRB4	AGE IN DAYS OF PROV-REPTD RUBELLA-ONLY SHOT #4	Y	Y	
DRB5	AGE IN DAYS OF PROV-REPTD RUBELLA-ONLY SHOT #5	Y	Y	
DRB6	AGE IN DAYS OF PROV-REPTD RUBELLA-ONLY SHOT #6	Y	Y	
DRB7	AGE IN DAYS OF PROV-REPTD RUBELLA-ONLY SHOT #7	Y	Y	
DRB8	AGE IN DAYS OF PROV-REPTD RUBELLA-ONLY SHOT #8	Y	Y	
DRB9	AGE IN DAYS OF PROV-REPTD RUBELLA-ONLY SHOT #9		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	
DROT2	AGE IN DAYS OF PROV-REPTD ROTAVIRUS-CONTAINING SHOT #2	Y	Y	
DROT3	AGE IN DAYS OF PROV-REPTD ROTAVIRUS-CONTAINING SHOT #3	Y	Y	
DROT4	AGE IN DAYS OF PROV-REPTD ROTAVIRUS-CONTAINING SHOT #4	Y	Y	
DROT5	AGE IN DAYS OF PROV-REPTD ROTAVIRUS-CONTAINING SHOT #5	Y	Y	
DROT6	AGE IN DAYS OF PROV-REPTD ROTAVIRUS-CONTAINING SHOT #6	Y	Y	
DROT7	AGE IN DAYS OF PROV-REPTD ROTAVIRUS-CONTAINING SHOT #7	Y	Y	
DROT8	AGE IN DAYS OF PROV-REPTD ROTAVIRUS-CONTAINING SHOT #8	Y	Y	
DROT9	AGE IN DAYS OF PROV-REPTD ROTAVIRUS-CONTAINING SHOT #9		Y	Starting in 2005, nine shot variables are included for each vaccine category.

Table H.1   Alphabetical Listing of Variables that are in Either the 2004 or 2005 Public-Use Data Files[1]

Variable Name	Variable Label[2]	2004	2005	Notes[3]
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 DT-CONTAINING SHOT #1	Y	Y	
DTP2_AGE	AGE IN MONTHS OF PROV-REPTD DT-CONTAINING SHOT #2	Y	Y	
DTP3_AGE	AGE IN MONTHS OF PROV-REPTD DT-CONTAINING SHOT #3	Y	Y	
DTP4_AGE	AGE IN MONTHS OF PROV-REPTD DT-CONTAINING SHOT #4	Y	Y	
DTP5_AGE	AGE IN MONTHS OF PROV-REPTD DT-CONTAINING SHOT #5	Y	Y	
DTP6_AGE	AGE IN MONTHS OF PROV-REPTD DT-CONTAINING SHOT #6	Y	Y	
DTP7_AGE	AGE IN MONTHS OF PROV-REPTD DT-CONTAINING SHOT #7	Y	Y	
DTP8_AGE	AGE IN MONTHS OF PROV-REPTD DT-CONTAINING SHOT #8	Y	Y	
DTP9_AGE	AGE IN MONTHS OF PROV-REPTD DT-CONTAINING SHOT #9		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	
DVRC2	AGE IN DAYS OF PROV-REPTD VARICELLA-CONTAINING SHOT #2	Y	Y	
DVRC3	AGE IN DAYS OF PROV-REPTD VARICELLA-CONTAINING SHOT #3	Y	Y	
DVRC4	AGE IN DAYS OF PROV-REPTD VARICELLA-CONTAINING SHOT #4	Y	Y	
DVRC5	AGE IN DAYS OF PROV-REPTD VARICELLA-CONTAINING SHOT #5		Y	Starting in 2005, nine shot variables are included for each vaccine category.
DVRC6	AGE IN DAYS OF PROV-REPTD VARICELLA-CONTAINING SHOT #6		Y	Starting in 2005, nine shot variables are included for each vaccine category.
DVRC7	AGE IN DAYS OF PROV-REPTD VARICELLA-CONTAINING SHOT #7		Y	Starting in 2005, nine shot variables are included for each vaccine category.
DVRC8	AGE IN DAYS OF PROV-REPTD VARICELLA-CONTAINING SHOT #8		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	Starting in 2005, nine shot variables are included for each vaccine category.
EDUC1	EDUCATION OF MOTHER CATEGORIES (RECODE)	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. Replaces ITRUEIAP.
FLU1_AGE	AGE IN MONTHS OF PROV-REPTD FLU-CONTAINING SHOT #1	Y	Y	

Table H.1   Alphabetical Listing of Variables that are in Either the 2004 or 2005 Public-Use Data Files[1]

Variable Name	Variable Label[2]	Year of Data Collection 2004	Year of Data Collection 2005	Notes[3]
FLU2_AGE	AGE IN MONTHS OF PROV-REPTD FLU-CONTAINING SHOT #2	Y	Y	
FLU3_AGE	AGE IN MONTHS OF PROV-REPTD FLU-CONTAINING SHOT #3	Y	Y	
FLU4_AGE	AGE IN MONTHS OF PROV-REPTD FLU-CONTAINING SHOT #4	Y	Y	
FLU5_AGE	AGE IN MONTHS OF PROV-REPTD FLU-CONTAINING SHOT #5	Y	Y	
FLU6_AGE	AGE IN MONTHS OF PROV-REPTD FLU-CONTAINING SHOT #6	Y	Y	
FLU7_AGE	AGE IN MONTHS OF PROV-REPTD FLU-CONTAINING SHOT #7	Y	Y	
FLU8_AGE	AGE IN MONTHS OF PROV-REPTD FLU-CONTAINING SHOT #8	Y	Y	
FLU9_AGE	AGE IN MONTHS OF PROV-REPTD FLU-CONTAINING SHOT #9		Y	Starting in 2005, nine shot variables are included for each vaccine category.
FRSTBRN	FIRST BORN STATUS OF CHILD	Y	Y	Replaced by FULL_MMR starting in 2005.
FUL2_MMR	HOUSEHOLD REPORT OF 1+ MMR AT ANY AGE	Y		
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.
FULL_DTP	HH REPORT OF 4+ DT-CONTAINING SHOT	Y	Y	Starting 2005, a code of 88 added for children with unknown UTD status.
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.
FULL_HIB	HH REPORT OF 3+ HIB-CONTAINING SHOTS	Y	Y	Starting 2005, a code of 88 added for children with unknown UTD status.
FULL_MMR	HH REPORT OF 1+ MEASLES-CONTAINING SHOT AT ANY AGE		Y	Replaces FUL2_MMR starting in 2005. A code of 88 added for children with unknown UTD status.
FULL_POL	HH REPORT OF 3+ POLIO-CONTAINING SHOTS	Y	Y	Starting 2005, a code of 88 added for children with unknown UTD status.
HAD_CPOX	CHILD EVER HAD CHICKEN POX DISEASE?		Y	Replaces I_HADCPX starting in 2005. This version is not imputed.
HEA1_AGE	AGE IN MONTHS OF PROV-REPTD HEPATITIS A-CONTAINING SHOT #1	Y	Y	
HEA2_AGE	AGE IN MONTHS OF PROV-REPTD HEPATITIS A-CONTAINING SHOT #2	Y	Y	
HEA3_AGE	AGE IN MONTHS OF PROV-REPTD HEPATITIS A-CONTAINING SHOT #3	Y	Y	
HEA4_AGE	AGE IN MONTHS OF PROV-REPTD HEPATITIS A-CONTAINING SHOT #4	Y	Y	
HEA5_AGE	AGE IN MONTHS OF PROV-REPTD HEPATITIS A-CONTAINING SHOT #5	Y	Y	
HEA6_AGE	AGE IN MONTHS OF PROV-REPTD HEPATITIS A-CONTAINING SHOT #6	Y	Y	

Table H.1   Alphabetical Listing of Variables that are in Either the 2004 or 2005 Public-Use Data Files[1]

| Variable Name | Variable Label[2] | Year of Data Collection | | Notes[3] |
		2004	2005	
HEA7_AGE	AGE IN MONTHS OF PROV-REPTD HEPATITIS A-CONTAINING SHOT #7	Y	Y	
HEA8_AGE	AGE IN MONTHS OF PROV-REPTD HEPATITIS A-CONTAINING SHOT #8	Y	Y	
HEA9_AGE	AGE IN MONTHS OF PROV-REPTD HEPATITIS A-CONTAINING SHOT #9		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	
HEP_FLAG	HEPATITIS B BIRTH SHOT DATE IMPUTATION FLAG	Y	Y	
HEP1_AGE	AGE IN MONTHS OF PROV-REPTD HEPATITIS B-CONTAINING SHOT #1	Y	Y	
HEP2_AGE	AGE IN MONTHS OF PROV-REPTD HEPATITIS B-CONTAINING SHOT #2	Y	Y	
HEP3_AGE	AGE IN MONTHS OF PROV-REPTD HEPATITIS B-CONTAINING SHOT #3	Y	Y	
HEP4_AGE	AGE IN MONTHS OF PROV-REPTD HEPATITIS B-CONTAINING SHOT #4	Y	Y	
HEP5_AGE	AGE IN MONTHS OF PROV-REPTD HEPATITIS B-CONTAINING SHOT #5	Y	Y	
HEP6_AGE	AGE IN MONTHS OF PROV-REPTD HEPATITIS B-CONTAINING SHOT #6	Y	Y	
HEP7_AGE	AGE IN MONTHS OF PROV-REPTD HEPATITIS B-CONTAINING SHOT #7	Y	Y	
HEP8_AGE	AGE IN MONTHS OF PROV-REPTD HEPATITIS B-CONTAINING SHOT #8	Y	Y	
HEP9_AGE	AGE IN MONTHS OF PROV-REPTD HEPATITIS B-CONTAINING SHOT #9		Y	Starting in 2005, nine shot variables are included for each vaccine category.
HIB1_AGE	AGE IN MONTHS OF PROV-REPTD HIB-CONTAINING SHOT #1	Y	Y	
HIB2_AGE	AGE IN MONTHS OF PROV-REPTD HIB-CONTAINING SHOT #2	Y	Y	
HIB3_AGE	AGE IN MONTHS OF PROV-REPTD HIB-CONTAINING SHOT #3	Y	Y	
HIB4_AGE	AGE IN MONTHS OF PROV-REPTD HIB-CONTAINING SHOT #4	Y	Y	
HIB5_AGE	AGE IN MONTHS OF PROV-REPTD HIB-CONTAINING SHOT #5	Y	Y	
HIB6_AGE	AGE IN MONTHS OF PROV-REPTD HIB-CONTAINING SHOT #6	Y	Y	
HIB7_AGE	AGE IN MONTHS OF PROV-REPTD HIB-CONTAINING SHOT #7	Y	Y	
HIB8_AGE	AGE IN MONTHS OF PROV-REPTD HIB-CONTAINING SHOT #8	Y	Y	
HIB9_AGE	AGE IN MONTHS OF PROV-REPTD HIB-CONTAINING SHOT #9		Y	Starting in 2005, nine shot variables are included for each vaccine category.

Table H.1 Alphabetical Listing of Variables that are in Either the 2004 or 2005 Public-Use Data Files[1]

Variable Name	Variable Label[2]	Year of Data Collection 2004	2005	Notes[3]
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	
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	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	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	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	
INTRP	PHONE INTERRUPTION OF 7 DAYS OR MORE IN PAST YEAR?	Y	Y	
ITRUEIAP	IAP AREA OF CURRENT RESIDENCE	Y		The new IAP variable starting in 2005 is ESTIAP.
LANGUAGE	LANGUAGE IN WHICH INTERVIEW WAS CONDUCTED	Y	Y	
M_AGEGRP	AGE OF MOTHER CATEGORIES	Y	Y	
MARITAL	MARITAL STATUS OF MOTHER CATEGORIES (RECODE)	Y	Y	
MMR1_AGE	AGE IN MONTHS OF PROV-REPTD MEASLES-CONTAINING SHOT #1	Y	Y	
MMR2_AGE	AGE IN MONTHS OF PROV-REPTD MEASLES-CONTAINING SHOT #2	Y	Y	
MMR3_AGE	AGE IN MONTHS OF PROV-REPTD MEASLES-CONTAINING SHOT #3	Y	Y	
MMR4_AGE	AGE IN MONTHS OF PROV-REPTD MEASLES-CONTAINING SHOT #4	Y	Y	
MMR5_AGE	AGE IN MONTHS OF PROV-REPTD MEASLES-CONTAINING SHOT #5		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	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	Starting in 2005, nine shot variables are included for each vaccine category.

