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Abstract

Objectives

This report presents detailed information on the National Asthma Survey (NAS), a module of the State and Local Area Integrated Survey program conducted by the Centers for Disease Control and Prevention's (CDC) National Center for Health Statistics. NAS, sponsored by the CDC's National Center for Environmental Health, was designed to produce national prevalence estimates of adults and children with asthma; to describe the health, socioeconomic, behavioral, and environmental predictors that relate to controlling asthma better; and to characterize the content of care and limitations of persons with asthma. National prevalence estimates were constructed to be consistent with those produced from the CDC's National Health Interview Survey (NHIS), although prevalence estimates for subpopulations may or may not be consistent with NHIS.

Methods

Two separate random-digit-dial telephone studies were fielded: a national study and a four-state study in Alabama, California, Illinois, and Texas. Children aged 0–17 years and adults aged 18 years and over were included in both studies. The screening procedure differed between the studies. Percentages can be generated for the four states combined or for each state separately. A substudy was conducted in the national study to examine the accuracy of proxy reports of asthma.

Results

Data were collected from February 2003 to March 2004. A total of 955 detailed asthma interviews were completed in the national study and 5,741 in the four-state study. A data file has been released for each study that contains asthma, health, and demographic data, as well as sampling weights. The weighted overall response rates were 47.2% for the national sample and 48.5% for the four-state sample.

Keywords: health surveys • needs assessment • State and Local Area Integrated Telephone Survey

Design and Operation of the National Asthma Survey

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Introduction

This document reports detailed procedural information on a unique source of asthma data, the National Asthma Survey (NAS). The 2003 NAS data were collected by the State and Local Area Integrated Telephone Survey (SLAITS) mechanism of the Centers for Disease Control and Prevention's (CDC) National Center for Health Statistics (NCHS). The survey was sponsored by CDC's National Center for Environmental Health (NCEH). Two separate studies were fielded for NAS: a national study and a four-state study in Alabama, California, Illinois, and Texas.

Information is provided on asthma and its affect on the U.S. population. This report describes NAS and its unique characteristics and discusses in detail the methods used in NAS, including information on the development of the survey instrument and procedures; sample design, selection, and characteristics; the collection, storage, and cleaning of data; and the construction of public-use data files. To reduce confusion and enhance data use, especially for novice analysts, a short list of frequently asked questions is included at the end of the introduction.

Asthma in the United States

Asthma is a chronic disease that causes swelling in the inner lining of the airway leading to the lungs. Adults and children with asthma may experience wheezing, breathlessness, chest tightness, and coughing. A nonexhaustive list of common triggers that may cause bronchial constriction and asthma includes inhalant allergens such as pet dander, dust mites, cockroach allergens, and mold; outdoor allergens; environmental exposures such as tobacco smoke, fumes, air pollution, and chemicals; and occupational exposures (1,2). Stress and exercise may also contribute to asthma symptoms in persons who suffer from exercise-induced asthma.

Asthma is a costly and common chronic condition in the United States (3). In 1998, asthma cost $12.7 billion dollars in the United States alone (4). According to CDC's National Health Interview Survey (NHIS), in 2002 just over 12% of all children under 18 years of age had ever been told they have asthma (resulting in almost 8.9 million asthmatic children) (5). Almost 6% of children had an asthma attack in the 12 months prior to the interview (5).

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†Indicates authors who are no longer affiliated with Abt Associates Inc. at the time of publication.

According to the 2002 NHIS, 10.7% of adults in the United States were diagnosed with asthma and 6.8% still had asthma (which means almost 22 million U.S. adults have ever been diagnosed and almost 14 million adults had asthma at the time of the interview) (6). Data from the 2002 Behavioral Risk Factor Surveillance System (BRFSS) show considerable state-to-state variation in asthma prevalence rates for adults, with lifetime asthma prevalence ranging from 8.6% (South Dakota) to 14.5% (Montana), and current asthma prevalence ranging from 5.8% (South Carolina) to 10.0% (Maine) (7).

Uncontrolled asthma can be fatal. The asthma death rate in the United States for children under 18 years of age increased from 1.8 deaths per million children in 1980 to 3.3 deaths per million children in 1998, representing an average increase of 3.4% per year (8). The total age-adjusted (to the 2000 U.S. population) annual death rate increased from 14.4 deaths per million children in 1980 to 17.2 deaths per million children in 1999, although this rate has been decreasing since 1995 (9).

The Role of the National Asthma Survey

NAS complements and extends other surveys conducted at CDC and elsewhere. Within the CDC, data on asthma are collected through various mechanisms such as NHIS, the Youth Risk Behavior Surveillance System (YRBSS), the National Health Care Survey (NHCS), and BRFSS. NAS addresses several deficits in these data collection systems. For instance, although NHIS collects information on asthma for adults and children, estimates are only available at the national level. BRFSS collects asthma data at the state level and permits calculation of a national estimate; however, data were only collected for adults aged 18 years and over at the time of NAS data collection. However, by adding annual optional modules at the state and territory levels, BRFSS collects selected information on the nonadult population 17 years of age and under. More information on asthma surveillance for

children and adults using BRFSS is available at http://www.cdc.gov/asthma/brfss/default.htm. Asthma prevalence data for children have been collected for a number of years in states that chose to ask the childhood asthma module questions, and participation varies each year. YRBSS collects self-reported behavioral and health risk data from 9th- through 12th-grade students but collects minimal asthma data.

NHCS is a family of establishment surveys that provide information on health care facilities, services, and patient characteristics. NHCS collects information on many subjects, including asthma; however, it can only provide data on asthma care provided in ambulatory care, ambulatory surgery, emergency room, long-term care, and inpatient settings, and it cannot provide data on asthma care provided by household members. NAS addressed these issues by expanding the range of information available. NAS collected detailed asthma data on the sampled respondents' access and use of health care (primary care, emergency room); asthma knowledge and behavior; medication use; family history; and environmental exposures for adults and children who live in households.

This survey adds depth to the existing body of asthma data and helps address critical questions about the health and experiences of people with asthma. A nonexhaustive list of potential research questions that may be answered using NAS data includes the following:

- What are the demographic characteristics of persons with asthma? What is the asthma status of critical populations, such as children or the population over 50 years of age?
- How well are asthma attacks, episodes, and symptoms controlled through medication use and preventive measures?
- What is the range of ages when first diagnosed?
- Which systems of care are most often utilized by people with asthma: urgent, hospital, or primary care?
- Do persons with asthma know the symptoms, and do they understand

what to do when they have an asthma attack?
- Have people with asthma received a written management plan from their health care provider?
- What modifications have been made to home, school, or work environments because of the disease?
- What treatment modalities are most often used by those with asthma?
- Is the use of asthma medication consistent with guidelines?
- What does family history of asthma suggest about predisposition for asthma?
- To what extent have guidelines for the diagnosis and management of asthma been translated into practice?
- To what extent does asthma cluster within households?

NAS was designed to improve understanding of how demographic differences, patterns in health care utilization, medication use, and environmental modifications are related to treatment and symptom control for children and adults with asthma. The data can potentially identify subgroups that may benefit from behavioral interventions.

The State and Local Area Integrated Telephone Survey program

SLAITS modules use the large sampling frame of the CDC's National Immunization Survey (NIS) to identify samples and cases. NIS is a large-scale random-digit-dial (RDD) telephone survey that screens for the presence of young children in sampled households and collects detailed vaccination history information for eligible children. The size of this sample provides a cost-effective opportunity for SLAITS projects to survey other populations, in addition to the rare population that eventually screens into NIS. NIS sample design is described in more detail in this report, at the NIS website located at http://www.cdc.gov/vaccines/stats-surv/default.htm#nis, and in the *Vital and Health Statistics* series report by Smith et al. (10).

Frequently Asked Questions

To reduce confusion and enhance data use, especially for novice analysts, this short list of frequently asked questions is included.

How is this report organized?

The main body contains detailed information on the entire survey process. Appendices contain additional detail on selected topics such as pretests, instruments, and weighting.

What are the names of the Primary Sampling Unit (PSU) and stratum variables for each file?

For the national file, the PSU variable is IDNUMR and the stratum variable is STRATUM. For the four-state file, the PSU variable is IDNUMR and the stratum variable is STATE. See page 27 for more information.

What are the names of the weights for each file?

The weights in the national file are post_pr_int and post_sr_int. The weights in the four-state file are post_adult_int, post_child_int, and weight_int. See page 28 for more information.

In the national file, when was it acceptable to collect proxy-reported data on asthma status in adults?

Proxy reports were acceptable if 1) the adult sampled respondent was too ill or infirm to answer but still wanted to participate or 2) the sampled adult was not available at the time of the screening contact. In this case, a very short proxy interview was conducted with the adult household member who answered the telephone. If the sampled adult was reported to be asthma-positive, an appointment was scheduled to complete a detailed interview directly with the sampled person. Asthma status was confirmed with that person at callback. The initial design of the national study also called for a subset of 500 sampled adults who were reported by a proxy respondent as asthma-negative to be called back to confirm their asthma status and determine proxy reporting error.

In the national data file, why is proxy information included that has been verified or changed by the adult sampled respondent?

This information is provided for methodological purposes only.

In the national file, which weight do I use to examine asthma in children?

This depends. The national file does not include a single child-level weight. Instead, it includes two weights, both of which include all sampled children: post_sr_int and post_pr_int. Estimates for children can be produced using either weight, but one should remember that adults are included in both weights too (in case there is no interest in estimates for adults). The weight to use for children must still be decided, as these individual weights may vary slightly for any given child because of the difference in the number of sampled adult cases used to calculate the weight. Therefore, which adult cases should be included: those with self-reported data only or those that have self- and proxy-reported data? The preferred weight to use for child and adult-level estimates is post_sr_int because it only includes sampled adult self-report cases in addition to all children. The alternate weight is post_pr_int, which includes sampled adult self- and proxy reports, in addition to all children. The post_pr_int weight should be used for methodological research to examine differences between self- and proxy reporting in adults.

In the national file, what is the relationship between the proxy and sampled respondents for the screener contact and main interview?

In the national sample, proxy interviews were allowed in two situations: 1) if the adult sampled respondent was too ill or infirm to complete the interview over the telephone or 2) a subset of sampled adults was unavailable at the screener contact and reported by a proxy respondent to be asthma-negative. These latter cases were called back to confirm their asthma status. Based on the observed proxy-report error rate for this subset, a decision was made to expand confirmation calls to all adult sampled persons with proxy-reported asthma-negative status. For a sampled child, all interviews were conducted with a knowledgeable adult household member.

For the four-state file, are the weights for the total population the same as the separate weights for children and adults, and can weighted data be examined individually for each state, or only as the four-state block?

Yes, the separate weights for the total population comprise the individual weights for children and adults. Weighted data can be examined for each state individually, as well as for the four-state block as a whole.

Why can't I use the four-state data file to calculate prevalence estimates?

The four-state file cannot be used to calculate prevalence because crucial information needed to do so was purposely not collected because of the selected screening process. This decision was made after extensive tests were conducted. The four-state sample can be used to describe the characteristics of children or adults with asthma.

What can I use the national data file for?

The national file can be used to calculate prevalence estimates.

In the national file, what is the relationship between the proxy and sampled respondents for the screener and main interviews?

In the screener interview, proxy respondent reports were allowed if the sampled adult respondent was either too ill or infirm but wanted to participate or the respondent was unavailable at the screening contact (initially this unavailable status only applied to a subset of cases for the validation substudy). If the sampled respondent was available at the time of contact, he or she completed the screener interview directly.

In the main interview, several scenarios were possible:

- *If the sampled adult respondent was too ill or infirm*, the detailed interview was conducted or terminated depending on the respondent's asthma status.
- *If the proxy-reported asthma-negative sampled adult was finally reached (or called in)*, he or she was asked to confirm their proxy-reported asthma status; the data file contains the information from both calls. If the proxy-negative report was wrong and the sampled adult did in fact have asthma, the interview continued with the asthmatic sampled respondent through self-report. If the sampled respondent was asthma-positive, he or she completed the detailed interview. If the respondent did not have asthma, the interview was terminated after a few demographic questions were asked.
- *If the proxy-reported asthma-negative sampled adult was never reached*, only the proxy-reported responses were included in the file.

Please contact slaits@cdc.gov if you still need assistance after you read the appropriate sections in this report.

Methods

Sample Design

SLAITS studies benefit from the large number of screening calls required for NIS. NIS was established in 1994 to monitor immunization levels of very young children in the United States. It screens well over one million households per year but conducts detailed interviews in only a small portion (those that contain at least one child aged 19 to 35 months, the primary target of immunization programs). Because this large screening sample has been contacted, SLAITS enjoys considerable cost savings by avoiding the expense of frame development, sample selection, and residential screening.

The 2003 NAS consisted of two samples: a national sample and a four-state sample that includes Alabama, California, Illinois, and Texas. NAS used the NIS sample to assess asthma prevalence at the national level and characterize the content of care and limitations of people with asthma in the four states and at the national levels. Because the four-state file contains only respondents who screened in as asthma-positive, this sample can be used to examine detailed characteristics and behaviors of asthma-positive persons but cannot be used to determine prevalence. Information needed to calculate the prevalence rate was not obtained during screening for the four-state sample. Because of the weighting procedures used for the national sample (which are covered in "Weighting and Estimation Procedures" as well as in Appendix B), national prevalence estimates are consistent with those produced by NHIS. Prevalence estimates for subpopulations within the national sample may or may not be consistent with NHIS. *The two NAS files should NOT be combined to produce more precise estimates*. Weighted estimates can be calculated for each state in the four-state sample (using a "where" statement to select the appropriate cases) or for the four-state sample as a whole. Each state was weighted up to its appropriate population control totals.

The goal was to complete screening interviews in 10,000 households in the national study and in 12,000 households in each of the states selected by NCEH that comprise the four-state study. To accomplish this, telephone numbers were randomly selected from the NIS sample.

The National Immunization Survey sampling plan

This section describes the basic NIS sample design and serves as a nontechnical description of the NAS sample design and allocation procedures. Appendix B of this report includes a more technical description of the NAS sample design and weighting procedures.

Each quarter of the year, NIS screens telephone numbers to identify households that contain at least one child aged 19–35 months. Because less than 4% of households in the United States contain children in this age range, a large number of households must be contacted and screened to identify households with eligible children. Households are selected for screening through list-assisted RDD methods.

In the United States, telephone numbers consist of an area code of three digits, a central-office code of three digits, and a suffix of four digits. Combined, an area code and central-office code form a prefix area. For example, 617–492 is the prefix area corresponding to the 492 central office in the 617 area code. For NIS, prior to the selection of the sample of telephone numbers, banks of 100 consecutive numbers in the same area code and prefix combination that contain zero directory-listed residential telephone numbers—that is, banks of 100 numbers that have a low probability of containing working residential numbers—are deleted from the sampling frame. For this step, the GENESYS Sampling System (a proprietary product of Marketing Systems Group) uses a file of directory-listed residential numbers from Donnelley Marketing Information Services. The sampling frame of telephone numbers is updated each quarter to reflect new telephone exchanges and area codes. The NIS sampling frame excludes cellular telephone exchanges. A random sample of 10-digit telephone numbers is then drawn from the retained banks of 100 numbers. A further step eliminates business and nonworking telephone numbers from the sample prior to dialing.

Each remaining telephone number is then called by an interviewer. If it belongs to a household, the person answering the telephone is asked whether any children aged 19–35 months are living or staying in the household. If the household contains an NIS-eligible child or children, NIS is conducted in its entirety. This is followed by a NAS screening and the full NAS interview (if eligible). In

households that do not contain a 19- to 35-month-old child, the NAS interview immediately follows the NAS screener (if eligible).

The National Asthma Survey sample design and allocation

When the 2003 NAS was conducted, the NIS sample design consisted of 78 distinct geographical areas that comprised the United States. Of these 78 Immunization Action Plan (IAP) areas, 50 were states and 28 were urbanized areas. To achieve the target of 10,000 completed household screeners for the national study and 12,000 in each of the four states, the sample was allocated in proportion to the total number of households in a specific geographic area. In the national NAS, the number of households required to be selected in each state was determined by allocating the desired number of screened households among states in proportion to the total number of households in each state. Then, the number of telephone numbers that needed to be called was computed using the expected working residential number rate in each geographic area. The number of telephone numbers drawn compensated for the fact that not all respondents would agree to participate.

Because of the quarterly selection and release of the NIS sample in each IAP, some telephone numbers were selected more than once during the NAS data collection period. Such numbers were not contacted a second time for the study. Instead, these cases were automatically finalized and assigned the final disposition code from the original sample. Response rates reflect the final disposition of a telephone number from its original sampling.

The national study screened a single randomly selected household member about his or her asthma status. Regardless of asthma status, the screening interview included a series of demographic questions concerning the sampled person and the household to allow for the production of asthma prevalence rates. If sampled respondents indicated that they had ever been told by a doctor or other health professional

that they had asthma, a detailed interview on asthma management and treatment was completed. If a respondent was asthma-negative, a small subset of items from the detailed interview was administered. In contrast, the four-state study involved screening all household members for the presence of someone with asthma. If no one was reported to have asthma, the interview was terminated. In households where asthma was reported, up to one asthma-positive adult and one asthma-positive child were randomly selected per household for a detailed interview on asthma management and treatment.

