

National Immunization Survey

A User's Guide for the 1995 Public-Use Data File

Centers for Disease Control and Prevention

**National Immunization Program
and
National Center for Health Statistics**

**Prepared by Abt Associates Inc.
May 2002**

Table of Contents

1.	Introduction.....	4
2.	Sample Design	6
	The NIS RDD Sample	7
	The NIS Provider Record Check Study	8
	Summary of Data Collection.....	9
	Informed Consent, Security, and Confidentiality of Information.....	12
3.	Content of NIS Questionnaires	13
	Content of the NIS Household Questionnaire	13
	Content of the Immunization History Questionnaire	16
4.	Data Preparation and Processing Procedures.....	16
	Data Preparation.....	17
	Limitations of Data Editing Procedures.....	20
	Variable-Naming Conventions	22
	Missing-Value Codes	23
	Imputation for Item Nonresponse	24
	Vaccine-Specific Recoding of Verbatim Responses	24
	Composite Variables.....	25
	Subsets of the Data.....	26
	Confidentiality and Disclosure Avoidance	27
5.	Quality Control and Quality Assurance Procedures	27
6.	Sampling Weights.....	29
	Adjusted Base Sampling Weight	30
	Adjustment for Interview Nonresponse	30
	Adjustment for Households That Do Not Have Telephones	31
	Adjustment for Provider Nonresponse.....	33
7.	Analytic and Reporting Guidelines.....	36
	Key Variables.....	36
	Use of the NIS Sampling Weights	40
	Estimation and Analysis	41
8.	Summary Tables	43
9.	Citations for NIS Data.....	44
10.	References	44

Appendices

Appendix A: Glossary of Abbreviations and Terms

Appendix B: NIS Household Questionnaire

Appendix C: NIS Provider Questionnaire

Appendix D: Summary Statistics for Sampling Weights by IAP Area

Appendix E: Disposition of Child with respect to Provider Record Check for NIS, Q1/1995 to Q4/1995

Appendix F: Examples of the Use of SUDAAN to Estimate Vaccination Coverage Rates and Their Standard Errors

Appendix G: Table of Contents and Alphabetical Index of Variables from National Immunization Survey 1995 Public-Use Data File: Documentation, Code Book and Frequencies

Appendix H: Summary Tables

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% of 2-year-old children fully vaccinated with the recommended schedule of vaccines. 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 Immunization Program and the National Center for Health Statistics, Centers for Disease Control and Prevention (CDC), and its contractor, Abt Associates Inc.

The target population for the NIS is children aged 19 to 35 months living 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 1995). These vaccines and their recommended numbers of doses are: diphtheria and tetanus toxoids and pertussis vaccine (DTP), 4 doses; poliovirus vaccine (polio), 3 doses; measles-containing vaccine (MCV), 1 dose; *Haemophilus influenzae* type b vaccine (Hib), 3 doses; and hepatitis B vaccine (Hep B), 3 doses. In addition to these vaccines, interest focuses on coverage rates for vaccine series, including the 4:3:1:3 series (4 DTP, 3 polio, 1 MCV, and 3 Hib). The NIS collects data on each of these vaccines.

The NIS uses a random-digit-dialing (RDD) telephone survey to identify households containing children in the target age range and interview an adult who is most knowledgeable about the child's vaccinations. With the consent of the child's parent or guardian, the NIS also contacts (by mail) the child's health care providers 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 areas. 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 annualized estimates of vaccination coverage levels within each of the 78 IAP areas with a specified degree of precision (a coefficient of variation of no more than 5%). Further, by using the same data collection methodology and survey instruments in all IAP areas, the NIS produces vaccination coverage levels that are comparable among IAP areas and over time.

For the 1995 NIS the RDD interviews of households began in January 1995 and ended in February 1996, and provider data collection extended from around March 1995 to around April 1996. A total sample of approximately 2 million telephone numbers yielded household interviews for 31,997 children, and 16,183 of those children had provider data that were adequate to determine whether the child was up-to-date with respect to the recommended immunization schedule. The 1995 NIS public-use file (PUF) contains data for the 31,997 children with completed household interviews (and more extensive data for children with

provider data). Published tables of estimates of vaccination coverage for 1995 are available on the National Immunization Program (NIP) Web site, <http://www.cdc.gov/nip/coverage>, and are discussed in an *MMWR* article (CDC 1997).

The accompanying code book (*National Immunization Survey 1995 Public-Use Data File: Documentation, Code Book and Frequencies*) documents the contents of the 1995 NIS public-use data file. For reference Appendix G reproduces the table of contents and the alphabetical index of variables from the code book.

Additional information on the NIS is available at:

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

For additional information on the NIS data file, please contact the NCHS staff:

Data Dissemination Branch, NCHS
6525 Belcrest Road, Room 1000
Hyattsville, MD 20782
Phone: 301-458-INFO (301-458-4636)
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: a random-digit-dialing survey designed to identify households with children 19 to 35 months of age, followed by the Provider Record Check study (PRC), which obtains provider-reported vaccination histories for these children.

This section gives a summary of these two phases of data collection. Other descriptions of the sample design are given by Ezzati-Rice et al. (1995), Zell et al. (2000), and Smith et al. (2001a).

The NIS RDD Sample

The NIS RDD sampling phase uses independent quarterly samples of telephone numbers in the 78 IAP areas. Table H.1 (in Appendix H) lists the 78 IAP areas by state and shows the estimated number of children living in each state and IAP area in 1995.

The NIS uses the list-assisted method of random-digit dialing (Lepkowski 1988). This method selects a random sample of telephone numbers from “banks” of 100 consecutive telephone numbers (e.g., 617-495-0000 to 617-495-0099) that contain one or more directory-listed residential telephone numbers. The sampling frame of telephone numbers is updated each quarter in order to include new telephone exchanges and area codes. Although the number of cellular telephone users in the U.S. has increased rapidly, most households continue to maintain land-line telephone service. Also, most cellular telephone users pay for incoming calls. Therefore, the NIS sampling frame excluded cellular telephone exchanges in 1995.

The target sample size for each IAP area was 110 children with completed telephone interviews per quarter (440 for the year). Approximately 51% of children with completed telephone interviews had adequate provider data. The phrase “adequate provider data”

means that sufficient vaccination history information was obtained from the providers 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 the IAP areas.

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 a target number of interviews (Buckley et al. 1998). Second, the sample for an IAP area is divided into random subsamples called replicates. By administering the sample release on a replicate-by-replicate basis, 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 nonworking and nonresidential telephone numbers from the sample before the interviewers dial them (Battaglia et al. 1995b). Fourth, the sample telephone numbers are matched with a national database of directory-listed 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 RDD interview.

The NIS Provider Record Check Study

At the end of the NIS RDD interview, consent to contact the child's vaccination providers is requested from the parent/guardian. When verbal consent is obtained, those providers are

mailed an immunization history questionnaire (IHQ). This mail survey portion of the NIS is the Provider Record Check Study (PRCS).

The IHQ is sent by mail to vaccination providers with instructions to mail or fax the questionnaire back upon completion. Two weeks later, a thank you/reminder postcard 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 accepted over the phone. The data from the IHQs are entered, cleaned, edited, and merged with the household information from the RDD survey to produce a child-level record.

Summary of Data Collection

Table 1 presents selected operational results of NIS data collection for calendar year 1995. Children who were 19 to 35 months of age during 1995 were born from February 1992 to May 1994. The original sample (in replicates that were released for use) consisted of 1,917,474 telephone numbers. Of those, 407,259 numbers were eliminated by the automated procedure as nonworking or nonresidential numbers. The remaining 1,623,857 telephone numbers were called to identify 929,066 households, as shown in Rows 3 and 6 of Table 1. Among the identified households, 853,536 (96.4%) were successfully screened for age-eligible children. Of these, 819,825 did not contain an age-eligible child, and 33,711 (3.9%)

contained one or more age-eligible children. Among these households 31,520 (93.5%) completed the NIS household RDD interview.

A standard approach for measuring response rates for RDD surveys, known as the CASRO household response rate, has been defined by the Council of American Survey Research Organizations (Frankel 1983). In 1995 the CASRO household response rate (Row 11) was 87.1%. The CASRO response rate equals the product of the resolution rate (96.5%, Row 5) the screening completion rate (96.4%, Row 7) and the interview completion rate among eligible households (93.5%, Row 10). The resolution rate is the percentage of the total phone numbers called that are classifiable as nonworking, nonresidential, 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 that complete the NIS RDD interview.

Row 12 of Table 1 shows that 31,997 age-eligible children had completed RDD interviews. Rows 13 through 16 of Table 1 give results for the PRC phase. Specifically, Row 13 gives the rate of obtaining verbal consent from household respondents to contact their children's vaccination providers – approximately 84% in 1995. The number of IHQs that were mailed to vaccination providers exceeds the number of completed child interviews, because some children have more than one vaccination provider. In 1995 the mean number of vaccination providers identified for a child was 1.32.

Among vaccination providers who were mailed an IHQ, approximately 61% returned the questionnaire or other information pertaining to the child's vaccination history. Among the children with completed household RDD interviews 16,183 (50.6%) had adequate vaccination histories returned by their vaccination provider(s). The other 49.4% of children lacked adequate provider data for a variety of reasons, such as the parent did not give consent to contact providers, or the providers did not have medical records for the child.

For each IAP area and each state Table H.1 shows the number of children with completed RDD interviews and the number of children with adequate provider data.

Informed Consent, Security, and Confidentiality of Information

The Screener Introduction, the Advance Letter, and the 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 respondent (generally the parent or guardian of the child) to participate in the household interview and also (at the end of the interview) to contact the child's vaccination providers.

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 purposes [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 the public release, the contents of the PUF go through an extensive review by the NCHS Disclosure Review Board to protect confidentiality of the participants as well as the data.

3. Content of NIS Questionnaires

This section describes the questionnaires used in the 1995 NIS telephone interview of households and in the NIS PRC survey. The confidentiality of respondents and their data is required by Section 308(d) of the Public Health Service Act [42 U.S. Code 242m(d)].

Content of the NIS 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 aged 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 the AT&T Language Line is used for real-time translation into many other languages (Wall et al. 1995). Table 2 summarizes the content of each section of the 1995 NIS household interview.

Table 2: Content of the 1995 NIS Household Interview

Screener	Screening questions to determine eligibility, roster of eligible children, availability of shot records
Section MR	Most-knowledgeable-respondent callback questions
Section SR	Shot-record 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 providers
Section NR	Nonresponse questions

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 19 to 35 months of age. If the household has an eligible child, the respondent is asked whether he/she is the most knowledgeable person (MKP) 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 or her at that time. If that person is unavailable to be interviewed, the interview proceeds to Section MR, the name of the MKP is recorded, and a "callback" is scheduled for a later date.

Also during the screener the person being interviewed is asked whether he/she has a written record (shot card) of the child's vaccination history, and whether it is easily accessible. If the 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, the interview proceeds with Section B, which asks the respondent to recall from memory information about the child's vaccinations. If the child has a shot card but it is not easily accessible, the interview proceeds to Section SR. In this section the interviewer makes an appointment to call at a later date, when the shot card will be available, and also gathers general information about the child's immunization history.

Section C obtains information that includes the relationship of the respondent to the child, the race of the child, the race of the mother, household income and educational attainment of the mother of the child, 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, B, or SR.

At the conclusion of the NIS household interview, consent is requested to contact the child's vaccination providers (Section D). If verbal consent is obtained, identifying information (name, address, and telephone number) on the vaccination provider(s) is requested, as well as the full names of the child and the respondent, so that NIS personnel can contact the providers and identify the child whose immunization information the NIS is requesting. When verbal consent and sufficient identifying information are obtained, the IHQ is mailed to the child's vaccination provider(s). *No changes were made to the NIS CATI questionnaire in 1995.*

Content of the Immunization History Questionnaire

The IHQ (Appendix C) is designed to be simple and brief, to minimize burden on the providers and to encourage participation in the survey. It consists of two pages. Page 1 includes space for a label that gives the child's name and birth date and the full name of the parent or guardian. Page 1 also includes a grid for recording dates of vaccinations. The columns of the grid correspond to recommended vaccines, and an additional column is available for recording other vaccines. Page 2 of the IHQ contains several questions about the facility and vaccination provider (for example, whether the facility is public or private). *No changes were made to the IHQ in 1995.*

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 makes many edits as the interviewer enters the data. After the 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 IHQs, data entry of the IHQs, and cleaning of the provider data file. If a provider reported a different date of birth, gender, or name for the child, a check of the IHQ is made to determine whether the IHQ was filled out for the correct child. 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. The end product is an

analytic file containing household and provider data for use in estimating vaccination coverage.

Data Preparation

The editing and cleaning of NIS data involve several steps. First, the CATI system incorporates an automatic editing process. Further cleaning and editing take place in a post-CATI clean-up stage, involving an extensive review of data values, crosschecks, and the recoding of verbatim responses for race, ethnicity, and vaccinations. The next step involves the creation of numerous composite variables. Finally, provider data are cleaned in a separate step. After these steps have been completed, imputations are performed for item nonresponse 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.

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.

The CATI system makes a number of edits as an interviewer enters data. These edits correct data entry errors that can be reconciled while the respondent is on the telephone; they focus,

in particular, on items critical to the conduct of the study, such as those that determine a child's eligibility (e.g., date of birth). 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.

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.

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 the 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 File. The Sample File contains one record for each sample telephone number. It contains summary information for telephone numbers and households. The Interview File contains one record for each eligible sample child. It contains all vaccination data that the household reported for the child.

Following the 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, the 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 File is also present in the Sample File and that each case in the Sample File was released to the CATI center. Checks also ensure that no duplicate households exist in the Sample File and no duplicate children exist in the Interview File.

When all of these checks have been performed, the final quarterly Interview File is created. Programmers and statisticians then create composite variables for each child. Sampling weights (described in Section 6) are added to each record.

Editing of Provider Data

Six to eight weeks after the close of household data collection for a quarter, the collection of Immunization History Questionnaires from providers typically ends. The data from the hard-copy questionnaires are entered and independently re-entered to provide 100% verification. The Provider Data File is cleaned, in a similar fashion to the household data, for out-of-range values and consistency. A computer program back-codes all “other shot” verbatim responses into the proper vaccine category (e.g., Energix 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 File is checked for duplicate records, and exact duplicates are removed from the file. If the IHQ contains a date of birth of the child, gender of the child or child name that differs from the household interview, the IHQ is examined to see whether it may have been filled out for the wrong child. IHQs that appear to have been filled out for the wrong child are removed from the provider database. When a child has data from more than one IHQ, 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 interview data. Information from up to five providers can be added to a child’s record.

Limitations of Data Editing Procedures

Although data editing procedures were used for the 1995 NIS, the data user should be aware that some inconsistent data may remain in the public-use 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 were manually reviewed and edited to correct specific reporting errors. The *National Immunization Survey: Guide to Quality Control Procedures* discusses the editing procedures in more detail. The provider-data edits that were added in 1999 are not reflected in the 1995 NIS data. A small number of children will therefore have provider-reported vaccination dates that contain potential discrepancies. Among children in the 1995 NIS PUF with adequate provider data, 1.2% have one or more provider-reported vaccination dates listed before the date of birth of the child, 4.2% have vaccination dates less than or equal to 14 days apart, and 1.8% have a vaccination other than hepatitis B reported as administered from 0-37 days of life. The section on Subsets of the Data (below) includes additional information related to the first dose of hepatitis B vaccine, which for the 1995 NIS was often given early in life. Overall, even with these minor limitations, the NIS is a rich source of data for assessment of up-to-date status and age-appropriate immunization.

Variable-Naming Conventions

To facilitate access to the contents of the PUF, 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 PUF groups the variables into nine broad categories according to the source of the data (household or providers) and the content of the variable (see Appendix G).

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, not up-to-date on hepatitis B not from a shot card, and vaccination status on hepatitis B indeterminate.

The provider data from the IHQs are used to create numerous child-level composite variables, as described below. 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, either 4 or 8 variables are created, depending on the vaccine. The variables for age in months end with n_AGE, where n is the dose number. For example, HEP1_AGE to HEP8_AGE give age in months for 8 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 DHEPB8 give age in days for 8 possible doses of hepatitis B vaccine.

Missing-Value Codes

The missing-value codes for household variables are 6 and 96 for DON'T KNOW and 7 and 97 for REFUSED. Some household variables may also contain blanks, if the question was not asked. The variables developed from the IHQ generally do not have specific missing-value codes. For example, if a provider failed to answer the question on types of care provided, the response category variables for that question would be blank. For provider-reported vaccination dates before the date of birth of the child, the age in months and age in days variables are recoded to **-1**. For provider-reported vaccination dates after 36 months of age, the age in months variables are recoded to **40**. For the corresponding provider-reported vaccination dates after 1125 days of age, the age in days variables are recoded to **1210**. The official published estimates of vaccination coverage include these vaccination dates in the count of vaccines received by a child.

Imputation for Item Nonresponse

The NIS uses imputation primarily to replace missing values on selected socioeconomic and demographic variables collected in the household survey. A sequential hot-deck method is used to assign imputed values (Cox 1980). Each imputation cell has at least four donors.

The Notes section of the code book identifies variables that contain imputed values. These variables include maternal education, Hispanic origin, race, and race/ethnicity.

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 File. They are reviewed in the post-CATI editing process in order to reclassify the responses into the listed categories, where possible. NIP personnel manually review the verbatim responses and determine to which category or categories (for combination shots), if any, each should be recoded. Once the recoding has been completed, a quality control review ensures that the responses were correctly recoded and are consistent with one another.

Composite Variables

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

Since the initial years of NIS data collection, the household composite variables have included up-to-date status on individual vaccinations, race of child and mother, household income, and up-to-date status on several vaccination series. Many of these composite household variables are included in the NIS PUF. Table 3 lists some of the key demographic variables and their categories.

Table 3: Key Demographic Composite Variables

AGEGRP – age category of child	19-23 months 24-29 months 30-35 months
RACEKIDR – race/ethnicity of child	Hispanic White, nonHispanic Black, nonHispanic All other, nonHispanic
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 or separated Never married Currently married Deceased Unknown
INCPOV1R – poverty status	At or above poverty level Below poverty level Not determined

The composite race variables in the 1995 PUF contain three categories: white, black and all other races. The “all other races” category includes American Indian, Asian, Alaska Native, Native Hawaiian, Pacific Islander, and other races. If more than one race was selected during the administration of the race questions, the respondent was asked to select the race that best characterizes the child/mother. The 1995 PUF uses these questions to assign each child and mother to a single race category.