Table H.1 Alphabetical Listing of Variables that are in Either the 2004 or 2005 Public-Use Data Files[1]

Variable Name	Variable Label[2]	Year of Data Collection 2004	Year of Data Collection 2005	Notes[3]
MMR8_AGE	AGE IN MONTHS OF PROV-REPTD MEASLES-CONTAINING SHOT #8		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	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	Replaces MOBIL starting in 2005. This version is imputed.
MP1_AGE	AGE IN MONTHS OF PROV-REPTD MUMPS-ONLY SHOT #1	Y	Y	
MP2_AGE	AGE IN MONTHS OF PROV-REPTD MUMPS-ONLY SHOT #2	Y	Y	
MP3_AGE	AGE IN MONTHS OF PROV-REPTD MUMPS-ONLY SHOT #3	Y	Y	
MP4_AGE	AGE IN MONTHS OF PROV-REPTD MUMPS-ONLY SHOT #4	Y	Y	
MP5_AGE	AGE IN MONTHS OF PROV-REPTD MUMPS-ONLY SHOT #5		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	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	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	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	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	
MPR2_AGE	AGE IN MONTHS OF PROV-REPTD (MUMPS/RUBELLA)-ONLY SHOT #2	Y	Y	
MPR3_AGE	AGE IN MONTHS OF PROV-REPTD (MUMPS/RUBELLA)-ONLY SHOT #3	Y	Y	
MPR4_AGE	AGE IN MONTHS OF PROV-REPTD (MUMPS/RUBELLA)-ONLY SHOT #4	Y	Y	
MPR5_AGE	AGE IN MONTHS OF PROV-REPTD (MUMPS/RUBELLA)-ONLY SHOT #5		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	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	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	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	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	

Table H.1   Alphabetical Listing of Variables that are in Either the 2004 or 2005 Public-Use Data Files[1]

Variable Name	Variable Label[2]	Year of Data Collection		Notes[3]
		2004	2005	
P_NUHEPX	NUMBER OF HEPATITIS B-ONLY SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	
P_NUHPHB	NUMBER OF HEPATITIS B/HIB COMBO SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	
P_NUMDAH	NUMBER OF DTAP/HIB COMBO SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	
P_NUMDHB	NUMBER OF DTP/HIB CONTAINING SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	
P_NUMDHM	NUMBER OF DTP/HIB COMBO SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	
P_NUMDTA	NUMBER OF DTAP-ONLY SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	
P_NUMDTM	NUMBER OF DT-ONLY SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	
P_NUMDTP	NUMBER OF DT-CONTAINING SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	
P_NUMFLU	NUMBER OF FLU-CONTAINING SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	
P_NUMHEA	NUMBER OF HEPATITIS A-CONTAINING SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	
P_NUMHEP	NUMBER OF HEPATITIS B-CONTAINING SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	
P_NUMHIB	NUMBER OF HIB-CONTAINING SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	
P_NUMIPV	NUMBER OF IPV-ONLY SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	
P_NUMMMR	NUMBER OF MEASLES-CONTAINING SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	
P_NUMMMX	NUMBER OF MMR COMBO SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	

Table H.1   Alphabetical Listing of Variables that are in Either the 2004 or 2005 Public-Use Data Files[1]

Variable Name	Variable Label[2]	Year of Data Collection 2004	Year of Data Collection 2005	Notes[3]
P_NUMMP	NUMBER OF MUMPS-ONLY SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	
P_NUMMPR	NUMBER OF (MUMPS/RUBELLA)-ONLY SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	
P_NUMMS	NUMBER OF MEASLES-ONLY SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	
P_NUMMSM	NUMBER OF MEASLES/MUMPS COMBO SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	
P_NUMMSR	NUMBER OF MEASLES/RUBELLA COMBO SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	
P_NUMOLN	NUMBER OF POLIO SHOTS OF UNKNOWN TYPE DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	
P_NUMOPV	NUMBER OF OPV-ONLY SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	
P_NUMPCC	NUMBER OF PCV CONJUGATE SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	
P_NUMPCN	NUMBER OF PCV SHOTS OF UNKNOWN TYPE DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	
P_NUMPCP	NUMBER OF PCV POLYSACCHARIDE SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	
P_NUMPCV	NUMBER OF PNEUMOCOCCAL-CONTAINING SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	
P_NUMPOL	NUMBER OF POLIO-CONTAINING SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	
P_NUMRB	NUMBER OF RUBELLA-ONLY SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	
P_NUMROT	NUMBER OF ROTAVIRUS-CONTAINING SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	
P_NUMTPM	NUMBER OF DTP-ONLY SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	

Table H.1   Alphabetical Listing of Variables that are in Either the 2004 or 2005 Public-Use Data Files[1]

| Variable Name | Variable Label[2] | Year of Data Collection | | Notes[3] |
		2004	2005	
P_NUMTPN	NUMBER OF DT-CONTAINING SHOTS OF UNKNOWN TYPE DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	
P_NUMVRC	NUMBER OF VARICELLA-CONTAINING SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	
P_U12VRC	UTD (UP-TO-DATE) FLAG FOR PROVIDER 1+ VARICELLA-CONTAINING SHOT AT 12+ MONTHS	Y	Y	
P_UTD331	UTD (UP-TO-DATE) FLAG FOR PROVIDER 3:3:1	Y	Y	
P_UTD431	UTD (UP-TO-DATE) FLAG FOR PROVIDER 4:3:1	Y	Y	
P_UTDFL1	UTD FLAG FOR PROVIDER INFLUENZA VARIABLE 1	Y	Y	
P_UTDFL2	UTD FLAG FOR PROVIDER INFLUENZA VARIABLE 2	Y	Y	
P_UTDHEP	UTD (UP-TO-DATE) FLAG FOR PROVIDER 3+ HEPATITIS B-CONTAINING SHOTS	Y	Y	
P_UTDHIB	UTD (UP-TO-DATE) FLAG FOR PROVIDER 3+ HIB-CONTAINING SHOTS	Y	Y	
P_UTDMCV	UTD (UP-TO-DATE) FLAG FOR PROVIDER 1+ MEASLES-CONTAINING SHOT	Y	Y	
P_UTDMMX	UTD FLAG FOR PROVIDER 1+ MMR COMBO SHOT	Y	Y	
P_UTDPC3	UTD (UP-TO-DATE) FLAG FOR PROVIDER 3+ PNEUMOCOCCAL-CONTAINING SHOTS	Y	Y	
P_UTDPCV	UTD (UP-TO-DATE) FLAG FOR PROVIDER 4+ PNEUMOCOCCAL-CONTAINING SHOTS	Y	Y	
P_UTDPOL	UTD (UP-TO-DATE) FLAG FOR PROVIDER 3+ POLIO-CONTAINING SHOTS	Y	Y	
P_UTDTP3	UTD (UP-TO-DATE) FLAG FOR PROVIDER 3+ DT-CONTAINING SHOTS	Y	Y	
P_UTDTP4	UTD (UP-TO-DATE) FLAG FOR PROVIDER 4+ DT-CONTAINING SHOTS	Y	Y	
PCV1_AGE	AGE IN MONTHS OF PROV-REPTD PNEUMOCOCCAL-CONTAINING SHOT #1	Y	Y	
PCV2_AGE	AGE IN MONTHS OF PROV-REPTD PNEUMOCOCCAL-CONTAINING SHOT #2	Y	Y	
PCV3_AGE	AGE IN MONTHS OF PROV-REPTD PNEUMOCOCCAL-CONTAINING SHOT #3	Y	Y	
PCV4_AGE	AGE IN MONTHS OF PROV-REPTD PNEUMOCOCCAL-CONTAINING SHOT #4	Y	Y	
PCV5_AGE	AGE IN MONTHS OF PROV-REPTD PNEUMOCOCCAL-CONTAINING SHOT #5	Y	Y	
PCV6_AGE	AGE IN MONTHS OF PROV-REPTD PNEUMOCOCCAL-CONTAINING SHOT #6	Y	Y	

Table H.1   Alphabetical Listing of Variables that are in Either the 2004 or 2005 Public-Use Data Files[1]

| Variable Name | Variable Label[2] | Year of Data Collection | | Notes[3] |
		2004	2005	
PCV7_AGE	AGE IN MONTHS OF PROV-REPTD PNEUMOCOCCAL-CONTAINING SHOT #7	Y	Y	
PCV8_AGE	AGE IN MONTHS OF PROV-REPTD PNEUMOCOCCAL-CONTAINING SHOT #8	Y	Y	
PCV9_AGE	AGE IN MONTHS OF PROV-REPTD PNEUMOCOCCAL-CONTAINING SHOT #9		Y	
PDAT	CHILD HAS ADEQUATE PROVIDER DATA	Y	Y	
POL1_AGE	AGE IN MONTHS OF PROV-REPTD POLIO-CONTAINING SHOT #1	Y	Y	
POL2_AGE	AGE IN MONTHS OF PROV-REPTD POLIO-CONTAINING SHOT #2	Y	Y	
POL3_AGE	AGE IN MONTHS OF PROV-REPTD POLIO-CONTAINING SHOT #3	Y	Y	
POL4_AGE	AGE IN MONTHS OF PROV-REPTD POLIO-CONTAINING SHOT #4	Y	Y	
POL5_AGE	AGE IN MONTHS OF PROV-REPTD POLIO-CONTAINING SHOT #5	Y	Y	
POL6_AGE	AGE IN MONTHS OF PROV-REPTD POLIO-CONTAINING SHOT #6	Y	Y	
POL7_AGE	AGE IN MONTHS OF PROV-REPTD POLIO-CONTAINING SHOT #7	Y	Y	
POL8_AGE	AGE IN MONTHS OF PROV-REPTD POLIO-CONTAINING SHOT #8	Y	Y	
POL9_AGE	AGE IN MONTHS OF PROV-REPTD POLIO-CONTAINING SHOT #9		Y	
PROV_FAC	PROVIDER FACILITY TYPE	Y	Y	
PROVWT	WEIGHT FOR CHILDREN WITH ADEQUATE PROVIDER DATA AND UNVACCINATED CHILDREN		Y	Replaces WGT starting in 2005.
PU431331	UTD FLAG FOR PROVIDER 4:3:1:3:3:1 (INCLUDES 1+ VARICELLA AT AGE 12+ MTHS)	Y	Y	
PUT43133	UTD FLAG FOR PROVIDER 4:3:1:3:3	Y	Y	
PUTD4313	UTD FLAG FOR PROVIDER 4:3:1:3	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.

Table H.1   Alphabetical Listing of Variables that are in Either the 2004 or 2005 Public-Use Data Files[1]

| Variable Name | Variable Label[2] | Year of Data Collection | | Notes[3] |
		2004	2005	
RACE_K	RACE OF CHILD (RECODE)	Y	Y	
RACEETHK	RACE/ETHNICITY OF CHILD (RECODE)	Y	Y	
RB1_AGE	AGE IN MONTHS OF PROV-REPTD RUBELLA-ONLY SHOT #1	Y	Y	
RB2_AGE	AGE IN MONTHS OF PROV-REPTD RUBELLA-ONLY SHOT #2	Y	Y	
RB3_AGE	AGE IN MONTHS OF PROV-REPTD RUBELLA-ONLY SHOT #3	Y	Y	
RB4_AGE	AGE IN MONTHS OF PROV-REPTD RUBELLA-ONLY SHOT #4	Y	Y	
RB5_AGE	AGE IN MONTHS OF PROV-REPTD RUBELLA-ONLY SHOT #5	Y	Y	
RB6_AGE	AGE IN MONTHS OF PROV-REPTD RUBELLA-ONLY SHOT #6	Y	Y	
RB7_AGE	AGE IN MONTHS OF PROV-REPTD RUBELLA-ONLY SHOT #7	Y	Y	
RB8_AGE	AGE IN MONTHS OF PROV-REPTD RUBELLA-ONLY SHOT #8	Y	Y	
RB9_AGE	AGE IN MONTHS OF PROV-REPTD RUBELLA-ONLY SHOT #9		Y	Starting in 2005, nine shot variables are included for each vaccine category.
RDDWT	RDD CHILD INTERVIEW WEIGHT		Y	Replaces WGT_RDD starting in 2005.
REGISTRY	CHILD'S PROVIDERS REPORTED CHILD'S VACCINATIONS TO IMMUNIZATION REGISTRY	Y	Y	
ROT1_AGE	AGE IN MONTHS OF PROV-REPTD ROTAVIRUS-CONTAINING SHOT #1	Y	Y	
ROT2_AGE	AGE IN MONTHS OF PROV-REPTD ROTAVIRUS-CONTAINING SHOT #2	Y	Y	
ROT3_AGE	AGE IN MONTHS OF PROV-REPTD ROTAVIRUS-CONTAINING SHOT #3	Y	Y	
ROT4_AGE	AGE IN MONTHS OF PROV-REPTD ROTAVIRUS-CONTAINING SHOT #4	Y	Y	
ROT5_AGE	AGE IN MONTHS OF PROV-REPTD ROTAVIRUS-CONTAINING SHOT #5	Y	Y	
ROT6_AGE	AGE IN MONTHS OF PROV-REPTD ROTAVIRUS-CONTAINING SHOT #6	Y	Y	
ROT7_AGE	AGE IN MONTHS OF PROV-REPTD ROTAVIRUS-CONTAINING SHOT #7	Y	Y	
ROT8_AGE	AGE IN MONTHS OF PROV-REPTD ROTAVIRUS-CONTAINING SHOT #8	Y	Y	
ROT9_AGE	AGE IN MONTHS OF PROV-REPTD ROTAVIRUS-CONTAINING SHOT #9		Y	Starting in 2005, nine shot variables are included for each vaccine category.
SEQNUMC	UNIQUE CHILD IDENTIFIER	Y	Y	