Augmentation sample

Insufficient NIS sample was available to complete the desired number of interviews for both studies. Additional telephone numbers were drawn to add cases to (or "augment") the overall sample using the GENESYS Sampling System. The augmentation cases did not receive the NIS age-screening question or immunization questions. The augmentation cases only received the NAS screening interview (and if appropriate, the entire asthma interview). The NAS-only sample adds cases to the overall traditional sample and is called the "augmentation sample." To protect confidentiality, the variable that indicates augmentation sample status has been suppressed.

Table A shows, by sample, the proportion of the NAS sample that is from the augmentation sample. That is, for each sample and state listed in Table A, the proportion listed is the proportion of telephone numbers that were called specifically for NAS.

Proxy Interviews

As noted above, the national study selected a single household member at random for asthma screening. If the sampled household member was a child under the age of 18 years, screening questions were answered by an adult knowledgeable about the child's health. If the sampled household member was aged 18 years or over, screening questions were asked of that sampled adult whenever possible. However, in the initial design, if the sampled adult was not available at the time of the screening contact, a proxy interview was conducted with the adult household member who answered the telephone. The proxy interview included, at a minimum, questions about the sampled adult's asthma status, age, and sex. If the sampled adult was reported to be asthma-positive, an appointment was scheduled to complete a detailed interview directly with the sampled person, and asthma status was confirmed with that person upon callback. The initial design of the national study also called for a subset of 500 sampled adults who were reported by a proxy respondent to be asthma-negative to be called back to confirm their asthma status (to assess the extent of proxy-report error).

Error rates in proxy reporting are shown in Table B and were calculated using weighted data; chi-square significance testing was performed using SUDAAN software (11). Proxies incorrectly reported 37.3% of lifetime asthma cases, but correctly identified 99.3% of asthma-negative cases. The overall proxy reporting error rate was 4.7%, computed by dividing the false

Table A. Percentage of overall sample that is an augmentation sample: NAS, 2003

Sample	Percent of sample called only for NAS
National	75.0
Four-state	
Total	52.4
Alabama	61.5
California	36.9
Illinois	61.9
Texas	50.0

NOTE: NAS is National Asthma Survey.

Table B. Weighted error rates in proxy reporting: NAS, 2003

Self-reported lifetime asthma status	Proxy-reported lifetime asthma status[1]			
	Positive *n*	Percent	Negative *n*	Percent
Positive	72	62.7	50	37.3
Negative.	7	0.7	955	99.3

[1]Sample sizes are unweighted; error rates are weighted.

NOTES: $p < 0.001$. NAS is National Asthma Survey.

reports by all reports (12). The proxy error reporting rate of lifetime asthma status for current asthma cases is lower than the proxy error reporting rate of lifetime asthma status for former asthma cases (data now shown). Proxies correctly identified the lifetime asthma status of 71.5% of the current asthma cases but only correctly identified the lifetime status of 61.7% of the former asthma cases (data not shown). Although this difference is not statistically significant, it does suggest that proxies are more likely to identify lifetime status correctly if the asthma is currently active (12). The relationship of the proxy to the sampled person was also related to the accuracy of reporting, with mothers committing the fewest reporting errors (data not shown) (12). Based on these results, a decision was made to expand confirmation calls to all sampled persons with proxy-reported asthma-negative status.

These findings also greatly influenced the reporting of results through the creation of specific flag variables and two weights for the national sample. A flag variable was added to the national sample data file (FLG_ASTHMA) to indicate whether asthma status for the sampled respondent was obtained from the sampled or proxy respondent. Proxy respondents reported asthma status in 12.8% of cases ($n = 1,100$) in the national sample.

Two different weights were created for the national sample as a result of the verification substudy findings. Both weights include all sample child cases, but they differ on the inclusion of sample adult cases. For example, the weight post_pr_int includes all sample adult proxy and self-report cases, in contrast to the second weight

(post_sr_int), which only includes sample adult self-report screener and interview cases. These weights are discussed in more detail in the weighting and estimation procedures chapter and Appendix B.

Proxy responses due to illness or infirmity—Detailed asthma interviews were conducted for cases in both samples with proxy respondents if the sampled respondent was too ill or infirm to answer questions. In the national sample, 103 cases, or 1.2% of the sample, were completed by a proxy respondent because of a respondent's illness. In the four-state sample, 68 cases (1.2%) were completed by a proxy respondent because of a respondent's illness or infirmity.

Tracking proxy cases—For both studies, a variable called FLG_TYPE was created to facilitate data navigation and establish the questionnaire path per respondent. The FLG_TYPE variable has 11 values for the national sample to account for the verification substudy paths, in contrast to 4 values for the four-state file. For the national sample, proxy and sampled respondent information is available for some cases if the sampled respondent was able to be contacted and interviewed after researchers spoke with the proxy respondent.

Questionnaire

Questionnaire development

The initial questionnaires were designed by NCEH and further refined based on cognitive testing and a series of four pretests that are described in more detail in Appendix E. Many questions included in the instruments were borrowed directly from other

national surveys (such as NHIS, the National Health and Nutrition Examination Survey [NHANES], and BRFSS) to facilitate comparison and because many of these questions had already undergone extensive testing. Other questions were written for this survey to measure progress toward *Healthy People 2010* goals and the translation of the National Asthma Education and Prevention Program guidelines into practice.

Content

The NAS questionnaires were designed to immediately follow a completed NIS interview in households with an NIS-eligible child or to follow the NIS screener in households without an NIS-eligible child. They were divided into eight sections:

1. *NAS eligibility screening, respondent selection, and initial demographics*—For both studies, a person who answered the telephone in group quarters such as barracks, dormitories, hospitals, or schools was coded as "does not live in a household." In the national study, one respondent was randomly selected out of all household members, and the asthma status of the selected respondent was determined. The sampled person's age and sex were also obtained. In the four-state study, an entire household was screened for asthma. If no one was reported to have asthma, the interview was terminated. In households where asthma was reported, up to one asthma-positive adult and one asthma-positive child were randomly selected for a detailed interview, and the age and sex of the sampled respondents were collected.

2. *History of asthma (symptoms and episodes)*—This section, the first in the detailed interview, assessed the length of time since the sampled respondents had experienced asthma symptoms, taken asthma medication, or seen a doctor for an asthma-related reason. This section also addressed the frequency and severity

of asthma symptoms and attacks or episodes.

3. *Health care utilization*—These questions asked about the availability of asthma-related medical services and the degree to which these services were used. Respondents were asked whether they had visited a doctor, urgent care center, or emergency room for asthma treatment within the past year. Respondents were also asked questions about their current health insurance coverage.

4. *Knowledge of asthma management plan*—This section asked respondents whether they had ever received specific types of asthma-related information or treatment from a health professional, including a written asthma management plan and a description of methods for recognizing asthma symptoms and episodes.

5. *Modifications to environment*—The goal of this section was to determine whether respondents had made a series of modifications to their home environment to reduce exposure to indoor asthma triggers. Additional questions for adult respondents asked whether they had been exposed to asthma triggers at their place of employment.

6. *Medications*—In this section, respondents were asked whether they took asthma medications in inhaler, pill, syrup, or nebulizer form. A list of the medications taken in each manner was obtained. For inhaler medications, additional questions asked about the frequency and pattern of medication use.

7. *Family history of asthma*—This section included questions regarding the asthma history of the respondent's siblings, parents, and grandparents. In the national study, respondents were also asked whether any household members other than the person sampled or family member of the sampled person had asthma.

8. *Demographic information*—A series of demographic items such as race, ethnicity, highest level of education, and income were asked. Respondents were also asked about the number of landline telephone numbers in the household and whether interruptions in household telephone service occurred during the past year.

Although height, weight, and birthweight are not usually considered demographic variables, they were deliberately placed in the last section of the instrument to reduce item and section nonresponse. The answers to these items may be considered to be very personal and sensitive for some respondents, and, as a result, these respondents may hang up the phone immediately when asked these questions. A respondent would probably not hang up the telephone at the final stage of an interview after investing a considerable amount of time to answer other questions.

The two instruments are included in Appendixes III (national study) and IV (four-state study). In the national study, the questionnaire sections that were administered depended upon the type of respondent (proxy compared with sampled respondent) and the sampled person's asthma status. Table C illustrates the various paths that the national study questionnaire could take and are classified from optimal to least optimal. The optimal situation was for the sampled adult respondent to provide screener and detailed interview information. If a proxy respondent provided screener information initially, the adult sampled respondent was recontacted directly, proxy-reported information was verified, and the detailed interview was completed with the adult sampled respondent. Proxy-reported information that was verified or changed by the sampled respondent is only provided for methodological purposes. The next best scenario was a proxy report for screener and selected interview items because the subject was not available or too ill to participate. The least favorable scenario was if the adult sampled respondent could not be located at all, and proxy responses provided the only information. For sampled children under the age of 18 years in both samples, a knowledgeable respondent 18 years of age or over provided all screener and detailed interview information for the sampled child. All questionnaire sections were administered in the four-state study interviews.

CATI programming

NAS was conducted using a computer-assisted telephone interviewing (CATI) system. The CATI data collection software presents the questionnaire on computer screens to each interviewer. The program guides the interviewer through the questionnaire, automatically routing the interviewer to appropriate questions based on previous responses. Interviewers enter the responses to the questions directly into the computer; the CATI program determines whether the selected response is within an allowable range, checks it for consistency against other data collected during the interview, and saves the responses in a survey data file. This data collection technology reduces the time required for transferring, processing, and releasing data and also promotes data accuracy.

The NAS questionnaire was programmed as a module of NIS, integrating the two surveys into a single interview. The instrument made full use of the CATI system's ability to check whether a response was within a legitimate range, to follow skip patterns, and to employ "pick lists" for response categories. Certain household and demographic questions were identical in the NIS and NAS portions of the interview. If a respondent answered these questions during NIS administration, the system was programmed so that the questions were not repeated in NAS. Instead, the answers to the appropriate NIS questions were copied to the data file for NAS. Once initial programming was completed, the instrument underwent rigorous testing to ensure correct functioning of the CATI system.

Development and Implementation of NAS Interviewer Training

Outline and materials

Training sessions lasted approximately 12 hours and were

Table C. Questionnaire flow in the national study: NAS, 2003

Questionnaire section	If the sampled respondent is asthma-negative			If the sampled respondent is asthma-positive
	Is the proxy respondent asked these questions?	Is the sampled respondent asked these questions?	Are these questions asked in the callback interview for adults with proxy-reported asthma-negative status?	Is the proxy respondent asked these questions?
NAS eligibility screening, respondent selection, and initial demographics . .	Yes	Yes	Yes	Yes
History of asthma (symptoms and episodes)	No	No	No	No
Health care utilization.	Health care coverage items only	Health care coverage items only	Health care coverage items only	Health care coverage items only
Knowledge of asthma/management plan	No	No	No	No
Modifications to environment	Subset of household environment items	Subset of household environment items	Subset of household environment items	Subset of household environment items
Medications.	No	No	No	No
Family history of asthma.	Single question on asthma status of other household members	Yes	Yes	Single question on asthma status of other household members
				Yes
Demographic information	Yes	Yes	Yes	

NOTE: NAS is National Asthma Survey.

conducted over 2 consecutive days. The following topics were covered:

1. *Overview of the project*—Background information and an introduction to the study and its sponsors.
2. *Purpose and importance of the study*—An explanation of why the study was being conducted and what it was designed to accomplish.
3. *Goals and expectations of the study*—A description of the target goals for the number of completed interviews and the expected time frame for data collection.
4. *Relationship to NIS*—A discussion of how NAS was conducted in conjunction with NIS, including information about the eligibility criteria for the two studies, the length of time required to conduct both surveys, and the procedures to be followed for gaining cooperation for each study.
5. *Discussion of each questionnaire section and question-by-question specifications*—An analysis of each questionnaire section and its purpose. Mock interviews were conducted to acquaint interviewers with the questionnaire and to provide them with the project knowledge and refusal aversion skills necessary to conduct an interview. Two types of mock interviews were performed: trainer-led interviews (in which the trainer played the role of the respondent and the interviewers conducted the interview using the CATI system) and dual-trainee interviews (in which one trainee performed the role of the interviewer and another acted as the respondent).
6. *Skills necessary to display project knowledge and gain cooperation*—In-class practice of answers to questions frequently asked by respondents and refusal aversion techniques as well as role-playing exercises. A project-specific job aid facilitated mastery of these concepts.

Because the NAS questionnaire required interviewers to be able to pronounce the names of a number of asthma medications, emphasis was placed on the correct pronunciation of those names. Interviewers were provided with audiotape pronunciations to allow them to practice outside of training sessions, and exercises within the sessions stressed correct pronunciation.

7. *Capacity to conduct the interview with the CATI program*—Mock interviews were performed to accomplish this objective, including a final evaluation mock interview in which interviewers were required to demonstrate successfully their ability to administer the questionnaire.

Interviewer training materials for NAS included the following:

1. *Interviewer manual*—An interviewer training manual served as a reference guide during training and data collection. The manual included an agenda that listed the topics to be covered, an overview of the study, a description of each questionnaire section, techniques for gaining cooperation, and case management procedures.
2. *Slide-show presentation*—A *PowerPoint* slide show was used as a training tool during trainer lectures to facilitate the learning process.
3. *Question-by-question specifications*—This documentation provided further information on administering selected questions and included special instructions to the interviewers on how to probe for answers and code key data elements.
4. *Job aids on refusal aversion and frequently asked questions*—Refusal aversion responses and questions frequently asked by respondents were discussed during the gaining-cooperation module of interviewer training. The discussion covered general interviewing and NAS project-specific issues.

Final review exercises at the conclusion of each training session consisted of a question-and-answer discussion summarizing the topics taught during the course of the session and an interactive review modeled after a game-show format, in which interviewers split into two teams and competed for points based on project knowledge and refusal aversion techniques.

A final test mock interview and written evaluation were administered at the end of each training session. This mock interview was standardized, allowing interviewers to be evaluated against the same standard on their ability to navigate through CATI, gain cooperation, and display project knowledge. The written evaluation aimed to reinforce what was learned during the course of training. Each trainer received a written evaluation answer guide to rate the proficiency level of the interviewer. Interviewers had to complete successfully both evaluations before they were permitted to collect data for NAS.

Training

The initial NAS data collection staff members were recruited during January 2003. To offset interviewer attrition, recruitment and training continued to be offered throughout 2003 at centralized telephone call centers in Chicago, Illinois, and Las Vegas, Nevada. The use of two telephone centers facilitated sample dialing across multiple time zones. A total of 115 Chicago interviewers and 177 Las Vegas interviewers were trained for the study.

Data Collection

Telephone interviews were conducted from February 27, 2003, through February 20, 2004, for the national study, and March 1, 2003, through March 10, 2004, for the four-state study. A total of 10,054 household screening interviews and 955 detailed asthma interviews were completed in the national study. In the four-state study, 48,185 households were screened for the presence of someone with asthma, and 5,741 detailed asthma interviews were completed. The mean number of calls made to complete a national study interview was six, with a median of four calls. In the four-state

Table D. Completed screening and detailed interviews for national study: NAS, 2003

	Total	Age	
		Less than 18 years	18 years or over
Screening interviews: household level	10,054	1,351	8,703
Detailed interviews: person level	955	164	791

NOTE: NAS is National Asthma Survey.

Table E. Completed screening and detailed interviews for four-state study: NAS, 2003

	Total	Age		State			
		Less than 18 years	18 years and over	Alabama	Illinois	California	Texas
Screening interviews: household level	48,185	. . .	. . .	12,160	11,898	11,998	12,129
Detailed interviews: person level	5,741	2,005	3,736	1,488	1,313	1,433	1,507

. . . Category not applicable.

NOTE: NAS is National Asthma Survey.

Table F. Number of interviews completed by month: NAS, 2003

Month and year	National study	Four-state study
Total	10,054	5,741
2003		
February	13	. . .
March	761	102
April	870	850
May	316	456
June	1,139	447
July	460	377
August	878	411
September	1,142	411
October	458	597
November.	1,076	187
December.	1,799	241
2004		
January	1,016	1,142
February	126	464
March	. . .	56

. . . Category not applicable.

NOTE: NAS is National Asthma Survey.

study, the mean number of calls to complete an interview was five, with a median of three calls.

Table D details the total number of screening and detailed interviews completed in the national study overall and by age.

Table E lists the number of households screened and detailed interviews completed in the four-state study overall, by age, and by state.

Pending cases at the end of data collection

For most cases pending at the end of the data collection period, the telephone number had not yet been resolved as residential or nonresidential (72.7% of pending cases and 21.0% of the initial sample for the national study; 76.8% of pending cases and 19.4% of the initial sample for the four-state study). A smaller number of cases had

been resolved as households without respondent eligibility being determined (1.4% of the initial sample for the national study and 4.2% of the initial sample for the four-state study). An even smaller number of households with an eligible respondent did not complete the interview (0.4% of the initial national study sample and 1.1% of the initial four-state study sample).

Data collection by month

Table F lists the number of interviews conducted per month by study from February 2003 through March 2004.

Pretests

A series of four pretests was fielded to determine the most effective data collection methodology for the main study—one that would obtain the highest possible response rates, produce asthma prevalence estimates, and gather high-quality analytic data for people with asthma. Appendix E provides details on each pretest, as well as the advance letters and introductory scripts.