The provider data from the IHQs are used to create numerous child-level composite variables. The most important variables give the number of doses received for each type of vaccine. Up-to-date indicator variables are created for each individual vaccine and for several vaccine series. 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 the date of birth of the child and the date of the shot. Corresponding variables give exact age in months at time of vaccination.

The IHQs also contain information on provider characteristics. This information is used to create composite variables related to provider facility type (PROV_FAC), and types of care offered by the provider (CARTYP1 to CARTYP5).

Subsets of the Data

The NIS PUF contains data for all children aged 19 to 35 months who have a completed household (RDD) interview. An interview is considered complete if the respondent

answered either Section A or Section B of the questionnaire. As explained in Section 6, each child with a completed household interview is assigned a weight (HY_WGT) 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 much more accurate. Thus, the most important subset of the data consists of children with adequate provider data. For these children one or more providers returned the IHQ, and the vaccination information reported by those providers is sufficient to determine whether the child is up-to-date on the recommended vaccinations. **As discussed in Section 7, the PDAT variable identifies the children with adequate provider data (PDAT=1). These children have a separate weight (W0) that should be used to form estimates of vaccination coverage.**

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 PUF. In addition, some of the released variables are top- or bottom-coded, or their categories are collapsed.

5. Quality Control and Quality Assurance Procedures

A major contributor to the quality of the NIS data is its sample management system, which manages 312 RDD samples annually (78 IAP areas times 4 quarters) and uses 20

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 look-ups in topic-oriented databases 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 the total cost of the data collection, 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* discuss the procedures in more detail.

The quality assurance procedures of the PRC component follow a proven methodology documented by Dillman (1978). The most critical quality assurance activities occur during post-processing of the returned questionnaires or vaccination records. All returned IHQs are examined to identify and correct any obvious errors prior to data entry and then key-entered with 100% verification. The National Immunization Program additionally has conducted a manual quality assurance review of 10% of forms returned by providers. Resulting error rates for the edit process are estimated to be less than 1%.

Some special conditions apply to the first dose of hepatitis B, which is typically given at 0 to 7 days. The count of vaccinations for a specific vaccine is based on the number of unique vaccination dates reported by the child's provider(s). For a very small percentage of children the provider may indicate on the IHQ that the child received hepatitis B at birth but they do not record a vaccination date. Because no date is given, this dose is not included in the count

of hepatitis B vaccinations for these children, resulting in a slight underestimation of hepatitis B vaccination coverage.

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 sampling weights (HY_WGT) permit analyses of data from children with completed household interviews. Each child with adequate provider data (the subset on which official estimates of vaccination coverage are based) has a “partial-nonresponse-adjusted sampling weight” (W0).

A sampling weight may be interpreted as the approximate number of children in the target population that the 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 weights reflect each child’s probability of being selected into the sample; and the adjustments take into account the number of telephone lines in the household, nonresponse to the household interview, noncoverage of households that do not have telephones, and nonresponse by providers.

Adjusted Base Sampling Weight

In each quarterly NIS sample, each child with a completed RDD interview receives a base sampling weight. This weight is equal to the total number of telephone numbers in the sampling frame for the IAP area divided by the total number of telephone numbers that were randomly sampled from that sampling frame during that quarter. Because households with multiple telephone lines have a greater chance of being sampled, each child's base sampling weight is adjusted by dividing it by the total number of residential telephone lines reported in the household (up to a maximum of 3).

Adjustment for Interview Nonresponse

Nonresponse 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 adjusted base sampling weights of children with completed RDD interviews will underestimate the size of the target population in the IAP area, because some sampled households containing age-eligible children do not complete the RDD interview. As a result, the adjusted base sampling weights must be further adjusted so that they more accurately reflect the number of children in the target population that each sampled child with a completed RDD interview represents.

Some sampled households with age-eligible children fail to complete the RDD interview because of unit nonresponse: 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 RDD interview. To compensate for these three types of unit nonresponse, the sampling weights of children with a completed RDD 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 RDD 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 and socioeconomic and demographic characteristics of the IAP area's telephone exchanges (e.g., 4 weighting cells formed from directory-listed versus non-directory-listed telephone number by telephone exchanges with 75% or higher white population versus telephone exchanges with less than 75% white population).

Because the quarterly interview-nonresponse-adjusted base sampling weights pertain to the entire target population and because annualized vaccination coverage estimates are obtained from data for four consecutive quarters, the adjusted base sampling weights are divided by 4 when the data from the four quarters are combined.

Adjustment for Households That Do Not Have Telephones

The NIS sampling frame includes only households that have telephones. Because the target population consists of all children 19 to 35 months of age living in households regardless of whether they have telephones, the interview-nonresponse-adjusted base sampling weights

need to be adjusted to compensate for the noncoverage of children living in households without telephones. Although national telephone coverage for age-eligible children is estimated to be 90%, telephone coverage is known to be as low as 76% in some IAP areas. Further, data from the NHIS, which samples both “telephone” and “nontelephone” households, indicate that children living in households without telephones have significantly lower vaccination coverage. Thus, the adjustment to the sampling weights to compensate for noncoverage of nontelephone households may be particularly important in IAP areas in which the percentage of households that have telephones is relatively low.

In order to reduce the impact of this potential bias, two separate adjustments to sampling weights are made. In the first adjustment, the weighted distributions of “poststratification” variables, which are known to be strongly associated with variation in vaccination coverage rates, are adjusted to agree with those obtained from Vital Statistics (NCHS 1993) compiled by the National Center for Health Statistics (NCHS). The poststratification variables are race/ethnicity of the child’s mother, the level of educational attainment of the child’s mother, and the age of the child. Because the Vital Statistics data give the counts of all live births in the U.S., regardless of whether the household has telephone service, this adjustment corrects in part for underrepresentation of children who belong to households that are less likely to have telephones (typified by racial/ethnic minorities or mothers with low educational attainment).

The second adjustment for nontelephone households in 1995 depends on whether a sample child is up-to-date on the 4:3:1 vaccination series and also on two other factors: the IAP-area-

specific proportion of children that live in households that do not have telephones, as estimated from the 1990 Census and the Current Population Survey (Bureau of Labor Statistics 2000) for each combination of levels of the poststratification variables described above, and the ratio of the national 4:3:1 vaccination coverage rate among children living in nontelephone households to the national 4:3:1 vaccination coverage rate among children living in telephone households, as estimated using data for major race/ethnicity groups from the NHIS.

For children belonging to a specific race/ethnicity group, the adjustment to the sampling weight is larger for children who are not 4:3:1 up-to-date than for children who are 4:3:1 up-to-date when: the percentage of children living in nontelephone households in the IAP area is large and the estimated national 4:3:1 vaccination coverage rate among children living in nontelephone households is less than the estimated national 4:3:1 vaccination coverage rate among children living in telephone households. In this situation the adjustment for households that do not have telephones tends to reduce estimated vaccination coverage rates slightly. A further description is given by Battaglia et al. (1995a).

The base sampling weights after adjustment for multiple residential telephones, unit nonresponse, and nontelephone coverage constitute the “RDD sampling weights.”

Adjustment for Provider Nonresponse

Among the 31,997 children with a completed RDD interview, 16,183 (50.6%) had adequate provider data. The 15,814 (49.4%) children for whom an RDD interview was completed but

adequate provider data were not obtained are “partial nonresponders” because they provide a partial response to the NIS as a whole.

Empirical results suggest that children with adequate provider data have characteristics that are believed to be associated with a greater likelihood of being up-to-date, compared to partial nonresponders. Specifically, children with adequate provider response are more likely to live in households that have higher total family income, to have a white mother, and to live outside a central city of a Metropolitan Statistical Area. Also, a partial nonresponder is less likely to live in the state where the mother resided when the child was born and less likely to have a parent/guardian who could locate a shot card. Both of 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 estimated vaccination coverage estimates attributable to partial nonresponse, a “weighting-class adjustment” is used in each IAP area (Brick and Kalton 1996). This adjustment involves two 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 subsample of children in a class may

represent all of the children in the class. Therefore, the weighting-class adjustment uses the children with adequate provider data to represent all of the children in the class.

In the second step of the weighting-class adjustment, within each class, an adjustment factor redistributes the RDD sample weights of the partial nonresponders among the children who have adequate provider data. These revised RDD sampling weights of children with adequate provider data are “partial-nonresponse-adjusted RDD sampling weights” (W0). 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 partial-nonresponse-adjusted RDD sampling weights, will have less bias attributable to differences between children with adequate provider data and partial nonresponders. Smith et al. (2001b) describe the development of this approach in more detail. Appendix D summarizes the distribution of the sampling weights (HY_WGT and W0) in each IAP area.

In 1999 the CDC adopted this nonresponse-adjustment methodology for producing all public-use files and for calculating estimates of vaccination coverage for 1998 (and subsequent years). It replaced the approach that had been used to calculate estimates for 1995. Thus, estimates calculated from the 1995 PUF may differ slightly from those in the *MMWR* article (CDC 1997). Estimates from the 1995 PUF do agree with those published at the NIP website (<http://www.cdc.gov/nip/coverage>), in the column labeled Tables, and also shown in Table H.7 in Appendix H of this User’s Guide, which are based on the new methodology. More information can be found at the NIP website (<http://www.cdc.gov/nip/coverage/NIS/analysis-methodologies.htm>).

7. Analytic and Reporting Guidelines

The NIS PUF can be used to produce national, state and IAP area estimates of vaccination coverage rates. Information in the data file can be used to calculate standard errors of the vaccination coverage rates that reflect the complex sample design of the NIS. The file includes IAP area and state identifiers (ITRUEIAP 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 subgroups of the population. Data users should, however, be aware that estimates for such subgroups at the state or IAP area level will generally have large standard errors because of the small sample sizes. The NCHS standard for precision of subgroup estimates is that the ratio of the standard error to the estimate should be less than or equal to 30%, and each analytic cell should contain at least 30 respondents.

Key Variables

The variables in the NIS PUF fall into two major categories: 1) variables that apply to all children with completed household interviews and 2) variables that apply only to children with adequate provider data (i.e., PDAT=1). Variables in the first group include the household report of vaccinations received by the child, and various demographic and socioeconomic characteristics of the child, the mother and the 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.

Table 4 lists variables that are commonly used in analyses or for published estimates of vaccination coverage.

The SEQNUMC variable is the unique child identifier. Key geographic variables include IAP area (ITRUEIAP), state (STATE), and Census Region (REGION). Key demographic variables include race/ethnicity category of the child (RACEKIDR), age category of the child (AGEGRP), and marital status category of the mother (MARITAL). Key socioeconomic variables include education category of mother (EDUC1), and poverty status (INCPOV1R).

Selecting children with PDAT equal to 1 identifies children with adequate provider data (DISPCODE = 1 to 6 or 8 to 11). Children who do not have provider data (DISPCODE = MISSING) or who have provider data that are not adequate to determine the up-to-date vaccination status of the child (DISPCODE = 7) have PDAT equal to 2. (Appendix E gives the definition of the values of DISPCODE.) The NIS PUF contains many variables constructed from the provider data. One set of variables indicates the number of doses the child received for each of the vaccines. For example, P_NUMDTP indicates the number of doses of DTP. It counts all DTP-containing vaccines, including DTP, DTaP, DT and DTP-Hib.

Table 4: NIS Variables That Are Commonly Used in Analyses or for Published Estimates

ID variables	
SEQNUMC – unique child ID variable	
Geographic variables	
ITRUEIAP – IAP area	
STATE – state FIPS code	
REGION – Census Region	Northeast Midwest South West
Child demographic variables	
AGEGRP – age category of child	19-23 months 24-29 months 30-35 months
RACEKIDR – race/ethnicity of child	Hispanic White, nonHispanic Black, nonHispanic All other, nonHispanic
SEX – gender of child	Male Female
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 or separated Never married Currently married Deceased Unknown
RACEMOMR – race/ethnicity of mother	Hispanic White, nonHispanic Black, nonHispanic All other, nonHispanic
Poverty variables	
INCPOV1R – poverty status	At or above poverty level Below poverty level Not determined

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 Hep B doses	
Provider characteristic variables	
PROV_FAC – provider facility type	All public facilities All hospital facilities All private facilities All military/other facilities Mixed types Unknown
CARTYP1 to CARTYP5 – types of services offered by child’s provider(s)	All providers Some but not all providers No providers/unknown

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 or more DTP vaccinations, 3 or more polio vaccinations, 1 or more measles-containing vaccinations (MCV), and 3 or more Hib vaccinations. Section 4 discusses the naming conventions for these variables.

The NIS PUF includes a set of variables for age in days at each vaccination. 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. These variables can be used to determine, for example, whether a child received at least four DTP

vaccinations by the age of 19 months. Section 4 discusses the naming conventions for these variables.

The final key set of provider variables relates to characteristics of the provider: provider facility type (PROV_FAC), and type of care offered by the provider (CARTYP1 to CARTYP5).

Use of the NIS Sampling Weights

The NIS PUF contains two child-level weights. The HY_WGT variable gives the household weight for each child. It should be used to form estimates from the children with completed household interviews. This weight reflects the stratified sample design and also adjusts for unit nonresponse, for poststratification to population control totals, and for the exclusion of nontelephone children from the NIS. **The weight variable that applies to children with adequate provider data is W0. This weight should be used to form estimates of vaccination coverage. Each child with adequate provider data (PDAT = 1) has a value of W0.**

The NIS PUF 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 NIS PUF 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.

Estimation and Analysis

Estimating Vaccination Coverage Rates

Vaccination coverage rates are ratio estimates, as described by the statistical literature on methods for complex sample surveys. Because of the adjustment to the sampling weights for partial nonresponse, statistical analyses require only data from children with adequate provider data (PDAT = 1), along with their partial-nonresponse-adjusted sampling weights (W0). To summarize the statistical methodology by which vaccination coverage rates and their standard errors are obtained from these data, let Y_{hij} be an indicator, for the j th child with adequate provider data in the i th sampled household in the h th stratum (IAP area) of the NIS sampling design, that is equal to 1 if the child is up-to-date according the provider data and 0 otherwise. Also, let W_{hij} denote the value of W0 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

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

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 h th IAP area, and m_{hi} denotes the number of age-eligible children with adequate provider data in the i th household in the h th IAP area.

Letting L denote the number of IAP areas in a state, the above formula can also be used to calculate vaccination coverage rates for states containing two or more IAP areas and for states containing only one IAP area.

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 $Z_{hij} = \frac{W_{hij}(Y_{hij} - \hat{q})}{\hat{f}_h}$,

$Z_{hi} = \sum_{j=1}^{m_{hi}} Z_{hij}$, and $\bar{Z}_h = \frac{\sum_{i=1}^{n_h} Z_{hi}}{n_h}$, an estimator of the variance of the vaccination coverage rate,

\hat{q} , is

$$\hat{V}(\hat{q}) = \sum_{h=1}^L \frac{n_h}{n_h - 1} \sum_{i=1}^{n_h} (Z_{hi} - \bar{Z}_h)^2.$$

The calculation of standard errors for estimates of vaccination coverage rates in the NIS can be implemented in statistical software such as SUDAAN (Shah et al. 1997), SAS (SAS Institute Inc. 1999) and Stata (Stata Corporation 2001). Appendix F gives examples of the use of 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 all quite small. In these applications the IAP area (ITRUEIAP) is used as the stratum variable, and the household identifier (SEQNUMHH) is

used as the Primary Sampling Unit identifier. The data file should first be sorted on ITRUEIAP and then sorted on SEQNUMHH within ITRUEIAP before running SUDAAN. As indicated above, W0 is used as the weight variable.

8. Summary Tables

Appendix H contains seven tables. As mentioned in Section 2, **Table H.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 19 to 35 months of age in 1995 and (from 1995 NIS data collection) the number of children with completed household interviews and the number of children with adequate provider data.

Tables H.2 through H.5 summarize pairs of variables: age group of child by maternal education (Table H.2), age group by family income (Table H.3), age group by race/ethnicity (Table H.4), and age group by gender (Table H.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.

Table H.6 gives unweighted counts of children for shot card use by the presence of adequate provider data.

Table H.7 presents estimates of vaccination coverage and 95-percent confidence-interval half-widths obtained from SUDAAN. The data user should obtain the same estimates from the public-use file.

9. Citations for NIS Data

In publications please acknowledge CDC (NCHS and NIP) as the original data source. The reference for the 1995 NIS Public-Use File is:

U.S. Department of Health and Human Services (DHHS). National Center for Health Statistics. The 1995 National Immunization Survey, CD-ROM No. 5. Hyattsville, MD: Centers for Disease Control and Prevention, 2002.

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

10. References

Battaglia, M.P., Malec, D.J., Spencer, B.D., Hoaglin, D.C., and Sedransk J. (1995a). Adjusting for noncoverage of nontelephone households in the National Immunization Survey. *1995 Proceedings of the Section on Survey Research Methods*, Alexandria: VA: American Statistical Association, pp. 678-683.

Battaglia, M.P., Starer, A., Oberkofler, J., and Zell, E.R. (1995b). Pre-identification of nonworking and business telephone numbers in list-assisted random-digit-dialing samples. *1995 Proceedings of the Section on Survey Research Methods*, Alexandria, VA: American Statistical Association, pp. 957-962.

Brick, J.M. and Kalton, G. (1996). Handling missing data in survey research. *Statistical Methods in Medical Research*, 5:215–238.

Buckley, P., Dennis, J.M., Saulsberry, C., Coronado, V.G., Ezzati-Rice, T., Maes, E., Rodén, A.-S., and Wright, R.A. (1998). Managing 78 simultaneous RDD samples. *1998 Proceedings of the Section on Survey Research Methods*, Alexandria, VA: American Statistical Association, pp. 957-961.

Bureau of Labor Statistics, U.S. Department of Labor (2000). Current Population Survey: Design and Methodology. Technical Paper 63.

Centers for Disease Control and Prevention (1994). Reported vaccine-preventable diseases - United States, 1993, and the Childhood Immunization Initiative. *MMWR*, 43:57-60.

Centers for Disease Control and Prevention (1997). National, State, and Urban Area Vaccination Coverage Levels Among Children Aged 19-35 Months—United States, January-December 1995. *MMWR*, 46(08): 176-182.

Centers for Disease Control and Prevention (1995). Recommended childhood immunization schedule—United States. *MMWR*, 44(RR-5): 1-9.

Coronado, V.G., Maes, E.F., Rodewald, L.E., Chu, S., Battaglia, M.P., Hoaglin, D.C., Merced, N.L., Yusuf, H., Cordero, J.F., and Orenstein, W.A. (2000). Risk factors for underimmunization among 19-35 month-old children in the United States: National Immunization Survey, July 1996-June 1998. Unpublished manuscript, Centers for Disease Control and Prevention, Atlanta.