Table H.1   Alphabetical Listing of Variables that are in Either the 2004 or 2005 Public-Use Data Files[1]

Variable Name	Variable Label[2]	Year of Data Collection		Notes[3]
		2004	**2005**	
SEQNUMHH	UNIQUE HOUSEHOLD IDENTIFIER	Y	Y	
SEX	GENDER OF CHILD	Y	Y	
SHORT	Q1/2004 SHORT QUESTIONNAIRE EXPERIMENT FLAG	Y		There was no short questionnaire experiment in 2005.
SHOTCARD	SHOT CARD USE FLAG	Y	Y	
STATE	TRUE STATE OF RESIDENCE (STATE FIPS CODE)	Y	Y	
VFC_PRO	PARTICIPATION OF CHILD'S PROVIDERS IN VACCINES FOR CHILDREN PROGRAM	Y	Y	
VRC1_AGE	AGE IN MONTHS OF PROV-REPTD VARICELLA-CONTAINING SHOT #1	Y	Y	
VRC2_AGE	AGE IN MONTHS OF PROV-REPTD VARICELLA-CONTAINING SHOT #2	Y	Y	
VRC3_AGE	AGE IN MONTHS OF PROV-REPTD VARICELLA-CONTAINING SHOT #3	Y	Y	
VRC4_AGE	AGE IN MONTHS OF PROV-REPTD VARICELLA-CONTAINING SHOT #4	Y	Y	
VRC5_AGE	AGE IN MONTHS OF PROV-REPTD VARICELLA-CONTAINING SHOT #5		Y	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	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	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	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	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	DT-CONTAINING VACCINATION #1 TYPE CODE	Y	Y	
XDTPTY2	DT-CONTAINING VACCINATION #2 TYPE CODE	Y	Y	
XDTPTY3	DT-CONTAINING VACCINATION #3 TYPE CODE	Y	Y	
XDTPTY4	DT-CONTAINING VACCINATION #4 TYPE CODE	Y	Y	
XDTPTY5	DT-CONTAINING VACCINATION #5 TYPE CODE	Y	Y	
XDTPTY6	DT-CONTAINING VACCINATION #6 TYPE CODE	Y	Y	

Table H.1   Alphabetical Listing of Variables that are in Either the 2004 or 2005 Public-Use Data Files[1]

Variable Name	Variable Label[2]	2004	2005	Notes[3]
XDTPTY7	DT-CONTAINING VACCINATION #7 TYPE CODE	Y	Y	
XDTPTY8	DT-CONTAINING VACCINATION #8 TYPE CODE	Y	Y	
XDTPTY9	DT-CONTAINING VACCINATION #9 TYPE CODE		Y	Starting in 2005, nine shot variables are included for each vaccine category.
XHEPTY1	HEPATITIS B-CONTAINING VACCINATION #1 TYPE CODE	Y	Y	
XHEPTY2	HEPATITIS B-CONTAINING VACCINATION #2 TYPE CODE	Y	Y	
XHEPTY3	HEPATITIS B-CONTAINING VACCINATION #3 TYPE CODE	Y	Y	
XHEPTY4	HEPATITIS B-CONTAINING VACCINATION #4 TYPE CODE	Y	Y	
XHEPTY5	HEPATITIS B-CONTAINING VACCINATION #5 TYPE CODE	Y	Y	
XHEPTY6	HEPATITIS B-CONTAINING VACCINATION #6 TYPE CODE	Y	Y	
XHEPTY7	HEPATITIS B-CONTAINING VACCINATION #7 TYPE CODE	Y	Y	
XHEPTY8	HEPATITIS B-CONTAINING VACCINATION #8 TYPE CODE	Y	Y	
XHEPTY9	HEPATITIS B-CONTAINING VACCINATION #9 TYPE CODE		Y	Starting in 2005, nine shot variables are included for each vaccine category.
XHIBTY1	HIB-CONTAINING VACCINATION #1 TYPE CODE	Y	Y	
XHIBTY2	HIB-CONTAINING VACCINATION #2 TYPE CODE	Y	Y	
XHIBTY3	HIB-CONTAINING VACCINATION #3 TYPE CODE	Y	Y	
XHIBTY4	HIB-CONTAINING VACCINATION #4 TYPE CODE	Y	Y	
XHIBTY5	HIB-CONTAINING VACCINATION #5 TYPE CODE	Y	Y	
XHIBTY6	HIB-CONTAINING VACCINATION #6 TYPE CODE	Y	Y	
XHIBTY7	HIB-CONTAINING VACCINATION #7 TYPE CODE	Y	Y	
XHIBTY8	HIB-CONTAINING VACCINATION #8 TYPE CODE	Y	Y	
XHIBTY9	HIB-CONTAINING VACCINATION #9 TYPE CODE		Y	Starting in 2005, nine shot variables are included for each vaccine category.
XMMRTY1	MEASLES-CONTAINING VACCINATION #1 TYPE CODE	Y	Y	
XMMRTY2	MEASLES-CONTAINING VACCINATION #2 TYPE CODE	Y	Y	

Table H.1   Alphabetical Listing of Variables that are in Either the 2004 or 2005 Public-Use Data Files[1]

Variable Name	Variable Label[2]	Year of Data Collection 2004	Year of Data Collection 2005	Notes[3]
XMMRTY3	MEASLES-CONTAINING VACCINATION #3 TYPE CODE	Y	Y	
XMMRTY4	MEASLES-CONTAINING VACCINATION #4 TYPE CODE	Y	Y	
XMMRTY5	MEASLES-CONTAINING VACCINATION #5 TYPE CODE		Y	Starting in 2005, nine shot variables are included for each vaccine category.
XMMRTY6	MEASLES-CONTAINING VACCINATION #6 TYPE CODE		Y	Starting in 2005, nine shot variables are included for each vaccine category.
XMMRTY7	MEASLES-CONTAINING VACCINATION #7 TYPE CODE		Y	Starting in 2005, nine shot variables are included for each vaccine category.
XMMRTY8	MEASLES-CONTAINING VACCINATION #8 TYPE CODE		Y	Starting in 2005, nine shot variables are included for each vaccine category.
XMMRTY9	MEASLES-CONTAINING VACCINATION #9 TYPE CODE		Y	Starting in 2005, nine shot variables are included for each vaccine category.
XPCVTY1	PNEUMOCOCCAL-CONTAINING VACCINATION #1 TYPE CODE	Y	Y	
XPCVTY2	PNEUMOCOCCAL-CONTAINING VACCINATION #2 TYPE CODE	Y	Y	
XPCVTY3	PNEUMOCOCCAL-CONTAINING VACCINATION #3 TYPE CODE	Y	Y	
XPCVTY4	PNEUMOCOCCAL-CONTAINING VACCINATION #4 TYPE CODE	Y	Y	
XPCVTY5	PNEUMOCOCCAL-CONTAINING VACCINATION #5 TYPE CODE	Y	Y	
XPCVTY6	PNEUMOCOCCAL-CONTAINING VACCINATION #6 TYPE CODE	Y	Y	
XPCVTY7	PNEUMOCOCCAL-CONTAINING VACCINATION #7 TYPE CODE	Y	Y	
XPCVTY8	PNEUMOCOCCAL-CONTAINING VACCINATION #8 TYPE CODE	Y	Y	
XPCVTY9	PNEUMOCOCCAL-CONTAINING VACCINATION #9 TYPE CODE		Y	Starting in 2005, nine shot variables are included for each vaccine category.
XPOLTY1	POLIO-CONTAINING VACCINATION #1 TYPE CODE	Y	Y	
XPOLTY2	POLIO-CONTAINING VACCINATION #2 TYPE CODE	Y	Y	
XPOLTY3	POLIO-CONTAINING VACCINATION #3 TYPE CODE	Y	Y	
XPOLTY4	POLIO-CONTAINING VACCINATION #4 TYPE CODE	Y	Y	
XPOLTY5	POLIO-CONTAINING VACCINATION #5 TYPE CODE	Y	Y	
XPOLTY6	POLIO-CONTAINING VACCINATION #6 TYPE CODE	Y	Y	
XPOLTY7	POLIO-CONTAINING VACCINATION #7 TYPE CODE	Y	Y	

Table H.1   Alphabetical Listing of Variables that are in Either the 2004 or 2005 Public-Use Data Files[1]

Variable Name	Variable Label[2]	Year of Data Collection 2004	Year of Data Collection 2005	Notes[3]
XPOLTY8	POLIO-CONTAINING VACCINATION #8 TYPE CODE	Y	Y	
XPOLTY9	POLIO-CONTAINING VACCINATION #9 TYPE CODE		Y	Starting in 2005, nine shot variables are included for each vaccine category.
YEAR	YEAR OF INTERVIEW	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 2005 public use file, then the 2005 label is given; otherwise the 2004 label 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

Appendix I

Summary Tables

Table I.1: **Estimated Population Totals and Sample Sizes of Children 19-35 Months of Age by State and IAP Area, National Immunization Survey, 2005**

State/IAP Area	ESTIAP	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
U.S. National		5,935,947	27,627	17,563	63.6%
Alabama		84,775	649	419	64.6%
AL-Jefferson County	21	12,752	300	208	69.3%
AL-Rest of State	20	72,023	349	211	60.5%
Alaska	74	14,213	287	186	64.8%
Arizona		135,429	682	432	63.3%
AZ-Maricopa County	67	88,681	376	222	59.0%
AZ-Rest of State	66	46,748	306	210	68.6%
Arkansas	46	54,122	261	174	66.7%
California		792,287	1,476	816	55.3%
CA-Los Angeles County	69	226,028	392	216	55.1%
CA-San Bernardino County	80	44,047	326	174	53.4%
CA-Alameda County	79	32,190	352	185	52.6%
CA-Rest of State	68	490,021	406	241	59.4%
Colorado		101,095	592	394	66.6%
CO-Denver	81	44,519	303	198	65.3%
CO-Rest of State	60	56,576	289	196	67.8%
Connecticut	1	63,969	318	212	66.7%
Delaware	13	16,567	284	171	60.2%
District of Columbia	12	10,978	483	296	61.3%
Florida		312,768	886	526	59.4%
FL-Duval County	23	18,056	465	285	61.3%
FL-Rest of State	22	294,712	421	241	57.2%
Georgia		200,249	787	503	63.9%
GA-Fulton/DeKalb Counties	26	36,846	359	228	63.5%
GA-Rest of State	25	163,403	428	275	64.3%

Table I.1 (Continued): **Estimated Population Totals and Sample Sizes of Children 19-35 Months of Age by State and IAP Area, National Immunization Survey, 2005**

State/IAP Area	ESTIAP	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
Hawaii	72	25,403	328	195	59.5%
Idaho	75	30,666	306	227	74.2%
Illinois		262,937	744	434	58.3%
IL-City of Chicago	35	69,818	467	275	58.9%
IL-Rest of State	34	193,118	277	159	57.4%
Indiana	36	124,286	330	212	64.2%
Iowa	56	54,026	300	206	68.7%
Kansas	57	58,983	372	255	68.5%
Kentucky	27	78,532	343	214	62.4%
Louisiana	47	92,141	880	556	63.2%
Maine	4	19,818	269	189	70.3%
Maryland		109,933	700	433	61.9%
MD-City of Baltimore	15	13,641	335	209	62.4%
MD-Rest of State	14	96,291	365	224	61.4%
Massachusetts	2	117,978	349	233	66.8%
Michigan		189,216	731	430	58.8%
MI-City of Detroit	39	20,456	321	159	49.5%
MI-Rest of State	38	168,760	410	271	66.1%
Minnesota	40	100,756	315	213	67.6%
Mississippi	28	57,725	418	267	63.9%
Missouri		110,325	775	522	67.4%
MO-St. Louis County/City	82	24,740	391	263	67.3%
MO-Rest of State	58	85,584	384	259	67.4%
Montana	61	16,271	347	260	74.9%
Nebraska	59	36,670	319	222	69.6%
Nevada		51,155	604	347	57.5%
NV-Clark County	83	37,759	313	179	57.2%
NV-Rest of State	73	13,395	291	168	57.7%
New Hampshire	5	21,107	352	237	67.3%

Table I.1 (Continued): **Estimated Population Totals and Sample Sizes of Children 19-35 Months of Age by State and IAP Area, National Immunization Survey, 2005**