Address matching process

To obtain addresses that corresponded to RDD-generated telephone numbers, generated telephone numbers (i.e., the initial sample) were first matched against a database that contained telephone numbers that are directory listed in a business yellow pages and are not directory listed in a residential white pages. Any business numbers so identified were removed from the sample. Numbers listed in the residential white pages were identified and temporarily set aside. A computerized system screened the remaining sample to remove nonworking numbers. The residential white pages directory-listed numbers were then combined with those not removed by the computerized system to produce the sample. To obtain addresses that corresponded to the RDD-generated telephone numbers in the sample, a file containing the RDD-generated telephone numbers was sent to a subcontractor to be processed through that company's address-matching program. This

computerized name-and-address-locating service uses a database of more than 160 million residential and business telephone numbers, including unpublished telephone numbers. In some instances, by customer preference, a listing might not have contained a street address. The resulting file contained listed and unlisted numbers for the released sample. Matched listings contained a business or residential identifier.

Advance letter

An advance letter was mailed to presumed households where the address matching process identified a mailing address for sampled telephone numbers—41.9%(initial sample) and 69.6% (released sample) for the national study, and 41.2% (initial sample) and 67.3% (released sample) for the four-state study. Recipients were asked to participate in a voluntary study on the immunization of their children, and the letter also noted that some households might be asked questions about asthma and other health-related topics or services. The letter advised recipients that their telephone numbers had been chosen randomly and indicated that they might be called in the next few weeks. A toll-free telephone number was provided for those who wished to participate immediately or to learn more about the study.

As described earlier, a NAS-only (or ''augmentation'') sample was fielded. Households in the NAS-only sample with an identified mailing address were mailed an advance letter different from that used for households in the NIS sample. This advance letter asked respondents to participate in a study specifically regarding asthma and provided asthma-related key health statistics. No mention was made of NIS or childhood immunization. The advance letters used for the main NAS studies are in Appendix VI.

Toll-free telephone number

A toll-free telephone number was provided in the advance letter, in

answering-machine messages, and by interviewers at the request of respondents. Potential respondents could use this number to ask questions about the study or to complete an interview. In the national study, a total of 260 screening interviews and 44 detailed interviews were completed with respondents who called the toll-free telephone number. In the four-state study, 912 households were screened and 208 detailed interviews were completed via the toll-free telephone line.

Informed consent

Consent for study participation was obtained from NAS respondents immediately upon determining that at least one person with asthma lived in the household. Respondents were informed about the voluntary nature of the survey, the authorizing legislation, and the confidentiality of data collected. In addition, the informed consent script provided information about the content of the survey and the expected duration. These procedures were approved by the Abt Associates Incorporated Institutional Review Board and the NCHS Research Ethics Review Board.

Assurance of confidentiality

Participation in surveys conducted by NCHS is voluntary, and information collected on persons is confidential. For NAS, assurance of confidentiality was provided to potential respondents as part of the informed consent procedures. In the CATI system, interviewers acknowledged that they had read the following script to potential respondents:

Before we continue, I'd like you to know that this research is authorized by the U.S. Public Health Service Act so your answers will be kept strictly private. Your participation is voluntary. You may choose not to answer any question you don't want to answer or stop at any time without penalty.

If a respondent requested a description of the authorizing legislation, the

interviewer read the following:

The Public Health Service Act is Volume 42 of the US Code, Section 242k. The collection of information in this survey is authorized by Section 306 of this Act. The confidentiality of your responses is assured by Section 308d of this Act.

Section 308d of the Public Health Service Act (42 U.S.C. 242m) states the following:

No information, if an establishment or person supplying the information or described in it is identifiable, obtained in the course of activities undertaken or supported under section . . . 306 . . . may be used for any purpose other than the purpose for which it was supplied unless such establishment or person has consented (as determined under regulations of the Secretary) to its use for such other purpose and in the case of information obtained in the course of health statistical or epidemiological activities under section . . . 306, such information may not be published or released in other form if the particular establishment or person supplying the information or described in it is identifiable unless such establishment or person has consented (as determined under regulations of the Secretary) to its publication or release in other form.

Strict procedures are used to prevent disclosure of confidential data in survey operations and data dissemination.

Respondent selection process: national sample

As described earlier, the national study selected a single household member at random. First, a household member aged 18 years or over was asked the number of people of all ages living in the household, followed by the number of females living in the household. The CATI system created an internal household roster of oldest to youngest household members by sex

based on this information and randomly selected a household member from that roster (e.g., the oldest male or the second oldest female). Once a household member was sampled, the asthma status of that person was determined by asking "[Have you/Has the (selected person) in your household] ever been told by a doctor or other health professional that [you have/(he or she has)] asthma?" Persons with a positive response to this question were classified as having a lifetime asthma-positive status. Regardless of the sampled person's lifetime asthma status, the screening interview included a series of demographic questions about the sampled person and the household to allow for the production of asthma prevalence rates. If the sampled respondent was asthma-positive, a detailed interview regarding asthma management and treatment was also completed. If the sampled target of the interview was a child under 18 years of age, the entire interview was conducted with an adult household member (18 years of age or over) knowledgeable about the child's health, regardless of sample type.

Based on asthma status and availability of the sampled person, six outcomes were possible for national sample respondents:

- *The sampled person had asthma and was immediately available for interview*. In these cases, a detailed asthma interview, including all demographic and household information as well as asthma-specific items, was completed.
- *The sampled person had asthma, was not immediately available for interview, but completed the detailed interview on a later calling attempt.* In these cases, the person who was on the telephone at the initial call (i.e., a proxy) was asked a select group of household and demographic questions. On a later call with the sampled person, a detailed asthma interview including all demographic and household information as well as asthma-specific items was completed.
- *The sampled person had asthma, was not immediately available for*

interview, and future attempts to complete a detailed interview with that person were not successful. In these cases, the person who was on the telephone at the initial call (i.e., a proxy) was asked a select group of household and demographic questions only. No further data were collected.

- *The sampled person did not have asthma and was immediately available for interview*. In these cases, demographic and household information was gathered from the sampled person to allow for the production of national asthma prevalence rates.
- *The sampled person did not have asthma, was not immediately available for interview, but did complete a verification interview on a later calling attempt*. In these cases, the person who was on the telephone at the initial call (i.e., a proxy) was asked a select group of household and demographic questions. On a later call with the sampled person, that person's asthma status was verified.
- *The sampled person did not have asthma, was not immediately available for interview, and future attempts to complete a verification interview with that person were not successful*. In these cases, demographic and household information was gathered from the person who was on the telephone at the initial call (i.e., a proxy) to allow for the production of national asthma prevalence rates. No further data were collected.

In the national sample, proxy interviews were also conducted if the adult sampled respondent was ill or unable to complete the interview over the telephone. These interviews were conducted with another adult in the household. For a sampled child, all interviews were conducted with a knowledgeable adult household member.

Respondent selection process: four-state sample

The four-state survey immediately screened households for the presence of

someone with asthma, using a single question: "Including yourself, has anyone living in your household ever been told by a doctor or other health professional that they have asthma?" (exercise-induced asthma was coded as a positive response to this question). If no one in the household was reported to have asthma, the interview was terminated. In households where asthma was reported, the number of asthma-positive adults aged 18 years and over and asthma-positive children under 18 years of age were obtained. The CATI system created internal rosters of asthma-positive adults and children based on this information and randomly selected a maximum of one asthma-positive adult and one asthma-positive child for a detailed interview about asthma management and treatment. If a household had a sampled adult and a sampled child, two detailed interviews were administered in that household. Thus, for the four-state study in asthma-positive households, there were three possible sampling outcomes:

- One adult sampled for a detailed interview, but no child sampled for a detailed interview.
- One child sampled for a detailed interview, but no adult sampled for a detailed interview.
- One adult and one child sampled for detailed interviews.

Interview length

Mean and median interview length varied by NIS eligibility because some demographic and household questions necessary for NIS and NAS were administered as part of the NIS interview and were not repeated during the NAS interview. In the four-state study, interview length also varied according to whether one or two household members were sampled. As noted earlier, four-state study interviews consisted of the full questionnaire.

Mean and median interview lengths (excluding the NIS interview) are shown in Table G.

Table H reports mean and median screening interview lengths by NIS eligibility for the national study. NIS eligibility refers to household eligibility

Table G. Mean and median interview length in minutes and seconds: NAS, 2003

Study	Mean	Median
National study		
Screening interview	7:15	6:20
Detailed interview	9:27	8:59
Four-state study		
Detailed interview: households in which only an adult was sampled . .	17:20	16:21
Detailed interview: households in which only a child was sampled . . .	17:46	16:55
Detailed interview: households in which both an adult and a child were sampled	27:57	26:37

NOTE: NAS is National Asthma Survey.

Table H. Mean and median length of screening interview for national study in minutes and seconds, by respondent NIS eligibility: NAS, 2003

Section	NIS eligible		NIS ineligible	
	Mean	Median	Mean	Median
Overall length	5:35	5:13	7:17	6:21
Section 1:				
Detailed asthma screening	3:47	3:34	3:35	2:59
Section 8:				
Demographics	2:06	1:52	3:41	3:06

NOTES: NIS is National Immunization Survey. NAS is National Asthma Survey.

Table J. Mean and median length in minutes and seconds for national study detailed interview, by NIS eligibility: NAS, 2003

Interview section	NIS eligible		NIS ineligible	
	Mean	Median	Mean	Median
Overall length	9:04	9:05	9:28	8:59
Section 2:				
History of asthma	1:10	0:59	1:06	1:01
Section 3:				
Health care utilization.	1:10	1:08	1:20	1:10
Section 4:				
Knowledge of asthma/management plan	1:00	0:58	0:47	0:50
Section 5:				
Modification to environment	2:39	2:32	2:47	2:34
Section 6:				
Medications.	2:10	2:16	2:39	2:10
Section 7:				
Family history of asthma.	0:53	0:49	0:47	0:43

NOTES: NIS is National Immunization Survey. NAS is National Asthma Survey.

(i.e., at least one child in the household was 19–35 months of age at the time of the interview). The NIS-eligible child in the household may or may not have been the child sampled for the NAS interview.

Table J reports mean and median interview lengths by section and NIS eligibility for the national study detailed interview. As described previously, the national sample data were only self-reported if the sampled adult was available at the time of the screening interview. If the sampled adult was not available, proxy responses from another adult in the household were accepted.

Table K reports mean and median interview lengths by section and NIS eligibility for the four-state study. In this study, up to one asthmatic adult and one

asthmatic child per household were eligible to be selected for inclusion. In households in which an adult and a child were sampled as targets of the interview, household-level questions were not repeated in both interviews. Thus, the mean and median lengths of an adult and child interview cannot be added together to calculate a combined total interview length.

Refusals

In cases where an interview was begun but not completed, specially-trained interviewers attempted refusal conversion. By the end of data collection for the national study, these interviewers completed 2,384 screening interviews and 111 detailed interviews with households that had originally refused to participate, or 23.7% of all screening interviews and 11.6% of all detailed interviews. For the four-state study, these interviewers completed 615 detailed interviews with households (including all person-level interviews necessary within the household) that had originally refused to participate (e.g., 12.0% of all detailed interviews at the household level).

Spanish-language interviewing

NAS interviews were administered in Spanish as well as English. A professional translator, with extensive experience in the translation of surveys, produced a Spanish-language version of the NAS questionnaire. A team of experienced Spanish-language telephone interviewers and supervisors reviewed the translation, evaluating it for accuracy and cultural appropriateness. Issues raised during this review were resolved in consultation with the original translator, and a Spanish-language CATI instrument reflecting the final translation was produced.

For data collection and sample management purposes, a calling queue was used for households thought by interviewers to be Spanish speaking. A CATI flag indicated such households. Cases with this flag were then delivered through the CATI system to bilingual interviewers who were specially trained to conduct interviews in Spanish and

Table K. Mean and median length of interview in minutes and seconds for four-state study detailed interview, by NIS eligibility: NAS, 2003

Interview section	NIS eligible		NIS ineligible	
	Mean	Median	Mean	Median
Overall length	16:08	14:34	18:31	17:13
Households in which only an adult was sampled . . .	13:56	13:14	17:23	16:23
Households in which only a child was sampled	15:44	14:36	17:52	17:05
Households in which both an adult and child were sampled.	22:53	22:34	28:08	26:49
Section 1: Detailed asthma screening	4:04	3:29	4:07	3:22
Section 2: History of asthma.	1:09	0:59	1:20	1:14
Section 3: Health care utilization	1:34	1:33	1:38	1:29
Section 4: Knowledge of asthma/management Plan	0:59	0:55	1:00	0:55
Section 5: Modification to environment	2:32	2:31	2:49	2:38
Section 6: Medications	2:32	2:10	3:16	2:58
Section 7: Family history of asthma	0:49	0:42	0:48	0:41
Section 8: Demographics.	2:27	2:08	3:34	3:11

NOTE: NIS is National Immunization Survey. NAS is National Asthma Survey.

English. In the national study, a total of 570 households in the Spanish-language queue were screened, resulting in 28 completed detailed interviews. These cases account for 5.7% of all screening interviews and 2.9% of all detailed interviews. In the four-state study, a total of 282 Spanish-queue detailed interviews were completed, accounting for 4.9% of all detailed interviews.

Response rates

Weighted response rates for NAS are shown in Table L (base sampling weights were used in the calculations). Rates were calculated separately for the national and four-state studies. Within each study, rates were calculated in total and by sample type (i.e., the NIS sample compared with the NAS-only sample). Response rates calculated include the interview completion rate (the percentage of completed interviews among eligible respondents), the screener completion rate (the proportion of known households screened for asthma status), and the resolution rate (the proportion of telephone numbers

that could be identified as nonworking, residential, or nonresidential).

A standard approach for measuring response rates in telephone surveys, known as the "CASRO household response rate," has been defined by the Council of American Survey Research Organizations (CASRO) (13). The CASRO response rate equals the product of these rates and provides an overall measure of response. CASRO response rates were calculated in accordance with the *American Association for Public Opinion Research's Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys* (14).

For the calculation of NAS response rates, the assumptions for the American Association for Public Opinion Research (AAPOR) Response Rate 3 (RR3) were used with one exception. The denominator of RR3 includes a factor called e, which is an estimate of "the proportion of cases of unknown eligibility that are in fact eligible" (15). When calculating e, CASRO and AAPOR guidelines indicate that the survey researcher must estimate and assume identical eligibility rates for screened and unscreened households when using the "proportional allocation" or CASRO method (15,16). However, if these assumptions are incorrect (i.e., screened and unscreened households are not eligible at the same proportion), the RR3 formula will yield an incorrect and conservative response rate (15,16).

To estimate more accurately these proportions and address the exception, the NAS response rate calculation incorporated research findings reported by Frankel et al. (17), which used an

Table L. Weighted response rates: NAS, 2003

Rates (expressed as percentage)	National study						Four-state study		
	Screening interview			Detailed interview			Detailed interview		
	Total sample	NIS sample	NAS-only sample	Total sample	NIS sample	NAS-only sample	Total sample	NIS sample	NAS-only sample
Resolution rate	87.50	91.40	86.40	87.50	91.40	86.40	90.10	91.30	88.50
Screener completion rate	66.60	64.60	67.30	66.60	64.60	67.30	76.70	74.60	79.60
Interview completion rate	. . .	. . .	. . .	81.00	81.00	80.90	70.20	70.10	70.40
CASRO response rate.	58.30	59.00	58.10	47.20	47.80	47.00	48.50	47.80	49.60

. . . Category not applicable.

NOTES: NAS is National Asthma Survey. NIS is National Immunization Survey. CASRO is the Council of American Survey Research Organizations.

alternate method to calculate *e*. In this research, data were collected to estimate the percentage of residential telephone numbers among unresolved numbers that had been finalized as ''ring-no-answer at all attempts.'' The presence of ring-no-answer numbers in a telephone sample makes calculating an accurate estimate of the response rate difficult because considerable uncertainty exists regarding the proportion of such numbers that are residential. In the fourth quarter of 2002, a national random subsample of telephone numbers that had ring-no-answer to all NIS call attempts was drawn (17). These numbers were called 42 additional times over an approximately 2-week period with three attempts per day—morning, afternoon, and evening. From this NIS subsample, 20.4% of ring-no-answer telephone numbers were estimated to be residential and 79.6% were estimated to be nonresidential, resulting in a 2.4 percentage point increase in the CASRO rate over the standard CASRO formula. Based on these results, ring-no-answer cases in NAS were redistributed: 20.4% were categorized as known unscreened households and 79.6% were categorized as out of scope. Response rates reflect this adjustment.

National study: screening interview response rates—The overall CASRO response rate for the national study screening interview was 58.3%, calculated as the product of the resolution rate (87.5%) and the screener completion rate (66.6%). The CASRO response rate for cases in the NIS sample was 59.0%, and the rate for NAS-only cases was 58.1%.

National study: detailed interview response rates—The overall CASRO response rate for the national study detailed interview was 47.2%, calculated as the product of the resolution rate (87.5%), the screener completion rate (66.6%), and the interview completion rate (81.0%). The CASRO response rate for cases in the NIS sample was 47.8%, and the rate for NAS-only cases was 47.0%.