Cox, B.G. (1980). The weighted sequential hot-deck imputation procedure. *1980 Proceedings of the Section on Survey Research Methods*. Washington, DC: American Statistical Association, pp. 721-726.

Dillman, D. (1978). *Mail and Telephone Surveys: The Total Design Method*. New York: John Wiley & Sons.

Ezzati-Rice, T.M., Zell, E.R., Battaglia, M.P., Ching, P.L.Y.H. and Wright, R.A. (1995). The design of the National Immunization Survey. *1995 Proceedings of the Section on Survey Research Methods*, Alexandria, VA: American Statistical Association, pp. 668-672.

Frankel, L.R. (1983). The report of the CASRO task force on response rates. In: Wiseman, F., editor. *Improving Data Quality in Sample Surveys*. Cambridge, MA: Marketing Science Institute, pp. 1-11.

Khare, M., Battaglia, M.P., Huggins, V.J., Stokley, S., Hoaglin, D.C., Wright, R.A. and Roden, A.S. (2000). Accuracy of vaccination dates reported by immunization providers in the National Immunization Survey. *2000 Proceedings of the Section on Survey Research Methods*. Alexandria, VA: American Statistical Association, pp. 665-670.

Khare, M., Battaglia, M.P., Stokley, S., Wright, R.A. and Huggins, V.J. (2001). Quality of immunization histories reported in the National Immunization Survey. *Proceedings of the International Conference on Quality in Official Statistics* (CD-ROM). Stockholm: Statistics Sweden.

Lepkowski, J.M. (1988). Telephone sampling methods in the United States. *Telephone Survey Methodology*. Edited by Groves, R.M., Biemer, P.P., Lyberg, L.E., Massey, J.T., Nicholls, W.L., and Waksberg, J. New York: John Wiley & Sons, pp. 73-98.

National Center for Health Statistics. (1993). Public Use Data Tape Documentation: 1991 Detail Natality. U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Center for Health Statistics, Hyattsville, MD.

National Center for Health Statistics (1999). National Health Interview Survey: Research for the 1995-2004 Redesign. Vital and Health Statistics, Series 2, No. 126. (DHHS publication no. (PHS) 99-1326). Hyattsville, MD: National Center for Health Statistics.

Rosenbaum, P.R. (1987). Model-based direct adjustment. *Journal of the American Statistical Association*, 82:387-394.

Rosenbaum, P.R. and Rubin, D.B. (1983). The central role of the propensity score in observational studies for causal effects. *Biometrika*, 70:41-55.

Rosenbaum, P.R. and Rubin, D.B. (1984). Reducing bias in observational studies using subclassification on the propensity score. *Journal of the American Statistical Association*, 79:516-534.

Rust, K.F., and Rao, J.N.K. (1996). Variance estimation for complex surveys using replication techniques. *Statistical Methods in Medical Research*, 5:283-310.

SAS Institute Inc. (1999). *SAS/STAT User's Guide, Version 8*. Cary, NC: SAS Institute Inc.

Shah, B.V., Barnwell, B.G. and Bieler, G.S. (1997). *SUDAAN User's Manual, Release 7.5*. Research Triangle Park, NC: Research Triangle Institute.

Smith, P.J., Battaglia, M.P., Huggins, V.J., Hoaglin, D.C., Rodén, A.-S., Khare, M., Ezzati-Rice, T.M., and Wright, R.A. (2001a). Overview of the sampling design and statistical methods used in the National Immunization Survey. *American Journal of Preventive Medicine*, Volume 20, Number 4S, pp. 17-24.

Smith, P.J., Rao, J.N.K., Battaglia, M.P., Ezzati-Rice, T.M., Daniels, D., Khare, M. (2001b). Compensating for provider nonresponse using response propensities to form adjustment cells: The National Immunization Survey. Vital and Health Statistics, Series 2, No. 133 (DHHS publication no. (PHS) 2001-1333). Hyattsville, MD: National Center for Health Statistics.

Stata Corporation (2001). *Stata Reference Manual*. College Station, TX: Stata Press.

Wall, T.P., Kochanek, K.M., Fitti, J.E., and Zell, E.R. (1995). The use of real time translation services in RDD telephone surveys. Presented at the 1995 Conference of the American Association for Public Opinion Research, Fort Lauderdale, FL. This paper is posted at <http://www.nisabt.org/> .

Zell, E.R., Ezzati-Rice, T.M., Battaglia, M.P., and Wright, R.A. (2000). National Immunization Survey: The methodology of a vaccination surveillance system. *Public Health Reports*, 115(1), 65-77.

Appendix A

Glossary of Abbreviations and Terms

Glossary of Commonly-Used Abbreviations and Terms

4:3:1	The series of 4 or more DTP vaccinations, 3 or more polio vaccinations, and 1 or more MCV vaccinations
4:3:1:3	The series of 4 or more DTP vaccinations, 3 or more polio vaccinations, 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 vaccinations, 1 or more MCV vaccinations, 3 or more Hib vaccinations, and 3 or more hepatitis B vaccinations
CATI	Computer-Assisted Telephone Interviewing
CDC	Centers for Disease Control and Prevention
DOB	Date of birth
DTP	Diphtheria and tetanus toxoids and pertussis vaccine
DT	Diphtheria and tetanus toxoids
Hep B	Hepatitis B
Hib	<i>Haemophilus influenzae</i> type b
IHQ	Immunization history questionnaire
MCV	Measles-containing vaccine
MMR	Measles, mumps, and rubella
NCHS	National Center for Health Statistics
NHIS	National Health Interview Survey
NIP	National Immunization Program
NSC	Non-shot-card
RDD	Random-digit dialing
SC	Shot card
UTD	Up-to-date

Appendix B

NIS Household Questionnaire

NIS Hard Copy Questionnaire

SCREENER

(Used in Q1/1995 to Q4/1995)

CASE ID _____ DATE _____

INTERVIEWER ID _____

TELEPHONE NUMBER _____

DATA ENTRY: DATE _____ ENTERED BY _____ (INTERVIEWER ID)

S2_B Does anyone live in your household who is at least 18 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 S_NUMB

REFUSED 7 GO TO NR1

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 This survey is collecting information about the health of children between 12 months and 3 years old only. These 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 you spent answering these questions.

DON'T KNOW 96

REFUSED 97 GO TO NR1

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 6

REFUSED 7

S3_INTRO As the letter explained, 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. It's all right to skip any questions you don't want to answer.

S3_EVAL In order to evaluate my performance, my supervisor may record and listen as I ask the questions. I READ THESE STATEMENTS TO THE RESPONDENT.

YES 1

<input type="checkbox"/>	1. IF S_NUMB = 1 (ONLY 1 CHILD)
<input type="checkbox"/>	2. IF S_NUMB \$ 2 (MORE THAN 1 CHILD)))))))))))))Q

GO TO S3.2.

W

S3.1. Before I ask about vaccinations, please tell me the first name or initials of your child who is between 12 months and 3 years old, that is, who was born between [TOMORROW'S DATE], [YEAR - 4] and [TODAY'S DATE], [YEAR-1].

HAS A CHILD
BETWEEN 12 MONTHS-3 YEARS 1 GO TO S3_A.

NO CHILD IN AGE RANGE 0 **PROBE:** Have I missed any babies or small children between the ages of 12 months and 3 years old? **YES:** REPEAT S3.1. **NO:** This survey is collecting information about the health of children between 12 months and 3 years old only. These 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 you spent answering these questions. **[TERMINATE INTERVIEW]**

DON'T KNOW 6 These 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 you spent answering these questions **[TERMINATE INTERVIEW]**

REFUSED NAMES OR INITIALS 7 That's all right. I just need to identify your child which we'll call child one. **[ENTER NUMBER IN GRID]**

S3.2. Before I ask about vaccinations, please tell me the first names or initials of your [# from S_NUMB] children who are between 12 months and 3 years old, that is, who were born between [TOMORROW'S DATE], [YEAR - 4] and [TODAY'S DATE], [YEAR-1].

HAS CHILDREN

BETWEEN 12 MONTHS-3 YEARS 1 GO TO S3_A.

NO CHILDREN IN AGE RANGE 0 **PROBE:** Have I missed any babies or small children between the ages of 12 months and 3 years old? **YES:** REPEAT S3.2. **NO:** This survey is collecting information about the health of children between 12 months and 3 years old only. These 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 you spent answering these questions. [**TERMINATE INTERVIEW**]

DON'T KNOW 6 These 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 you spent answering these questions [**TERMINATE INTERVIEW**]

REFUSED NAMES OR INITIALS 7 That's all right. I just need to identify them. I'll start numbering them beginning with the oldest, which we'll call child one. [ENTER NUMBERS IN GRID]

[ASKS S3_A, S3_B AND S3_C FOR EACH RESPONSE IN S3.1 OR S3.2; RECORD ON ELIGIBILITY GRID]

S3_A ENTER FIRST NAMES, INITIALS OR NUMBERS FROM S3.1 OR S3.2 IN ELIGIBILITY GRID ON NEXT PAGE

S3_B.1 What is [NAME FROM S3_A]'s month, day, and year of birth?

REFUSED 7 GO TO NR1

S3_C.1 Is [NAME FROM S3_A] male or female?

DON'T KNOW 6
REFUSED 7 GO TO NR1

S3_C. I have listed [NAMES FROM S3_A]. Have I missed any babies or small children between 12 months and 3 years old?

YES	1	CONFIRM # AT S_NUMB, CHANGE AS NECESSARY AND REPEAT S3_A, S3_B.1, S3_C.1 for missed children
NO	2	GO TO ELIG.CHECKPOINT
REFUSED	7	GO TO NR1

ELIGIBILITY GRID

LISTING TABLE OF CHILDREN BETWEEN THE AGES OF 12 MONTHS AND 3 YEARS OLD

CHECK BELOW, WHERE APPLICABLE

COL. 1

COL. 2

COL. 3

	S3_A First Name	S3_B.1 Date of Birth	S3_C.1 Sex	Primary Eligible 19 to 35 months	Secondary Eligible 12 to 18 months 36 to 47 months	
		___/___/___	M F	___/___/___ to ___/___/___	___/___/___ to ___/___/___	___/___/___ to ___/___/___
Child 1		___/___/___	M F			
Child 2		___/___/___	M F			
Child 3		___/___/___	M F			
Child 4		___/___/___	M F			
Child 5		___/___/___	M F			
Child 6		___/___/___	M F			
Child 7		___/___/___	M F			
Child 8		___/___/___	M F			
Child 9		___/___/___	M F			

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 spent answering these questions. [TERMINATE INTERVIEW]

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 from S3_A] (has/have) received. Are you this person?

- YES 1 GO TO S6_INTRO
- NO 2
- REFUSED 7 GO TO NR2

S5. May I speak with this person now?

- YES 1 GO TO S5_BOX
- NO, NOT AT HOME 2 GO TO MR1
- REFUSED 7 GO TO NR2

S5_BOX READ WHEN NEW PERSON COMES TO THE PHONE
OR
FOR Most Knowledgeable Respondent CALLBACK INTRODUCTION

1. Hello, my name is _____. I'm calling on behalf of the Centers for Disease Control and Prevention. We're conducting a national study about the vaccinations of children between the ages of 12 months and 3 years old.
2. 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. It's all right to skip any questions you don't want to answer.

S6_INTRO The following questions ask about immunizations or shots for [FIRST NAMES OF ALL ELIGIBLE CHILDREN, FROM S3_A]. Because the Centers for Disease Control and Prevention needs accurate information on immunizations children receive, we would like you to refer to shot records.

**THIS PAGE
SHOULD
BE BLANK**

[ASK S6_X. THROUGH S7.B_X. FOR EACH RESPONSE IN S3.1 OR S3.2; RECORD ON GRID BELOW]

	S3_A First Name	S6_X Do you have <u>any</u> shot records for [NAME OF FIRST CHILD]?	S7_X Are the shot records for [NAME OF FIRST CHILD] handy?	S7.A. Can you please go get the shot records for [FIRST NAMES OF CHILD(REN) WITH SHOT RECORDS -- S7_X.=YES] while I wait on the phone?	S7.B_X Am I correct that you have the shot records for [NAMES OF ALL CHILDREN WITH SHOT RECORDS]?
CHILD 1		YES NO DK REF \-----/ W Repeat S6_X for next child or Go To S8	YES NO 9 9 Repeat S6_X for next child or Go To S7.A Repeat S6_X for next child or Go to S8	YES NO	YES NO 9 9 Go To S8.A. 9 9 Go To S8.B.
CHILD 2		YES NO DK REF \-----/ W Repeat S6_X for next child or Go To S8	YES NO 9 9 Repeat S6_X for next child or Go To S7.A Repeat S6_X for next child or go to S7.A OR S8	YES NO	YES NO 9 9 Go To S8.A. 9 9 Go To S8.B.
CHILD 3		YES NO DK REF \-----/ W Repeat S6_X for next child or Go To S8	YES NO 9 9 Repeat S6_X for next child or Go To S7.A Repeat S6_X for next child or go to S7.A OR S8	YES NO	YES NO 9 9 Go To S8.A. 9 9 Go To S8.B.
CHILD 4		YES NO DK REF \-----/ W Repeat S6_X for next child or Go To S8	YES NO 9 9 Repeat S6_X for next child or Go To S7.A Repeat S6_X for next child or go to S7.A OR S8	YES NO	YES NO 9 9 Go To S8.A. 9 9 Go To S8.B.
CHILD 5		YES NO DK REF \-----/ W Repeat S6_X for next child or Go To S8	YES NO 9 9 Repeat S6_X for next child or Go To S7.A Repeat S6_X for next child or go to S7.A OR S8	YES NO	YES NO 9 9 Go To S8.A. 9 9 Go To S8.B.

DK = DON'T KNOW REF = REFUSAL

S8. EXISTENCE OF SHOT RECORDS CHECKPOINT

ALL S6_X ANSWERS ARE "YES".....1	GO TO S8.A.
ALL S6_X ANSWERS ARE "NO".....2	GO TO B1 AND ASK FOR EACH CHILD IN HOUSEHOLD
ALL OTHERS 3	GO TO S8.B.

S8.A. CHECKPOINT FOR HOUSEHOLDS WHERE ALL CHILDREN HAVE SHOT RECORDS

ALL S7.A. AND S7.B_X ANSWERS ARE "YES"....1	GO TO SECTION A SHOT RECORD (NO CALLBACK NEEDED)
ALL S7.A AND S7.B_X ANSWERS ARE "NO" . . . 2	GO TO SR1 (CALLBACK NEEDED)
ALL OTHERS 3	ASK SECTION A FOR CHILDREN WITH SHOT RECORDS AND SECTION B FOR CHILDREN WITHOUT SHOT RECORDS (NO CALLBACK NEEDED)

S8.B. CHECKPOINT FOR HOUSEHOLDS WHERE SOME CHILDREN HAVE SHOT RECORDS AND SOME CHILDREN DO NOT HAVE SHOT RECORDS

ALL S7.A AND S7.B_X ANSWERS ARE "YES" ....1	ASK SECTION A FOR CHILDREN WITH SHOT RECORDS AND SECTION B FOR CHILDREN WITHOUT SHOT RECORDS (NO CALLBACK NEEDED)
ALL S7.A AND S7.B_X ANSWERS ARE "NO" .....2	GO TO B1 AND ASK FOR EACH CHILD IN HOUSEHOLD (NO CALLBACK NEEDED)
ALL OTHERS 3	ASK SECTION A FOR CHILDREN WITH SHOT RECORDS AND SECTION B FOR CHILDREN WITHOUT SHOT RECORDS (NO CALLBACK NEEDED)

CASE ID _____

TELEPHONE NUMBER _____

INTERVIEW DATE _____

INTERVIEWER ID _____

DATA ENTRY: DATE _____ BY _____ (INTERVIEWER ID)

NIS Hard Copy Questionnaire

PART 2

September 1, 1995

SECTION MR - *Most Knowledgeable Respondent Callback*

SECTION SR - *Shot Record Callback*

SECTION A - *Available Shot Records* - **BLUE**

SECTION B - *NO Shot Records* - **BLUE**

SECTION C - *Demographics* - **BLUE**

SECTION D - *Provider* - **BLUE**

SECTION NR - *Nonresponse*

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 _____

REFUSED 7

MR2. When would be a good time to call back to speak with [FILL VAR: this person/NAME FROM MR1]?

MR2 DATE _____

MR2_2 TIME _____

REFUSED 7 GO TO NR2

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

YES 1 GO TO MR5

NO 2

REFUSED 7 GO TO NR2

MR4. What number should I call?

AREA CODE: _____

NUMBER: _____

MR5. How many D-T-P shots has [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A] ever received?

NUMBER OF SHOTS
ALL 50
DON'T KNOW 96
REFUSED 97

GO TO C1: DEMOGRAPHICS

SECTION SR

Shot Record Callback Questions

I would like to ask you a few questions now, and we can complete the rest of the questions when I call back.

SR1. If I called you back (in a few minutes/later), would you be able to have shot records available for [FILL VAR: FIRST NAMES OF ALL ELIGIBLE CHILDREN FROM S3_A]?

- YES 1
- NO 2 GO TO B1
- DON'T KNOW 6 GO TO B1
- REFUSED 7 GO TO B1

SR2. When is a good time to call you back?

SR2 DATE_____

SR2_2 TIME_____

SR3. And what is your first name, so that I know who to ask for?

(FIRST NAME)

REFUSED 7

SR4. Has [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A] ever received an immunization, that is a shot or drops?

- YES 1
- NO 2 GO TO C1
- DON'T KNOW 6 GO TO C1
- REFUSED 7 GO TO C1

SR5. How many D-T-P or D-T shots (sometimes called a D-P-T shot, diphtheria-tetanus-pertussis shot, baby shot, three-in-one shot) did [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A] ever receive?

NUMBER OF SHOTS
ALL 50
DON'T KNOW 96
REFUSED 97

SR6. How many polio vaccine shots (by mouth, pink drops, or by a polio shot) did [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A] ever receive?

NUMBER OF VACCINES
ALL 50
DON'T KNOW 96
REFUSED 97

SR7. How many measles or M-M-R (Measles-Mumps-Rubella) shots did [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A] ever receive?

NUMBER OF SHOTS
ALL 50
DON'T KNOW 96
REFUSED 97

SR8. How many H-I-B shots (this is for Meningitis and is called Haemophilus Influenzae {HA-MA-FI-LUS IN-FLU-EN-ZI}, H-I-B vaccine, or H flu vaccine) did [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A] ever receive?