State/IAP Area	ESTIAP	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
New Jersey		172,383	840	505	60.1%
NJ-City of Newark	9	7,052	424	257	60.6%
NJ-Rest of State	8	165,332	416	248	59.6%
New Mexico	49	39,094	331	203	61.3%
New York		365,302	768	433	56.4%
NY-City of New York	11	175,333	408	205	50.2%
NY-Rest of State	10	189,969	360	228	63.3%
North Carolina	29	172,388	331	216	65.3%
North Dakota	62	10,707	387	270	69.8%
Ohio		216,015	1,077	673	62.5%
OH-Cuyahoga County	42	25,115	399	249	62.4%
OH-Franklin County	43	25,048	282	175	62.1%
OH-Rest of State	41	165,853	396	249	62.9%
Oklahoma	50	73,393	422	279	66.1%
Oregon	76	67,489	282	203	72.0%
Pennsylvania		209,425	655	399	60.9%
PA-Philadelphia County	17	31,722	309	177	57.3%
PA-Rest of State	16	177,703	346	222	64.2%
Rhode Island	6	20,113	412	267	64.8%
South Carolina	30	79,713	416	276	66.3%
South Dakota	63	15,290	401	262	65.3%
Tennessee		115,286	1,073	713	66.4%
TN-Davidson County	33	12,956	320	232	72.5%
TN-Shelby County	32	20,889	417	259	62.1%
TN-Rest of State	31	81,441	336	222	66.1%
Texas		549,747	1,947	1199	61.6%
TX-Bexar County	55	36,055	363	218	60.1%
TX-City of Houston	54	67,648	412	252	61.2%
TX-Dallas County	52	63,907	271	168	62.0%
TX-El Paso County	53	20,873	374	253	67.6%
TX-Rest of State	51	361,264	527	308	58.4%
Utah	64	68,963	286	204	71.3%
Vermont	7	10,049	242	173	71.5%
Virginia	18	148,104	424	266	62.7%

Table I.1 (Continued): Estimated Population Totals and Sample Sizes of Children 19-35 Months of Age by State and IAP Area, National Immunization Survey, 2005

State/IAP Area	ESTIAP	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
Washington		117,678	575	397	69.0%
WA-King County	78	33,415	270	190	70.4%
WA-Rest of State	77	84,264	305	207	67.9%
West Virginia	19	28,882	345	223	64.6%
Wisconsin		101,886	628	417	66.4%
WI-Milwaukee County	45	21,460	314	209	66.6%
WI-Rest of State	44	80,426	314	208	66.2%
Wyoming	65	9,662	298	204	68.5%

Table I.2:   Estimated Population Totals and Sample Sizes for Age Group by Maternal Education, National Immunization Survey, 2005

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 Months	<12 Years	941	287,907.9	565	290,867.4
19-23 Months	12 Years	2,078	570,534.9	1,257	626,434.9
19-23 Months	>12, Non Col Grad	1,377	242,297.0	887	218,805.6
19-23 Months	College Grad	3,915	672,288.1	2,551	631,481.1
24-29 Months	<12 Years	1,146	327,659.4	753	354,005.9
24-29 Months	12 Years	2,423	680,053.8	1,515	697,376.1
24-29 Months	>12, Non Col Grad	1,651	289,355.6	1,063	272,304.1
24-29 Months	College Grad	4,571	766,722.6	2,993	703,805.1
30-35 Months	<12 Years	1,045	343,142.5	624	365,269.9
30-35 Months	12 Years	2,311	704,028.4	1,429	787,744.0
30-35 Months	>12, Non Col Grad	1,630	297,259.0	1,008	271,051.5
30-35 Months	College Grad	4,539	754,697.3	2,918	716,801.0
Total		27,627	5,935,947	17,563	5,935,947

Table I.3:   Estimated Population Totals and Sample Sizes for Age Group by Family Income, National Immunization Survey, 2005

Age Group in Months	Family Income	Children with Completed Household Interviews		Children with Adequate Provider Data	
		Unweighted Completes	Weighted Completes	Unweighted Completes	Weighted Completes
19-23 Months	missing	987	236,728.6	511	223,995.4
19-23 Months	0-$7500	332	87,390.4	211	98,060.9
19-23 Months	$ 7,501 - $10,000	314	84,784.0	195	78,681.1
19-23 Months	$10,001 - $17,500	429	105,312.0	285	111,766.8
19-23 Months	$17,501 - $20,000	351	94,548.7	220	105,299.7
19-23 Months	$20,001 - $25,000	438	106,714.9	303	133,389.3
19-23 Months	$25,001 - $30,000	474	102,658.9	296	105,843.7
19-23 Months	$30,001 - $35,000	368	75,139.1	235	80,125.5
19-23 Months	$35,001 - $40,000	443	90,985.5	299	97,400.3
19-23 Months	$40,001 - $50,000	598	129,541.4	379	121,776.4
19-23 Months	$50,001 - $60,000	628	111,946.3	409	98,602.9
19-23 Months	$60,001 - $75,000	836	145,998.8	522	133,846.5
19-23 Months	$75,001 +	2,113	401,279.4	1,395	378,800.5
24-29 Months	missing	1,147	267,555.4	595	247,576.3
24-29 Months	0-$7500	372	88,424.3	230	82,005.0
24-29 Months	$ 7,501 - $10,000	368	110,748.8	245	119,710.2
24-29 Months	$10,001 - $17,500	524	139,183.5	362	135,503.2
24-29 Months	$17,501 - $20,000	440	114,114.1	290	120,094.4
24-29 Months	$20,001 - $25,000	467	112,583.4	295	103,666.7
24-29 Months	$25,001 - $30,000	509	120,973.5	331	118,813.0
24-29 Months	$30,001 - $35,000	432	84,027.3	277	80,437.8
24-29 Months	$35,001 - $40,000	485	92,896.7	331	97,936.8
24-29 Months	$40,001 - $50,000	842	154,811.9	571	156,027.3
24-29 Months	$50,001 - $60,000	647	109,745.7	429	114,271.8
24-29 Months	$60,001 - $75,000	953	178,638.8	633	178,878.4
24-29 Months	$75,001 +	2,605	490,088.0	1,735	472,570.3
30-35 Months	missing	1,063	264,625.5	479	219,073.5
30-35 Months	0-$7500	329	79,685.8	206	90,153.2
30-35 Months	$ 7,501 - $10,000	375	115,094.7	216	109,339.8
30-35 Months	$10,001 - $17,500	519	161,309.9	332	172,997.6
30-35 Months	$17,501 - $20,000	377	106,205.0	229	111,542.5
30-35 Months	$20,001 - $25,000	471	119,037.0	295	134,712.9
30-35 Months	$25,001 - $30,000	511	125,070.6	344	130,221.2

Table I.3 (continued):   Estimated Population Totals and Sample Sizes for Age Group by Family Income, National Immunization Survey, 2005

Age Group in Months	Family Income	Children with Completed Household Interviews		Children with Adequate Provider Data	
		Unweighted Completes	Weighted Completes	Unweighted Completes	Weighted Completes
30-35 Months	$30,001 - $35,000	392	89,409.3	252	99,476.1
30-35 Months	$35,001 - $40,000	479	103,710.2	307	105,180.2
30-35 Months	$40,001 - $50,000	790	164,445.0	517	177,743.5
30-35 Months	$50,001 - $60,000	711	134,486.6	454	145,460.7
30-35 Months	$60,001 - $75,000	974	183,125.7	658	192,016.6
30-35 Months	$75,001 +	2,534	452,922.0	1,690	452,948.7
Total		27,627	5,935,947	17,563	5,935,947

Table I.4: Estimated Population Totals and Sample Sizes for Age Group by Race/Ethnicity, National Immunization Survey, 2005

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	1786	492,863.8	1097	483,239.8
19-23 Months	Non-Hispanic White Only	4714	909,775.0	3082	881,361.9
19-23 Months	Non-Hispanic Black Only	1042	220,240.0	582	243,230.9
19-23 Months	Non-Hispanic Other & Multi	769	150,149.1	499	159,756.4
24-29 Months	Hispanic	2051	554,817.8	1342	546,026.7
24-29 Months	Non-Hispanic White Only	5587	1,083,025.2	3723	1,068,223.8
24-29 Months	Non-Hispanic Black Only	1300	268,466.7	717	250,279.5
24-29 Months	Non-Hispanic Other & Multi	853	157,481.6	542	162,961.3
30-35 Months	Hispanic	1937	562,578.1	1173	562,056.7
30-35 Months	Non-Hispanic White Only	5496	1,082,589.5	3601	1,116,499.3
30-35 Months	Non-Hispanic Black Only	1230	273,477.8	667	269,001.6
30-35 Months	Non-Hispanic Other & Multi	862	180,481.8	538	193,308.8
Total		27,627	5,935,947	17,563	5,935,947

Table I.5:   Estimated Population Totals and Sample Sizes for Age Group by Gender, National Immunization Survey, 2005

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	4,282	916,634.4	2,715	912,971.5
19-23 Months	Female	4,029	856,393.6	2,545	854,617.5
24-29 Months	Male	4,992	1,036,562.6	3,254	1,023,251.4
24-29 Months	Female	4,799	1,027,228.7	3,070	1,004,239.9
30-35 Months	Male	4,879	1,077,846.7	3,072	1,101,643.3
30-35 Months	Female	4,646	1,021,280.5	2,907	1,039,223.0
Total		27,627	5,935,947	17,563	5,935,947

Table I.6: **Sample Sizes for Shot Card Use by Presence of Adequate Provider Data, National Immunization Survey, 2005**

Shot Card Use	Presence of Adequate Provider Data	Unweighted RDD Completes	Percent	Weighted RDD Completes	Percent
Shot card	Adequate provider data	7,897	28.6	1,737,704	29.3
Shot card	Non-adequate provider data	3,345	12.1	779,033	13.1
Not shot card	Adequate provider data	9,666	35.0	1,921,432	32.4
Not shot card	Non-adequate provider data	6,719	24.3	1,497,777	25.2
Total		27,627	100.0	5,935,947	100.0

Table I.7. Estimated Vaccination Coverage with Individual Vaccines and Selected Vaccination Series Among Children 19-35 Months of Age by State and Immunization Action Plan Area US, National Immunization Survey, PROVWT, Q1/2005-Q4/2005*