Four-state study: detailed interview response rates—The overall CASRO response rate for the four-state study detailed interview was 48.5%, calculated as the product of the following: the

resolution rate (90.1%), the screener completion rate (76.7%), and an interview completion rate at the person level (70.2%) based on the 5,741 person-level interviews completed in 5,125 households. Because the unit of analysis for the detailed interview in the four-state study was the sampled adult or child, a person-level interview completion rate is appropriate for this calculation. The CASRO response rate for cases in the NIS sample was 47.8% and the rate for NAS-only cases was 49.6%.

The interview completion and screener completion rates differed substantially between the two studies. One likely reason for the observed difference in screening rates had to do with the greater complexity of the screening process in the national study. A series of items had to be completed in the national study screener, whereas the screener for the four-state study consisted of a single item. Another possible reason for the difference might be related to differential use of the NAS-only sample. Though both surveys used the NAS-only sample in addition to the NIS sample, the NAS-only sample proportion was much higher in the national study. The NAS-only sample cases received an advance letter and interview introduction that made specific mention of asthma as the interview topic, whereas cases in the NIS sample received the usual NIS advance letter and interview introduction.

Impact of adult or child status on interview completion rates

The impact of child or adult status of the sampled household member on interview completion rates (and subsequent affect on CASRO response rates) is examined in Table M. The national study selected only one person

per household, so its household interview completion rate was a weighted average of the rates for children and adults. In the four-state study, all interviews with selected asthmatic household members had to be completed before a household could be included in the calculation of the interview completion rate.

In both studies, the interview completion rate for children was substantially higher than the rate for adults. This difference may have been related to flexibility in determining the respondent for a child—the only requirement was that he or she be a parent or guardian who was knowledgeable about the child's health. Therefore, someone may have been more likely to be available to complete an interview for a child immediately, whereas repeated callbacks were sometimes required to complete interviews with adults. Another possible explanation for the observed difference might be that the study used the NIS sample, and thus potential respondents were more easily able to make a transition from the NIS screening or interview to NAS questions about a child than to questions about an adult. Finally, parents or guardians could simply be more invested in or more accustomed to providing information about their children's health than they are about their own health.

The final disposition of the NAS study samples is detailed in Table N. More detailed information on final sample disposition and unweighted response rate calculations is in Appendix VII. One should recall that study eligibility was based on asthma status. Ineligible households were those in which no household members were reported to have asthma in the four-state study.

Table M. Response rates for the detailed interview by sampled adult or child status: NAS, 2003

Rate (percentage)	National study		Four-state study	
	Sampled adults	Sampled children	Sampled adults	Sampled children
Interview completion rate	80.00	86.00	68.60	75.50
CASRO response rate	46.60	50.10	47.40	52.20

NOTES: NAS is National Asthma Survey. CASRO is the Council of American Survey Research Organizations.

Table N. Final sample disposition, national and four-state studies: NAS, 2003

| | Number of selected telephone lines | | | | | |
| | National study | | | Four-state study | | |
Final disposition	Total sample	NIS sample	NAS-only sample	Total sample	NIS sample	NAS-only sample
Total	55,204	12,779	42,425	210,109	109,401	100,708
Not resolved as residential or nonresidential.	11,626	2,229	9,397	40,824	19,638	21,186
Out of scope (i.e., business or nonworking)	29,369	6,795	22,574	110,956	58,003	52,953
Known household, study eligibility not determined	4,155	1,190	2,965	10,144	6,450	3,694
Screened ineligible household	8,852	2,321	6,531	40,852	21,794	19,058
Screened eligible household, language barrier	19	3	16	10	7	3
Screened eligible household, interview not completed	228	46	182	2,198	1,052	1,146
Screened eligible household, interview completed	955	195	760	5,125	2,457	2,668

NOTES: NAS is National Asthma Survey. NIS is National Immunization Survey.

Efforts to maximize response rates

A number of approaches were used to maximize NAS response rates, including the following:

- Careful attention to the introductory questionnaire script to ensure it engaged the interest of potential respondents and provided clear information on the study sponsor.
- Thorough pretesting of the instrument to ensure it was clear to respondents and not unduly burdensome.
- An advance mailing to households that had directory-listed telephone numbers to establish study legitimacy and increase rapport prior to first contact, as well as convey information about strict confidentiality procedures in place.
- A toll-free telephone number to allow respondents to directly contact interviewers and to encourage potential respondents to obtain study information, immediately establish study eligibility, or voice any concerns.
- A Spanish-language version of the instrument to reduce nonresponse among Spanish-speaking households.
- A sample management system that provided daily review of appointment and refusal case status to ensure timely recontact.

- Flexible call schedules to permit respondents to complete the interview at their convenience.
- An interviewer training program in refusal aversion to reduce the number of unresolved cases and refusals from eligible respondents.
- The use of refusal conversion attempts by specially trained interviewers, who prepared case-specific strategies for each conversion call based on call history.

Results

Quality Control—Data Collection

To ensure high quality data, project staff monitored the sample selection and case release processes, interview administration, data consistency, and the estimation process. Below is a brief overview of the NAS quality control measures.

Sample monitoring

The prepared sample of telephone numbers was checked to ensure that it met sample design specifications. The sample dynamics were monitored daily to ensure a consistent pace of data collection across the data collection period, prevent the release of excess cases to telephone centers, and assist in timely sample management decision making.

Interviewing

Telephone center supervisors were available to interviewing staff at all times to resolve any questions or concerns about a case. Supervisors regularly observed data collection to monitor interviewers informally. In addition, supervisory staff used remote telephone and computer monitoring technology to evaluate whether interviewers were performing according to project specifications. They evaluated whether introductory materials were properly read, item wording and sequence of the questionnaire were followed correctly, respondent questions were answered properly, and any vague responses were properly probed. Computer monitoring also allowed supervisors to ascertain whether answers were entered accurately into the CATI system. NCHS staff also periodically monitored interviews, especially at the start of data collection.

Supervisory staff monitored 5% of all NAS calls made. The selection of which interviewers to monitor was automated using an algorithm that ensured newly trained interviewers were monitored more often than experienced interviewers. Experienced interviewers were prioritized for monitoring based upon the length of time since their last monitoring session and recent monitoring scores. Each interviewer was typically monitored at least once a week, but some interviewers were monitored more often.

Data collection

The CATI system was programmed to help ensure complete and accurate data collection and used automated data checking techniques during the interview (such as response-value range checks and consistency edits). These features enabled interviewers to obtain needed clarifications while still on the telephone with the respondent. Online help facilities were also available to aid interviewers.

Throughout the data collection period, modified versions of programs that were ultimately used to clean the final data produced weekly checks of interview data. These programs identified any out-of-range values, incorrect skip logic, missing data elements, and inconsistency between data fields. Any issues identified were resolved during the data collection process.

Data file production

Another set of programs, produced independently of the cleaning programs, performed three main quality control checks of the cleaned data. First, these programs identified any out-of-range values and incorrect skip logic. Second, derived variables were independently created and cross-checked against variables created during the initial cleaning process. Any discrepancies were flagged for resolution. Third, the programs checked for the correct assignment of special reserve codes designed to differentiate among types of missing data (e.g., data missing because of eligibility criteria or interview breakoff or data missing in error). Variable labels and statements were checked for consistency with the data documentation provided.

The quality control programs were run iteratively on each new version of the data files until no problems were identified. The quality control reviewer then signed off on the data file. The final step of the quality control process involved review of the file by a senior project manager. Once this last step was completed, the data file was ready for production.

Estimation

Staff compared the formulas for the weights and adjustments developed by the sampling statistician with the actual weights and adjustments constructed by the statistical programmer. The variables delivered by the data collection staff to the statistical programmer were used in independent calculations of the weights to verify the programmer's implementation of the statistician's weighting specifications.

In addition to this independent check, univariate statistics were produced and reviewed for the adjustments and weights. Reviewers used general knowledge about the size of the population and expectations to examine responses for geographic areas. The sums of various weights were also compared to ensure that differences were in the expected direction.

Weighting and Estimation Procedures

This section provides a nontechnical overview of NAS weighting procedures; for a more-detailed technical description, refer to Appendix B.

To obtain population-based estimates, each sampled respondent for whom data were collected was assigned a final sampling weight. The national sample data file includes two final weights from which the analyst may choose depending on the population and analysis of interest, whereas the four-state sample data file includes three final weights from which the analyst may choose (again, depending on the population and analysis of interest). Each final sampling weight incorporates a base sampling weight, an adjustment for multiple telephone lines within a household, and various adjustments for nonresponse. Each adjusted weight is then poststratified so that the sum of the weights for each state equals selected population control totals from an outside source. For the national study, the outside source was the 2002 NHIS, and for the four-state study, the sources were the 2003 BRFSS for adults and the 2003 National Survey of Children's Health for children. The steps to produce the national and four-state sampling weights are described below.

Sampling weights for the national study

Questions were asked of an adult knowledgeable about that child's health if the sampled household member was a child under 18 years of age. If the sampled household member was an adult aged 18 years or over, questions were asked of that sampled adult

whenever possible. However, if the sampled adult was not available at the time of screening contact, a proxy interview was conducted with the adult household member who answered the telephone.

Because of the observed error rate in proxy reporting of adult asthma status, two versions of the national study sampling weight were calculated to permit production of estimates that include or exclude proxy cases for adults. The first version includes all adult respondents with data regardless of whether the data were collected by self-report or a proxy respondent. The second includes only the adult respondents from whom data were collected personally. Sampled children are included in the calculation of both weights. The process for creating the two weights was identical; the difference is in the set of cases to which the weights are assigned.

Base sampling weight

The first step in the weighting process determines the base sampling weight for each selected household. The base sampling weight attached to a household is the reciprocal of the probability of selection of the household (e.g., equal to the probability of selecting the household's telephone number).

The telephone lines selected to be screened for NAS represent a random sample of all possible telephone lines in each geographic area. The probability that any given telephone line will be selected from the population of all possible telephone lines can be calculated. If 1,000 total telephone lines are in a given area and 100 of those lines were selected for the study, the probability that any single telephone line would be selected is 100/1000, or 0.10. Therefore, each telephone line selected represents some larger number of telephone lines in that geographic area (calculated as the reciprocal of the probability of selection for any single telephone line). If the probability of selection for any single telephone line is 0.10, then each telephone line selected represents 1/0.10 (or 10) telephone lines in the geographic area. This number—the reciprocal of the probability of

selection for any single telephone line—is the *base sampling weight* for each completed interview in that geographic area.

The base sampling weight varied by geographic area in NAS, but was the same for every completed interview within that geographic area. Because the population of telephone numbers did not change much by each quarter, the base sampling weight was calculated for the overall survey and not separately for each quarter.

Adjustment for multiple-telephone households

If a household has multiple voice-use telephone lines, it has a greater chance of being included in the survey than a household with only a single voice-use telephone line. If selecting a simple random sample of households were possible, each household would have equal probability of being included. To adjust for a multiple-telephone household's increased probability of being included in the sample, the base sampling weight is divided by the number of voice-use telephone lines in the household, to a maximum of three lines.

If a household has two voice-use telephone lines, it could be included in the sample two times. If it is included twice and its base sampling weight is 10, the household would be allowed to represent 10 (base sampling weight) x 2 (number of telephone lines) = 20 households. To adjust the weight so that such a multiple-telephone household in the sample represents the same number of households in the geographic area as does a single-line household in the sample, the base sampling weight (10) is divided by the number of telephone lines (2). With an adjusted weight of 5, this household (had it been selected twice) would still represent only 10 households (5 x 2 = 10).

Unit nonresponse adjustment 1 (residential status unknown)

When selected telephone lines are called, three results are possible:

1. The telephone line is determined to belong to a household.
2. The telephone line is determined to

not be a working residential number, but rather a business or nonworking number.
3. The status remains unknown.

This third category includes some household telephone lines, but the exact number is unknown. Still, the completed household interviews must represent the households in this "unknown" category. When the number of households in the unknown category is large, the weight for each completed household interview must be increased substantially. When the number of households in the unknown category is small, the weight for each completed household interview must be increased only slightly. This proportional adjustment is the first unit nonresponse adjustment.

The size of the adjustment is based on the size of the unknown category and on previous research in which telephone company business offices reported on the number of households among the unknown numbers. This adjustment varies by geographic area, telephone area code, and whether the telephone line was directory listed. When many telephone numbers in a geographic area and area code go unanswered and most of these numbers are highly likely to be households, the weights for completed interviews in that geographic area and area code are increased greatly. When few telephone numbers in a geographic area and area code go unanswered, or few of these numbers are likely to be households, the weights for completed interviews in that geographic area and area code are increased only slightly. Thus, based on the level of nonresponse in a given area, the weights are proportionately increased for interviews that could be completed in that area to compensate for nonresponse. The completed interviews represent the households in the unknown category.

Unit nonresponse adjustment 2 (households of unknown eligibility)

In the national study, a screening interview determines eligibility (i.e., whether the sampled person has asthma). When a household has been identified, two results are possible:

1. A screening interview is completed.

2. A screening interview is not completed.

The households with completed screening interviews must represent the households in which an interview is not completed. When the number of incomplete screening interviews is large, the weight for each completed interview must be increased substantially. When the number of incomplete interviews is small, the weight for each completed interview must be increased only slightly. The size of the adjustment is based on the size of the two categories and is calculated simply as the ratio of the weighted total number of identified households to the weighted number of completed interviews.

The adjustment is done separately within three urban setting categories based on U.S. Census Bureau-defined Metropolitan Statistical Areas (MSA), which are geographic entities associated with at least one urbanized area that has a population of at least 50,000. The MSA comprises the central county or counties containing the core, plus adjacent outlying counties having a high degree of social and economic integration with the central county as measured through commuting (18). The three categories, from most urban to most rural, used for the adjustment are 1) within a central city of an MSA, 2) outside of a central city but still within an MSA, and 3) not within an MSA.

Subsampling adjustment

One household member was randomly selected from among all household members. In households with more than one household member, the randomly selected person represented all of the nonselected people in the household. Therefore, the sampling weight must reflect the total number of household members.

Unit nonresponse adjustment 3 (sampled persons who do not complete the interview)

When a person has been sampled for an interview, two results are possible:

1. An interview is completed.
2. An interview is not completed.

The completed interviews must represent the interviews that were not completed. The size of the adjustment is based on the size of the two categories and is calculated simply as the ratio of the weighted total number of sampled persons to the weighted number of completed interviews. This adjustment is made separately for each IAP.

Poststratification

Despite the weighting and the nonresponse adjustments, the estimated number of people is unlikely to match perfectly the number of people in the population sampled. Discrepancies are likely to be due to random sampling error and nonrandom response biases. These biases may vary by age, sex, and race. Poststratification of the weights to match population control totals for key demographic variables obtained from an independent source may reduce this bias. When several poststratification variables exist and control totals are available for the separate variables but not for their cross-classifications, this adjustment is carried out through a process known as *raking*, which involves creating a separate margin for each poststratification variable containing control totals for categories of the variable.

For NAS, the independent source for population control totals was the 2002 NHIS. The NAS weights were adjusted so that their sum equaled the 2002 NHIS population counts for the following groups:

- Number of males and number of females in nine age groups.
- Household size.
- Number of persons of various racial and ethnic backgrounds.
- Asthma status.
- Number of males and females by asthma status.

Adjustment for noncoverage of households without landline telephones

The poststratification process also included an adjustment for potential bias that might exist because NAS, as a telephone survey, could not select households that had no landline telephone service at the time of the survey. This adjustment incorporated information about household interruptions in telephone service from NAS. Evidence suggests that households that have telephone service at the time of the survey, but have had service interruptions of one week or more during the year, are more similar to households with no service at the time of the survey than are households with uninterrupted service during the year (17,19–21). Therefore, noncoverage of households without telephones can be somewhat offset by proportionately increasing the weights for those interviews that were completed in households with interrupted service. In this way, completed interviews in households with interrupted service represent the households without telephone service at the time of the survey.

To make the adjustment for nontelephone households, the proportion of telephone and nontelephone households was determined from the 2002 NHIS. These proportions were then applied to the control totals of the number of households to derive the estimated numbers of telephone and nontelephone households. Next, from NAS, the weighted proportion of telephone households having an interruption in telephone service for at least one week during the past 12 months was computed. This proportion was then applied to the number of telephone households to estimate the number of telephone households with interruption. These calculations produced two control totals: one is for households with landline telephones and no interruption in telephone service, and the other is for those without landline telephones or with an interruption in landline telephone service. These control totals are mutually exclusive and exhaustive.

No weighting or poststratification adjustments were made for households whose only telephone service was available through cellular telephones.

Truncation of large weights

Extremely large weights were truncated in order to prevent a small number of cases with large weights from having undue influence on the estimates.

Sampling weights for the four-state study

The process to produce four-state study sampling weights was identical to that used for the national study up to the point of the subsampling adjustment. For the four-state study, subsampling adjustments were made separately for adults with asthma and children with asthma, because each could be sampled within a single household. In households with multiple asthma-positive adults, the randomly selected adult represents all of the nonselected asthma-positive adults in the household. Therefore, the sampling weight for the completed adult interview must be increased proportionally. The adjustment simply multiplies the weight by the number of asthma-positive adults in the household. The same logic applies to sampled children.

Similarly, the nonresponse adjustment to the four-state study detailed interview was completed separately for adults and children and for each geographic area within the adult and child categories. The four-state study used two independent sources for population control totals for poststratification: the 2003 BRFSS for adults and the 2003 NSCH for children. The NAS weights for sampled adults were adjusted so the sum of the weights equaled the 2003 BRFSS counts of asthma-positive adults in the following groups:

- Six age groups.
- Males and females.
- Adults grouped by various racial and ethnic backgrounds.