NUMBER OF SHOTS
ALL 50
DON'T KNOW 96
REFUSED 97

SR9. How many Hepatitis B shots did [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A] ever receive?

NUMBER OF SHOTS
ALL 50
DON'T KNOW 96
REFUSED 97

GO TO C1: DEMOGRAPHICS

SECTION A

Available Shot Records

**NOTE: SECTION A IS ASKED ONLY FOR
CHILDREN WITH SHOT RECORDS
AVAILABLE (FROM S6 AND S7)**

**NOTE: EACH SECTION (A, B, AND C) IS
ASKED IN ITS ENTIRETY FOR EACH
CHILD.**

SHOT RECORD FOR DTP/DT SHOT

A1. Looking at the shot record, please tell me how many times [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A] has received a D-T-P or D-T shot, sometimes called a D-P-T shot, diphtheria-tetanus-pertussis shot, baby shot, or three-in-one shot.

Shots RECORD DATES BELOW

de NONE 0 GO TO A2
de DON'T KNOW 6 GO TO A2
de REFUSED 7 GO TO A2

A1.A. What is the date (on the record) for the [FILL VAR: (First/Second/...Eighth)] (D-T-P or D-T) shot?

1st Shot	___ / ___ / 19__ MO DAY YEAR	de DON'T KNOW .. 96 GO TO A2 de REFUSED 97 GO TO A2
2nd Shot	___ / ___ / 19__ MO DAY YEAR	de DON'T KNOW .. 96 GO TO A2 de REFUSED 97 GO TO A2
3rd Shot	___ / ___ / 19__ MO DAY YEAR	de DON'T KNOW .. 96 GO TO A2 de REFUSED 97 GO TO A2
4th Shot	___ / ___ / 19__ MO DAY YEAR	de DON'T KNOW .. 96 GO TO A2 de REFUSED 97 GO TO A2
5th Shot	___ / ___ / 19__ MO DAY YEAR	de DON'T KNOW .. 96 GO TO A2 de REFUSED 97 GO TO A2
6th Shot	___ / ___ / 19__ MO DAY YEAR	de DON'T KNOW .. 96 GO TO A2 de REFUSED 97 GO TO A2
7th Shot	___ / ___ / 19__ MO DAY YEAR	de DON'T KNOW .. 96 GO TO A2 de REFUSED 97 GO TO A2
8th Shot	___ / ___ / 19__ MO DAY YEAR GO TO A2	de DON'T KNOW .. 96 GO TO A2 de REFUSED 97 GO TO A2

SHOT RECORD FOR POLIO (DROPS OR SHOTS)

<p>A2. Looking at the shot record, please tell me how many times [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A] has received a polio vaccine -- pink drops -- or a polio shot.</p>	
<p>Shots <input type="checkbox"/> RECORD DATES BELOW</p> <p>de NONE 0 GO TO A3 de DON'T KNOW 6 GO TO A3 de REFUSED 7 GO TO A3</p>	
<p>A2.A. What is the date (on the record) for the [FILL VAR: (First/Second/...Eighth)] polio vaccine?</p>	
1st Shot	<p>___ / ___ / 19__ MO DAY YEAR</p> <p>de DON'T KNOW ... 96 GO TO A3 de REFUSED 97 GO TO A3</p>
2nd Shot	<p>___ / ___ / 19__ MO DAY YEAR</p> <p>de DON'T KNOW ... 96 GO TO A3 de REFUSED 97 GO TO A3</p>
3rd Shot	<p>___ / ___ / 19__ MO DAY YEAR</p> <p>de DON'T KNOW ... 96 GO TO A3 de REFUSED 97 GO TO A3</p>
4th Shot	<p>___ / ___ / 19__ MO DAY YEAR</p> <p>de DON'T KNOW ... 96 GO TO A3 de REFUSED 97 GO TO A3</p>
5th Shot	<p>___ / ___ / 19__ MO DAY YEAR</p> <p>de DON'T KNOW ... 96 GO TO A3 de REFUSED 97 GO TO A3</p>
6th Shot	<p>___ / ___ / 19__ MO DAY YEAR</p> <p>de DON'T KNOW ... 96 GO TO A3 de REFUSED 97 GO TO A3</p>
7th Shot	<p>___ / ___ / 19__ MO DAY YEAR</p> <p>de DON'T KNOW ... 96 GO TO A3 de REFUSED 97 GO TO A3</p>
8th Shot	<p>___ / ___ / 19__ MO DAY YEAR GO TO A3</p> <p>de DON'T KNOW ... 96 GO TO A3 de REFUSED 97 GO TO A3</p>

SHOT RECORD FOR MEASLES/MMR (SHOTS)

	<p>A3. Looking at the shot record, please tell me how many times [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A] has received a measles or M-M-R, that is, a measles, mumps, and rubella, shot.</p>	
	Shots <input type="checkbox"/>	RECORD DATES BELOW de NONE 0 GO TO A4 de DON'T KNOW 6 GO TO A4 de REFUSED 7 GO TO A4
	<p>A3.A. What is the date (on the record) for the [FILL VAR: (First/Second/...Fourth)] (measles or M-M-R) shot?</p>	
	<p>A3.B. Was that shot measles only or M-M-R only?</p>	
1st Shot	___ / ___ / 19__ MO DAY YEAR	de DON'T KNOW 96 GO TO A4 de REFUSED 97 GO TO A4 de MEASLES ONLY 1 de MMR ONLY 2 de DON'T KNOW 6 de REFUSED 7
2ND SHOT	___ / ___ / 19__ MO DAY YEAR	de DON'T KNOW 96 GO TO A4 de REFUSED 97 GO TO A4 de MEASLES ONLY 1 de MMR ONLY 2 de DON'T KNOW 6 de REFUSED 7
3rd Shot	___ / ___ / 19__ MO DAY YEAR	de DON'T KNOW 96 GO TO A4 de REFUSED 97 GO TO A4 de MEASLES ONLY 1 de MMR ONLY 2 de DON'T KNOW 6 de REFUSED 7
4TH SHOT	___ / ___ / 19__ MO DAY YEAR	de DON'T KNOW 96 GO TO A4 de REFUSED 97 GO TO A4 de MEASLES ONLY 1 de MMR ONLY 2 de DON'T KNOW 6 de REFUSED 7 GO TO A4

SHOT RECORD FOR HIB (SHOT)

	<p>A4. (Looking at the shot record) Please tell me how many times [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A] has received an H-I-B shot. (This is for Meningitis and is called HA-MA-FI-LUS IN-FLU-EN-ZI , H-I-B vaccine, or H flu vaccine.)</p>
	<p>Shots <input type="checkbox"/> RECORD DATES BELOW</p> <p>de NONE 0 GO TO A5 de DON'T KNOW 6 GO TO A5 de REFUSED 7 GO TO A5</p>
	<p>A4.A. What is the date (on the record) for the [FILL VAR: (First/Second/...Eighth)] (H-I-B) shot?</p>
<p>1st Shot</p>	<p>___ / ___ / 19__ MO DAY YEAR</p> <p>de DON'T KNOW ... 96 GO TO A5 de REFUSED 97 GO TO A5</p>
<p>2nd Shot</p>	<p>___ / ___ / 19__ MO DAY YEAR</p> <p>de DON'T KNOW ... 96 GO TO A5 de REFUSED 97 GO TO A5</p>
<p>3rd Shot</p>	<p>___ / ___ / 19__ MO DAY YEAR</p> <p>de DON'T KNOW ... 96 GO TO A5 de REFUSED 97 GO TO A5</p>
<p>4th Shot</p>	<p>___ / ___ / 19__ MO DAY YEAR</p> <p>de DON'T KNOW ... 96 GO TO A5 de REFUSED 97 GO TO A5</p>
<p>5th Shot</p>	<p>___ / ___ / 19__ MO DAY YEAR</p> <p>de DON'T KNOW ... 96 GO TO A5 de REFUSED 97 GO TO A5</p>
<p>6th Shot</p>	<p>___ / ___ / 19__ MO DAY YEAR</p> <p>de DON'T KNOW ... 96 GO TO A5 de REFUSED 97 GO TO A5</p>
<p>7th Shot</p>	<p>___ / ___ / 19__ MO DAY YEAR</p> <p>de DON'T KNOW ... 96 GO TO A5 de REFUSED 97 GO TO A5</p>
<p>8th Shot</p>	<p>___ / ___ / 19__ MO DAY YEAR GO TO A5</p> <p>de DON'T KNOW ... 96 GO TO A5 de REFUSED 97 GO TO A5</p>

SHOT RECORD FOR HEPATITIS B

	<p>A5. (Looking at the shot record) Please tell me how many times [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A] has received a Hepatitis B shot.</p>		
	Shots <input type="checkbox"/>	RECORD DATES BELOW	
	de NONE 0	GO TO A6 OR NEXT CHILD	
	de DON'T KNOW 6	GO TO A6 OR NEXT CHILD	
	de REFUSED 7	GO TO A6 OR NEXT CHILD	
	A5.A. What is the date (on the record) for the [FILL VAR: (First/Second/...Eighth)] (Hepatitis B) shot?		
1st Shot	___ / ___ / 19__ MO DAY YEAR	de DON'T KNOW .. 96 de REFUSED 97	GO TO A6 OR NEXT CHILD GO TO A6 OR NEXT CHILD
2nd Shot	___ / ___ / 19__ MO DAY YEAR	de DON'T KNOW .. 96 de REFUSED 97	GO TO A6 OR NEXT CHILD GO TO A6 OR NEXT CHILD
3rd Shot	___ / ___ / 19__ MO DAY YEAR	de DON'T KNOW .. 96 de REFUSED 97	GO TO A6 OR NEXT CHILD GO TO A6 OR NEXT CHILD
4th Shot	___ / ___ / 19__ MO DAY YEAR	de DON'T KNOW .. 96 de REFUSED 97	GO TO A6 OR NEXT CHILD GO TO A6 OR NEXT CHILD
5th Shot	___ / ___ / 19__ MO DAY YEAR	de DON'T KNOW .. 96 de REFUSED 97	GO TO A6 OR NEXT CHILD GO TO A6 OR NEXT CHILD
6th Shot	___ / ___ / 19__ MO DAY YEAR	de DON'T KNOW .. 96 de REFUSED 97	GO TO A6 OR NEXT CHILD GO TO A6 OR NEXT CHILD
7th Shot	___ / ___ / 19__ MO DAY YEAR	de DON'T KNOW .. 96 de REFUSED 97	GO TO A6 OR NEXT CHILD GO TO A6 OR NEXT CHILD
8th Shot	___ / ___ / 19__ MO DAY YEAR	de DON'T KNOW .. 96 de REFUSED 97	GO TO A6 OR NEXT CHILD GO TO A6 OR NEXT CHILD

A6. Has [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A] received any other immunizations that are listed on the shot records that I have not asked you about?

- de YES 1
- de NO 2 GO TO A7
- de DON'T KNOW 6 GO TO A7
- de REFUSED 7 GO TO A7

A6.A. How many other shots are listed there (that I have not asked you about)?

- NUMBER RECORD NAMES AND DATES BELOW
- de REFUSED 7 GO TO A7

A6.B. What is the name of the **FIRST** other shot listed on the record?

- de CHICKEN POX (VARICELLA) ... 01
- de FOUR-IN-ONE 02
- de BCG (TUBERCULOSIS) 03
- de TYPHOID 04
- de YELLOW FEVER 05
- de MALARIA 06
- de DTaP 07
- de DTP/HiB 08
- de DTP/HepB 09

- de OTHER (SPECIFY) 95

- de DON'T KNOW 96 GO TO A7 OR SECOND SHOT
- de REFUSED 97 GO TO A7 OR SECOND SHOT

A6.C. What is the date (on the record) for this shot?

- ____/____/19____
MO DAY YEAR
- de DON'T KNOW 96 GO TO A7 OR SECOND SHOT
 - de REFUSED 97 GO TO A7 OR SECOND SHOT

GO TO A7 OR SECOND SHOT (NEXT FRAME)

A6.B.2 What is the name of the **SECOND** other shot listed on the record?

- de CHICKEN POX (VARICELLA) . . . 01
- de FOUR-IN-ONE 02
- de BCG (TUBERCULOSIS) 03
- de TYPHOID 04
- de YELLOW FEVER 05
- de MALARIA 06
- de DTaP 07
- de DTP/HiB 08
- de DTP/HepB 09

de OTHER (SPECIFY) 95

- de DON'T KNOW 96 GO TO A7 OR THIRD SHOT
- de REFUSED 97 GO TO A7 OR THIRD SHOT

A6.C.2 What is the date (on the record) for this shot?

____/____/19____
MO DAY YEAR

- de DON'T KNOW 96 GO TO A7 OR THIRD SHOT
- de REFUSED 97 GO TO A7 OR THIRD SHOT

GO TO A7 OR THIRD SHOT (NEXT FRAME)

A6.B.3 What is the name of the **THIRD** other shot listed on the record?

- de CHICKEN POX (VARICELLA) . . . 01
- de FOUR-IN-ONE 02
- de BCG (TUBERCULOSIS) 03
- de TYPHOID 04
- de YELLOW FEVER 05
- de MALARIA 06
- de DTaP 07
- de DTP/HiB 08
- de DTP/HepB 09

de OTHER (SPECIFY) 95

- de DON'T KNOW 96 GO TO A7 OR FOURTH SHOT
- de REFUSED 97 GO TO A7 OR FOURTH SHOT

A6.C.3 What is the date (on the record) for this shot?

____/____/19____
MO DAY YEAR

- de DON'T KNOW 96 GO TO A7 OR FOURTH SHOT
- de REFUSED 97 GO TO A7 OR FOURTH SHOT

GO TO A7 OR FOURTH SHOT (NEXT FRAME)

A6.B.4 What is the name of the **FOURTH** other shot listed on the record?

- de CHICKEN POX (VARICELLA) . . . 01
- de FOUR-IN-ONE 02
- de BCG (TUBERCULOSIS) 03
- de TYPHOID 04
- de YELLOW FEVER 05
- de MALARIA 06
- de DTaP 07
- de DTP/HiB 08
- de DTP/HepB 09

de OTHER (SPECIFY) 95

- de DON'T KNOW 96 GO TO A7 OR FIFTH SHOT
- de REFUSED 97 GO TO A7 OR FIFTH SHOT

A6.C.4 What is the date (on the record) for this shot?

____ / ____ / 19____
MO DAY YEAR

- de DON'T KNOW 96 GO TO A7 OR FIFTH SHOT
- de REFUSED 97 GO TO A7 OR FIFTH SHOT

GO TO A7 OR FIFTH SHOT (NEXT FRAME)

A6.B.5 What is the name of the **FIFTH** other shot listed on the record?

- de CHICKEN POX (VARICELLA) . . . 01
- de FOUR-IN-ONE 02
- de BCG (TUBERCULOSIS) 03
- de TYPHOID 04
- de YELLOW FEVER 05
- de MALARIA 06
- de DTaP 07
- de DTP/HiB 08
- de DTP/HepB 09

de OTHER (SPECIFY) 95

- de DON'T KNOW 96 GO TO A7
- de REFUSED 97 GO TO A7

A6.C.5 What is the date (on the record) for this shot?

____ / ____ / 19____
MO DAY YEAR

- de DON'T KNOW 96 GO TO A7
- de REFUSED 97 GO TO A7

GO TO A7

A7. Are all the immunizations that [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A] ever received included on this shot record?

- YES 1 GO TO A14
- NO 2
- DON'T KNOW 6
- REFUSED 7

A8. Has [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A] ever received an additional D-T-P shot (sometimes called D-P-T shot, diphtheria-tetanus-pertussis shot, baby shot, or three-in-one shot)?

- YES 1
- NO 2
- DON'T KNOW 6 GO TO A9
- REFUSED 7 **A**

A8.A. How many additional D-T-P shots has [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A] received?

- NUMBER OF SHOTS
- ALL 50
- DON'T KNOW 96
- REFUSED 97

A9. Has [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A] ever received an additional polio vaccine by mouth (pink drops) or by a polio shot?

- YES 1
- NO 2
- DON'T KNOW 6 GO TO A10
- REFUSED 7 **A**

A9.A. How many additional polio vaccines has [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A] received?

- NUMBER OF VACCINES
- ALL 50
- DON'T KNOW 96
- REFUSED 97

A10. Has [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A] ever received an additional measles or M-M-R, that is, measles - mumps - rubella shot?

- YES 1
- NO 2
- DON'T KNOW 6 GO TO A11
- REFUSED 7 **A**

A10.A. How many additional measles or M-M-R shots has [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A] received?

- NUMBER OF SHOTS
- ALL 50
- DON'T KNOW 96
- REFUSED 97

A11. Has [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A] ever received an additional H-I-B shot? (This shot is for Meningitis and is called Haemophilus Influenzae {HA-MA-FI-LUS IN-FLU-EN-ZI}, H-I-B vaccine or H flu vaccine.)

- YES 1
- NO 2
- DON'T KNOW 6 GO TO A12
- REFUSED 7 **A**

A11.A. How many additional H-I-B shots has [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A] received?

- NUMBER OF SHOTS
- ALL 50
- DON'T KNOW 96
- REFUSED 97

A12. Has [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A] ever received an additional Hepatitis B shot?

- YES 1
 - NO 2
 - DON'T KNOW 6
 - REFUSED 7
- GO TO A13
- A**

A12.A. How many additional Hepatitis B shots has [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A] received?

- NUMBER OF SHOTS
- ALL 50
- DON'T KNOW 96
- REFUSED 97

A13. Has [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A] received any other additional immunizations that are not listed on the shot records that I have not asked you about?

- de** YES 1
 - de** NO 2
 - de** DON'T KNOW 6
 - de** REFUSED 7
- GO TO A14
- GO TO A14
- GO TO A14

A13.A. How many other additional shots are there (that I have not asked you about)?

- Number
- RECORD NAMES AND DATES BELOW
- de** REFUSED 7
- GO TO A14

A13.B. What is the name of the **FIRST** additional other shot (not listed on the records)?

- de CHICKEN POX (VARICELLA) . . . 01
- de FOUR-IN-ONE 02
- de BCG (TUBERCULOSIS) 03
- de TYPHOID 04
- de YELLOW FEVER 05
- de MALARIA 06
- de DTaP 07
- de DTP/HiB 08
- de DTP/HepB 09

- de OTHER (SPECIFY) 95

- de DON'T KNOW 96 GO TO A14 OR SECOND SHOT
- de REFUSED 97 GO TO A14 OR SECOND SHOT

GO TO A14 OR SECOND SHOT (NEXT FRAME)

A13.B.2 What is the name of the **SECOND** additional other shot (not listed on the records)?