	3+DTP†	4+DTP‡	3+Polio§	1+MMR‖	3+Hib¶	3+HepB**	1+Var††	3+PCV‡‡	4:3:1§§	4:3:1:3‖‖	4:3:1:3:3¶¶	4:3:1:3:3:1***
US National	96.1 (95.5, 96.5)	85.7 (84.8, 86.6)	91.7 (90.9, 92.4)	91.5 (90.8, 92.2)	93.9 (93.2, 94.4)	92.9 (92.3, 93.5)	87.9 (87.0, 88.7)	82.8 (81.8, 83.7)	83.1 (82.1, 84.1)	82.4 (81.4, 83.4)	80.8 (79.7, 81.8)	76.1 (75.0, 77.2)
Alabama	98.1 (95.2, 99.3)	89.6 (84.8, 93.1)	91.6 (86.3, 95.0)	94.1 (90.3, 96.5)	96.9 (94.0, 98.4)	94.4 (90.7, 96.7)	93.5 (89.1, 96.2)	86.6 (81.0, 90.7)	86.0 (80.3, 90.2)	85.1 (79.4, 89.5)	83.3 (77.4, 87.9)	81.7 (75.5, 86.6)
AL-Jefferson County	98.6 (95.8, 99.5)	91.4 (85.5, 95.1)	93.5 (88.4, 96.4)	92.5 (86.3, 96.0)	96.1 (90.7, 98.4)	94.0 (89.6, 96.6)	95.0 (90.2, 97.5)	93.2 (88.2, 96.2)	89.3 (83.2, 93.4)	88.3 (81.9, 92.6)	85.5 (78.6, 90.5)	84.5 (77.5, 89.5)
AL-Rest of State	98.0 (94.1, 99.3)	89.3 (83.6, 93.2)	91.3 (84.9, 95.2)	94.4 (89.8, 97.0)	97.0 (93.6, 98.6)	94.4 (89.9, 97.0)	93.3 (88.0, 96.3)	85.4 (78.8, 90.2)	85.4 (78.7, 90.3)	84.6 (77.8, 89.5)	82.9 (76.0, 88.2)	81.2 (73.9, 86.8)
Alaska	92.5 (87.6, 95.6)	84.6 (78.2, 89.4)	89.1 (83.1, 93.1)	90.8 (85.1, 94.4)	88.9 (83.1, 92.8)	88.1 (82.1, 92.3)	81.2 (74.5, 86.5)	79.7 (72.9, 85.2)	80.3 (73.3, 85.9)	77.7 (70.4, 83.6)	75.4 (67.9, 81.5)	68.1 (60.3, 75.0)
Arizona	94.7 (91.7, 96.7)	83.1 (78.1, 87.2)	89.2 (85.2, 92.3)	88.8 (84.6, 92.0)	92.4 (88.8, 94.9)	91.0 (87.2, 93.8)	83.6 (78.6, 87.6)	81.6 (76.5, 85.8)	81.5 (76.4, 85.7)	81.0 (75.9, 85.3)	79.2 (74.0, 83.7)	74.9 (69.5, 79.6)
AZ-Maricopa County	94.7 (90.3, 97.1)	83.9 (77.0, 89.1)	89.5 (83.9, 93.3)	87.6 (81.6, 91.8)	92.5 (87.4, 95.6)	92.0 (87.0, 95.2)	82.9 (76.0, 88.2)	79.7 (72.7, 85.3)	81.8 (74.8, 87.2)	81.1 (74.0, 86.6)	79.8 (72.6, 85.5)	76.4 (69.1, 82.4)
AZ-Rest of State	94.8 (90.3, 97.3)	81.6 (74.3, 87.2)	88.7 (82.3, 93.0)	91.1 (85.6, 94.6)	92.2 (86.6, 95.5)	89.1 (82.3, 93.6)	84.8 (78.0, 89.8)	85.2 (77.9, 90.4)	80.8 (73.4, 86.5)	80.8 (73.4, 86.5)	78.2 (70.4, 84.4)	72.0 (64.0, 78.9)
Arkansas	89.1 (81.0, 94.0)	73.8 (64.2, 81.5)	84.6 (76.0, 90.5)	89.0 (80.8, 93.9)	87.9 (80.0, 93.0)	87.9 (80.0, 92.9)	85.9 (77.9, 91.3)	76.3 (67.7, 83.2)	70.3 (60.6, 78.4)	69.3 (59.6, 77.5)	67.8 (58.2, 76.2)	64.2 (54.6, 72.8)
California	96.3 (94.3, 97.6)	83.5 (79.1, 87.2)	90.5 (87.2, 93.0)	91.6 (88.6, 93.8)	93.7 (91.4, 95.4)	92.6 (90.0, 94.6)	89.5 (85.9, 92.3)	85.6 (81.6, 88.9)	80.5 (75.9, 84.5)	79.9 (75.2, 83.9)	77.9 (73.1, 82.0)	74.0 (68.9, 78.5)
CA-Alameda County	93.3 (85.6, 97.0)	83.3 (74.7, 89.4)	87.9 (78.9, 93.4)	83.2 (74.2, 89.5)	91.2 (83.4, 95.6)	85.4 (76.8, 91.2)	85.8 (77.2, 91.5)	88.1 (80.1, 93.1)	77.8 (68.6, 84.9)	76.7 (67.6, 83.9)	74.0 (64.7, 81.6)	71.1 (61.6, 79.0)
CA-Los Angeles County	96.8 (92.8, 98.6)	84.7 (78.7, 89.2)	91.7 (86.7, 94.9)	93.8 (89.8, 96.3)	92.1 (87.2, 95.2)	91.9 (87.3, 94.9)	92.3 (87.7, 95.2)	83.5 (77.6, 88.1)	82.9 (76.8, 87.7)	81.7 (75.5, 86.7)	79.0 (72.6, 84.2)	77.9 (71.5, 83.3)
CA-San Bernadino County	87.6 (81.0, 92.1)	73.2 (65.6, 79.7)	84.5 (77.5, 89.6)	85.2 (78.4, 90.2)	81.4 (73.3, 87.4)	82.9 (75.8, 88.2)	80.5 (73.1, 86.3)	72.2 (63.8, 79.2)	72.1 (64.4, 78.7)	69.3 (60.9, 76.5)	67.7 (59.4, 75.1)	62.8 (54.4, 70.4)
CA-Rest of State	97.0 (93.7, 98.6)	83.9 (77.0, 89.1)	90.6 (85.5, 94.1)	91.7 (87.0, 94.8)	95.7 (92.3, 97.7)	94.2 (90.2, 96.7)	89.3 (83.6, 93.2)	87.6 (81.3, 92.0)	80.3 (73.1, 86.0)	80.2 (73.0, 85.8)	78.5 (71.2, 84.4)	73.4 (65.7, 79.9)
Colorado	97.6 (95.2, 98.8)	87.7 (83.2, 91.2)	94.2 (90.5, 96.5)	93.2 (89.8, 95.5)	96.2 (93.6, 97.8)	95.4 (92.7, 97.2)	87.2 (82.2, 90.9)	81.8 (76.8, 85.9)	85.1 (80.3, 88.9)	84.4 (79.6, 88.2)	83.4 (78.5, 87.4)	78.6 (73.1, 83.2)
CO-Denver	96.9 (91.3, 99.6)	89.8 (83.0, 94.1)	91.7 (84.3, 95.8)	91.6 (84.9, 95.5)	95.7 (90.6, 98.1)	95.2 (89.6, 97.8)	87.2 (79.6, 92.3)	84.6 (77.5, 89.8)	85.6 (78.0, 91.0)	84.9 (77.3, 90.3)	83.8 (76.0, 89.3)	78.8 (70.4, 85.3)
CO-Rest of State	98.2 (95.9, 99.2)	86.1 (79.5, 90.8)	96.2 (92.1, 98.2)	94.4 (90.8, 96.7)	96.6 (93.4, 98.3)	95.6 (92.3, 97.6)	87.1 (79.8, 92.0)	79.6 (72.3, 85.3)	84.7 (78.0, 89.6)	83.9 (77.2, 89.0)	83.2 (76.4, 88.3)	78.4 (70.7, 84.5)
Connecticut	97.5 (93.2, 99.1)	89.6 (83.6, 93.6)	94.6 (90.2, 97.0)	95.2 (91.0, 97.5)	97.1 (92.8, 98.8)	91.2 (85.1, 94.9)	91.0 (85.6, 94.6)	91.0 (84.9, 94.7)	89.4 (83.4, 93.4)	89.4 (83.4, 93.4)	86.1 (79.7, 90.6)	81.5 (74.6, 86.8)
Delaware	96.8 (92.5, 98.7)	88.3 (80.6, 93.2)	92.1 (86.0, 95.7)	95.2 (89.9, 97.7)	93.2 (87.7, 96.3)	91.2 (85.5, 94.8)	89.5 (82.7, 93.9)	83.2 (76.2, 88.4)	86.7 (79.0, 91.9)	86.7 (79.0, 91.9)	84.2 (76.5, 89.8)	81.6 (73.3, 87.8)
District of Columbia	94.4 (89.3, 97.2)	85.3 (79.2, 89.8)	91.0 (85.7, 94.5)	91.6 (86.7, 94.8)	91.2 (84.5, 95.2)	86.0 (80.2, 90.3)	90.6 (85.6, 94.1)	76.8 (69.9, 82.5)	81.4 (75.1, 86.4)	78.0 (71.0, 83.7)	73.5 (66.5, 79.5)	72.1 (65.1, 78.2)
Florida	94.7 (89.6, 97.4)	82.6 (76.4, 87.5)	87.9 (81.8, 92.1)	92.0 (87.0, 95.2)	93.7 (88.6, 96.6)	91.3 (85.8, 94.8)	91.1 (86.0, 94.5)	65.6 (58.5, 72.1)	81.5 (75.2, 86.5)	81.2 (74.9, 86.2)	79.3 (72.8, 84.6)	78.2 (71.6, 83.5)
FL-Duval County	97.1 (93.6, 98.7)	82.9 (76.4, 88.0)	90.7 (84.8, 94.5)	90.1 (84.3, 93.7)	95.0 (91.1, 97.3)	94.7 (90.8, 97.0)	87.8 (81.9, 92.0)	72.3 (64.8, 78.7)	79.4 (72.4, 85.0)	78.4 (71.4, 84.1)	78.0 (71.1, 83.7)	76.5 (69.5, 82.3)
FL-Rest of State	94.5 (89.1, 97.4)	82.6 (75.9, 87.7)	87.7 (81.3, 92.1)	92.2 (86.7, 95.5)	93.6 (88.1, 96.7)	91.1 (85.2, 94.8)	91.3 (85.8, 94.8)	65.2 (57.6, 72.0)	81.7 (75.0, 86.9)	81.4 (74.7, 86.6)	79.4 (72.5, 85.0)	78.3 (71.3, 83.9)
Georgia	95.9 (92.3, 97.8)	88.1 (83.6, 91.4)	93.0 (89.0, 95.6)	92.9 (88.4, 95.7)	94.5 (90.7, 96.8)	93.4 (89.4, 96.0)	91.9 (87.9, 94.6)	80.1 (74.8, 84.6)	86.2 (81.4, 89.8)	85.9 (81.1, 89.6)	84.7 (79.9, 88.6)	82.4 (77.4, 86.5)
GA-Fulton/Dekalb Counties	90.6 (81.9, 95.3)	79.3 (69.6, 86.5)	85.2 (76.7, 91.0)	91.1 (82.7, 95.6)	89.8 (81.3, 94.7)	90.4 (83.1, 94.8)	88.9 (80.5, 93.9)	75.2 (65.3, 83.0)	76.2 (66.4, 83.8)	76.0 (66.2, 83.6)	74.5 (64.9, 82.3)	71.8 (61.9, 79.9)
GA-Rest of State	97.1 (92.3, 98.9)	90.1 (84.8, 93.6)	94.7 (89.8, 97.3)	93.3 (87.7, 96.4)	95.5 (90.8, 97.9)	94.1 (89.1, 96.9)	92.6 (87.9, 95.5)	81.2 (75.0, 86.2)	88.4 (82.8, 92.3)	88.1 (82.5, 92.1)	87.0 (81.3, 91.2)	84.8 (79.0, 89.2)
Hawaii	93.0 (87.8, 96.1)	84.5 (77.6, 89.6)	89.2 (83.2, 93.2)	89.7 (83.9, 93.6)	91.4 (85.9, 94.9)	90.4 (84.5, 94.2)	89.4 (83.6, 93.3)	84.5 (77.7, 89.5)	81.4 (74.2, 86.9)	81.1 (73.8, 86.7)	80.1 (72.9, 85.8)	77.5 (70.2, 83.5)