NAS weights for sampled children were adjusted so the sum of the weights equaled the 2003 NSCH counts of asthma-positive children in the following groups:

- Three age groups.
- Males and females.
- Children grouped by various racial and ethnic backgrounds.

Finally, the adjustment for nontelephone households was slightly different for the four-state study. The

separate proportions of adults and children in telephone and nontelephone households were determined from the 2004 Current Population Survey's Annual Social and Economic Supplement conducted in March 2004. These proportions were then applied to the state control totals of the numbers of adults and children to derive the estimated numbers of adults and children in each state in telephone and nontelephone households. Next, from NAS, the weighted proportions of adults and children in telephone households having an interruption in telephone service for at least 1 week during the past 12 months were computed. These proportions were then applied to the numbers of adults and children in telephone households to estimate the number of adults and children in telephone households with interruption. These calculations produced two control totals for adults and two control totals for children: one for those in households with telephones and no interruption in service and the other for those in households without telephones or with an interruption in telephone service. These control totals are mutually exclusive and exhaustive.

Weights

For both samples, the weight specified will vary depending on the analytic plan.

The national sample data file contains two weights from which to choose:

- *Post_pr_int*—Includes all sample adult proxy and self-report cases and all sample children.
- *Post_sr_int*—Includes only sample adult self-report cases and all sample children.

The national file does not include a single child-level weight. Sampled children are included in the calculation of both weights, but the two weights for any given sample child will differ slightly because of the difference in the number of sample adult cases used to calculate post_pr_int compared with post_sr_int.

Estimates for children can be produced using either weight, but adults

are included in both weights as well (even if the analyst is not interested in asthma in adults). Therefore, analysts need to determine which adult cases to include: those that contain self-reported information only or adult cases that contain information from the sampled and proxy respondents. The preferred weight to use for child-level estimates is post_sr_int because it only includes sampled adult self-report information, in addition to all information for children. The alternate weight is post_pr_int, which includes sampled adult self- and proxy reports, in addition to all children. The post_pr_int weight should be used for methodological research to examine differences between self- and proxy reporting in adults. One should recall that because of proxy reporting error, all asthma negative proxy responses for adults were verified with the sampled adult if possible.

The four-state sample data file contains three weights from which to choose:

- *Post_adult_int*—A person-level interview weight that only includes sample adults 18 years of age and over; it should be used if the analyst is interested only in examining characteristics of asthmatic adults.
- *Post_child_int*—A person-level interview weight that only includes sample children under 18 years of age; it should be used if the analyst is interested only in examining characteristics of asthmatic children.
- *Weight_int*—This person-level interview weight includes all sample adults and sample children in the sample and reduces the analyst's work by eliminating the need to aggregate the adult and child weights to examine the whole sample. It should be used if the analyst wishes to examine characteristics of people with asthma in the entire sample across all ages.

Data Files

From the various CATI production files, two data files were constructed for release to the general public. All data files are in SAS version 8 format (22). Formatted value labels are not

permanently attached to the files; instead, executable SAS programs are included to enable users to create their own format libraries.

The national sample data file contains screening data (age, sex, asthma status) for all cases as well as accompanying interview data for all cases in which a detailed interview was completed and for those who completed a partial interview (i.e., sampled-respondent cases that are complete at least through the variable BATH_FAN [S7Q16] or proxy-respondent cases that are complete at least through the variable S_INSIDEP [S7Q10P]). There are 10,054 screening records in the national file. It contains asthma-specific interview data for 955 adults and children, as well as person-level demographic characteristics such as age, race, ethnicity, education level, and asthma status of each sampled respondent. The file also contains household-level variables.

The four-state sample data file contains all screening and interview information for 5,227 households and 5,741 persons. This file contains asthma-specific interview data for adults and children, as well as individual demographic characteristics such as age, race, ethnicity, and education level of each sampled respondent as well as household-level variables.

Missing data

The CATI system is designed to minimize missing data. However, there are several reasons why data may be missing. Most analysts ignore records with missing data regardless of why the data is missing. However, SAS provides a mechanism to differentiate between different types of missing values. The following key describes the various codes used to represent missing data in the data files.

(.N) Not in universe (sample logic)—Respondents skipped entire sections of questions based on eligibility criteria (e.g., asthma status).

(.L) Legitimate skip (question logic)—Respondents skipped one or

more questions within a section because of an answer provided to a root question.

(.P) Partially completed case—The question was not answered because the respondent broke off the interview prior to completing this question. Partially completed interviews, or "partial completes," are interviews that were completed though question S7Q16 in sampled respondent interviews or S7Q10P in proxy interviews. These cases have interview records and are treated as "completes," even though data are missing for questions that were asked late in the interview.

(.M) Missing in error—A response should have been captured for this question but was not. Data may be missing in error if records were not properly written to a data file; an interviewer did not properly follow procedures to return to a previous question to edit a response, a CATI programming error, or a data transfer failure; or the recorded answer was determined to be invalid.

SAS treats all of these codes similarly in statistical analyses (i.e., as missing data), so analysts who use SAS and are not interested in the reasons for missing data may continue to analyze the data as usual.

One should note that derived variables (i.e., variables whose response was not directly provided by the respondent) do not include the detailed coding of missing data. All missing values for derived variables received an ".M" code regardless of the reason for the missing data. Similarly, ".M" was used when derived variables were suppressed to protect the confidentiality of the survey participants.

Data missing because the respondent did not know or refused to provide the answer have been treated differently. Rather than assigning a missing value to these records, a numeric code was used to identify these responses. Typically, unknown answers are coded as "6," "96," or "996." Refused answers are coded as "7," "97," or "997." However, the codes may be different for specific variables; analysts are encouraged to consult the data documentation and frequency lists to identify the correct codes for each variable. Failure to do so may result in inappropriate calculations, especially for variables measured using ordinal, interval, or ratio scales.

Edits to protect confidentiality

NCHS takes extraordinary measures to ensure that the identity of survey respondents and subjects cannot be disclosed. The risk of inadvertent disclosure of confidential information about individual respondents is higher with a publicly released data set having detailed geography variables, a detailed and extensive set of survey observations, or a sizeable proportion of the total population of interest. Coarsening a data set by suppressing survey variables, collapsing multiple variables into one, collapsing response categories for other variables, or introducing noise in the data are common techniques to reduce the risk of inadvertent disclosure. Details on the various edits to protect confidentiality are listed below for both samples.

Education—The education variable for the highest level of schooling completed by the sampled respondent was not asked if the sampled child was under 5 years of age. These data were suppressed for sampled children aged 6–17 years because of the relationship between age and grade at school.

Geography—Geographic information that would identify the specific IAP area was suppressed.

Three versions of the "state of residence" identifiers are included in the four-state file. The STATE variable identifies the state with a numeric code; the STATES variable identifies the state with a two character abbreviation; and the STATEL variable identifies the full name of the state.

In addition, a variable identifying whether the household resides inside or outside of a MSA was included in both files. It was suppressed whenever the total population for all MSA areas or all non-MSA areas in the state of residence was less than 500,000 persons.

Race—Respondents were permitted to identify all possible categories that described the sampled person's race. For the national file, responses for the race variable were collapsed to five categories: white only, black only, Asian only, multiple race, and other race. The "other race" category included people for whom only one of the other two categories (American Indian or Alaska Native [AIAN] and Native Hawaiian or Other Pacific Islander [NHOPI]) was reported. People for whom more than one race was reported (e.g., Asian and NHOPI) were included in the "multiple race" category.

For the four-state file, responses for the race variable were collapsed to four categories: white only, black only, multiple race, and other race. The "other race" category included persons for whom only one of the other three categories (Asian, AIAN, and NHOPI) was reported. People for whom more than one race was reported (e.g., Asian and NHOPI) were included in the "multiple race" category.

Number of persons in the household (national sample)—Information on the total number of persons in each household significantly increases the risk of inadvertent disclosure of confidential information in households with large numbers of persons. Therefore, the number of persons of all ages that live in the household was top coded at "10+" (ROSTER10) to suppress the identity of large households.

Number of children and adults in the household who are diagnosed with asthma (four-state sample)—Information on the total number of asthmatic adults and children in the household can increase the risk of inadvertent disclosure in households with large numbers of persons with asthma. Therefore, the number of children in the household diagnosed with asthma was top coded at four and above. The number of adults in the household diagnosed with asthma was top coded at three and above.

Relationship of respondent to sample child or adult—If a child was randomly selected as the sampled person in the household, a parent or guardian knowledgeable about the health of the

child answered the survey questions. Additionally, for adult sampled respondents who were too ill to participate, another adult in the household was allowed to answer as a proxy respondent for the sampled adult. As detailed earlier, a separate proxy substudy was conducted for sampled adult respondents in the national study who were unable to be reached at the time of the screening interview.

The original response categories to assess the relationship of the knowledgeable adult respondent to the sampled person (question S3Q6, RELA_CHILD) listed in the questionnaire included the following: mother (birth, adoptive, step, or foster) or female guardian, father (birth, adoptive, step, or foster) or male guardian, sister or brother (step, foster, half, or adoptive), in-law of any type, aunt or uncle, grandparent, other family member, or friend. In the national sample public-use data file, all responses above were included except for in-law of any type. To mask households that contain unique family characteristics, the responses were collapsed into the following categories for the four-state sample: mother (birth, adoptive, step, or foster) or female guardian, father (birth, adoptive, step, or foster) or male guardian, and other.

Other variables—Several other frequency variables were top or bottom coded to suppress outliers at low and high ends of the distribution of responses. Because of their unusual characteristics, records that included these outliers might have been more readily identifiable. For the remaining variables, the sample frequency distributions were examined and cut points were created at natural breaks.

The following variables were top coded in both samples:

- Age of the respondent or household member, top coded at "85+" (S2Q5R).
- Age of respondent when he or she was first told by a health care professional that he or she had asthma, top coded at "85+" (S3Q8R).
- Number of times in the past 12 months the sampled person saw a

doctor or other health professional for a routine checkup for asthma, top coded at "13+" (S5Q1R).
- Number of times in the past 12 months the sampled person visited an emergency room or urgent care center because of asthma, top coded at "13+" (S5Q3R).
- Number of times in the past 12 months the sampled person saw a doctor or other health professional for urgent treatment of worsening asthma symptoms or an asthma episode or attack, top coded at "16+" (S5Q4R).
- Number of times in the past 12 months the sampled person stayed in any hospital overnight or longer because of asthma, top coded at "6+" (S5Q6R).
- Number of days in the past 12 months the sampled person was unable to work or carry out usual activities because of asthma, top coded at "36+" (S5Q9R).
- Number of days in the past 12 months the sampled child missed daycare, preschool, or school because of asthma, top coded at "32+" (S5Q11R).

The following variables were top coded in the four-state sample:

- Age of respondent or household member, top coded at "85+" (S2Q5R).
- Age of respondent when he or she was first told by a health care professional that he or she had asthma, top coded at "85+" (S3Q8R).
- Number of times in the past 12 months the sampled person saw a doctor or other health professional for a routine checkup for asthma, top coded at "13+" (S5Q1R).
- Number of times in the past 12 months the sampled person visited an emergency room or urgent care center because of asthma, top coded at "13+" (S5Q3R).
- Number of times in the past 12 months the sampled person saw a doctor or other health professional for urgent treatment of worsening asthma symptoms or an asthma episode or attack, top coded at "16+" (S5Q4R).

- Number of times in the past 12 months the sampled person stayed in any hospital overnight or longer because of asthma, top coded at "6+" (S5Q6R).
- Number of days in the past 12 months the sampled person was unable to work or carry out usual activities because of asthma, top coded at "36+" (S5Q9R).
- Number of days in the past 12 months the sampled child missed daycare, preschool, or school because of asthma, top coded at "32+" (S5Q11R).

The following variables were top and bottom coded in the four-state and national samples:

- Birthweight in grams (BRTHWHT5).
- Respondent height in inches (HEIGHTR).
- Respondent weight in pounds (WEIGHTR).

The birthweight variable was asked of sampled children under the age of 18 years. This question permitted respondents to report the sampled child's birthweight in pounds and ounces or grams. For both samples, the reported birthweight was recoded into grams such that at least 5% of the sample was contained in either the top or bottom code after examining relevant NHANES data. The resulting bottom code was 1,814 grams (about 4 pounds) and a top code of 4,282 grams (about 9.4 pounds).

The height question permitted respondents to report the sampled person's height in feet and inches or centimeters. The reported height was recoded into inches. The weight question permitted respondents to report the sampled person's weight in either pounds or kilograms. This value was recoded into pounds.

Because the single-age samples for children in the survey were so small, specifications developed for the SLAITS NSCH were used to create the top and bottom cut points for height and weight. These cut points were applied by age for children 0–17 years of age. To protect the confidentiality of individual children, very short or very tall heights

and very low and very high weights were suppressed. Extreme values were identified within each single-age group and recoded to less extreme values. For example, for 11-year-old children, all reported heights shorter than 43 inches were recoded to 43 inches, and all reported heights taller than 68 inches were recoded to 68 inches.

The height and weight cut points for adults used the NHIS specifications because the single-age samples for adults were so small. For men, weights less than or equal to 125 pounds were recoded to 125, and weights greater than 285 pounds were recoded to 285. For men, heights less than 63 inches were recoded to 63 inches, and heights greater than 76 inches were recoded to 76 inches. For women, weights less than or equal to 98 pounds were recoded to 98 pounds, and weights greater than 259 pounds were recoded to 259 pounds. For women, heights less than or equal to 58 inches were recoded to 58 inches, and heights greater than 70 inches were recoded to 70 inches. Two flag variables, HGHT_FLG and WGHT_FLG, were added to the dataset to enable analysts to determine whether the height and weight values for children and adults were reported or assigned.

Body mass index (BMI)—BMI indicates total body fat based on the height and weight of adult men and women. Because suppression of height and weight variables may hinder calculations of BMI (calculated as body weight in kilograms [kg] divided by height in meters [m] squared), variables identifying BMI for children (BMICLASSC) and adults (BMICLASSA) have been added to the dataset.

Children aged 2–17 years have been identified as either underweight (BMI-for-age is in the 5th percentile or lower), normal weight, at risk for overweight (BMI-for-age is in the 85th percentile or greater but lower than the 95th percentile), or overweight (BMI-for-age is in the 95th percentile or greater). Percentiles are based on sex and age (see http://www.cdc.gov/nccdphp/dnpa/growthcharts/resources/sas.htm); however, this program relies on the child's age in months. Because

age was only reported in years for this survey, children were assumed to be at the midpoint of the age-year (i.e., a 10-year-old was assumed to be 126 months of age) to calculate BMI-for-age. Children's height and weight were reported by the parent or guardian and were not independently measured or verified.

The following classifications were used for the adult BMI variable and correspond to those used by the National Institutes of Health: underweight is less than 18.5 kg/m^2, normal weight is 18.5 to 24.9 kg/m^2, overweight is 25 to 29.9 kg/m^2, and obese is greater than or equal to 30 kg/m^2.

Access to suppressed data

Analysts interested in working with suppressed data may access unmodified data files through the NCHS Research Data Center (RDC). For information about charges and how to apply for access, visit the RDC website at www.cdc.gov/nchs/r&d/rdc.htm.

Derived variables

A number of derived variables created for estimation and analysis are included in the national and four-state data files. The derived variables in the national sample data file provide household information on lifetime and current asthma prevalence, height and weight of sampled respondents (as well as birthweight for sampled children), respondent race, and household income. The four-state data file also contains derived variables listed above, with the exception of prevalence data.

An alphabetical list of derived variables created for the 2003 NAS four-state and national data files follows. Derived variables marked with a dagger (†) take advantage of the fact that some household and demographic information could have been obtained from sampled and proxy respondents. If data were supplied by a sampled respondent only or a sampled and a proxy respondent, data provided by the sampled respondent were used to calculate derived variables. If the only data available were supplied by a proxy

respondent, then these data were used to calculate derived variables.

ASTATUS1—The variable ASTATUS1 describes whether a respondent self-identifies as currently having asthma. It requires a positive lifetime asthma status (as described below in ASTHSTAT) and a positive response to S3Q2 (or S3Q9, if it has a value), which explicitly asks whether the respondent currently has asthma.

ASTATUS2—A second measure of current asthma status, ASTATUS2, relies on behaviors, not self-identification, to indicate whether a respondent currently suffers from asthma. It requires a positive lifetime asthma status (as described in ASTHSTAT) and one of the following criteria:

1. Respondent has spoken to a doctor or health professional about his or her asthma within the last 3 years.
2. Respondent has taken asthma medication within the last 3 years.
3. Respondent has had symptoms of asthma within the last 3 years.

These behaviors are assessed in questions S3Q10, S3Q11, and S3Q12.

ASTHMST—This variable computes asthma status according to programmatic rules developed for the BRFSS. It indicates whether the respondent has been told by a doctor or other health professional that he or she currently, formerly, or never has had asthma. It is calculated from the variables R_ASTHMX01 (or S3Q7, if it has a value) and S3Q2 (or S3Q9, if it has a value), which assess lifetime and current asthma status.