- de CHICKEN POX (VARICELLA) . . 01
- de FOUR-IN-ONE 02
- de BCG (TUBERCULOSIS) 03
- de TYPHOID 04
- de YELLOW FEVER 05
- de MALARIA 06
- de DTaP 07
- de DTP/HiB 08
- de DTP/HepB 09

- de OTHER (SPECIFY) 95

- de DON'T KNOW 96 GO TO A14 OR THIRD SHOT
- de REFUSED 97 GO TO A14 OR THIRD SHOT

GO TO A14 OR THIRD SHOT (NEXT FRAME)

A13.B.3 What is the name of the **THIRD** additional other shot (not listed on the records)?

- de CHICKEN POX (VARICELLA) . . . 01
- de FOUR-IN-ONE 02
- de BCG (TUBERCULOSIS) 03
- de TYPHOID 04
- de YELLOW FEVER 05
- de MALARIA 06
- de DTaP 07
- de DTP/HiB 08
- de DTP/HepB 09

de OTHER (SPECIFY) 95

- de DON'T KNOW 96
- de REFUSED 97

GO TO A14 OR FOURTH SHOT
GO TO A14 OR FOURTH SHOT

GO TO A14 OR FOURTH SHOT (NEXT FRAME)

A13.B.4 What is the name of the **FOURTH** additional other shot (not listed on the records)?

- de CHICKEN POX (VARICELLA) . . . 01
- de FOUR-IN-ONE 02
- de BCG (TUBERCULOSIS) 03
- de TYPHOID 04
- de YELLOW FEVER 05
- de MALARIA 06
- de DTaP 07
- de DTP/HiB 08
- de DTP/HepB 09

de OTHER (SPECIFY) 95

- de DON'T KNOW 96
- de REFUSED 97

GO TO A14 OR FIFTH SHOT
GO TO A14 OR FIFTH SHOT

GO TO A14 OR FIFTH SHOT (NEXT FRAME)

A13.B.5 What is the name of the **FIFTH** additional other shot (not listed on the records)?

- de CHICKEN POX (VARICELLA) . . . 01
- de FOUR-IN-ONE 02
- de BCG (TUBERCULOSIS) 03
- de TYPHOID 04
- de YELLOW FEVER 05
- de MALARIA 06
- de DTaP 07
- de DTP/HiB 08
- de DTP/HepB 09

- de OTHER (SPECIFY) 95

- de DON'T KNOW 96 GO TO A14
- de REFUSED 97 GO TO A14

GO TO A14

A14. Are you the person who took [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A] for most of [FILL VAR: (his/her) FROM S3_C.1] shots? (Most means at least one-half of the shots.)

- YES 1
- NO 2
- DON'T KNOW 6
- REFUSED 7

A15. In your opinion, has [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A] received all of the recommended shots for [FILL VAR: (his/her) FROM S3_C.1] age?

- YES 1
- NO 2
- DON'T KNOW 6
- REFUSED 7

A16. REPEAT A6 - A15 FOR EACH CHILD WITH AVAILABLE SHOT RECORDS ON ANOTHER HARDCOPY QUESTIONNAIRE.

A17. INTERVIEWER CHECKPOINT.

CALLBACK INTERVIEW (SR OR MR COMPLETE)	INITIAL INTERVIEW
<p>de IF CHILDREN WITH NO AVAILABLE SHOT RECORDS, GO TO B1.</p> <p>de ALL OTHERS, "Those are all the questions I have. I'd like to thank you on behalf of the U. S. Public Health Service for the time and effort you spent answering these questions." [TERMINATE INTERVIEW].</p>	<p>de IF CHILDREN WITH NO AVAILABLE SHOT RECORDS, GO TO B1.</p> <p>de ALL OTHERS, GO TO C1</p>

SECTION B

NO Shot Records

**NOTE: SEE S6 - S8.B TO
DETERMINE WHICH CHILDREN
ARE ASKED SECTION B**

B1. Has [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A] ever received an immunization, that is a shot or drops?

YES	1	
NO	2	GO TO B10
DON'T KNOW	6	
REFUSED	7	A

B2. Has [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A] ever received a D-T-P shot (sometimes called a D-P-T shot, diphtheria-tetanus-pertussis shot, baby shot, or three-in-one shot)?

YES	1	
NO	2	
DON'T KNOW	6	GO TO B3
REFUSED	7	A

B2.A. How many D-T-P shots did [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A] ever receive?

NUMBER OF SHOTS	<input type="checkbox"/>	
ALL		50
DON'T KNOW		96
REFUSED		97

B3. Has [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A] ever received a polio vaccine by mouth, pink drops or by a polio shot?

- YES 1
- NO 2
- DON'T KNOW 6 GO TO B4
- REFUSED 7 **A**

B3.A. How many polio vaccine shots did [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A] ever receive?

- NUMBER OF VACCINES
- ALL 50
- DON'T KNOW 96
- REFUSED 97

B4. Has [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A] ever received a measles or M-M-R (Measles-Mumps-Rubella) shot?

- YES 1
- NO 2
- DON'T KNOW 6 GO TO B5
- REFUSED 7 **A**

B4.A. How many measles or M-M-R shots did [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A] ever receive?

- NUMBER OF SHOTS IF = 1 GO TO B4.B IF = 2 OR MORE GO TO B5
- ALL 50
- DON'T KNOW 96
- REFUSED 97

B4.B. Was that shot measles only or M-M-R only?

- MEASLES ONLY 1
- M-M-R ONLY 2
- DON'T KNOW 6
- REFUSED 7

B5. Has [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A] ever received an H-I-B shot? (This is for Meningitis and is called Haemophilus Influenzae {HA-MA-FI-LUS IN-FLU-EN-ZI}, H-I-B vaccine, or H flu vaccine?)

- YES 1
- NO 2
- DON'T KNOW 6 GO TO B6
- REFUSED 7 **A**

B5.A. How many H-I-B shots did [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A] ever receive?

- NUMBER OF SHOTS
- ALL 50
- DON'T KNOW 96
- REFUSED 97

B6. Has [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A] ever received a Hepatitis B shot?

- YES 1
- NO 2
- DON'T KNOW 6 GO TO B7
- REFUSED 7 **A**

B6.A. How many Hepatitis B shots did [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A] ever receive?

- NUMBER OF SHOTS
- ALL 50
- DON'T KNOW 96
- REFUSED 97

B7. Has [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A] received any other immunizations that I have not asked you about?

- de YES 1
- de NO 2 GO TO B8
- de DON'T KNOW 6 GO TO B8
- de REFUSED 7 GO TO B8

B7.A. How many other shots are there (that I have not asked you about)?

Number RECORD NAMES AND DATES IN B7.B

- de DON'T KNOW 6 GO TO B7.B
- de REFUSED 7 GO TO B8

B7.B. What is the name of the other shot(s)?

- de CHICKEN POX (VARICELLA) ... 01
- de FOUR-IN-ONE 02
- de BCG (TUBERCULOSIS), TP 03
- de TYPHOID 04
- de YELLOW FEVER 05
- de MALARIA 06
- de DTAP 07
- de DTP/HiB 08
- de DTP/HepB 09

- de OTHER (SPECIFY) 00

- de DON'T KNOW 96 GO TO B8 OR NEXT SHOT
- de REFUSED 97 GO TO B8 OR NEXT SHOT

GO TO B8 OR NEXT SHOT

B8. Are you the person who took [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A] for most of [FILL VAR: (his/her) FROM S3_C.1] shots? (Most means at least 1/2 of the shots.)

- YES 1
- NO 2
- DON'T KNOW 6
- REFUSED 7

B9. In your opinion, has [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A] received all of the recommended shots for [FILL VAR: (his/her) FROM S3_C.1] age?

- YES 1
- NO 2
- DON'T KNOW 6
- REFUSED 7

B10. REPEAT B1-B9 FOR EACH CHILD WITH NO AVAILABLE SHOT RECORDS.

B11. INTERVIEWER CHECKPOINT.

CALLBACK INTERVIEW (SR OR MR COMPLETE)	INITIAL INTERVIEW
de "Those are all the questions I have. I'd like to thank you on behalf of the U. S. Public Health Service for the time and effort you spent answering these questions." [TERMINATE INTERVIEW].	de GO TO C1

SECTION C

Demographics

C1. Including the adults and all the children, how many people live in this household?

NUMBER OF PEOPLE

C1.A. How many of these are adults 18 years of age or older?

NUMBER OF ADULTS

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	DETERMINE CORRECT NUMBERS
DON'T KNOW	.....	6	
REFUSED	.....	7	

C2. Is [FILL VAR: NAME OF FIRST/SECOND.../SIXTH CHILD, FROM S3_A] of Spanish or Hispanic descent, that is, Mexican, Mexican-American, Chicano, Puerto Rican, or Cuban? [CHECK ALL THAT APPLY]

NO, NOT SPANISH/HISPANIC	.....	01
YES, MEXICAN	.....	02
YES, MEXICAN-AMERICAN	.....	03
YES, CHICANO	.....	04
YES, PUERTO RICAN	.....	05
YES, CUBAN	.....	06
YES, OTHER SPANISH (SPECIFY)	.....	07

DON'T KNOW	.....	96
REFUSED	.....	97

C3. Is [FILL VAR: NAME OF FIRST/SECOND.../SIXTH CHILD, FROM S3_A] White, Black, American Indian, Asian, or another race? [CHECK ALL THAT APPLY]

WHITE	.....	1
BLACK	.....	2
AMERICAN INDIAN	.....	3
ASIAN	.....	4
OTHER (SPECIFY)	.....	5

DON'T KNOW	.....	6
REFUSED	.....	7

[IF MORE THAN ONE ANSWER AT C3, ASK C4]
[IF MORE THAN ONE ANSWER AT C3, ASK C4]

C4. Which do you feel best describes [FILL VAR: NAME OF FIRST/SECOND.../SIXTH CHILD, FROM S3_A]'s race?

- WHITE 1
 - BLACK 2
 - AMERICAN INDIAN 3
 - ASIAN 4
 - OTHER (SPECIFY) 5
-
- DON'T KNOW 6
 - REFUSED 7

C5. What is your relationship to [FILL VAR: NAME OF FIRST/SECOND... /SIXTH CHILD, FROM S3_A]?

- 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
- DON'T KNOW 96
- REFUSED 97

[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. What is the highest grade or year of regular school (you have/[FILL VAR: NAME OF FIRST/SECOND.../SIXTH CHILD, FROM S3_A]'s mother has) ever completed?

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17+
---	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	-----

NEVER ATTENDED/
KINDERGARTEN
(41)

ELEMENTARY
(51)

HIGH SCHOOL
(61)

COLLEGE
(71)

GRADUATE
(81)

DON'T KNOW 96
REFUSED 97

C7. (Are you/is [FILL VAR: NAME OF FIRST/SECOND.../SIXTH CHILD, FROM S3_A]'s mother) now married, widowed, divorced, separated, or (have you/has she) never been married?

MARRIED 01
WIDOWED 02
DIVORCED 03
SEPARATED 04
NEVER MARRIED 05
DECEASED 06 GO TO C12
DON'T KNOW 96
REFUSED 97

C8. (Are you/is [FILL VAR: NAME OF FIRST/SECOND.../SIXTH CHILD, FROM S3_A]'s mother) of Spanish or Hispanic descent, that is, Mexican, Mexican-American, Chicano, Puerto Rican, or Cuban? [CHECK ALL THAT APPLY]

NO, NOT SPANISH/HISPANIC 01
YES, MEXICAN 02
YES, MEXICAN-AMERICAN 03
YES, CHICANO 04
YES, PUERTO RICAN 05
YES, CUBAN 06
YES, OTHER SPANISH (SPECIFY) 07

DON'T KNOW 96
REFUSED 97

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

MORE THAN \$30,000	1	
\$30,000	2	
LESS THAN \$30,000	3	GO TO C19
DON'T KNOW	6	
REFUSED	7	A

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

MORE THAN \$75,000	1	
\$75,000	2	
LESS THAN \$75,000	3	GO TO C19
DON'T KNOW	6	
REFUSED	7	A

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

CITY _____

COUNTY _____

STATE _____

REFUSED 7

C19.A. What is your zip code?

DON'T KNOW 6

REFUSED 7

C19.B. Do you live within the city limits?

YES 1

NO 2

REFUSED 7

C20. The last 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].

YES 1
NO 2 GO TO D5
REFUSED 7 GO TO D5

C21. 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 GO TO C22
BOTH HOME AND BUSINESS 3
REFUSED 7 GO TO D5

C21.A. Is this second number used only for computer or fax communication?

YES 1
NO 2
DON'T KNOW 6
REFUSED 7 GO TO D5

C22. Do you have a third home phone number in addition to the two you have already told me about?

YES 1
NO 2 GO TO D5
REFUSED 7 GO TO D5

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 D5
BOTH HOME AND BUSINESS 3
REFUSED 7 GO TO D5

C23.A. Is this third number used only for computer or fax communication?

YES 1
NO 2
DON'T KNOW 6
REFUSED 7

IF YOU HAVE SET A Most Knowledgeable Respondent (MR SECTION) CALLBACK

IF YOU HAVE SET A Shot Record (SR SECTION) CALLBACK > GO TO D5

ALL OTHERS > GO TO D5

√

Those are all the questions I have. I'll be calling back at the scheduled time to complete the interview with [FILL VAR: MR NAME FROM MR1]. 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.

[TERMINATE INTERVIEW]

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). This study is voluntary and is authorized by the U.S. Public Health Service Act. It's all right to skip any questions you don't want to answer. The information you give will be kept in strict confidence and will be summarized for research purposes only.

D6 How many doctors or clinics have provided vaccinations for your child named [NAME OF (FIRST) ELIGIBLE CHILD] whose birthdate is [DATE OF BIRTH OF (FIRST) ELIGIBLE CHILD]?

NUMBER: |__|__|

D6A.1 Starting with the most recent, please tell me the name, address and telephone number for each doctor or clinic. (Would you take a moment to find shot cards, appointment cards or other records you may have?)

YES, CONTINUE ON 1
NO, CAN'T FIND, CONTINUE 2
REFUSED 7 GO TO D14

D6B.1.1.1 What is the last name of the doctor?

LAST_____

D6B.2.1.1 Do you know the doctor's first name?

FIRST_____

D6B.3.1.1 Please tell me the name of the office or the clinic.

OFFICE_____

D6B.4.1.1 What is the street address of the office or the clinic?

STREET_____

D6B.5.1.1 Is there a suite, floor, or room number?

SUITE #_____

D6B.6.1.1 What city is that in?

CITY_____

D6B.7.1.1 What state is that in?
STATE_____

D6B.8.1.1 What is the zip code?
ZIP CODE_____

D6B.9.1.1 What is their telephone number?
TELEPHONE_____

INTERVIEWER NOTE: IF MORE THAN ONE PROVIDER GO TO THE SUPPLEMENTAL PROVIDER SHEET - D6B.1.2.1

D6C. Thank you. The vaccination records collected from (this/these) provider(s) will be kept in strict confidence.

D7 Do we have your permission to contact the provider(s) named in this interview, give the provider(s) basic information that identifies your child, and request that information relevant to your child's immunization history be sent to the Centers for Disease Control and Prevention or its contractors for study purposes only?

- YES 1
- NO 2 GO TO D14
- YES, IF YOU SEND WRITTEN ALSO 3 GO TO D8 - D9C. THEN GO TO D10 - SHADED BOXED AREA
- SEND ME SOMETHING IN WRITING 4 GO TO D9A. - D9C. THEN GO TO D10 - SHADED BOXED AREA

D8 In order to help the doctor or clinic locate your child's vaccination records,

D8A.1 What is [NAME OF (FIRST) ELIGIBLE CHILD]'s full name - first, middle, and last name?
FIRST_____

D8B.1 (What is the [NAME OF (FIRST) ELIGIBLE CHILD]'s full name - first, middle, and last name?)
MIDDLE_____

D8C.1 (What is the [NAME OF (FIRST) ELIGIBLE CHILD]'s full name - first, middle, and last name?)
LAST _____

D9A. What is your full name - first, middle, and last?

FIRST _____

D9B. (What is your full name - first, middle, and last?)

MIDDLE _____

D9C. (What is your full name - first, middle, and last?)

LAST _____

ASK ONLY IF D7 = 3 or 4, OTHERWISE GO TO D14

D10	What is your street address? ADDRESS: _____
D11	Am I correct that you live in [CITY AND STATE]? YES 1 GO TO D12 NO 2 GO TO D11A
D11A.	In what city and state do you live? CITY _____
D11B.	STATE _____ REFUSED 7
D12	Am I correct that your zip code is [ZIP CODE]? YES 1 GO TO D13 NO 2 GO TO D12A.
D12A.	What is your zip code? ZIP CODE _____

INTERVIEWER NOTE: IF THERE ARE ANY ADDITIONAL ELIGIBLE CHILDREN, GO TO THE SUPPLEMENTAL CHILD SHEET, D6.2.

D14 Those are all the questions I have. 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. **[TERMINATE INTERVIEW]**

SUPPLEMENTAL PROVIDER SHEET

CASE # | | | | | | | | | |

ELIGIBLE CHILD'S NAME: _____ CHILD#: _____

ELIGIBLE CHILD'S BIRTHDATE: ____ / ____ / ____ PROVIDER#: _____

D6B.1.2.1 What is the last name of the next doctor?

LAST _____

D6B.2.2.1 Do you know the doctor's first name?

FIRST _____

D6B.3.2.1 Please tell me the name of the office or the clinic.

OFFICE _____

D6B.4.2.1 What is the street address of the office or the clinic?

STREET _____

D6B.5.2.1 Is there a suite, floor, or room number?

SUITE # _____

D6B.6.2.1 What city is that in?

CITY _____

D6B.7.2.1 What state is that in?

STATE _____

D6B.8.2.1 What is the zip code?

ZIP CODE _____

D6B.9.2.1 What is their telephone number?

TELEPHONE _____

INTERVIEWER NOTE: IF THERE ARE ANY ADDITIONAL PROVIDERS, OBTAIN ANOTHER SUPPLEMENTAL PROVIDER SHEET. WHEN YOU ARE FINISHED USING THE SUPPLEMENTAL PROVIDER SHEETS, RETURN TO THE QUESTIONNAIRE AT QUESTION

D6C.