Idaho	93.4 (88.9, 96.2)	83.1 (77.3, 87.6)	90.5 (85.5, 93.9)	86.5 (80.7, 90.8)	92.7 (88.2, 95.6)	91.9 (87.2, 94.9)	77.4 (71.1, 82.7)	82.6 (76.7, 87.3)	79.3 (73.1, 84.4)	79.3 (73.1, 84.4)	78.1 (71.8, 83.4)	68.4 (61.6, 74.5)
Illinois	97.0 (94.0, 98.5)	88.7 (83.2, 92.5)	91.6 (85.9, 95.1)	93.0 (89.4, 95.5)	95.4 (92.0, 97.3)	95.0 (91.7, 97.0)	86.3 (80.6, 90.5)	84.1 (77.2, 89.2)	84.9 (78.4, 89.7)	84.8 (78.3, 89.6)	83.5 (77.0, 88.4)	76.7 (69.5, 82.6)
IL-City of Chicago	96.5 (93.4, 98.2)	84.0 (77.5, 88.9)	88.4 (82.2, 92.6)	87.8 (81.6, 92.1)	92.9 (88.4, 95.7)	90.6 (85.3, 94.2)	82.8 (75.3, 88.3)	86.7 (81.1, 90.9)	79.9 (73.3, 85.3)	79.4 (72.8, 84.8)	75.4 (68.4, 81.2)	69.7 (62.3, 76.2)
IL-Rest of State	97.1 (92.7, 98.9)	90.3 (82.6, 94.9)	92.8 (84.4, 96.8)	94.9 (89.9, 97.5)	96.2 (91.3, 98.4)	96.5 (91.7, 98.6)	87.6 (79.9, 92.6)	83.1 (73.7, 89.7)	86.7 (77.5, 92.5)	86.7 (77.5, 92.5)	86.4 (77.2, 92.3)	79.2 (69.4, 86.5)
Indiana	96.4 (90.9, 98.6)	82.5 (73.7, 88.8)	89.8 (82.1, 94.4)	91.2 (83.7, 95.5)	94.0 (87.3, 97.2)	95.2 (88.6, 98.1)	82.8 (74.5, 88.8)	84.5 (76.9, 89.9)	78.9 (69.8, 85.8)	78.5 (69.4, 85.5)	78.1 (69.0, 85.1)	69.9 (60.6, 77.7)
Iowa	96.9 (93.0, 98.6)	87.2 (80.7, 91.7)	92.3 (86.7, 95.6)	91.7 (86.3, 95.0)	93.4 (88.1, 96.5)	94.5 (89.1, 97.3)	83.4 (75.9, 89.0)	86.8 (80.7, 91.2)	85.7 (79.1, 90.4)	84.9 (78.3, 89.7)	84.9 (78.3, 89.7)	75.9 (68.1, 82.3)
Kansas	94.5 (90.4, 96.9)	88.5 (83.3, 92.2)	91.4 (86.7, 94.6)	92.7 (88.5, 95.5)	93.0 (88.8, 95.7)	90.5 (85.2, 93.8)	81.5 (74.7, 86.8)	76.6 (70.1, 82.1)	87.5 (82.1, 91.4)	86.2 (80.8, 90.3)	83.8 (78.2, 88.3)	72.0 (64.8, 78.2)
Kentucky	97.2 (93.5, 98.8)	85.7 (78.3, 90.9)	94.9 (90.4, 97.4)	90.2 (83.2, 94.5)	94.8 (89.4, 97.5)	93.0 (88.0, 96.0)	83.3 (75.5, 89.0)	81.8 (74.0, 87.6)	84.8 (77.4, 90.1)	82.9 (75.0, 88.6)	79.7 (71.8, 85.9)	71.1 (62.3, 78.5)
Louisiana	96.2 (93.6, 97.8)	80.5 (76.0, 84.3)	91.7 (88.5, 94.1)	89.2 (85.8, 91.9)	94.3 (91.4, 96.3)	93.0 (90.0, 95.1)	89.0 (85.7, 91.7)	84.8 (80.9, 88.0)	78.2 (73.5, 82.2)	77.1 (72.4, 81.2)	76.0 (71.2, 80.1)	74.1 (69.4, 78.4)
Maine	97.8 (93.4, 99.3)	91.4 (85.6, 94.9)	97.1 (92.9, 98.8)	92.2 (86.8, 95.4)	96.4 (92.0, 98.4)	90.0 (83.8, 94.0)	84.2 (77.7, 89.1)	83.7 (76.6, 88.9)	88.8 (82.7, 92.9)	88.0 (81.9, 92.2)	83.3 (76.5, 88.5)	75.8 (68.4, 81.9)
Maryland	97.1 (93.1, 98.8)	89.8 (84.4, 93.5)	92.1 (86.0, 95.6)	93.6 (89.2, 96.3)	95.8 (92.0, 97.9)	92.6 (87.1, 95.8)	90.7 (84.6, 94.5)	83.3 (76.9, 88.2)	84.3 (78.0, 89.0)	84.2 (78.0, 88.9)	82.3 (75.8, 87.3)	78.6 (71.9, 84.1)
MD-City of Baltimore	96.7 (91.5, 98.8)	83.5 (75.9, 89.1)	92.8 (87.2, 96.0)	94.5 (88.6, 97.4)	91.0 (84.3, 95.0)	95.4 (90.9, 97.8)	92.7 (86.7, 96.2)	87.3 (81.0, 91.8)	80.7 (72.9, 86.7)	80.1 (72.3, 86.1)	79.0 (71.2, 85.2)	76.5 (68.8, 82.9)
MD-Rest of State	97.2 (92.3, 99.0)	90.7 (84.4, 94.6)	92.0 (84.9, 95.9)	93.5 (88.4, 96.5)	96.5 (91.8, 98.6)	92.2 (85.8, 95.8)	90.4 (83.4, 94.4)	82.8 (75.4, 88.3)	84.8 (77.6, 90.0)	84.8 (77.6, 90.0)	82.7 (75.3, 88.2)	78.9 (71.2, 85.0)
Massachusetts	99.7 (97.9, 100.0)	97.0 (93.6, 98.6)	98.4 (95.7, 99.4)	97.0 (93.8, 98.6)	99.4 (97.7, 99.9)	97.9 (94.7, 99.2)	95.4 (92.0, 97.4)	94.9 (90.8, 97.3)	95.6 (92.1, 97.6)	95.4 (91.8, 97.4)	93.5 (89.4, 96.1)	90.7 (86.2, 93.9)
Michigan	97.3 (94.6, 98.6)	87.0 (81.9, 90.8)	93.3 (89.0, 96.0)	93.7 (90.3, 95.9)	95.3 (92.3, 97.2)	95.5 (92.6, 97.3)	93.4 (90.1, 95.6)	85.0 (80.0, 88.9)	84.5 (79.2, 88.7)	84.2 (78.8, 88.3)	82.7 (77.4, 87.1)	80.6 (75.1, 85.1)
MI-City of Detroit	91.7 (83.0, 96.1)	79.1 (69.9, 86.1)	89.3 (80.9, 94.3)	90.7 (84.1, 94.7)	90.7 (83.0, 95.1)	93.6 (89.0, 96.3)	90.4 (84.3, 94.3)	76.9 (67.7, 84.1)	75.8 (66.5, 83.3)	73.8 (64.2, 81.5)	73.1 (63.5, 80.9)	70.5 (61.0, 78.6)
MI-Rest of State	97.9 (94.7, 99.2)	88.0 (82.1, 92.1)	93.8 (88.8, 96.7)	94.0 (90.2, 96.4)	95.9 (92.5, 97.8)	95.7 (92.4, 97.6)	93.8 (90.0, 96.1)	86.0 (80.4, 90.1)	85.6 (79.6, 90.1)	85.4 (79.4, 89.9)	83.9 (77.9, 88.6)	81.8 (75.6, 86.7)
Minnesota	96.8 (92.1, 98.7)	89.3 (83.3, 93.3)	96.3 (91.7, 98.4)	91.4 (85.2, 95.2)	93.2 (87.9, 96.3)	94.7 (89.8, 97.3)	86.7 (80.7, 91.0)	86.6 (80.4, 91.1)	88.4 (82.1, 92.6)	85.5 (78.8, 90.3)	85.2 (78.6, 90.0)	78.1 (71.0, 83.8)
Mississippi	96.5 (92.7, 98.3)	86.2 (80.4, 90.4)	94.8 (90.5, 97.2)	91.0 (85.7, 94.4)	89.4 (84.0, 93.1)	92.9 (87.7, 95.9)	88.4 (83.1, 92.1)	73.2 (66.3, 79.1)	85.4 (78.5, 90.4)	83.6 (77.5, 88.6)	83.6 (77.5, 88.6)	79.1 (72.7, 84.3)
Missouri	97.7 (95.9, 98.7)	85.3 (80.7, 88.9)	94.4 (91.6, 96.3)	90.3 (86.4, 93.2)	94.5 (90.7, 96.7)	94.1 (91.1, 96.2)	87.9 (83.6, 91.1)	76.6 (70.9, 81.5)	82.2 (77.4, 86.1)	80.9 (75.8, 85.1)	79.3 (74.2, 83.6)	73.1 (67.7, 78.0)
MO-St. Louis County/City	97.1 (93.0, 98.8)	86.5 (80.0, 91.0)	92.6 (86.8, 96.0)	93.0 (88.2, 96.0)	96.1 (91.8, 98.2)	92.7 (87.3, 95.9)	89.8 (84.3, 93.5)	89.7 (83.4, 93.8)	83.7 (77.1, 88.7)	83.7 (77.1, 88.7)	79.2 (72.1, 84.8)	73.6 (66.3, 79.8)
MO-Rest of State	97.9 (95.6, 99.0)	85.0 (79.2, 89.3)	94.9 (91.5, 97.0)	89.5 (84.6, 93.0)	94.0 (89.1, 96.8)	94.6 (90.8, 96.8)	87.3 (81.9, 91.2)	72.8 (65.7, 78.9)	81.7 (75.7, 86.4)	80.1 (73.7, 85.2)	79.4 (73.0, 84.6)	73.0 (66.2, 78.9)
Montana	97.0 (93.4, 98.6)	85.6 (79.5, 90.1)	95.3 (91.7, 97.4)	93.6 (88.6, 96.5)	91.5 (86.0, 95.0)	91.0 (85.3, 94.6)	75.5 (68.4, 81.4)	81.7 (74.8, 87.0)	84.1 (77.9, 88.7)	83.1 (76.9, 87.9)	79.6 (72.8, 85.1)	65.4 (58.3, 71.9)
Nebraska	98.9 (97.2, 99.5)	91.7 (86.9, 94.9)	95.7 (91.7, 97.8)	94.8 (90.9, 97.0)	96.7 (93.0, 98.5)	95.0 (90.9, 97.3)	89.9 (85.1, 93.4)	81.7 (75.1, 86.8)	91.0 (86.0, 94.3)	89.8 (84.4, 93.5)	89.1 (83.6, 92.8)	83.9 (78.0, 88.5)
Nevada	92.0 (87.6, 94.9)	73.5 (67.3, 79.0)	86.3 (81.3, 90.1)	85.7 (80.5, 89.7)	89.4 (84.7, 92.7)	83.2 (78.0, 87.4)	84.4 (79.4, 88.4)	69.7 (63.5, 75.3)	71.2 (64.9, 76.8)	71.1 (64.8, 76.6)	66.7 (60.4, 72.5)	63.2 (56.9, 69.1)
NV-Clark County	91.3 (85.6, 94.9)	70.8 (62.8, 77.7)	84.9 (78.5, 89.7)	84.4 (77.6, 89.4)	88.2 (82.1, 92.4)	80.5 (73.8, 85.9)	82.4 (75.8, 87.5)	69.6 (61.7, 76.6)	68.5 (60.5, 75.5)	68.5 (60.5, 75.5)	63.1 (55.1, 70.5)	58.8 (50.7, 66.4)
NV-Rest of State	93.8 (86.3, 97.4)	81.1 (72.9, 87.3)	90.1 (82.7, 94.6)	89.4 (81.9, 94.0)	92.7 (85.4, 96.5)	90.7 (83.2, 95.1)	90.2 (83.0, 94.6)	70.0 (61.5, 77.3)	78.9 (70.6, 85.3)	78.4 (70.1, 84.9)	76.9 (68.5, 83.5)	75.8 (67.5, 82.5)