ASTHSTAT—The variable ASTHSTAT, a measure of lifetime asthma status, is created for each sampled household member from the variable R_ASTHMX01 (or S3Q7, if it has a value), which asks whether the sampled person has been told by a doctor or other health professional that he or she has asthma.

BESTINCOMEG1†—The BESTINCOMEG1 variable is derived from the best income variable (BESTINCOME) of the respondent, grouped into the following categories: $0 to $4,999; $5,000 to $9,999; $10,000 to $14,999; $15,000 to $19,999; $20,000 to $24,999; $25,000 to $34,999; $35,000

to $44,999; $45,000 to $54,999; $55,000 to $64,999; $65,000 to $74,999; and $75,000 and over. For respondents who reported an exact household income, the BESTINCOME field contains that actual dollar amount. When respondents did not supply a specific dollar amount for household income, a series or cascade of questions asking respondents whether the household income was below, exactly at, or above threshold amounts was necessary. A matrix was then created to categorize responses to these income cascade questions. Each cell in the matrix was assigned to one of the following income categories: less than $7,500; $7,500 to less than $10,000; $10,000 to less than $12,500; $12,500 to less than $15,000; $15,000 to less than $17,500; $17,500 to less than $20,000; $20,000 to less than $25,000; $25,000 to less than $30,000; $30,000 to less than $35,000; $35,000 to less than $40,000; $40,000 to less than $45,000; $45,000 to less than $50,000; $50,000 to less than $60,000; $60,000 to less than $75,000; and $75,000 or higher.

The BESTINCOME variable, for respondents who went through the cascade of income questions, was calculated as the midpoint of their income category as determined by their location in the matrix. Respondents with an income range of $75,000 or higher were assigned a BESTINCOME value of $100,000, based on the median income reported for NAS households that provided an exact income above $75,000. Respondents who did not complete the income cascade, either because they refused or did not know the answer to one of the cascade questions, have a missing value for BESTINCOME.

BMICLASSA—This variable classifies the BMI value for age for adults.

BMICLASSC—This variable classifies the BMI value for age for children.

BRTHWHT5†—The variable BRTHWHT5 provides a standardized measure of birthweight in grams for sampled children. Birthweight values given by respondents in pounds and ounces were converted into grams by multiplying the amount given in pounds

by 16, adding any additional weight given in ounces, and multiplying by a conversion factor of 28.350.

CASTHMA—This variable indicates who is at risk for current asthma prevalence according to BRFSS programmatic rules. These respondents are at risk for having been told sometime in their lifetime by a doctor or other health professional that they had, and still have, asthma. It is calculated from the variables R_ASTHMX01 (or S3Q7, if it has a value) and S3Q2 (or S3Q9, if it has a value).

COMPLETE_STATUS (national sample only)—This variable indicates whether a screener and interview were completed and who provided the data (i.e., the sampled person or a proxy respondent). Because respondents could break off the interview at any point, this flag was created to categorize cases by the number of valid responses given (number 1 was not assigned a code):

2. Screener complete, sampled person interview complete through at least S7Q16.
3. Screener complete, proxy respondent interview complete through at least S7Q10P.
4. Screener complete, sampled person (through at least S7Q16) and proxy respondent interviews complete (through at least S7Q10P).

FLG_ASTHMA (national sample only)—This variable indicates whether asthma status for the sampled respondent was obtained from the sampled respondent or from a proxy respondent. FLG_ASTHMA has the following values:

1. Sampled person reported asthma status.
2. Proxy reported asthma status.

FLG_PROXY—In instances where a sampled adult respondent or the knowledgeable parent or guardian was unable to complete the interview because of an illness or disability, another household member was able to serve as a proxy respondent in his or her place. FLG_PROXY is a derived variable that notes whether an interview was or was not conducted by a proxy because of a respondent's illness or disability.

FLG_TYPE—This variable is included for both samples to facilitate data navigation. It establishes the respondent's expected questionnaire path or interview type based on asthma and respondent status. Variables that affect the questionnaire path (asthma status, current asthma status, and identity of the respondent) are determined in the third section of the questionnaire.

For the national file, the variable FLG_TYPE had the following values:

1. Current asthma—Sampled person was interviewed: data in original fields.
2. Asthma, not current—Sampled person was interviewed: data in original fields.
3. No asthma—Sampled person was interviewed: data in original fields.
4. Asthma—Proxy interviewed because sampled person was unavailable: data in proxy fields.
5. No asthma—Proxy interviewed because sampled person was unavailable, and sampled person was never interviewed: data in proxy fields.
6. No asthma—Proxy interviewed because sampled person was unavailable, and sampled person was interviewed at callback: data in both fields
7. Current asthma—Sampled person and proxy were interviewed: data in both fields.
8. Asthma, not current—Sampled person and proxy were interviewed: data in both fields
9. Current asthma—Proxy interviewed because sampled person was ill: data in original fields.
10. Asthma, not current—Proxy interviewed because sampled person was ill: data in original fields.
11. No asthma—Proxy interviewed because sampled person was ill: data in original fields.

For the four-state file, the variable FLG_TYPE had the following values:

1. Sampled person was interviewed: asthma symptoms, medications, and doctor visits in past 3 years.
2. Sampled person was interviewed: no asthma symptoms, medications,

and doctor visits in past 3 years

3. Sampled person was ill, and proxy was interviewed: asthma symptoms, medications, and doctor visits in past 3 years.

4. Sampled person was ill, and proxy was interviewed: no asthma symptoms, medications, and doctor visits in past 3 years

HEIGHTR†—The variable HEIGHTR provides a standardized measure of height in inches. Height values given by a respondent in feet were multiplied by 12 and added to any inch values provided. If height was provided in centimeters, the values were multiplied by a constant, 0.3937, to produce the value for the derived HEIGHTR. This variable was top and bottom coded (as previously discussed) for each sample.

HISPANIC_DERIVED†—This variable indicates whether or not the sampled household member is of Hispanic or Latino origin.

LTASTHM—This variable indicates who is at risk for lifetime asthma prevalence according to BRFSS program rules. It indicates whether the respondent was told sometime in their lifetime by a doctor, nurse, or other health professional that they had asthma, and it is calculated from the variable R_ASTHMX01 (or S3Q7, if it has a value).

RACE_MAIN†—Respondents were permitted to identify all possible categories that described the sampled person's race. The RACE_MAIN variable was created using all of these pieces of information. If a respondent offered a verbatim ''other'' race response, these open-ended responses were entered into a text field by the interviewer and, wherever possible, back coded into existing categories of the RACE variable. If all race components had a value of ''don't know,'' the race variable was assigned a value of ''don't know.'' If all race components had a value of ''refused,'' the race variable was assigned a value of ''refused.'' If any race component had a nonvalid value (i.e., missing), the race variable was assigned a value of ''.M.'' Race categories were then collapsed as appropriate for the national and

four-state public-use data files as previously described.

WEIGHTR†—The variable WEIGHTR provides a standardized measure of weight in pounds. Weight values given by a respondent in kilograms were multiplied by a constant (2.205) to produce the value for the derived WEIGHTR. To protect the confidentiality of individual children and adults, very low and very high weights were suppressed. Extreme values were identified within each single-year age group and were recoded to less extreme values. The weight cut points were previously described in this report for children and adults.

Flag variables

The following flag variables were created for the four-state and national data files:

- FLG_ASTHMA (national sample only).
- FLG_PROXY.
- FLG_TYPE.
- HGHT_FLG and WGHT_FLG.
- SPANISH—For sample management purposes, a calling queue was used for households thought by interviewers to be Spanish-speaking. The CATI flag, SPANISH, indicates such households. If on subsequent calls the screener or interview was not conducted in Spanish, this flag was not reset and retained a value of ''1.'' However, in past research, this flag was shown to indicate reliably the language of interview administration in more than 97% of cases, which suggests it is a useful proxy for language of administration.

Grouped variables

Several variables such as age (S2Q5G1, S2Q5G2, and S2Q5G3), state (STATE, STATES, and STATEL), education level (EDUCATION and EDUCATION2), and age at first diagnosis (S3Q8G1, S3Q8G2, and S3Q8G3) have been included in the datasets with multiple grouped classifications to assist the analyst. These grouped categories match the response categories that other large

surveys use (such as NHIS or BRFSS). The analyst is free to choose the variable grouping that would be most useful. For example, the first age grouping (S2Q5G1) is under 5 years, 5–17 years, 18–24 years, 25–44 years, 45–64 years, 65–69 years, 70–74 years, and 75 years and over. The second age grouping (S2Q5G2) is under 6 years, 6–16 years, 17–24 years, 25–34 years, 35–44 years, 45–54 years, 55–64 years, 65–74 years, and 75 years and over. The third age grouping, S2Q5G3, is under 5 years, 5–11 years, 12–17 years, 18–44 years, 45–64 years, 65–74 years, and 75 years and over.

The following variables have different grouped responses for both samples: age (S2Q5G1, S2Q5G2, and S2Q5G3), education level (EDUCATION and EDUCATION2), and age at first diagnosis (S3Q8G1, S3Q8G2, and S3Q8G3).

National sample proxy variables

As previously described, the national sample included a proxy response verification substudy. A proxy response was accepted in this substudy if the sampled person was not home or unavailable. This is in contrast to the typical proxy rule, which is that proxy responses will only be accepted because of illness, disability, or infirmity of the sampled respondent. Proxy respondents in the national sample substudy answered the following detailed questions: S3Q6B, S5Q1_AP, S5Q1_BP, S7Q1P–S7Q10P, S7Q18P, S7Q19P, S7Q20P, S7Q22P (if applicable), OTHERASTHP, HISPANICP, R_RAC2P, S2Q18P, S2Q14_1P, S2Q14_2P, S2Q14_3P, S2Q15_1P, S2Q15_2P, S2Q16_1P, S2Q16_2P, S2Q16_3P, BIRTHRFP, INCTOTP, EDUCATIONP, and EDUCATION2P.

Recoding of prescription medication data

In the Medication section, respondents were asked whether they took asthma medications in inhaler, pill, syrup, or nebulizer form. A list of the medications taken in each manner was obtained. A probe that asked ''any other

medications?'' was asked after respondents answered for each drug type. If respondents replied yes to this probe, the verbatim response was cross-checked against the detailed medication lists for each drug type. If appropriate, the verbatim response was reclassified to the proper category. Recoding was not necessary for records with a valid ''other medication'' response.

Examples of valid recoding of the verbatim response to the ''other medication'' questions include the following:

- Respondents who offered a verbatim response of a generic medication name of a drug that was in the detailed list of brand names. This response was back coded to the appropriate category.
- A number of respondents erroneously offered the name of an over-the-counter cold or allergy medication or an over-the-counter inhaler, pill, or syrup as a verbatim response for a prescription asthma medication. In these cases, the verbatim response was set to ''missing,'' and any questions before or after the verbatim response were set to the appropriate response.
- Some respondents offered a verbatim response with an unidentifiable word or a word that was not the name of a type of medication. In these cases, the verbatim response was set to ''missing,'' and any questions before or after the verbatim response were set to the appropriate response.
- Some respondents offered a verbatim response that was valid, but not for the type of medication in question. For example, if a respondent answered ''Singulair'' for the question concerning other inhalers, the text response for the other inhaler question was set to ''missing,'' and the response was moved to the Singulair pill questions (if the respondent did not already give Singulair as one of the pill responses).

Additional data notes

The following systematic problems were identified for the national sample data file:

- RELA_CHLD (S3Q6) was incorrectly skipped in 50 interviews regarding children without asthma. This CATI system error was corrected on March 20, 2003.
- In 15 cases, a programming error caused items in Section 5 after INS2 (S5Q1_B) and all items in Section 6 to be incorrectly skipped. This CATI system error was corrected on June 20, 2003.
- Items in Section 5 after INS2 (S5Q1_B) and all of the items in Section 6 were incorrectly skipped for nine illness-related proxy interviews. This CATI system error was corrected on October 20, 2003.
- ILP04 (S8Q19) was to be skipped for sampled children under the age of 6 years. In three cases, the flag variable that indicated the sampled respondent's age to trigger this skip was blank, causing the variable to be incorrectly skipped for respondents 6 years of age and over. This CATI system error was corrected on July 18, 2003.
- In 13 asthma-negative cases, a programming error caused S11Q1 through S11Q9 and HISPANIC to be incorrectly skipped. This CATI system error was corrected on May 28, 2003.
- A CATI problem caused data to be lost for variables S7Q1P through S7Q10P and S11Q1P through S11Q9P for two cases. This CATI system error was corrected on December 3, 2003.
- S7Q21 was incorrectly skipped for eight cases where the sampled person had asthma. This CATI error was corrected on November 14, 2003.

The following systematic problems were identified for the four-state sample data file:

- ILP04 (S8Q19) was to be skipped for sampled children under the age

of 6 years. A flag variable that indicated the sampled respondent's age to trigger this skip was inadvertently left blank, causing this variable to be incorrectly skipped for respondents 6 years of age and over early in the data collection period. This caused S8Q19_03 to be skipped for 100 cases and S8Q19_24 to be skipped for 19 cases. This CATI system error was corrected on July 18, 2003.
- Because of a CATI system error, OTC (S8Q1), INHALERE (S8Q2), and INHALERH (S8Q3) were incorrectly skipped for nine cases where the respondent did not have current asthma and had not gone to a doctor, taken medication, or had symptoms recently.

Quality Control—Data Files

Construction of the data files

A lead programmer modified the cleaning programs used to monitor the interview data during each quarter of data collection and cleaned the data at the end of the data collection period. A second programmer was responsible for reviewing the work of the lead programmer and signing off on each completed task. The cleaned data file was also thoroughly checked by project staff. A brief summary follows of the steps involved to produce the final data file, including the data monitoring process, data cleaning, and quality control review of the final file.

Data monitoring

During each quarter of data collection, weekly monitoring of the interview data served as a quality control check prior to the data cleaning process. The programs for this task were designed to identify out-of-range values and incorrect skip logic and to report on any missing data elements or inconsistencies between data fields. The necessary edit rules were developed and documented. Inconsistencies identified

during the monitoring process were resolved, and any missing data elements were sent to the telephone center for hard-copy data recovery. Recovered data were entered manually into the CATI system with the data entry independently checked to ensure accuracy. Additionally, at the beginning of each quarter, data for a sample of cases were printed and reviewed for consistency to pick up possible discrepancies that had not been identified by the monitoring programs.

Data cleaning

Using the CATI questionnaire specifications as a base, the lead programmer followed detailed cleaning specifications and produced a series of cleaning programs. The programmer annotated each cleaning program so that results could be replicated and reviewed by others. These programs were created to do the following:

1. Check for duplicate cases across NAS data collection quarters.
2. Verify the valid number of completed and partially completed cases in the data file.
3. Check that all data elements for a completed case were present.
4. Apply any final data corrections based on data recovery.
5. Verify that values were within specified ranges and that skip patterns were followed.
6. Create derived variables from existing variables.
7. Assign special SAS reserve codes, as appropriate, to reflect missing data of various kinds (e.g., sections or questions skipped based on eligibility criteria or answers to earlier questions with data missing in error).

After all edits were made, a final frequency report was reviewed for completeness. Once the programmer produced a cleaned interview data file, a rigorous quality control process began.

Estimation and hypothesis testing

The NAS data were obtained through a complex sample design involving clustering of persons within households and stratification of households within IAP areas. To produce accurate estimates, sampling weights had to be used. The sampling weights accounted for the complex survey design and included adjustments for multiple-telephone households, unit nonresponse, noncoverage of nontelephone households, and adjustments to known population control estimates.

Variables used for variance estimation

The interview records have unequal weights because of the complex design of NAS. Therefore, statistical software programs that assume a simple random sampling design will most often compute standard errors that are too low. Tests of statistical hypotheses may then suggest statistically significant differences or associations that are misleading. However, computer programs are available that provide the capability of variance estimation for complex sample designs (e.g., SUDAAN, STATA, SPSS, and WesVar) (11,23,24). Stratum identifiers and primary sampling unit (PSU) codes were included on the data files to allow users to estimate complex sample variances. These variables and the sample weights are necessary for the calculation of variances.

The stratum identifiers reported on the data set are not identical to the strata used for drawing the sample. In states with multiple IAP areas, independent samples were selected from each IAP area in proportion to the total number of households with children in each IAP area. Therefore, these IAP areas should be considered strata for variance estimation. However, disclosure of the specific IAP area for each child (even if the code was scrambled) could increase the risk of disclosure of a respondent's identity. For example, the IAP area with the lowest frequency of responses in Texas would be readily identifiable as El Paso.

In the absence of IAP-specific identifiers in the four-state sample, data users should use the state identifier (STATE) as the stratum identifier. By using the state identifier rather than the suppressed IAP identifier for the four-state sample, the standard errors for estimates of key variables are affected only slightly and not in a consistent direction. For the national sample, data users should use the stratum identifier (STRATUM). The PSU for the national and four-state files is the household, represented on the data sets by the unique household identifier IDNUMR.

Analysts should review and be mindful of the sample sizes of the file with which they are working. Analysis of rare responses or subclasses can lead to estimators that are unreliable. Small sample sizes used in variance calculations may also produce unstable variance estimates. Consequently, the user must pay particular attention to the coefficient of variation for the estimates of means, proportions, and totals.