SUPPLEMENTAL CHILD SHEET
PAGE 1

CASE # | | | | | | | | | |

NEXT ELIGIBLE CHILD'S NAME: _____ CHILD#: _____

NEXT ELIGIBLE CHILD'S BIRTHDATE: ____ / ____ / ____

WHICH SHOT SECTION COMPLETED? (circle one): A / B

D6.2 How many doctors or clinics have provided vaccinations for your child named [NAME OF (NEXT) ELIGIBLE CHILD] whose birthdate is [DATE OF BIRTH OF (NEXT) ELIGIBLE CHILD]?

NUMBER: | | | |

D6A.2 Starting with the most recent, please tell me the name, address and telephone number for each doctor or clinic. (Would you take a moment to find shot cards, appointment cards or other records you may have?)

- YES, CONTINUE ON 1
- NO, CAN'T FIND, CONTINUE 2
- REFUSED 7 GO TO D14B

D6B.1.1.2 What is the last name of the next doctor?

LAST _____

D6B.2.1.2 Do you know the doctor's first name?

FIRST _____

D6B.3.1.2 Please tell me the name of the office or the clinic.

OFFICE _____

D6B.4.1.2 What is the street address of the office or the clinic?

STREET _____

D6B.5.1.2 Is there a suite, floor, or room number?

SUITE # _____

D6B.6.1.2 What city is that in?

CITY _____

<p style="text-align: center;">SUPPLEMENTAL CHILD SHEET PAGE 2</p>
--

D6B.7.1.2 What state is that in?

STATE _____

D6B.8.1.2 What is the zip code?

ZIP CODE _____

D6B.9.1.2 What is their telephone number?

TELEPHONE _____

INTERVIEWER NOTE: IF MORE THAN ONE PROVIDER GO TO AN ADDITIONAL SUPPLEMENTAL PROVIDER SHEET - D6B.1.2.1

D8A.2 In order to help the doctor or clinic locate your child's vaccination records, what is [NAME OF (NEXT) ELIGIBLE CHILD]'s full name - first, middle, and last name?

FIRST _____

D8B.2 MIDDLE _____

D8C.2 LAST _____

INTERVIEWER NOTE: IF THERE ARE ANY ADDITIONAL ELIGIBLE CHILDREN, OBTAIN ANOTHER SUPPLEMENTAL CHILD FORM.

D14B Those are all the questions I have. 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. **[TERMINATE INTERVIEW]**

SECTION NR

Nonresponse Questions

NR1 How many children between 18 months and three years old are there living or staying in your household?

NUMBER OF CHILDREN IF 0, GO TO NR5
DON'T KNOW 6 GO TO NR5
REFUSED 7 GO TO NR5

NR2 How many doses of D-T-P or D-T has [FILL VAR: FROM NR1 (this child/the oldest of these children)] ever received?

NUMBER OF DOSES
DON'T KNOW 6
REFUSED 7 GO TO NR5

NR3 [FILL VAR: FROM NR1 (Is this child/Is the oldest of these children)] of Hispanic or Spanish descent, White, Black or something else? [CHECK ALL THAT APPLY]

HISPANIC OR SPANISH DESCENT 1
WHITE 2
BLACK 3
OTHER 4
DON'T KNOW 6
REFUSED 7 GO TO NR5

[IF NOT MOST KNOWLEDGEABLE, GO TO NR5]

NR4 What is [FILL VAR: FROM NR1 (this child's/the oldest child's)] month, day and year of birth?

|_____||_____||_____||
Month Day Year

DON'T KNOW 96
REFUSED 97

NR5 Those are all the questions I have. I'd like to thank you on behalf of the U. S. Public Health Service for the time and effort you spent answering these questions.

GO TO RESULT SCREEN AND TERMINATE

Appendix C

NIS Provider Questionnaire

**NATIONAL IMMUNIZATION SURVEY PROVIDER STUDY
IMMUNIZATION HISTORY QUESTIONNAIRE
(Used in Q1/1995 to Q4/1995)**

INSTRUCTIONS: Please review your records and complete this questionnaire for the child identified below. Then, mail it in the postage-paid envelope provided or fax it to: Victor Coronado, M.D., Fax #:(312) 621-3840.

1. Which of the following best describes your records of immunization for this child? (Check only one box.)

- a. Have immunization record for this child. (Go to question 2 below.)
- b. Have provided care to this child, but do not have his/her immunization record. (Go to question 9 on next page.)
- c. Have no record of providing care to this child. (Return questionnaire to CDC as instructed above.)
- d. Other: _____

2a. Please specify below the month, day and year that each of the following immunizations was given, either by your office or another provider (OP), as documented in your records. If you prefer, you may attach a copy of the complete immunization history.

Circle the "OP" for any immunization given by another provider, after the date for that immunization.

	Dates of immunization:				
	(1) mm-dd-yy	(2) mm-dd-yy	(3) mm-dd-yy	(4) mm-dd-yy	(5) mm-dd-yy
DTP/DT	__-__-__ OP	__-__-__ OP	__-__-__ OP	__-__-__ OP	__-__-__ OP
Polio	__-__-__ OP	__-__-__ OP	__-__-__ OP	__-__-__ OP	__-__-__ OP
MMR	__-__-__ OP	__-__-__ OP	__-__-__ OP	__-__-__ OP	__-__-__ OP
Hib	__-__-__ OP	__-__-__ OP	__-__-__ OP	__-__-__ OP	__-__-__ OP
Hep-B	__-__-__ OP	__-__-__ OP	__-__-__ OP	__-__-__ OP	__-__-__ OP
DTP-Hib ¹	__-__-__ OP	__-__-__ OP	__-__-__ OP	__-__-__ OP	__-__-__ OP
Any Other ² (Specify)	__-__-__ OP	__-__-__ OP	__-__-__ OP	__-__-__ OP	__-__-__ OP

¹Tetramune or Acthib ²Other vaccines

2b. If you circled any "OPs" above to indicate immunizations given by another provider, enter the name, address, and phone of each other provider below. Otherwise, go to question 3.

(1) _____

 () _____

(2) _____

 () _____

Appendix D

Summary Statistics for Sampling Weights by IAP Area

Q1/1995-Q4/1995 : Child Weight for Completed Household Interviews (HY_WGT)

IAP Area	N	SUM	MIN	MAX	MEAN	CV
TOTAL U.S.	31997	5800418.27	4.967	2301.73	181.280	117.265
1 CT	413	68231.02	52.181	310.72	165.208	27.833
2 MA-REST OF STATE	420	106680.23	17.393	477.03	254.001	26.717
3 MA-CITY OF BOSTON	386	13517.57	11.075	70.08	35.020	29.951
4 ME	406	23381.67	20.622	87.92	57.590	22.662
5 NH	420	22711.32	18.886	90.68	54.075	25.463
6 RI	405	20073.51	14.626	94.77	49.564	28.629
7 VT	401	11032.57	10.487	90.89	27.513	22.734
8 NJ-REST OF STATE	458	166370.99	4.967	1164.50	363.255	52.864
9 NJ-CITY OF NEWARK	340	7798.68	6.481	90.72	22.937	45.943
10 NY-REST OF STATE	413	215604.59	20.444	839.50	522.045	26.324
11 NY-NYC 5 COUNTIES	395	185654.22	111.209	870.27	470.011	37.316
12 DISTRICT OF COLUMBIA	368	13180.47	7.069	105.82	35.816	35.569
13 DE	398	14486.22	8.361	83.78	36.398	42.213
14 MD-REST OF STATE	436	97349.44	11.816	617.57	223.279	46.277
15 MD-CITY OF BALTIMORE	375	20177.44	10.400	116.78	53.807	41.908
16 PA-REST OF STATE	407	192164.35	6.991	727.29	472.148	26.888
17 PA-PHILADELPHIA COUNTY	406	39027.02	24.083	146.54	96.126	23.249
18 VA	408	143061.29	23.166	649.23	350.640	32.359
19 WV	413	30211.21	25.230	135.64	73.151	26.286
20 AL-REST OF STATE	409	76217.58	34.298	425.42	186.351	35.886
21 AL-JEFFERSON COUNTY	394	14318.89	10.090	173.11	36.342	42.758
22 FL-REST OF STATE	410	223892.72	39.546	1016.08	546.080	27.369
23 FL-DUVAL COUNTY	399	18523.79	13.682	97.30	46.426	34.578
24 FL-DADE COUNTY	372	50458.06	33.948	382.35	135.640	39.407
25 GA-REST OF STATE	426	130229.97	27.641	798.51	305.704	48.457
26 GA-FULTON/DEKALB COUNTIES	385	31037.27	26.985	177.93	80.616	46.870
27 KY	418	75944.97	50.801	408.08	181.687	36.886
28 MS	418	60388.18	35.998	286.80	144.469	33.284
29 NC	410	148654.65	92.207	625.54	362.572	28.483
30 SC	403	80788.96	48.173	494.85	200.469	39.836
31 TN-REST OF STATE	397	68559.54	13.470	298.78	172.694	35.838
32 TN-SHELBY COUNTY	419	21562.01	12.511	116.95	51.461	36.857
33 TN-DAVIDSON COUNTY	434	11693.71	6.089	68.33	26.944	35.772
34 IL-REST OF STATE	400	189833.49	20.130	813.81	474.584	24.862
35 IL-CITY OF CHICAGO	438	85190.17	13.859	1010.98	194.498	51.712
36 IN-REST OF STATE	416	100259.24	12.528	424.51	241.008	34.809
37 IN-MARION COUNTY	390	20703.82	16.695	218.49	53.087	43.840
38 MI-REST OF STATE	428	172410.92	40.061	752.18	402.829	42.061
39 MI-CITY OF DETROIT	384	29801.30	16.508	376.45	77.608	49.626
40 MN	400	95462.38	29.212	494.08	238.656	29.505
41 OH-REST OF STATE	429	172322.51	20.833	835.64	401.684	39.682
42 OH-CUYAHOGA COUNTY	384	31208.94	27.275	167.75	81.273	33.317
43 OH-FRANKLIN COUNTY	388	23446.74	17.985	107.53	60.430	30.509
44 WI-REST OF STATE	421	78035.06	35.480	308.67	185.356	24.533
45 WI-MILWAUKEE COUNTY	417	24421.58	17.721	117.52	58.565	33.330
46 AR	414	49388.64	25.186	532.54	119.296	39.461
47 LA-REST OF STATE	438	83192.62	7.763	505.22	189.937	52.275
48 LA-ORLEANS PARISH	397	12546.26	8.414	109.91	31.603	41.518
49 NM	416	40384.95	19.577	222.33	97.079	50.919

Q1/1995-Q4/1995 : Child Weight for Completed Household Interviews (HY_WGT)

IAP Area	N	SUM	MIN	MAX	MEAN	CV
50 OK	410	66940.50	36.693	470.40	163.27	48.1129
51 TX-REST OF STATE	471	292526.01	29.901	1618.85	621.07	54.8934
52 TX-DALLAS COUNTY	383	52438.74	32.204	261.28	136.92	41.2158
53 TX-EL PASO COUNTY	467	22661.41	6.748	94.62	48.53	43.7293
54 TX-CITY OF HOUSTON	395	59026.94	34.605	884.71	149.44	51.0110
55 TX-BEXAR COUNTY	404	32164.77	24.283	335.26	79.62	46.7673
56 IA	434	53899.28	45.604	227.45	124.19	26.6509
57 KS	416	54905.17	27.747	287.61	131.98	34.7527
58 MO	418	106774.59	88.669	461.32	255.44	29.0979
59 NE	413	32093.35	27.269	172.37	77.71	28.0698
60 CO	417	74829.93	32.566	398.68	179.45	35.7992
61 MT	421	16017.28	14.726	65.68	38.05	23.7335
62 ND	408	11113.58	10.303	50.64	27.24	26.6720
63 SD	434	15626.90	10.694	90.90	36.01	45.3605
64 UT	448	49262.87	17.489	220.50	109.96	28.7531
65 WY	423	9299.68	7.838	47.83	21.99	29.7281
66 AZ-REST OF STATE	436	40652.96	19.960	361.18	93.24	45.5112
67 AZ-MARICOPA COUNTY	431	56593.65	35.034	334.83	131.31	42.3996
68 CA-REST OF STATE	390	466970.17	81.271	2301.73	1197.36	31.5943
69 CA-LOS ANGELES COUNTY	399	280721.17	160.318	1724.42	703.56	34.5136
70 CA-SANTA CLARA COUNTY	391	39721.70	33.175	269.80	101.59	31.0998
71 CA-SAN DIEGO COUNTY	410	72075.22	36.034	368.41	175.79	44.5226
72 HI	395	28782.01	19.642	120.11	72.87	29.8317
73 NV	401	34890.79	24.248	147.05	87.01	32.3996
74 AK	433	15696.50	9.192	66.48	36.25	26.8203
75 ID	421	25037.39	20.328	101.93	59.47	24.5290
76 OR	402	61189.09	50.922	295.24	152.21	28.3903
77 WA-REST OF STATE	415	83463.96	47.560	357.24	201.12	28.2076
78 WA-KING COUNTY	389	33449.94	26.880	181.19	85.99	32.7416

Q1/1995-Q4/1995 : Child Weight for Children with Adequate Provider Data (W0)

IAP Area	N	SUM	MIN	MAX	MEAN	CV
TOTAL U.S.	16183	5800418.27	4.655	10758.96	358.43	144.950
1 CT	216	68231.02	107.331	735.66	315.88	39.842
2 MA-REST OF STATE	236	106680.23	36.389	1286.24	452.03	35.665
3 MA-CITY OF BOSTON	185	13517.57	14.282	315.31	73.07	68.413
4 ME	235	23381.67	31.203	229.62	99.50	30.853
5 NH	241	22711.32	23.433	236.48	94.24	38.971
6 RI	225	20073.51	24.133	192.02	89.22	35.635
7 VT	225	11032.57	19.256	127.75	49.03	33.611
8 NJ-REST OF STATE	213	166370.99	9.527	4256.14	781.08	71.668
9 NJ-CITY OF NEWARK	145	7798.68	10.469	256.78	53.78	71.830
10 NY-REST OF STATE	209	215604.59	417.579	3218.26	1031.60	50.605
11 NY-NYC 5 COUNTIES	143	185654.22	256.576	8435.70	1298.28	83.268
12 DISTRICT OF COLUMBIA	170	13180.47	15.894	328.15	77.53	56.655
13 DE	209	14486.22	16.859	193.98	69.31	54.221
14 MD-REST OF STATE	220	97349.44	27.086	1901.72	442.50	69.426
15 MD-CITY OF BALTIMORE	149	20177.44	4.655	1664.86	135.42	136.613
16 PA-REST OF STATE	224	192164.35	10.016	2913.47	857.88	43.492
17 PA-PHILADELPHIA COUNTY	152	39027.02	51.222	980.59	256.76	59.706
18 VA	215	143061.29	41.185	2505.16	665.40	58.842
19 WV	233	30211.21	46.718	303.43	129.66	33.600
20 AL-REST OF STATE	206	76217.58	51.110	1853.09	369.99	66.716
21 AL-JEFFERSON COUNTY	213	14318.89	16.816	280.60	67.22	46.601
22 FL-REST OF STATE	194	223892.72	387.556	2657.56	1154.09	36.266
23 FL-DUVAL COUNTY	176	18523.79	27.938	364.58	105.25	55.222
24 FL-DADE COUNTY	172	50458.06	68.298	1653.98	293.36	59.815
25 GA-REST OF STATE	215	130229.97	50.680	3951.63	605.72	85.734
26 GA-FULTON/DEKALB COUNTIES	174	31037.27	38.510	1454.65	178.38	100.539
27 KY	207	75944.97	81.083	1066.93	366.88	51.646
28 MS	225	60388.18	86.030	1410.79	268.39	72.670
29 NC	221	148654.65	151.140	2029.13	672.65	50.901
30 SC	224	80788.96	80.855	1649.56	360.67	68.316
31 TN-REST OF STATE	224	68559.54	21.231	813.73	306.07	44.006
32 TN-SHELBY COUNTY	204	21562.01	28.812	319.51	105.70	45.927
33 TN-DAVIDSON COUNTY	232	11693.71	9.206	143.14	50.40	48.898
34 IL-REST OF STATE	204	189833.49	50.213	4145.80	930.56	55.461
35 IL-CITY OF CHICAGO	175	85190.17	38.832	1699.14	486.80	65.047
36 IN-REST OF STATE	216	100259.24	26.095	1201.40	464.16	45.301
37 IN-MARION COUNTY	191	20703.82	31.816	505.76	108.40	63.214
38 MI-REST OF STATE	235	172410.92	54.590	2623.38	733.66	64.520
39 MI-CITY OF DETROIT	156	29801.30	16.992	588.20	191.03	63.256
40 MN	242	95462.38	32.994	1155.60	394.47	42.519
41 OH-REST OF STATE	237	172322.51	35.149	2121.93	727.10	50.862
42 OH-CUYAHOGA COUNTY	195	31208.94	56.780	633.60	160.05	67.142
43 OH-FRANKLIN COUNTY	219	23446.74	40.847	300.37	107.06	46.216
44 WI-REST OF STATE	246	78035.06	49.715	737.92	317.22	32.950
45 WI-MILWAUKEE COUNTY	215	24421.58	28.606	322.23	113.59	45.919
46 AR	237	49388.64	31.375	733.88	208.39	59.961
47 LA-REST OF STATE	229	83192.62	11.512	1584.70	363.29	69.700
48 LA-ORLEANS PARISH	176	12546.26	12.769	347.64	71.29	83.934
49 NM	204	40384.95	34.183	686.16	197.97	65.709

Q1/1995-Q4/1995 : Child Weight for Children with Adequate Provider Data (W0)

IAP Area	N	SUM	MIN	MAX	MEAN	CV
50 OK	223	66940.50	63.154	1081.25	300.18	57.9301
51 TX-REST OF STATE	227	292526.01	94.906	5794.26	1288.66	73.8083
52 TX-DALLAS COUNTY	190	52438.74	54.616	1333.41	275.99	67.8392
53 TX-EL PASO COUNTY	213	22661.41	23.815	487.80	106.39	59.9435
54 TX-CITY OF HOUSTON	159	59026.94	66.087	1490.04	371.24	67.6792
55 TX-BEXAR COUNTY	173	32164.77	35.110	570.77	185.92	47.6275
56 IA	274	53899.28	60.868	510.35	196.71	37.1150
57 KS	238	54905.17	42.855	809.99	230.69	53.6486
58 MO	219	106774.59	150.478	1968.46	487.56	46.3619
59 NE	224	32093.35	43.375	470.32	143.27	40.9352
60 CO	214	74829.93	44.546	2023.00	349.67	65.1726
61 MT	239	16017.28	18.761	166.41	67.02	37.6416
62 ND	222	11113.58	14.857	151.33	50.06	40.7655
63 SD	256	15626.90	15.895	169.43	61.04	49.0082
64 UT	258	49262.87	27.532	445.28	190.94	38.8875
65 WY	223	9299.68	12.620	124.44	41.70	49.1864
66 AZ-REST OF STATE	189	40652.96	54.427	858.89	215.10	67.2812
67 AZ-MARICOPA COUNTY	183	56593.65	64.677	1322.60	309.25	64.4876
68 CA-REST OF STATE	160	466970.17	198.554	10758.96	2918.56	54.9251
69 CA-LOS ANGELES COUNTY	145	280721.17	284.768	4611.01	1936.01	51.8636
70 CA-SANTA CLARA COUNTY	194	39721.70	55.319	627.18	204.75	47.5877
71 CA-SAN DIEGO COUNTY	182	72075.22	89.616	1390.50	396.02	58.0281
72 HI	188	28782.01	43.314	743.53	153.10	71.8802
73 NV	196	34890.79	40.354	483.31	178.01	43.7862
74 AK	194	15696.50	13.370	210.41	80.91	45.7120
75 ID	224	25037.39	34.565	308.90	111.77	40.6778
76 OR	216	61189.09	79.859	707.85	283.28	37.3903
77 WA-REST OF STATE	221	83463.96	95.081	1077.88	377.66	42.5009
78 WA-KING COUNTY	230	33449.94	41.878	479.69	145.43	44.3244

Appendix E

**Disposition of Child with respect to Provider Record Check
for NIS, Q1/1995 to Q4/1995**

DISPCODE: Disposition of Child with Respect to Provider Record Check
for NIS - Q1\1995 to Q4\1995:

*Number
Of
Children* *Disposition Code Number and Definition*

- 7,701 1 = All identified providers responded,
no problems indicated in cross check between household and provider shot dates.
- 6,150 2 = All identified providers responded,
no NIS shot card to cross check.
- 542 3 = All identified providers responded,
poor immunization history matching results.
- 99 4 = All identified providers responded,
poor immunization history matching results,
additional mismatch indicators present.
- 1,255 5 = Some but not all identified providers responded,
but provider information indicates 4:3:1
up-to-date.
- 81 6 = Some but not all identified providers responded,
but provider information matches
NIS shot card immunization history.
- 515 7 = Some but not all identified providers responded,
completeness of provider immunization
history is unknown.
- 55 8 = Some but not all identified providers responded,
but provider information indicates 4:3:1
up-to-date when post-RDD-interview
immunizations are included.
- 34 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).