Table I.7. Estimated Vaccination Coverage with Individual Vaccines and Selected Vaccination Series Among Children 19-35 Months of Age by State and Immunization Action Plan Area US, National Immunization Survey, PROVWT, Q1/2005-Q4/2005*

	3+DTP†	4+DTP‡	3+Polio§	1+MMR‖	3+Hib¶	3+HepB**	1+Var††	3+PCV‡‡	4:3:1§§	4:3:1:3‖‖	4:3:1:3:3¶¶	4:3:1:3:3:1***
New Hampshire	97.7 (95.2, 99.0)	87.8 (82.2, 91.8)	95.1 (91.1, 97.3)	88.3 (82.5, 92.4)	96.3 (92.4, 98.3)	93.3 (88.0, 96.4)	82.9 (76.7, 87.7)	86.9 (81.3, 91.0)	85.0 (79.1, 89.4)	85.0 (79.1, 89.4)	82.8 (76.4, 87.7)	77.1 (70.5, 82.6)
New Jersey	95.0 (90.6, 97.3)	84.4 (78.6, 88.9)	86.4 (80.4, 90.7)	85.3 (79.4, 89.7)	92.1 (86.9, 95.4)	92.3 (87.3, 95.5)	83.8 (77.5, 88.6)	82.0 (75.7, 87.0)	79.3 (72.9, 84.6)	78.5 (72.1, 83.8)	78.2 (71.8, 83.5)	72.4 (65.5, 78.4)
NJ-City of Newark	95.0 (89.6, 97.7)	81.6 (74.8, 86.8)	89.5 (84.0, 93.2)	87.2 (81.0, 91.6)	92.6 (87.1, 95.8)	91.3 (85.4, 94.9)	82.8 (76.3, 87.8)	75.6 (68.5, 81.5)	78.2 (71.3, 83.8)	77.3 (70.4, 83.0)	75.0 (67.9, 81.0)	67.4 (59.9, 74.0)
NJ-Rest of State	95.0 (90.4, 97.4)	84.6 (78.4, 89.2)	86.2 (80.0, 90.7)	85.2 (79.0, 89.8)	92.1 (86.6, 95.4)	92.4 (87.1, 95.6)	83.9 (77.2, 88.8)	82.3 (75.7, 87.5)	79.4 (72.6, 84.8)	78.6 (71.8, 84.1)	78.4 (71.6, 83.9)	72.6 (65.4, 78.8)
New Mexico	93.6 (88.8, 96.5)	82.2 (75.1, 87.6)	91.6 (86.5, 94.9)	91.2 (85.3, 94.9)	89.8 (84.1, 93.6)	90.4 (84.8, 94.0)	86.3 (79.7, 91.1)	79.4 (71.7, 85.3)	81.5 (74.5, 87.0)	79.6 (72.3, 85.4)	78.4 (71.1, 84.4)	74.6 (67.0, 80.9)
New York	95.7 (92.2, 97.7)	89.0 (84.9, 92.1)	92.0 (88.1, 94.7)	92.9 (89.2, 95.3)	93.7 (90.0, 96.1)	93.7 (90.1, 96.1)	87.6 (83.6, 90.7)	85.1 (80.7, 88.6)	85.0 (80.6, 88.6)	83.7 (79.1, 87.4)	81.6 (76.9, 85.5)	74.4 (69.4, 78.9)
NY-City of New York	94.0 (87.0, 97.4)	86.8 (79.6, 91.7)	91.0 (84.0, 95.2)	92.4 (86.0, 96.0)	90.8 (83.6, 95.0)	90.1 (82.9, 94.5)	87.5 (81.0, 91.9)	80.9 (73.4, 86.6)	83.2 (75.9, 88.7)	81.0 (73.3, 86.8)	78.1 (70.3, 84.3)	70.5 (62.6, 77.3)
NY-Rest of State	97.3 (93.7, 98.9)	91.2 (86.1, 94.5)	92.9 (88.1, 95.9)	93.3 (88.5, 96.1)	96.4 (92.7, 98.2)	97.1 (94.2, 98.6)	87.7 (82.1, 91.7)	88.9 (83.8, 92.6)	86.7 (81.0, 90.8)	86.2 (80.6, 90.4)	84.8 (79.1, 89.2)	78.1 (71.6, 83.4)
North Carolina	98.4 (94.2, 99.6)	91.3 (85.9, 94.7)	94.5 (89.6, 97.2)	94.4 (89.3, 97.2)	97.6 (92.9, 99.2)	91.9 (86.5, 95.3)	91.3 (86.3, 94.6)	88.3 (82.1, 92.5)	89.1 (83.3, 93.1)	89.1 (83.3, 93.1)	85.2 (79.0, 89.9)	81.6 (75.1, 86.7)
North Dakota	97.3 (93.4, 98.9)	87.8 (82.7, 91.5)	96.6 (92.8, 98.4)	92.3 (87.4, 95.4)	96.2 (92.5, 98.2)	96.3 (92.5, 98.2)	87.2 (82.0, 91.0)	84.9 (79.3, 89.1)	86.6 (81.4, 90.5)	86.3 (81.2, 90.3)	85.0 (79.7, 89.1)	78.7 (72.9, 83.6)
Ohio	97.1 (94.4, 98.5)	87.9 (83.3, 91.4)	93.2 (89.5, 95.6)	93.1 (89.5, 95.5)	94.3 (90.7, 96.6)	95.5 (92.5, 97.3)	86.3 (81.5, 90.0)	81.0 (75.6, 85.4)	85.4 (80.5, 89.2)	85.0 (80.0, 89.0)	84.1 (79.1, 88.1)	77.7 (72.2, 82.3)
OH-Cuyohoga County	98.4 (96.3, 99.4)	91.7 (86.5, 95.0)	95.8 (92.2, 97.8)	93.0 (88.5, 95.8)	97.1 (93.9, 98.6)	95.1 (90.4, 97.6)	87.2 (81.1, 91.6)	82.3 (75.1, 87.8)	88.0 (82.5, 91.9)	86.6 (80.9, 90.8)	84.8 (78.8, 89.4)	77.4 (70.4, 83.1)
OH-Franklin County	97.1 (91.9, 99.0)	88.6 (81.1, 93.3)	91.9 (84.8, 95.9)	94.3 (89.1, 97.1)	94.3 (89.1, 97.1)	94.6 (89.3, 97.3)	89.5 (82.9, 93.8)	91.6 (85.9, 95.1)	87.0 (79.6, 92.0)	86.7 (79.3, 91.7)	85.9 (78.5, 91.0)	80.5 (72.4, 86.7)
OH-Rest of State	96.8 (93.2, 98.6)	87.3 (81.2, 91.6)	93.0 (88.1, 96.0)	92.8 (88.0, 95.8)	93.9 (89.0, 96.7)	95.7 (91.7, 97.8)	85.7 (79.5, 90.2)	79.2 (72.2, 84.8)	84.8 (78.3, 89.5)	84.5 (78.0, 89.3)	83.8 (77.2, 88.7)	77.3 (70.3, 83.1)
Oklahoma	93.0 (88.3, 96.0)	79.7 (73.4, 84.8)	90.9 (85.9, 94.2)	89.8 (84.9, 93.2)	89.3 (83.9, 93.0)	88.7 (83.4, 92.5)	85.8 (80.3, 89.9)	54.4 (47.5, 61.1)	77.3 (70.9, 82.6)	76.9 (70.5, 82.3)	75.7 (69.2, 81.2)	72.3 (65.7, 78.1)
Oregon	91.8 (85.3, 95.4)	78.7 (71.5, 84.5)	87.3 (80.9, 91.7)	82.7 (76.4, 87.7)	87.3 (80.8, 91.8)	84.3 (77.9, 89.2)	76.2 (69.1, 82.0)	78.0 (71.0, 83.7)	76.1 (68.8, 82.1)	75.3 (68.0, 81.3)	72.9 (65.2, 79.3)	65.3 (57.5, 72.3)
Pennsylvania	95.8 (90.0, 98.3)	87.8 (82.1, 91.9)	90.8 (85.1, 94.5)	93.6 (88.1, 96.6)	93.7 (88.3, 96.8)	95.7 (90.3, 98.2)	89.2 (83.2, 93.2)	88.9 (82.9, 92.9)	84.5 (78.6, 89.0)	83.4 (77.5, 88.0)	83.2 (77.4, 87.8)	77.3 (70.9, 82.6)
PA-Philadelphia County	96.7 (93.2, 98.4)	85.0 (78.6, 89.8)	96.4 (92.8, 98.2)	95.7 (91.8, 97.8)	91.8 (86.0, 95.3)	94.5 (90.4, 96.9)	93.6 (89.0, 96.3)	92.8 (87.3, 96.0)	85.0 (78.6, 89.8)	79.9 (72.6, 85.6)	78.7 (71.5, 84.5)	77.0 (69.7, 83.0)
PA-Rest of State	95.6 (88.4, 98.4)	88.3 (81.4, 92.9)	89.8 (83.1, 94.1)	93.2 (86.7, 96.7)	94.1 (87.3, 97.4)	95.9 (89.0, 98.6)	88.4 (81.4, 93.0)	88.2 (81.1, 92.8)	84.4 (77.4, 89.5)	84.1 (77.0, 89.2)	84.1 (77.0, 89.2)	77.3 (69.9, 83.4)
Rhode Island	97.8 (93.8, 99.3)	87.9 (82.8, 91.7)	95.6 (91.7, 97.7)	95.2 (92.0, 97.1)	94.2 (90.0, 96.7)	96.3 (92.3, 98.3)	96.2 (92.5, 98.2)	93.6 (89.3, 96.3)	85.7 (80.4, 89.7)	84.3 (78.9, 88.5)	83.1 (77.6, 87.5)	80.1 (74.2, 84.9)
South Carolina	95.2 (88.2, 98.1)	82.6 (75.5, 88.0)	89.3 (82.3, 93.8)	87.3 (80.4, 92.0)	90.2 (83.5, 94.4)	94.1 (87.5, 97.3)	87.4 (80.6, 92.1)	86.1 (79.2, 91.0)	79.2 (71.9, 85.0)	78.5 (71.1, 84.4)	78.5 (71.1, 84.4)	75.6 (68.2, 81.7)
South Dakota	96.2 (91.9, 98.3)	89.7 (84.7, 93.2)	94.1 (89.7, 96.6)	94.4 (90.5, 96.8)	94.1 (89.6, 96.7)	95.3 (91.6, 97.4)	85.7 (80.0, 90.0)	65.8 (58.8, 72.1)	88.4 (83.2, 92.2)	88.1 (82.9, 91.9)	86.9 (81.4, 90.9)	79.5 (73.2, 84.7)
Tennessee	97.0 (95.1, 98.2)	85.7 (81.4, 89.2)	94.6 (91.6, 96.5)	92.0 (88.7, 94.5)	93.5 (90.2, 95.8)	94.7 (91.6, 96.7)	89.8 (85.7, 92.8)	90.0 (86.5, 92.6)	84.4 (79.9, 88.0)	83.8 (79.3, 87.5)	82.9 (78.2, 86.7)	80.0 (75.1, 84.2)
TN-Davidson County	95.0 (88.5, 97.9)	87.3 (79.9, 92.2)	94.3 (87.8, 97.4)	92.5 (86.3, 96.0)	95.0 (88.5, 97.9)	94.7 (88.2, 97.7)	88.8 (81.6, 93.4)	86.8 (78.7, 92.2)	86.6 (79.2, 91.6)	86.6 (79.2, 91.6)	86.6 (79.2, 91.6)	81.3 (73.4, 87.3)
TN-Shelby County	93.1 (87.3, 96.4)	78.0 (69.3, 84.8)	90.1 (83.8, 94.0)	86.6 (79.3, 91.6)	89.6 (83.3, 93.7)	90.3 (84.2, 94.2)	86.2 (78.7, 91.4)	84.5 (77.7, 89.6)	76.4 (68.0, 83.1)	76.2 (67.8, 83.0)	75.8 (67.4, 82.6)	74.1 (65.7, 81.0)
TN-Rest of State	98.4 (95.4, 99.4)	87.5 (81.6, 91.7)	95.8 (91.5, 98.0)	93.4 (88.6, 96.2)	94.2 (89.4, 96.9)	95.8 (91.2, 98.0)	90.8 (85.0, 94.5)	91.9 (87.1, 95.0)	86.1 (80.0, 90.5)	85.3 (79.1, 89.9)	84.1 (77.8, 88.9)	81.4 (74.6, 86.6)
Texas	95.3 (93.3, 96.8)	83.7 (80.0, 86.8)	92.7 (90.2, 94.6)	89.1 (85.6, 91.8)	92.8 (90.0, 94.9)	91.5 (88.6, 93.8)	88.9 (85.5, 91.6)	85.2 (81.6, 88.1)	81.5 (77.5, 84.9)	80.8 (76.8, 84.2)	78.4 (74.2, 82.1)	76.8 (72.5, 80.5)
TX-Bexar County	92.5 (85.6, 96.2)	79.4 (71.3, 85.7)	89.1 (82.3, 93.4)	89.2 (83.5, 93.2)	89.7 (82.2, 94.3)	88.4 (81.7, 92.8)	88.2 (82.0, 92.5)	83.5 (76.3, 88.9)	78.7 (70.6, 85.0)	77.4 (69.3, 83.9)	74.6 (66.4, 81.3)	71.3 (63.1, 78.4)
TX-City of Houston	94.3 (88.3, 97.3)	81.8 (75.3, 86.9)	92.5 (86.6, 95.9)	92.3 (86.3, 95.8)	90.3 (87.1, 96.3)	91.1 (85.3, 94.7)	90.6 (84.6, 94.5)	85.4 (78.9, 90.2)	80.6 (74.1, 85.9)	80.3 (73.8, 85.6)	78.1 (71.4, 83.5)	76.6 (70.0, 82.2)
TX-Dallas County	94.0 (88.6, 97.0)	81.7 (73.7, 87.6)	89.7 (82.7, 94.0)	87.4 (79.7, 92.5)	92.8 (86.8, 96.2)	87.5 (79.7, 92.5)	89.4 (82.1, 93.9)	82.8 (75.1, 88.5)	78.7 (70.6, 85.1)	77.3 (69.0, 83.8)	74.2 (65.7, 81.2)	72.8 (64.2, 80.0)
TX-El Paso County	94.3 (89.9, 96.9)	78.4 (71.9, 83.7)	91.1 (86.2, 94.4)	89.3 (83.9, 93.1)	94.6 (90.1, 97.1)	87.4 (81.9, 91.4)	87.7 (82.6, 91.5)	79.7 (73.3, 84.9)	76.2 (69.7, 81.7)	76.2 (69.7, 81.7)	71.1 (64.3, 77.0)	69.2 (62.4, 75.2)
TX-Rest of State	96.1 (93.1, 97.9)	85.1 (79.7, 89.3)	93.7 (90.0, 96.1)	88.8 (83.6, 92.5)	93.0 (88.6, 95.8)	92.9 (88.4, 95.8)	88.7 (83.5, 92.4)	86.0 (80.7, 90.0)	82.7 (76.8, 87.3)	82.1 (76.2, 86.8)	80.0 (73.7, 85.1)	78.5 (72.2, 83.7)
Utah	94.7 (86.7, 98.0)	80.9 (72.0, 87.4)	86.4 (77.4, 92.2)	89.0 (82.2, 93.4)	91.0 (82.6, 95.6)	91.3 (85.1, 95.0)	81.2 (72.5, 87.6)	80.3 (71.5, 86.9)	75.7 (66.4, 83.1)	75.7 (66.4, 83.1)	74.1 (64.8, 81.7)	68.1 (58.7, 76.2)
Vermont	98.8 (96.1, 99.6)	86.2 (79.5, 91.0)	96.1 (91.4, 98.2)	92.6 (87.4, 95.8)	97.5 (93.9, 99.0)	94.0 (89.4, 96.7)	68.5 (60.3, 75.7)	88.8 (82.8, 92.9)	83.4 (76.2, 88.7)	83.4 (76.2, 88.7)	81.5 (74.2, 87.1)	62.9 (54.5, 70.6)
Virginia	98.2 (95.7, 99.3)	86.7 (79.9, 91.5)	93.0 (86.8, 96.4)	93.3 (87.7, 96.4)	97.2 (94.3, 98.6)	97.3 (94.8, 98.7)	89.9 (84.0, 93.8)	86.5 (79.2, 91.5)	86.0 (79.2, 90.9)	85.8 (79.0, 90.7)	85.8 (79.0, 90.7)	81.7 (74.8, 87.1)
Washington	94.0 (90.2, 96.3)	85.1 (79.8, 89.1)	88.4 (83.8, 91.8)	90.6 (86.4, 93.6)	93.6 (89.9, 96.1)	87.4 (83.2, 90.7)	76.6 (71.1, 81.3)	78.9 (73.3, 83.6)	81.2 (75.7, 85.7)	81.2 (75.7, 85.7)	77.8 (72.2, 82.5)	66.3 (60.3, 71.9)
WA-King County	94.1 (86.4, 97.6)	88.0 (79.9, 93.1)	89.1 (81.5, 93.8)	92.1 (84.9, 96.1)	93.5 (86.0, 97.1)	83.2 (75.2, 89.0)	80.5 (73.0, 86.4)	85.3 (77.3, 90.8)	84.0 (75.5, 89.9)	84.0 (75.5, 89.9)	76.8 (68.2, 83.7)	68.7 (60.0, 76.4)
WA-Rest of State	93.9 (89.1, 96.7)	83.9 (77.1, 89.0)	88.1 (82.1, 92.3)	89.9 (84.5, 93.6)	93.7 (88.9, 96.5)	89.1 (83.8, 92.8)	75.0 (67.8, 81.1)	76.4 (69.0, 82.5)	80.1 (72.9, 85.7)	80.1 (72.9, 85.7)	78.2 (70.9, 84.0)	65.4 (57.6, 72.5)
West Virginia	96.3 (91.9, 98.3)	82.6 (76.4, 87.5)	92.4 (87.0, 95.7)	85.7 (79.9, 90.0)	95.3 (90.7, 97.7)	91.8 (85.4, 95.6)	81.1 (73.8, 86.8)	75.0 (67.6, 81.2)	78.8 (71.4, 84.7)	78.2 (70.8, 84.2)	74.9 (67.1, 81.3)	67.5 (59.3, 74.7)
Wisconsin	95.3 (91.9, 97.3)	86.6 (81.6, 90.4)	94.9 (91.8, 96.9)	91.6 (87.6, 94.3)	92.3 (88.3, 95.0)	92.6 (88.1, 95.5)	87.0 (81.8, 90.8)	85.2 (79.8, 89.4)	85.6 (80.5, 89.5)	85.0 (80.0, 89.0)	82.2 (76.5, 86.7)	77.1 (71.1, 82.2)
WI-Milwaukee County	93.0 (83.7, 97.2)	81.7 (71.4, 88.8)	94.8 (89.4, 97.6)	89.1 (80.7, 94.1)	88.8 (78.7, 94.5)	94.6 (89.2, 97.4)	86.8 (77.8, 92.5)	85.6 (76.5, 91.5)	80.6 (70.5, 87.9)	79.7 (69.8, 87.0)	79.1 (69.1, 86.4)	73.6 (63.8, 81.6)
WI-Rest of State	95.9 (91.9, 97.9)	87.9 (82.0, 92.1)	94.9 (91.0, 97.2)	92.2 (87.5, 95.2)	93.2 (88.7, 96.0)	92.1 (86.3, 95.5)	87.0 (80.7, 91.5)	85.2 (78.5, 90.0)	86.9 (80.9, 91.2)	86.4 (80.4, 90.8)	83.0 (76.2, 88.2)	78.1 (70.8, 83.9)
Wyoming	95.3 (90.5, 97.8)	83.1 (76.5, 88.1)	92.1 (86.9, 95.4)	89.4 (83.7, 93.3)	94.7 (89.9, 97.3)	90.4 (84.6, 94.1)	77.2 (69.9, 83.1)	80.7 (73.7, 86.1)	80.7 (74.1, 85.9)	80.5 (73.9, 85.8)	78.6 (71.9, 84.1)	66.9 (59.3, 73.7)