Variance estimation on subsets of the data

Some NAS analyses may focus on specific population subgroups, such as children living in poverty. Analysts may be tempted to delete all records outside of the domain of interest so they can work with smaller data files and run computer programs more quickly. This procedure of keeping only select records and deleting other records is called subsetting the data. Subsetted data that are appropriately weighted can be used to generate correct point estimates (e.g., estimates of population subgroup frequencies or means), but most software packages that analyze complex survey data will incorrectly compute standard errors for subsetted data. When complex survey data are subsetted, the sample design structure is often compromised because the complete design information is not available. Subsetting the data can delete important design information needed for variance estimation (e.g., deleting all records for certain subgroups will result in entire PSUs being removed from the design structure). SUDAAN has a SUBPOPN option that allows for specific subpopulations to be targeted in analyses while retaining the full data set and sample design information. To reiterate, analysts interested in specific

population subgroups must include the SUBPOPN statement in SUDAAN code (and the equivalent statement in other software programs) instead of subsetting the data sets.

Weighted sample frequencies, prevalence estimates, and standard errors

Weighted sample frequencies for selected variables appear in Appendix I to assist users in verifying the correct use of the weights. The two NAS files should not be combined to produce more precise estimates.

National estimates generated from the national sample file should be described as being consistent with those produced by NHIS. Disaggregated prevalence estimates from the national sample file are NAS prevalence estimates that may or may not be consistent with NHIS.

Weighted estimates can be calculated for each state in the four-state sample (using a ''where'' statement to select the appropriate cases) or for the four-state sample as a whole. The poststratified state weights were weighted up to appropriate population control totals. One should keep in mind that the four-state sample cannot be used to calculate prevalence estimates of current asthma, lifetime asthma, or any other variables of interest. The four-state file *can* be used to calculate weighted percentages, proportions, etc., but labeling these as prevalence estimates is inaccurate because crucial information needed to calculate prevalence was purposely not collected because of the screening process selected. This decision was made after extensive tests were conducted.

Using the appropriate weight

Table O summarizes the weights for both samples. The weight that is specified will vary depending on the analytic plan.

Variance estimation using SUDAAN or STATA

The sampling variance (e.g., standard errors) of estimates can be calculated for the United States (national sample) as well as Alabama, California, Illinois, and Texas (four-state sample) using the Taylor series approximation method in software such as SUDAAN, WesVar, STATA, SPSS, and the SAS SURVEY procedures (SURVEYFREQ, etc.). The simplifying assumption that PSUs have been sampled with replacement allows most complex survey sample design computer programs to calculate

Table O. Description of the weights, national and four-state samples: NAS, 2003

Variable name	Description	Comments
National sample		
post_pr_int	Includes all sample adult proxy and self-report cases and all sample children	The national file does not include a single child-level weight. Sampled children are included in the calculation of both weights, but the two weights for any given sample child will differ slightly because of the difference in the number of sample adult cases used to calculate post_pr_int compared with post_sr_int. Estimates for children can be produced using either weight, but adults are included in both weights as well (even if the analyst is not interested in asthma in adults). Therefore, analysts need to determine which adult cases to include: those that contain self-reported information only, or adult cases that contain information from both the sampled and proxy respondents. The preferred weight to use for child-level estimates is post_sr_int because it only includes sampled adult self-report information, in addition to all information for children. The alternate weight is post_pr_int, which includes sampled adult self- and proxy reports, in addition to all children. The post_pr_int weight should be used for methodological research to examine differences between self- and proxy reporting in adults. One should recall that, because of proxy reporting error, all asthma negative proxy responses for adults were verified with the sampled adult if possible.
post_sr_int	Includes only sample adult self-report cases and all sample children	. . .
Four-state sample		
post_adult_int	Includes sample adults 18 years of age and over	This is used to examine characteristics of asthmatic adults.
post_child_int	Includes sample children ages 17 years of age and under	This is used to examine characteristics of asthmatic children.
weight_int.	Includes all sample adults and sample children	This is used to examine characteristics of the asthmatic population across all ages; it is provided to reduce the analyst's work by eliminating the need to aggregate the adult and child weights to examine the whole sample.

. . . Category not applicable.

NOTE: NAS is National Asthma Survey.

Taylor-series standard errors in a straightforward way. This method requires no recoding of design variables, but it is statistically less efficient and therefore more conservative than some other methods because the PSU is treated as being sampled with replacement within the stratum. The with-replacement option is used because the sampling fractions for households within a stratum are all very small.

To summarize, analysts must ensure that the following key points are attended to before running any code:

- The program must be able to accommodate a complex sample design and with-replacement sampling to estimate variance properly.
- The data file must be sorted by stratum (variable name is STATE in the four-state file and STRATUM in the national file) and PSU (variable name for both files is IDNUMR) within stratum prior to invoking the code.
- The correct weight must be used to calculate estimates properly.

The syntax examples below offer simple guidance to an analyst; one should refer to the appropriate program manual for more in-depth details. The syntax listed below does not take advantage of the full range of options available in SUDAAN and STATA.

SUDAAN

SUDAAN code example, four-state sample

Research question—What is the frequency, percentage, and standard error of current asthma (using the derived variable ASTATUS1) for all females by income group?

One should assume the following: 1) SAS-callable SUDAAN is being used, 2) the name of the four-state SAS data file is "fourstate," 3) the variables have been recoded to exclude "missing," "don't know," and "refused" answer categories in the analysis, 4) appropriate variables with answer categories of "0" (zero) have been recoded with a nonzero number category to run in SUDAAN, and 5)

females of all ages should be included in the analysis. The variable ASTATUS1 is a derived variable that denotes the current asthma status of the sampled household member based on self-identification. The following is the code example:

```
PROC SORT DATA = FOURSTATE;
    BY STATE IDNUMR;

RUN;

PROC CROSSTAB DATA =
FOURSTATE DESIGN = WR;
    NEST STATE IDNUMR;
    WEIGHT WEIGHT_INT;
    SUBPOPN S2Q6 = 2;
    SUBGROUP ASTATUS1
BESTINCOMEG1;
    LEVELS 2 11;
    TABLES ASTATUS1*
BESTINCOMEG1;
    PRINT NSUM WSUM ROWPER
SEROW / SYTLE = NCHS
WSUMFMT = F7.0 SEROWFMT =
F5.4;
    RTITLE1 'WEIGHTED FREQ,
PERCENT & SE OF CURRENT
ASTHMA: ASTATUS1';
    RTITLE2 'IN FEMALES OF ALL
AGES BY INCOME GROUPS';
    RTITLE3 'FOUR-STATE
SAMPLE';

RUN;
```

SUDAAN code example, national sample

Research question—What is the prevalence and standard error of current asthma (using the derived variable ASTATUS1) for all females by income group?

One should assume the following: 1) SAS-callable SUDAAN is being used, 2) the name of the national SAS data file is "nation," 3) the variables have been recoded to exclude "missing," "don't know," and "refused" answer categories in the analysis, 4) appropriate variables with answer categories of "0" (zero) have been recoded with a nonzero number answer category to run in SUDAAN, and 5) self-reported data for adult female respondents should be included (recall that children are included in both

national sample weights, but the analyst must decide whether to include adults who self-report only or to include self-report and proxy responses for adults). The variable ASTATUS1 is a derived variable that denotes the current asthma status of the sampled household member based on self-identification. The following is the code example:

```
PROC SORT DATA = NATION;
    BY STRATUM IDNUMR;
    RUN;
    PROC CROSSTAB DATA =
NATION DESIGN = WR;
    NEST STRATUM IDNUMR;
    WEIGHT POST_SR_INT;
    SUBPOPN S2Q6 = 2;
    SUBGROUP ASTATUS1
BESTINCOMEG1;
    LEVELS 2 11;
    TABLES ASTATUS1*
BESTINCOMEG1;
    PRINT NSUM WSUM ROWPER
SEROW / STYLE = NCHS
WSUMFMT = F7.0 SEROWFMT =
F5.4;
    RTITLE1 'WEIGHTED
PREVALENCE & SE OF
CURRENT ASTHMA:
ASTATUS1';
    RTITLE2 'IN FEMALES OF ALL
AGES BY INCOME GROUPS';
    RTITLE3 'SELF-REPORTED
ADULT DATA, NATIONAL SAMPLE';

RUN;
```

STATA

STATA uses essentially the same variance estimation method as SUDAAN (e.g., assumes with-replacement sampling). The SVY commands in STATA handle complex survey data. The relevant arguments should be structured as follows:

- SVYSET STRATA (STATE or STRATUM as appropriate; do not include the parenthesis).
- SVYSET PSU (IDNUMR).
- SYVSET PWEIGHT (insert the appropriate weight variable name).

For a more-detailed description of the SVY commands, review the STATA documentation for the appropriate version.

Citations and Further Information

Any published material derived from NAS data should acknowledge CDC, NCHS, and SLAITS as the original source. The suggested citation, ''Data Source: Centers for Disease Control and Prevention, National Center for Health Statistics, State and Local Area Integrated Telephone Survey, National Asthma Survey, 2003,'' should appear at the bottom of all tables. A disclaimer should be included that credits the authors (i.e., the recipient of the data file) with any analyses, interpretations, or conclusions reached. NCHS and SLAITS are only responsible for the initial data. In addition, the acronyms ''NAS'' and ''SLAITS'' should be placed in titles, keywords, and abstracts of journal articles and publications to facilitate retrieval in bibliographic searches.

Data users can obtain the latest information about the SLAITS mechanism by periodically checking the website at http://www.cdc.gov/nchs/slaits.htm. This site features downloadable public-use data files and documentation for SLAITS modules, important information about any modifications or updates to data and documentation, and current contact information. Questions should be sent by electronic mail to slaits@cdc.gov, and a staff member will respond as soon as possible.

Researchers may also wish to join the SLAITS electronic mail listserv. To subscribe or unsubscribe, visit http://www.cdc.gov/nchs/about/major/slaits/slaitslistserv.htm and follow the directions as listed. The listserv has approximately 1,000 subscribers around the world who use SLAITS data or are interested in the SLAITS mechanism. Subscribers periodically receive e-mail with news about SLAITS surveys, new releases of data or documentation, publications, or related conferences. Listserv membership is not shared.

Although the SLAITS mechanism uses the NIS sampling frame, the websites listed below should be visited for further information on vaccines and immunization. For general information on child and adult vaccinations, please visit http://www.cdc.gov/vaccines. For more information on the NIS sampling frame, please visit http://www.cdc.gov/vaccines/stats-surv/default.htm#nis. For more information on vaccine and immunization surveillance and statistics, please visit http://www.cdc.gov/vaccines/stats-surv/default.htm.

For more information on NCHS and its publications or data files, please contact the following:

Data Dissemination Branch, NCHS
3311 Toledo Road
Hyattsville, MD 20782–2003
Phone: 301–458–INFO (4636) or
866–441–NCHS (6247)
E-mail: nchsquery@cdc.gov
Internet: http://www.cdc.gov/nchs/

For more information on CDC, contact CDC's Information Contact Center (CDC-INFO) in English or Spanish by calling 800–CDC–INFO (800–232–4636), or email cdcinfo@cdc.gov. If you are hearing impaired, you may contact CDC-INFO with a TTY (text telephone) machine at 888–232–6348. The CDC-INFO fax machine line is 770–488–4760.

Guidelines for Data Use

With the goal of mutual benefit, NCHS requests that recipients of data files cooperate in certain actions related to their use.

Data users who wish to publish a technical description of the data should make a reasonable effort to ensure that the description is not inconsistent with that published by NCHS.

The Public Health Service Act (Section 308d) provides that data collected by NCHS may be used only for the purpose of health statistical reporting and analysis. *Any effort to determine the identity of any reported case is prohibited by this law*. NCHS does everything possible to ensure that the identity of data subjects cannot be disclosed. All direct identifiers, as well as any characteristics that might lead to identification, are omitted from the data files. Any intentional identification or disclosure of a person or establishment violates the assurances of confidentiality given to the providers of the information. Therefore, users must adhere to the following:

- Use the data in these files for statistical reporting and analysis only.
- Make no use of the identity of any person discovered, inadvertently or otherwise, and *immediately advise* the Director of NCHS of any such discovery at 301–458–4500.
- Not link these data files with individually identifiable data from any other NCHS or non-NCHS data files.

By downloading and using these data, you signify your agreement to comply with the above-stated statutory-based requirements.

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Appendix I

Specification of the National Asthma Education and Prevention Program Severity Indices Using the National Asthma Survey Data

In 1989, the National Heart, Lung, and Blood Institute of the National Institutes of Health initiated the National Asthma Education and Prevention Program (NAEPP) to educate people with asthma, the general public, and health care providers about asthma and update clinical treatment guidelines. The NAEPP Expert Panel developed an asthma severity classification scheme to document medication adjustments that should be implemented to maintain long-term control of asthma adequately in children and adults. In 2002, this severity classification scheme was updated to reflect clinical practice more accurately. The prior iteration included three severity categories—mild, moderate, and severe—and a stepwise approach to treatment (i.e., the medications were adjusted as needed by reviewing the frequency of daytime and nighttime symptoms). The revised classification uses four descriptive severity categories to describe asthma before treatment or adequate control: mild intermittent, mild persistent, moderate persistent, and severe persistent (25). Under the revised classification, at any level of severity the patient can have "mild, moderate, or severe exacerbations" (25). The National Asthma Survey (NAS) data can be explored using these revised NAEPP classifications as specified below.

Please note: all values of "don't know" (coded as 96, 996) and "refused" (coded as 97, 997) are treated as missing.

30-day index

Recoding before calculation:
  If S4Q1 equals .L or .N, recode S4Q1 to 0.
  If S4Q3 equals .L or .N, recode S4Q3 to 0.

A) Question S4Q1
  1. Mild intermittent (0 to 8)
  2. Mild persistent (9 to 29)
  3. Moderate persistent (30 and S4Q2 equals 0)
  4. Severe persistent (30 and S4Q2 equals 1)

B) Question S4Q3
  1. Mild intermittent (0, 1, 2)
  2. Mild persistent (3, 4)
  3. Moderate persistent (5 to 10)
  4. Severe persistent (more than 10)

The severity rating is the higher of elements "A)" and "B)" above. If only one element is nonmissing, that element should be used to assign the index value.

12-month index

Recoding before calculation:
  If S5Q2 equals 0, recode S5Q3 to 0.
  If S3Q10 equals 0, 2, 3, or 4 and S5Q3 equals .L and S5Q4 equals .L, recode S5Q3 and S5Q4 to 0.

C) First, add responses from S5Q3 and S5Q4. If one of the two variables is missing, take the value of the nonmissing variable as the sum. Then code as follows:
  1. Mild intermittent (0)
  2. Mild persistent (1, 2)
  3. Moderate persistent (3 to 6)
  4. Severe persistent (7 and over)

D) Question S5Q9
  1. Mild intermittent (0)
  2. Mild persistent (1 to 5)
  3. Moderate persistent (6 to 75)
  4. Severe persistent (more than 75)

If age (S2Q5) is less than 18 years, the severity rating is the value of element "3)."

If S2Q5 (age) is greater or equal to 18 years, the severity rating is the higher of elements "C)" and "D)" above. If only one element is nonmissing, use that element to assign the index value.

Combined index

The severity rating is the higher of the 30-day or 12-month index above. If only one of the two indices above is nonmissing, set the value of the combined index to the nonmissing index.

Appendix II

Sampling and Weighting Technical Description

Sample design

The basic design objective of the State and Local Area Integrated Telephone Survey (SLAITS) 2003 NAS was to select a random sample of households for asthma-status screening. The target number of households was set at 10,000 for the national study and 12,000 in each of the four states comprising the four-state study. The sample of households selected for screening for NAS was derived from the sampling frame for the National Immunization Survey (NIS), a continuous list-assisted random-digit-dialing (RDD) survey administered in 78 Immunization Action Plan (IAP) areas (consisting of the 50 states and 28 metropolitan areas, including the District of Columbia). Therefore, the sampling design for the selection of households in NAS was essentially the same as in NIS.

Drawing NIS sample

The household selection procedure and NIS sample design is briefly described below. For additional information, please consult the Smith et al. (10) publication or the NIS website at http://www.cdc.gov/vaccines/stats-surv/default.htm#nis.

Associating telephone numbers with estimation (IAP) areas

To draw a sample of telephone numbers in an IAP area, one must (in effect) compile a list of all telephone numbers that belong to that area. For some IAP areas, this step is straightforward. For example, when the IAP area is a state with a single area code, the list would consist of all telephone numbers within the central-office codes that are in service in that area code. Combined, an area code and a central-office code form a ''prefix area.'' For example, 617–492 is the prefix area corresponding to the 492 central office in the 617 area code.

For other IAP areas, however, this step is more complicated. When the IAP area is a city, county, or combination of counties, some prefix areas may cover part of the IAP area and part of an adjacent IAP area. In such situations, NIS applies a plurality rule: if at least 50% of the directory-listed households in a prefix area fall inside an IAP area, the prefix area is assigned to that IAP area.