136 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).

130 11 = Some but not all identified providers responded, but 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).

16,698 TOTAL

Notes: The criteria for all dispositions (except 7) were 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 F

Examples of the Use of SUDAAN To Estimate Vaccination Coverage Rates and Their Standard Errors


```

55='TX-Bexar County '
56='Iowa '
57='Kansas '
58='Missouri '
59='Nebraska '
60='Colorado '
61='Montana '
62='North Dakota '
63='South Dakota '
64='Utah '
65='Wyoming '
66='AZ-Rest of State '
67='AZ-Maricopa Cnty '
68='CA-Rest of State '
69='CA-Los Angeles '
70='CA-Santa Clara '
71='CA-San Diego Cnty'
72='Hawaii '
73='Nevada '
74='Alaska '
75='Idaho '
76='Oregon '
77='WA-Rest of State '
78='WA-King County ' ;

```

```

data sud_file;
set &in_file(keep= seqnumhh seqnumc putd4313 itrueiap w0);

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: ITRUEIAP (STRATUM) NSEQNUMH (PRIMARY SAMPLING UNIT) ===*;
proc sort;
by itrueiap nseqnumh;

proc crosstab data=sud_file filetype=sas design=wr;
weight &wt;
nest itrueiap nseqnumh;
subgroup itrueiap putd4313 ;
levels 78 2 ;
tables itrueiap * putd4313 ;
print nsum wsum rowper serow/style=nchs ;
rtitle "4:3:1:3 ESTIMATES BY IAP";
rformat itrueiap itrueiaf.;

```

```
rformat putd4313 put4313f.;
output rowper serow/filename=sud_est filetype=sas;

proc print data=sud_est(where=(putd4313=1)) noobs label;
format itrueiap itrueiaf.;
var itrueiap rowper serow ;
label
    rowper='Percent 4:3:1:3 Up -to-date'
    serow='Standard Error'
;
title "4:3:1:3 ESTIMATES BY IAP";
```

```

*****
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:\nispuf95'; *--- SPECIFY PATH TO SAS DATASET ---*;
libname library 'c:\nispuf95'; *--- IF DATASET WAS CREATED WITH FORMATS STORED ---*;
      *--- PERMANENTLY SPECIFY PATH TO LIBRARY ---*;
      *--- OTHERWISE COMMENT THIS STATEMENT OUT ---*;

```

```

%let in_file=dd.nispuf95; *--- NAME OF SAS DATASET ---*;
%let wt=w0; *--- 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='Dist. 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 ='Mary land     '
25 ='Massachusetts '
26 ='Michigan      '
27 ='Minnesota     '
28 ='Mississippi   '
29 ='Missouri      '
30 ='Montana       '
31 ='Nebraska      '
32 ='Nevada        '
33 ='New Hamp shire '
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 itrueiap state w0);

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: ITRUEIAP (STRATUM) NSEQNUMH (PRIMARY SAMPLING UNIT) ===*;
proc sort;
by itrueiap nseqnumh;

proc crosstab data=sud_file filetype=sas design=wr;
weight w0;
nest itrueiap 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_est filetype=sas;

*** EXCLUDE 3,7,14,43,52 THERE ARE NO STATES WITH THESE FIPS CODES *** ;
proc print data=sud_est(where=(putd4313=1
      & state notin (3,7,14,43,52))) label noobs;
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";
```

Appendix G
Table of Contents
and
Alphabetical Index of Variables
from
National Immunization Survey
1995 Public-Use Data File
Documentation, Code Book and Frequencies

1995 National Immunization Survey Public-Use Data File

TABLE OF CONTENTS =====

SECTION	PAGE
INDEX OF VARIABLES	3
1 ID, WEIGHT AND FLAG VARIABLES.	13
2 HOUSEHOLD VACCINATION VARIABLES.	16
3 DEMOGRAPHIC AND SOCIOECONOMIC VARIABLES.	24
4 GEOGRAPHIC VARIABLES	32
5 NUMBER OF PROVIDERS IDENTIFIED AND CONSENT VARIABLES	36
6 NUMBER OF RESPONDING PROVIDER VARIABLES.	37
7 CHARACTERISTICS OF PROVIDER VARIABLES.	40
8 PROVIDER-REPORTED UP-TO-DATE VACCINATION VARIABLES	41
9 PROVIDER-REPORTED AGE AT VACCINATION VARIABLES	54
ALPHABETICAL INDEX OF VARIABLES.	130

1995 National Immunization Survey Public-Use Data File

ALPHABETICAL INDEX OF VARIABLES

VARIABLE NAME	BEGIN POSITION	END POSITION	SECTION NUMBER	VARIABLE LABEL
AGEGRP	0053	0053	3	AGE CATEGORY OF CHILD (RECODE)
ALL4SHOT	0037	0037	2	4:3:1:3 UP-TO-DATE (HH REPORT)
C_431	0038	0038	2	HOUSEHOLD REPORT OF 4:3:1 UP-TO-DATE BY SHOT CARD USE
C_4313	0039	0039	2	HOUSEHOLD REPORT OF 4:3:1:3 UP-TO-DATE BY SHOT CARD USE
C_DTP	0040	0040	2	HOUSEHOLD REPORT OF 4+ DTP UP-TO-DATE BY SHOT CARD USE
C_HEP	0041	0041	2	HOUSEHOLD REPORT OF 3+ HEPATITIS B UP-TO-DATE BY SHOT CARD USE
C_HIB	0042	0042	2	HOUSEHOLD REPORT OF 3+ HIB UP-TO-DATE BY SHOT CARD USE
C_MMR	0043	0043	2	HOUSEHOLD REPORT OF 1+ MEASLES-CONTAINING VACCINE UP-TO-DATE BY SHOT CARD USE
C_POL	0044	0044	2	HOUSEHOLD REPORT OF 3+ POLIO UP-TO-DATE BY SHOT CARD USE
C1R	0054	0055	3	NUMBER OF PEOPLE LIVING IN THE HOUSEHOLD (RECODE)
C5R	0056	0057	3	RELATIONSHIP OF RESPONDENT TO CHILD (RECODE)
CARTYP1	0082	0082	6	CHILD'S PROVIDERS OFFER ROUTINE WELL CARE
CARTYP2	0083	0083	6	CHILD'S PROVIDERS OFFER SICK/EMERGENCY VISITS
CARTYP3	0084	0084	6	CHILD'S PROVIDERS OFFER VACCINATION VISITS
CARTYP4	0085	0085	6	CHILD'S PROVIDERS OFFER OTHER SERVICES
CARTYP5	0086	0086	6	CHILD'S PROVIDERS OFFER WIC PROGRAM/SERVICES
CEN_REG	0058	0058	3	CENSUS REGION BASED ON STATE
CHILDNM	0059	0059	3	NUMBER OF CHILDREN LESS THAN 18 YEARS IN HH (RECODE)
D6R	0078	0078	5	NUMBER OF VACCINATION PROVIDERS IDENTIFIED BY RESPONDENT (RECODE)
DDTP1	0557	0560	9	AGE IN DAYS OF PROVIDER-REPORTED DTP SHOT (ALL TYPES INCLUDING DT) #1
DDTP2	0561	0564	9	AGE IN DAYS OF PROVIDER-REPORTED DTP SHOT (ALL TYPES INCLUDING DT) #2
DDTP3	0565	0568	9	AGE IN DAYS OF PROVIDER-REPORTED DTP SHOT (ALL TYPES INCLUDING DT) #3
DDTP4	0569	0572	9	AGE IN DAYS OF PROVIDER-REPORTED DTP SHOT (ALL TYPES INCLUDING DT) #4
DDTP5	0573	0576	9	AGE IN DAYS OF PROVIDER-REPORTED DTP SHOT (ALL TYPES INCLUDING DT) #5
DDTP6	0577	0580	9	AGE IN DAYS OF PROVIDER-REPORTED DTP SHOT (ALL TYPES INCLUDING DT) #6
DDTP7	0581	0584	9	AGE IN DAYS OF PROVIDER-REPORTED DTP SHOT (ALL TYPES INCLUDING DT) #7
DDTP8	0585	0588	9	AGE IN DAYS OF PROVIDER-REPORTED DTP SHOT (ALL TYPES INCLUDING DT) #8

1995 National Immunization Survey Public-Use Data File

ALPHABETICAL INDEX OF VARIABLES

VARIABLE NAME	BEGIN POSITION	END POSITION	SECTION NUMBER	VARIABLE LABEL
DDTPHB1	0589	0592	9	AGE IN DAYS OF PROVIDER-REPORTED DTP/HIB SHOT (ALL TYPES) #1
DDTPHB2	0593	0596	9	AGE IN DAYS OF PROVIDER-REPORTED DTP/HIB SHOT (ALL TYPES) #2
DDTPHB3	0597	0600	9	AGE IN DAYS OF PROVIDER-REPORTED DTP/HIB SHOT (ALL TYPES) #3
DDTPHB4	0601	0604	9	AGE IN DAYS OF PROVIDER-REPORTED DTP/HIB SHOT (ALL TYPES) #4
DDTPHB5	0605	0608	9	AGE IN DAYS OF PROVIDER-REPORTED DTP/HIB SHOT (ALL TYPES) #5
DDTPHB6	0609	0612	9	AGE IN DAYS OF PROVIDER-REPORTED DTP/HIB SHOT (ALL TYPES) #6
DDTPHB7	0613	0616	9	AGE IN DAYS OF PROVIDER-REPORTED DTP/HIB SHOT (ALL TYPES) #7
DDTPHB8	0617	0620	9	AGE IN DAYS OF PROVIDER-REPORTED DTP/HIB SHOT (ALL TYPES) #8
DHB1_AGE	0861	0862	9	AGE IN MONTHS OF PROVIDER-REPORTED DTP/HIB (ALL TYPES) SHOT #1
DHB2_AGE	0863	0864	9	AGE IN MONTHS OF PROVIDER-REPORTED DTP/HIB (ALL TYPES) SHOT #2
DHB3_AGE	0865	0866	9	AGE IN MONTHS OF PROVIDER-REPORTED DTP/HIB (ALL TYPES) SHOT #3
DHB4_AGE	0867	0868	9	AGE IN MONTHS OF PROVIDER-REPORTED DTP/HIB (ALL TYPES) SHOT #4
DHB5_AGE	0869	0870	9	AGE IN MONTHS OF PROVIDER-REPORTED DTP/HIB (ALL TYPES) SHOT #5
DHB6_AGE	0871	0872	9	AGE IN MONTHS OF PROVIDER-REPORTED DTP/HIB (ALL TYPES) SHOT #6
DHB7_AGE	0873	0874	9	AGE IN MONTHS OF PROVIDER-REPORTED DTP/HIB (ALL TYPES) SHOT #7
DHB8_AGE	0875	0876	9	AGE IN MONTHS OF PROVIDER-REPORTED DTP/HIB (ALL TYPES) SHOT #8
DHEPB1	0621	0624	9	AGE IN DAYS OF PROVIDER-REPORTED HEPATITIS B (ALL TYPES) SHOT #1
DHEPB2	0625	0628	9	AGE IN DAYS OF PROVIDER-REPORTED HEPATITIS B (ALL TYPES) SHOT #2
DHEPB3	0629	0632	9	AGE IN DAYS OF PROVIDER-REPORTED HEPATITIS B (ALL TYPES) SHOT #3
DHEPB4	0633	0636	9	AGE IN DAYS OF PROVIDER-REPORTED HEPATITIS B (ALL TYPES) SHOT #4
DHEPB5	0637	0640	9	AGE IN DAYS OF PROVIDER-REPORTED HEPATITIS B (ALL TYPES) SHOT #5
DHEPB6	0641	0644	9	AGE IN DAYS OF PROVIDER-REPORTED HEPATITIS B (ALL TYPES) SHOT #6
DHEPB7	0645	0648	9	AGE IN DAYS OF PROVIDER-REPORTED HEPATITIS B (ALL TYPES) SHOT #7
DHEPB8	0649	0652	9	AGE IN DAYS OF PROVIDER-REPORTED HEPATITIS B (ALL TYPES) SHOT #8

1995 National Immunization Survey Public-Use Data File

ALPHABETICAL INDEX OF VARIABLES

VARIABLE NAME	BEGIN POSITION	END POSITION	SECTION NUMBER	VARIABLE LABEL
DHIB1	0653	0656	9	AGE IN DAYS OF PROVIDER-REPORTED HIB SHOT (ALL TYPES) #1
DHIB2	0657	0660	9	AGE IN DAYS OF PROVIDER-REPORTED HIB SHOT (ALL TYPES) #2
DHIB3	0661	0664	9	AGE IN DAYS OF PROVIDER-REPORTED HIB SHOT (ALL TYPES) #3
DHIB4	0665	0668	9	AGE IN DAYS OF PROVIDER-REPORTED HIB SHOT (ALL TYPES) #4
DHIB5	0669	0672	9	AGE IN DAYS OF PROVIDER-REPORTED HIB SHOT (ALL TYPES) #5
DHIB6	0673	0676	9	AGE IN DAYS OF PROVIDER-REPORTED HIB SHOT (ALL TYPES) #6
DHIB7	0677	0680	9	AGE IN DAYS OF PROVIDER-REPORTED HIB SHOT (ALL TYPES) #7
DHIB8	0681	0684	9	AGE IN DAYS OF PROVIDER-REPORTED HIB SHOT (ALL TYPES) #8
DISPCODE	0079	0080	6	NIS PROVIDER RECORD-CHECK DISPOSITION CODE
DMMR1	0685	0688	9	AGE IN DAYS OF PROVIDER-REPORTED MEASLES-CONTAINING VACCINE SHOT #1
DMMR2	0689	0692	9	AGE IN DAYS OF PROVIDER-REPORTED MEASLES-CONTAINING VACCINE SHOT #2
DMMR3	0693	0696	9	AGE IN DAYS OF PROVIDER-REPORTED MEASLES-CONTAINING VACCINE SHOT #3
DMMR4	0697	0700	9	AGE IN DAYS OF PROVIDER-REPORTED MEASLES-CONTAINING VACCINE SHOT #4
DMMRX1	0701	0704	9	AGE IN DAYS OF PROVIDER-REPORTED MMR SHOT #1
DMMRX2	0705	0708	9	AGE IN DAYS OF PROVIDER-REPORTED MMR SHOT #2
DMMRX3	0709	0712	9	AGE IN DAYS OF PROVIDER-REPORTED MMR SHOT #3
DMMRX4	0713	0716	9	AGE IN DAYS OF PROVIDER-REPORTED MMR SHOT #4
DMP1	0717	0720	9	AGE IN DAYS OF PROVIDER-REPORTED MUMPS SHOT #1
DMP2	0721	0724	9	AGE IN DAYS OF PROVIDER-REPORTED MUMPS SHOT #2
DMP3	0725	0728	9	AGE IN DAYS OF PROVIDER-REPORTED MUMPS SHOT #3
DMP4	0729	0732	9	AGE IN DAYS OF PROVIDER-REPORTED MUMPS SHOT #4
DMPRB1	0733	0736	9	AGE IN DAYS OF PROVIDER-REPORTED MUMPS/RUBELLA SHOT #1
DMPRB2	0737	0740	9	AGE IN DAYS OF PROVIDER-REPORTED MUMPS/RUBELLA SHOT #2
DMPRB3	0741	0744	9	AGE IN DAYS OF PROVIDER-REPORTED MUMPS/RUBELLA SHOT #3
DMPRB4	0745	0748	9	AGE IN DAYS OF PROVIDER-REPORTED MUMPS/RUBELLA SHOT #4
DMS1	0749	0752	9	AGE IN DAYS OF PROVIDER-REPORTED MEASLES SHOT #1
DMS2	0753	0756	9	AGE IN DAYS OF PROVIDER-REPORTED MEASLES SHOT #2