* Children in the Q1/2005-Q4/2005 National Immunization Survey were born between February 2002 and August 2004.

† 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

‖ 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 DTP, three or more doses of poliovirus vaccine, and one or more doses of any MCV.

‖‖ 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 (Note: varicella dose must be at or after age 12 months and report of varicella UTD is unadjusted for history of varicella illness)

††† % ± 95% Confidence Interval

Appendix J

Trends in the NIS Response Rates and Vaccination Coverage Rates, 1995-2005

Appendix J

Trends in the NIS Response Rates and Vaccination Coverage Rates, 1995-2005

Table J.1: **Key Indicators from Household and Provider Data Collection by Survey Year, National Immunization Survey, 1995-2005**

Survey Year	Key Indicator*				
	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

*For the definition of the key indicators see Table 1 of NIS Data User's Guides for the survey year of interest.

Table J.2: **Vaccine-Specific Coverage Levels Among Children Age 19-35 months in the United States by Survey Year, National Immunization Survey, 1995-2005**

Survey Year	4+ DTP	3+ Polio	1+ MCV	3+ Hib	3+ Hep B	1+ Varicella*	PCV 3+	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

* Varicella was added to the NIS in 1996.

§§ Four or more doses of DTP, three or more doses of poliovirus vaccine, and one or more doses of any MCV.

‖‖ 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

Source: http://www.cdc.gov/nip/coverage

Figure J.1: Trends in Key Indicators from Household and Provider Data Collection, National Immunization Survey, 1995-2005
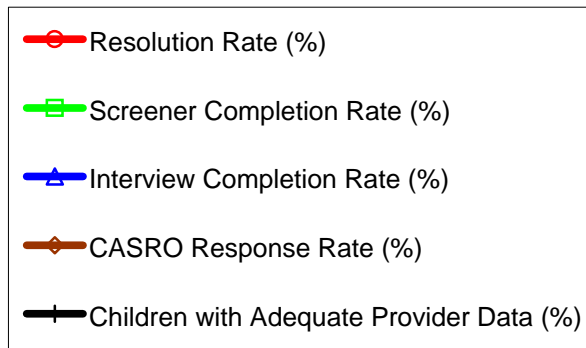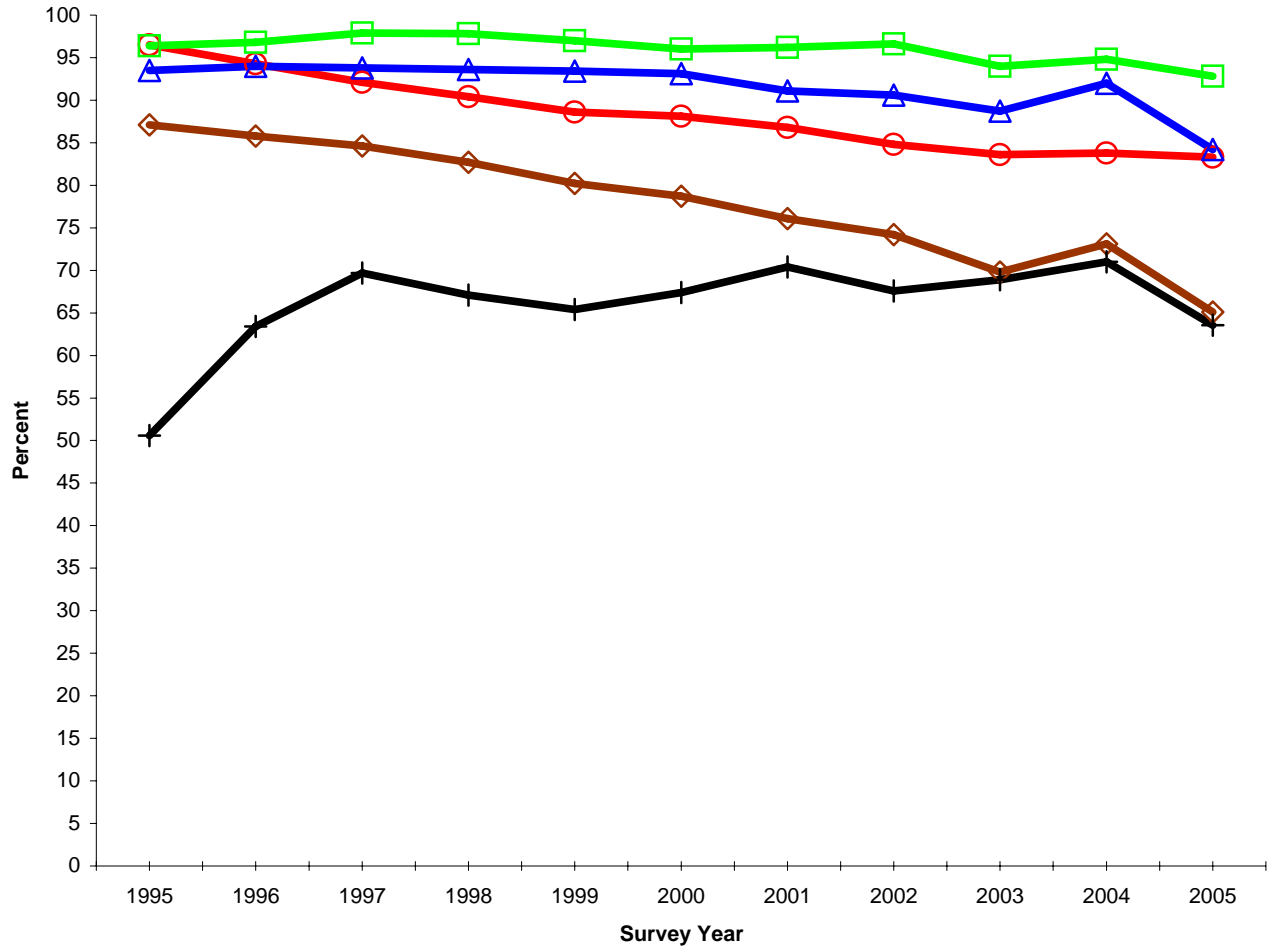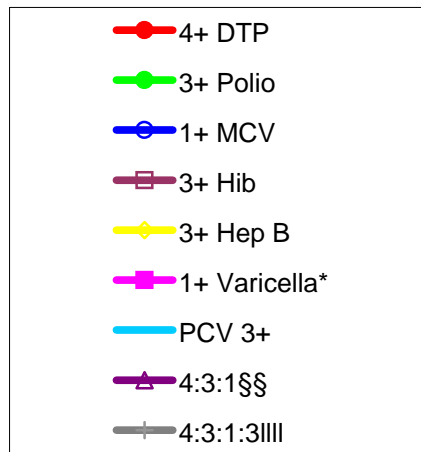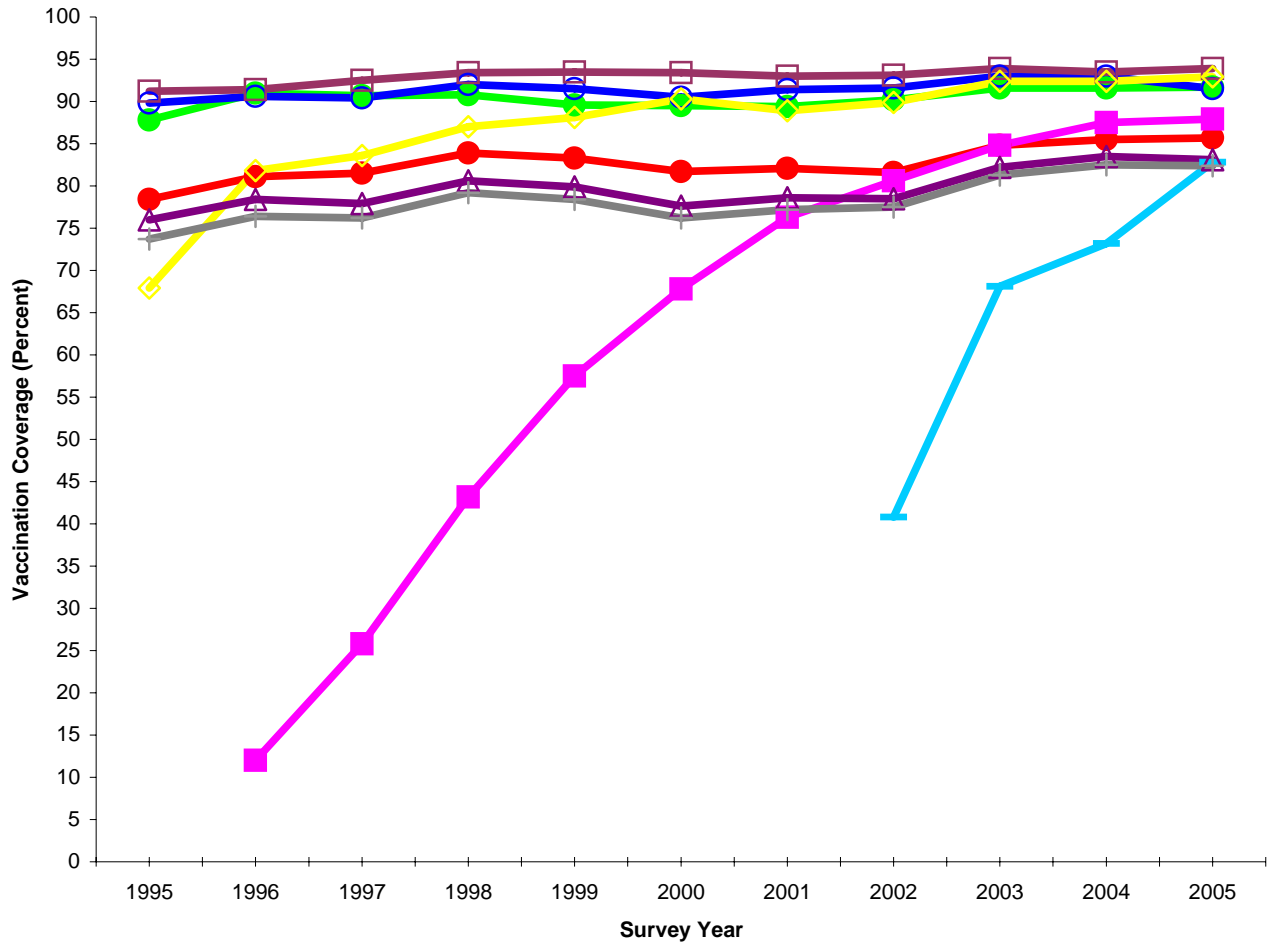
Figure J.2: Trends in Vaccine-Specific Coverage Among Children 19-35 months of Age in the United States by Survey Year, National Immunization Survey, 1995-2005

Appendix K

Vaccine Type Codes

Appendix K

Vaccine Type Codes

Table K.1: 2005 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
HB	HepB, unknown type
HI	Hib, unknown type
MM	Measles-containing, unknown type