1995 National Immunization Survey Public-Use Data File

ALPHABETICAL INDEX OF VARIABLES

VARIABLE NAME	BEGIN POSITION	END POSITION	SECTION NUMBER	VARIABLE LABEL
DMS3	0757	0760	9	AGE IN DAYS OF PROVIDER-REPORTED MEASLES SHOT #3
DMS4	0761	0764	9	AGE IN DAYS OF PROVIDER-REPORTED MEASLES SHOT #4
DMSMP1	0765	0768	9	AGE IN DAYS OF PROVIDER-REPORTED MEASLES/MUMPS SHOT #1
DMSMP2	0769	0772	9	AGE IN DAYS OF PROVIDER-REPORTED MEASLES/MUMPS SHOT #2
DMSMP3	0773	0776	9	AGE IN DAYS OF PROVIDER-REPORTED MEASLES/MUMPS SHOT #3
DMSMP4	0777	0780	9	AGE IN DAYS OF PROVIDER-REPORTED MEASLES/MUMPS SHOT #4
DMSRB1	0781	0784	9	AGE IN DAYS OF PROVIDER-REPORTED MEASLES/RUBELLA #1
DMSRB2	0785	0788	9	AGE IN DAYS OF PROVIDER-REPORTED MEASLES/RUBELLA #2
DMSRB3	0789	0792	9	AGE IN DAYS OF PROVIDER-REPORTED MEASLES/RUBELLA #3
DMSRB4	0793	0796	9	AGE IN DAYS OF PROVIDER-REPORTED MEASLES/RUBELLA #4
DPOLIO1	0797	0800	9	AGE IN DAYS OF PROVIDER-REPORTED POLIO SHOT (ALL TYPES) #1
DPOLIO2	0801	0804	9	AGE IN DAYS OF PROVIDER-REPORTED POLIO SHOT (ALL TYPES) #2
DPOLIO3	0805	0808	9	AGE IN DAYS OF PROVIDER-REPORTED POLIO SHOT (ALL TYPES) #3
DPOLIO4	0809	0812	9	AGE IN DAYS OF PROVIDER-REPORTED POLIO SHOT (ALL TYPES) #4
DPOLIO5	0813	0816	9	AGE IN DAYS OF PROVIDER-REPORTED POLIO SHOT (ALL TYPES) #5
DPOLIO6	0817	0820	9	AGE IN DAYS OF PROVIDER-REPORTED POLIO SHOT (ALL TYPES) #6
DPOLIO7	0821	0824	9	AGE IN DAYS OF PROVIDER-REPORTED POLIO SHOT (ALL TYPES) #7
DPOLIO8	0825	0828	9	AGE IN DAYS OF PROVIDER-REPORTED POLIO SHOT (ALL TYPES) #8
DRB1	0829	0832	9	AGE IN DAYS OF PROVIDER-REPORTED RUBELLA SHOT #1
DRB2	0833	0836	9	AGE IN DAYS OF PROVIDER-REPORTED RUBELLA SHOT #2
DRB3	0837	0840	9	AGE IN DAYS OF PROVIDER-REPORTED RUBELLA SHOT #3
DRB4	0841	0844	9	AGE IN DAYS OF PROVIDER-REPORTED RUBELLA SHOT #4
DRB5	0845	0848	9	AGE IN DAYS OF PROVIDER-REPORTED RUBELLA SHOT #5
DRB6	0849	0852	9	AGE IN DAYS OF PROVIDER-REPORTED RUBELLA SHOT #6

1995 National Immunization Survey Public-Use Data File

ALPHABETICAL INDEX OF VARIABLES

VARIABLE NAME	BEGIN POSITION	END POSITION	SECTION NUMBER	VARIABLE LABEL
DRB7	0853	0856	9	AGE IN DAYS OF PROVIDER-REPORTED RUBELLA SHOT #7
DRB8	0857	0860	9	AGE IN DAYS OF PROVIDER-REPORTED RUBELLA SHOT #8
DTP_SOUR	0045	0045	2	SHOT CARD USED FOR DTP REPORTING
DTP1_AGE	0877	0878	9	AGE IN MONTHS OF PROVIDER-REPORTED DTP (ALL TYPES INCLUDING DT) SHOT #1
DTP2_AGE	0879	0880	9	AGE IN MONTHS OF PROVIDER-REPORTED DTP (ALL TYPES INCLUDING DT) SHOT #2
DTP3_AGE	0881	0882	9	AGE IN MONTHS OF PROVIDER-REPORTED DTP (ALL TYPES INCLUDING DT) SHOT #3
DTP4_AGE	0883	0884	9	AGE IN MONTHS OF PROVIDER-REPORTED DTP (ALL TYPES INCLUDING DT) SHOT #4
DTP5_AGE	0885	0886	9	AGE IN MONTHS OF PROVIDER-REPORTED DTP (ALL TYPES INCLUDING DT) SHOT #5
DTP6_AGE	0887	0888	9	AGE IN MONTHS OF PROVIDER-REPORTED DTP (ALL TYPES INCLUDING DT) SHOT #6
DTP7_AGE	0889	0890	9	AGE IN MONTHS OF PROVIDER-REPORTED DTP (ALL TYPES INCLUDING DT) SHOT #7
DTP8_AGE	0891	0892	9	AGE IN MONTHS OF PROVIDER-REPORTED DTP (ALL TYPES INCLUDING DT) SHOT #8
EDUC1	0060	0060	3	EDUCATION OF MOTHER CATEGORIES
ENTRY	0061	0061	3	CHILD LIVES IN STATE WITH HEPATITIS B STATE ENTRY LAW FOR DAY CARE/HEAD START (1996-1997 SCHOOL YEAR)
FUL2_MMR	0046	0046	2	HOUSEHOLD REPORT OF 1+ MMR AT ANY AGE
FULL_DTP	0047	0047	2	HOUSEHOLD REPORT OF 4+ DTP
FULL_HEP	0048	0048	2	HOUSEHOLD REPORT OF 3+ HEPATITIS B
FULL_HIB	0049	0049	2	HOUSEHOLD REPORT OF 3+ HIB
FULL_POL	0050	0050	2	HOUSEHOLD REPORT OF 3+ POLIO
HEP1_AGE	0893	0894	9	AGE IN MONTHS OF PROVIDER-REPORTED HEPATITIS B (ALL TYPES) SHOT #1
HEP2_AGE	0895	0896	9	AGE IN MONTHS OF PROVIDER-REPORTED HEPATITIS B (ALL TYPES) SHOT #2
HEP3_AGE	0897	0898	9	AGE IN MONTHS OF PROVIDER-REPORTED HEPATITIS B (ALL TYPES) SHOT #3
HEP4_AGE	0899	0900	9	AGE IN MONTHS OF PROVIDER-REPORTED HEPATITIS B (ALL TYPES) SHOT #4
HEP5_AGE	0901	0902	9	AGE IN MONTHS OF PROVIDER-REPORTED HEPATITIS B (ALL TYPES) SHOT #5
HEP6_AGE	0903	0904	9	AGE IN MONTHS OF PROVIDER-REPORTED HEPATITIS B (ALL TYPES) SHOT #6
HEP7_AGE	0905	0906	9	AGE IN MONTHS OF PROVIDER-REPORTED HEPATITIS B (ALL TYPES) SHOT #7
HEP8_AGE	0907	0908	9	AGE IN MONTHS OF PROVIDER-REPORTED HEPATITIS B (ALL TYPES) SHOT #8

1995 National Immunization Survey Public-Use Data File

ALPHABETICAL INDEX OF VARIABLES

VARIABLE NAME	BEGIN POSITION	END POSITION	SECTION NUMBER	VARIABLE LABEL
HIB1_AGE	0909	0910	9	AGE IN MONTHS OF PROVIDER-REPORTED HIB (ALL TYPES) SHOT #1
HIB2_AGE	0911	0912	9	AGE IN MONTHS OF PROVIDER-REPORTED HIB (ALL TYPES) SHOT #2
HIB3_AGE	0913	0914	9	AGE IN MONTHS OF PROVIDER-REPORTED HIB (ALL TYPES) SHOT #3
HIB4_AGE	0915	0916	9	AGE IN MONTHS OF PROVIDER-REPORTED HIB (ALL TYPES) SHOT #4
HIB5_AGE	0917	0918	9	AGE IN MONTHS OF PROVIDER-REPORTED HIB (ALL TYPES) SHOT #5
HIB6_AGE	0919	0920	9	AGE IN MONTHS OF PROVIDER-REPORTED HIB (ALL TYPES) SHOT #6
HIB7_AGE	0921	0922	9	AGE IN MONTHS OF PROVIDER-REPORTED HIB (ALL TYPES) SHOT #7
HIB8_AGE	0923	0924	9	AGE IN MONTHS OF PROVIDER-REPORTED HIB (ALL TYPES) SHOT #8
HUTD4313	0051	0051	2	HOUSEHOLD REPORT OF 4:3:1:3 UTD (UP-TO-DATE)
HY_WGT	0012	0021	1	MODIFIED-POSTSTRATIFICATION (HH) WEIGHT FOR CHILD
I_HISP_K	0065	0065	3	HISPANIC ORIGIN OF CHILD
I_HISP_M	0066	0066	3	HISPANIC ORIGIN OF MOTHER
I_RACEKR	0067	0067	3	RACE OF CHILD (RECODE)
I_RACEMR	0068	0068	3	RACE OF MOTHER (RECODE)
INCOMER	0063	0064	3	FAMILY INCOME CATEGORIES (RECODE)
INCPOV1R	0062	0062	3	POVERTY STATUS(RECODE)
ITRUEIAP	0074	0075	4	IAP AREA OF CURRENT RESIDENCE
MARITAL	0069	0069	3	MARITAL STATUS OF MOTHER CATEGORIES
MMR1_AGE	0925	0926	9	AGE IN MONTHS OF PROVIDER-REPORTED MEASLES-CONTAINING VACCINE SHOT #1
MMR2_AGE	0927	0928	9	AGE IN MONTHS OF PROVIDER-REPORTED MEASLES-CONTAINING VACCINE SHOT #2
MMR3_AGE	0929	0930	9	AGE IN MONTHS OF PROVIDER-REPORTED MEASLES-CONTAINING VACCINE SHOT #3
MMR4_AGE	0931	0932	9	AGE IN MONTHS OF PROVIDER-REPORTED MEASLES-CONTAINING VACCINE SHOT #4
MMX1_AGE	0933	0934	9	AGE IN MONTHS OF PROVIDER-REPORTED MMR SHOT #1
MMX2_AGE	0935	0936	9	AGE IN MONTHS OF PROVIDER-REPORTED MMR SHOT #2
MMX3_AGE	0937	0938	9	AGE IN MONTHS OF PROVIDER-REPORTED MMR SHOT #3
MMX4_AGE	0939	0940	9	AGE IN MONTHS OF PROVIDER-REPORTED MMR SHOT #4
MOBIL	0070	0070	3	GEOGRAPHIC MOBILITY STATUS: STATE OF RESIDENCE OF CHILD AT BIRTH VERSUS CURRENT STATE OF RESIDENCE
MP1_AGE	0941	0942	9	AGE IN MONTHS OF PROVIDER-REPORTED MUMPS SHOT #1
MP2_AGE	0943	0944	9	AGE IN MONTHS OF PROVIDER-REPORTED MUMPS SHOT #2

1995 National Immunization Survey Public-Use Data File

ALPHABETICAL INDEX OF VARIABLES

VARIABLE NAME	BEGIN POSITION	END POSITION	SECTION NUMBER	VARIABLE LABEL
				#2
MP3_AGE	0945	0946	9	AGE IN MONTHS OF PROVIDER-REPORTED MUMPS SHOT #3
MP4_AGE	0947	0948	9	AGE IN MONTHS OF PROVIDER-REPORTED MUMPS SHOT #4
MPR1_AGE	0949	0950	9	AGE IN MONTHS OF PROVIDER-REPORTED MUMPS/RUBELLA SHOT #1
MPR2_AGE	0951	0952	9	AGE IN MONTHS OF PROVIDER-REPORTED MUMPS/RUBELLA SHOT #2
MPR3_AGE	0953	0954	9	AGE IN MONTHS OF PROVIDER-REPORTED MUMPS/RUBELLA SHOT #3
MPR4_AGE	0955	0956	9	AGE IN MONTHS OF PROVIDER-REPORTED MUMPS/RUBELLA SHOT #4
MS1_AGE	0957	0958	9	AGE IN MONTHS OF PROVIDER-REPORTED MEASLES-ONLY SHOT #1
MS2_AGE	0959	0960	9	AGE IN MONTHS OF PROVIDER-REPORTED MEASLES-ONLY SHOT #2
MS3_AGE	0961	0962	9	AGE IN MONTHS OF PROVIDER-REPORTED MEASLES-ONLY SHOT #3
MS4_AGE	0963	0964	9	AGE IN MONTHS OF PROVIDER-REPORTED MEASLES-ONLY SHOT #4
MSM1_AGE	0965	0966	9	AGE IN MONTHS OF PROVIDER-REPORTED MEASLES/MUMPS SHOT #1
MSM2_AGE	0967	0968	9	AGE IN MONTHS OF PROVIDER-REPORTED MEASLES/MUMPS SHOT #2
MSM3_AGE	0969	0970	9	AGE IN MONTHS OF PROVIDER-REPORTED MEASLES/MUMPS SHOT #3
MSM4_AGE	0971	0972	9	AGE IN MONTHS OF PROVIDER-REPORTED MEASLES/MUMPS SHOT #4
MSR1_AGE	0973	0974	9	AGE IN MONTHS OF PROVIDER-REPORTED MEASLES/RUBELLA SHOT #1
MSR2_AGE	0975	0976	9	AGE IN MONTHS OF PROVIDER-REPORTED MEASLES/RUBELLA SHOT #2
MSR3_AGE	0977	0978	9	AGE IN MONTHS OF PROVIDER-REPORTED MEASLES/RUBELLA SHOT #3
MSR4_AGE	0979	0980	9	AGE IN MONTHS OF PROVIDER-REPORTED MEASLES/RUBELLA SHOT #4
N_PRVR	0081	0081	6	NUMBER OF PROVIDERS RESPONDING WITH VACCINATION DATA FOR CHILD (RECODE)
P_NUMDHB	0099	0099	8	NUMBER OF DTP/HIB COMBINATION SHOTS (ALL TYPES), AS DETERMINED FROM PROVIDER INFORMATION. DOES NOT INCLUDE SHOTS REPORTED BY THE PROVIDER(S) AS OCCURRING AFTER THE RDD INTERVIEW DATE.
P_NUMDTP	0100	0100	8	NUMBER OF DTP SHOTS (ALL TYPES INCLUDING DT), AS DETERMINED FROM PROVIDER INFORMATION. DOES NOT INCLUDE SHOTS REPORTED BY THE PROVIDER(S) AS OCCURRING AFTER THE RDD INTERVIEW DATE.

1995 National Immunization Survey Public-Use Data File

ALPHABETICAL INDEX OF VARIABLES

VARIABLE NAME	BEGIN POSITION	END POSITION	SECTION NUMBER	VARIABLE LABEL
P_NUMHEP	0101	0101	8	NUMBER OF HEPATITIS B (ALL TYPES) SHOTS, AS DETERMINED FROM PROVIDER INFORMATION. DOES NOT INCLUDE SHOTS REPORTED BY THE PROVIDER(S) AS OCCURRING AFTER THE RDD INTERVIEW DATE.
P_NUMHIB	0102	0102	8	NUMBER OF HIB (ALL TYPES) SHOTS, AS DETERMINED FROM PROVIDER INFORMATION. DOES NOT INCLUDE SHOTS REPORTED BY THE PROVIDER(S) AS OCCURRING AFTER THE RDD INTERVIEW DATE.
P_NUMMMR	0103	0103	8	NUMBER OF MCV (MEASLES-CONTAINING VACCINE) SHOTS, AS DETERMINED FROM PROVIDER INFORMATION. DOES NOT INCLUDE SHOTS REPORTED BY THE PROVIDER(S) AS OCCURRING AFTER THE RDD INTERVIEW DATE.
P_NUMMMX	0104	0104	8	NUMBER OF TRUE MMR (NOT INCLUDING MEASLES-ONLY SHOTS), AS DETERMINED FROM PROVIDER INFORMATION. DOES NOT INCLUDE SHOTS REPORTED BY THE PROVIDER(S) AS OCCURRING AFTER THE RDD INTERVIEW DATE.
P_NUMPOL	0105	0105	8	NUMBER OF POLIO (ALL TYPES) SHOTS, AS DETERMINED FROM PROVIDER INFORMATION. DOES NOT INCLUDE SHOTS REPORTED BY THE PROVIDER(S) AS OCCURRING AFTER THE RDD INTERVIEW DATE.
P_NUMRB	0106	0106	8	NUMBER OF RUBELLA SHOTS, AS DETERMINED FROM PROVIDER INFORMATION. DOES NOT INCLUDE SHOTS REPORTED BY THE PROVIDER(S) AS OCCURRING AFTER THE RDD INTERVIEW DATE.
P_UTD331	0091	0091	8	UTD (UP-TO-DATE) FLAG FOR PROVIDER 3:3:1
P_UTD431	0088	0088	8	UTD (UP-TO-DATE) FLAG FOR PROVIDER 4:3:1
P_UTDHEP	0092	0092	8	UTD (UP-TO-DATE) FLAG FOR PROVIDER 3+ HEPATITIS B
P_UTDHIB	0093	0093	8	UTD (UP-TO-DATE) FLAG FOR PROVIDER 3+ HIB
P_UTDMCV	0094	0094	8	UTD (UP-TO-DATE) FLAG FOR PROVIDER 1+ MCV
P_UTDMMX	0095	0095	8	UTD (UP-TO-DATE) FLAG FOR PROVIDER 1+ MMR (NOT INCLUDING ANY MEASLES-ONLY SHOTS)
P_UTDPOL	0096	0096	8	UTD (UP-TO-DATE) FLAG FOR PROVIDER 3+ POLIO
P_UTDTP3	0097	0097	8	UTD (UP-TO-DATE) FLAG FOR PROVIDER 3+ DTP
P_UTDTP4	0098	0098	8	UTD (UP-TO-DATE) FLAG FOR PROVIDER 4+ DTP
PDAT	0036	0036	1	CHILD HAS ADEQUATE PROVIDER DATA
POL1_AGE	0981	0982	9	AGE ON MONTHS OF PROVIDER-REPORTED POLIO (ALL TYPES) SHOT # 1
POL2_AGE	0983	0984	9	AGE ON MONTHS OF PROVIDER-REPORTED POLIO (ALL TYPES) SHOT # 2
POL3_AGE	0985	0986	9	AGE ON MONTHS OF PROVIDER-REPORTED POLIO (ALL TYPES) SHOT # 3
POL4_AGE	0987	0988	9	AGE ON MONTHS OF PROVIDER-REPORTED POLIO (ALL TYPES) SHOT # 4