Drawing the initial NIS sample

The sampling frame for an IAP area consists of banks of 100 consecutive telephone numbers within the prefix areas assigned to the IAP area. For example, the numbers from 617–492–7100 to 617–492–7199 constitute a working bank in the 617–492 prefix area. Banks that contain zero directory-listed residential telephone numbers (''zero banks'') are excluded from the frame because they have very little chance of containing working residential numbers. For this preliminary step, the GENESYS Sampling System (a proprietary product of Marketing Systems Group [MSG]) uses a file of directory-listed residential numbers from Donnelley Marketing Information Services. The result is a file that lists the remaining banks (the ''1+ working banks''). From the 1+ working banks, a random sample of complete 10-digit telephone numbers is drawn for each quarter in such a way that each number has a known and equal probability of being selected. The sample is then segmented into replicates, or random subsamples, with each replicate containing sample telephone numbers from each of the 78 IAP areas. Segmenting the sample into replicates allows for the release of telephone numbers over time in a controlled manner.

Updating the NIS sampling frame

The set of telephone banks with at least one directory-listed residential telephone number changes over time. As a result, the sampling frame of 1+ working banks also needs to be updated. The phenomenon of frequent area-code splits has produced additional changes to the sampling frame. The GENESYS database reflects these changes in a quarterly update. MSG has developed a separate sampling frame for each IAP area. Quarterly, the database is examined to determine whether currently included banks should be assigned to different IAP areas and to assign newly included banks to IAP areas. The rules for assignment are the same as in the initial definitions of the IAP areas. Once all modifications have been made to the GENESYS database, a number of checks ensure that all changes have been applied correctly and that the new database produces samples that are consistent with those produced prior to the changes. These checks compare the number of active banks and RDD-selectable lines in each IAP area before and after the update. In parallel, the actual exchanges assigned to each IAP area before and after the update are compared. Small changes are expected—new banks are put into service as new numbers are assigned. In the event of a major discrepancy in any of these checks, MSG is notified of the difference and asked to provide documentation of the reasons for the change.

Forming NIS sample replicates

The total size of the initial sample for an IAP area is calculated according to the following formula:

Total sample size = $(1.5)T/(AC)$

Where T is the quarterly target number of completed interviews for the IAP area (this number ranged from 95 to 126 in 2003), A is the proportion of telephone numbers that remain after identifiable business and nonworking numbers have been removed (as discussed below), and C is the proportion of telephone numbers sent to the telephone center that result in a completed interview.

In the formula, A and C are specific to the IAP area and are adjusted each quarter, taking into account the results from prior quarters. The target, T, may also reflect results from previous quarters. If the three previous quarters have not produced their target total of completes, T is raised accordingly. Likewise, if the three previous quarters have exceeded their target total of completes, T is reduced accordingly. The

factor 1.5 allows for variation in actual performance among IAP areas and among quarters.

The total sample selected is then randomly divided into replicates. In the first quarter of 2003, the number of replicates was 36; the first 26 were equal in size and the last 10 were one-half that size. For the second, third, and fourth quarters, the number of replicates was 30: 24 full-size replicates and 6 half-size replicates. This procedure permits smoother release of the sample at the rate of one or two replicates per week for each IAP area separately (as needed). Toward the end of the quarter, the half-size replicates allow tighter control over the total amount of sample released. The aim is to produce an even distribution of work in the telephone center over the course of a quarter and to give all cases an equal probability of being completed.

Removing business and nonworking numbers

In a traditional RDD survey, all sampled telephone numbers are given to interviewers for dialing. Because more than one-half of all selected telephone numbers are businesses, modem lines, or unassigned, a large part of interviewers' efforts may be directed simply to identify and remove these numbers from active sample. MSG has produced companion products to their GENESYS Sampling System that quickly and accurately reduce the size of this task.

First, the selected sample is matched against a GENESYS data file that contains telephone numbers that are directory listed in business yellow pages and are not directory listed in residential white pages. These business numbers are removed from the sample. Second, numbers listed in residential white pages are identified and temporarily set aside.

Third, a computer system (GENESYS-ID*plus*) screens the remaining sample to remove a portion of nonworking numbers. Using personal computers with special hardware and software, this system (called an "auto-dialer") automatically dials the telephone numbers to detect nonworking and modem numbers. Nonworking numbers are usually indicated by the familiar tritone signal for out-of-service

numbers, an extended period of silence, or continuous noise on the line. If the telephone number starts to ring, an attendant responds if the telephone is answered. Nationally, approximately 15% to 20% of the numbers are answered. The GENESYS-ID*plus* equipment is operated only during daytime hours on weekdays in an attempt to reduce the number of answered calls. In addition, the white pages directory-listed numbers identified in the second step are not dialed. Rather, those numbers are combined with the numbers that were not removed by the auto-dialer to produce the sample for the telephone centers. These steps cull out approximately 40% of the sampled NIS lines.

Obtaining addresses for advance letters

To obtain addresses that correspond to sample telephone numbers, the numbers for each replicate are sent to a company that provides this computerized matching service. It uses a large database of residential and business telephone numbers including unpublished numbers. A listing may not contain a street address by customer request. The resulting file contains numbers with and without address matches. Matched listings contain a business or residential identifier.

"Do not call" requests

NIS maintains a file containing telephone numbers of people who have requested that they not be called. Each quarter's sample is compared with this file, and numbers in the contractor's "Do Not Call List" are excluded in the quarterly sample of numbers loaded into the CATI system.

Duplicate telephone numbers

Some telephone numbers may be selected more than once because of the repeated quarterly sample selection in each IAP area. To avoid respondent problems created by being recontacted for the same survey, a further processing step identifies duplicate numbers. Each complete replicate sample file is compared with all sample files released during the four prior quarters (taking into account area code splits). For NIS,

identified duplicates are processed as follows.

If GENESYS-ID*plus* removes an identified duplicate number, that result supersedes the disposition of that sampled number from the original quarter in which it was sampled. Otherwise, the processing depends on whether the number was sampled in the immediately preceding quarter. Duplicates from earlier quarters are mailed advance letters and released with their assigned replicate. Duplicates from the immediate preceding quarter are not mailed advance letters because they might have received such a letter recently. If the sample telephone numbers are released before the immediate preceding quarter has finished, they are put on hold until household data collection for that quarter has closed to ensure that they do not receive calls simultaneously for two quarters. Numbers that have certain types of refusals (e.g., "take me off the calling list") as their final disposition in the earlier quarter are counted as refusals in the current quarter. Certain final outcomes from the immediate preceding quarter are counted in the current quarter. For example, if the case is called for the preceding quarter in a month when data collection for the current quarter is also open, and the final outcome is "nonworking number," "no child in range," or "complete," the outcome is counted for both quarters and data are copied for the current quarter.

Because of repeated quarterly selection of NIS sample in each IAP area, some telephone numbers were selected more than once over the course of the NAS data collection period. Such numbers were not contacted a second time for the NAS. Instead, these cases were automatically finalized. Response rates reflect the final disposition of a telephone line from its original sampling.

Sampling design and allocation for NAS

As noted earlier, the target number of households to be screened was set at 10,000 for the national study and 12,000 in each of the four states comprising the four-state study. The number of

households required to be selected in each IAP area within a state was determined by allocating the desired number of screened households among the IAP areas within the state in proportion to the total number of households in each IAP area. In the national study, the number of households required to be selected in each state was determined similarly by allocating the desired number of screened households among states in proportion to the total number of households in each state. Estimates of the proportion of households were obtained from the March 2004 Current Population Survey's Annual Social and Economic Supplement (ASEC). The number of telephone numbers that needed to be called was computed using the expected working residential number rate, and it was increased to compensate for refusals.

A random subsample of the required number of NAS telephone numbers in each IAP area was selected from the NIS sample. These numbers were called to identify NIS- and NAS-eligible households. The sample selection was spread over four quarters of NIS data collection (quarters 1 through 4 of 2003). The split of the total sample among quarters varied among IAP areas.

A screening interview was conducted once a NAS-eligible household was identified. The national study selected a single household member at random and asked about the asthma status of that person. Regardless of asthma status, the screening interview included a series of demographic questions about the sampled person and household to produce asthma prevalence rates. If the sampled respondent was asthma-positive, a detailed interview about asthma management and treatment was also completed. In contrast, the four-state study immediately screened households for the presence of someone with asthma. If no one was reported to have asthma, the interview was terminated and no information was obtained on the household members. In households where asthma was reported, up to one asthma-positive adult and one asthma-positive child were randomly selected for a detailed interview about asthma management and treatment. A

few questions in both studies asked about nonsampled persons, such as the asthma status of biological parents, grandparents, and siblings, total household income, and indoor air quality questions relevant to the entire household. In the national study only, the age of each person in the household and whether anyone else in the household had asthma were also asked.

By design, the national and four-state studies also used some NAS-only sample, allowing an examination of response rates with and without the conduct of NIS. Sample design and allocation were identical regardless of whether the NIS was conducted, except that respondents in the NAS-only sample received an NAS-only version of the questionnaire and advance letter, and the NIS screener and interview were not administered.

Sampling weights

Overview

Each sampled respondent for whom enough data were collected was assigned a sampling weight to obtain population-based estimates. This weight should be used for all analyses. The sampling weight is composed of a base sampling weight, an adjustment for multiple telephone lines within a household, and various adjustments for nonresponse. The final, adjusted weight is poststratified so that the sum of the weights at the national level or for each state (as applicable) equals selected population control totals from an outside source. For the NAS national study, the source was the 2002 NHIS. For the four-state study, the sources were the 2003 BRFSS for adults and 2003 SLAITS National Survey of Children's Health for children. The steps to produce the national study sampling weights are described below, followed by a similar discussion for the four-state study weights.

Production of sampling weights for the national study

If a sampled household member was a child under the age of 18 years, questions were asked of an adult knowledgeable about that child's health.

If the sampled household member was an adult aged 18 years or over, questions were asked of that sampled adult whenever possible. However, if the sampled adult was not available at the time of the screening contact, a proxy interview was conducted with the adult household member who answered the telephone. Because of the observed error rate in proxy reporting of adult asthma status, two versions of the national study sampling weight were calculated to allow for production of estimates with and without proxy cases. The first version included all adult respondents with data regardless of whether the data were collected through a self-report or a proxy respondent. The second included only the adult respondents from whom data were collected personally. Sampled children were included in the calculation of both weights. The process to create the two weights was identical, and the difference is in the set of cases to which the weights were assigned.

Base sampling weight—A sample of NAS telephone numbers was selected in each IAP area (as applicable) over four quarters of NIS data collection. In NIS, an independent sample of telephone numbers is selected each quarter. A telephone number could have been selected for NAS in any of the four quarters of the data collection period. Once a telephone number was selected, it was not selected again for data collection in subsequent quarters. To compute the base sampling weight, the overall probability of selection was determined considering the probabilities of selection over four quarters.

The number of quarters over which the total sample is selected is q; p_i denotes the probability of selecting a telephone number in the ith quarter, and p is the overall probability of selection of the telephone number of the household. Therefore,

$$p = \sum_{i=1}^{q} p_i \ .$$

Because the sample was selected over four quarters,

$$p_1 = \frac{n_1}{N_1}$$

for the first quarter, where n_1 is the number of telephone numbers selected

in the first quarter, and N_1 is the number of telephone numbers available for selection.

$$p_2 = (1 - \frac{n_1}{N_1}) \frac{n_2}{N_2},$$

for the second quarter, where n_2 is the number of telephone numbers selected in the second quarter, and N_2 is the number of telephone numbers available for selection.

$$p_3 = (1 - \frac{n_1}{N_1}) (1 - \frac{n_2}{N_2}) \frac{n_3}{N_3},$$

for the third quarter, where n_3 is the number of telephone numbers selected in the third quarter, and N_3 is the number of telephone numbers available for selection.

$$p_4 = (1 - \frac{n_1}{N_1}) (1 - \frac{n_2}{N_2}) (1 - \frac{n_3}{N_3}) \frac{n_4}{N_4},$$

for the fourth quarter, where n_4 is the number of telephone numbers selected in the third quarter, and N_4 is the number of telephone numbers available for selection.

The base sampling weight for a household in a particular IAP area is given by $w = 1 / p$. Generally, this weight is the same for all households within an IAP area.

Households with multiple telephone lines—The base sampling weight of eligible households that have multiple voice-use landline telephone lines was adjusted to compensate for the higher probability of selection of these households. The adjustment divides the base sampling weight by the number of telephone lines in that household.

The number of telephone lines in the kth household in an IAP area is t_k. The adjusted base sampling weight for that household is given by

$$w_k = \frac{w}{t_k}.$$

If the household had only one telephone line, the adjusted weight is the same as the base sampling weight.

Unit nonresponse adjustment 1 (residential status unknown)—When a selected telephone number is called, three results are possible: 1) the number called is a household, 2) the number called is not a working residential number (i.e., a business number or nonworking number), or 3) the residential status of the telephone number is unknown. A minimum of 10 call attempts were made before a number was assigned unresolved status.

Adjustment of the base sampling weight to account for numbers of unknown residential status occurred in two steps. First, unresolved telephone numbers that had been finalized as "ring-no-answer at all attempts" were redistributed as follows: 20.4% were grouped with known, unscreened households (category 1), and 79.6% were grouped with nonresidential numbers (category 2). This redistribution is based on research by Frankel et al. (17), who drew a national sample to estimate the percentage of residential telephone numbers among "ring-no-answer at all attempt" numbers. Second, adjustment of the base sampling weight to account for nonresponse in the remaining category 3 numbers used the same method as NIS. This method, described in detail in the *1999 National Immunization Survey Methodology Report*, uses information external to the survey to allocate these unknown numbers as either residential or nonresidential (26).

Among the telephone numbers in the sample for an IAP area, let the count in each of the three categories mentioned above be n_1, n_2, and n_3. The first nonresponse adjustment factor is

$$A_1 = \frac{n_1 + \hat{n}_{31}}{n_1},$$

where $\hat{n}_{31}$ is the estimated number of households among the n_3 in the "status unknown" category. The procedure to estimate the number of households in the unknown category is based on a study conducted in 1994 and 1995, which asked telephone company business offices to report the status of a sample of category 3 telephone numbers (27). The results showed the proportion of residential numbers varies according to regional groupings of IAP areas by whether the telephone number was directory listed and by type of noncontact (e.g., ring-no-answer compared with answering machine).

Therefore, the nonresponse adjustment factors for each IAP area were defined by IAP area grouping and calling disposition code and by whether the number was directory listed. To keep the notation simple, the adjustment factor is denoted by A_1, although it could differ among households within an IAP area. The nonresponse-adjusted base sampling weight after nonresponse adjustment 1 for the kth household in an IAP area is given by

$$A_1 w_k.$$

Each known household has an adjusted weight.

Unit nonresponse adjustment 2 (households of unknown eligibility)—A second form of nonresponse may occur because a household respondent does not complete the screener questions that determine eligibility (i.e., asthma status). The adjustment for this form of nonresponse is completed separately within three urban setting categories based on the U.S. Census Bureau-defined Metropolitan Statistical Areas (MSAs). An MSA is a geographic entity associated with at least one urbanized area with a population of at least 50,000. The MSA comprises the central county or counties containing the core and adjacent outlying counties having a high degree of social and economic integration with the central county measured through commuting (18). The three categories used for the adjustment are (from most urban to most rural) within a central city of an MSA; outside a central city, but still within an MSA; and not within an MSA.

The number of households (within each urban setting category) in which the selected person had asthma out of the n_1 households contacted is q_1. The number of households in which the selected person did not have asthma is q_2, and q_3 denotes the number of households that did not respond to screening questions:

$$n_1 = q_1 + q_2 + q_3.$$

The nonresponse adjustment to the sampling weight to account for not being able to screen households is given by

$$A_2 = \frac{\sum_{k=1}^{n_1} A_1 w_k}{\sum_{k=1}^{q_1 + q_2} A_1 w_k} \; .$$

The nonresponse-adjusted base sampling weight after nonresponse adjustment 2 is given by

$$w_{ak} = A_2 A_1 w_k \; .$$

This adjusted weight is defined for all households in which a screening interview was completed.

Subsampling adjustment—A single household member was randomly selected from among all household members to be the focus of the interview. The interviewer first asked the number of people of all ages living in the household and then the number of females living in the household. The computer-assisted telephone interviewing (CATI) system created an internal household roster of oldest to youngest household members by sex based on this information and randomly selected a household member from that roster (e.g., the oldest male or the second oldest female). In households with more than one household member, the randomly selected person represented all of the people in the household. Therefore, the sampling weight for this completed interview must be increased to reflect the selection probability. This adjustment simply multiplies the weight by the total number of household members. The number of household members in the kth household in an IAP area is m_k.

The sampling weight for the selected person is

$$w_k^p = w_{ak} m_k \; .$$

Unit nonresponse adjustment 3 (sampled persons who do not complete the interview)—Data were not obtained for all persons selected for an interview. Therefore, the weights of the persons for whom data were available were adjusted to account for those for whom no data were collected. The nonresponse adjustment factor A_3 within an IAP area was computed as follows.

The number of households in which interviews were completed among the

q_1 households in which the sampled respondent had asthma is q_1^*. The nonresponse adjustment factor for the interview nonresponse is given by

$$A_3 = \frac{\sum_{k=1}^{q_1} w_k^p m_k}{\sum_{k=1}^{q_1^*} w_k^p m_k} \; .$$

The numerator gives the estimated number of respondents who had asthma based on the sampled households in which the respondent had asthma. The denominator gives the estimated number of sampled respondents with asthma based on the households in which an interview was completed. The nonresponse-adjusted sampling weight for respondents is

$$w_{ak}^p = A_3 w_k^p \; .$$

Poststratification weight adjustment—Despite the weighting and nonresponse adjustments, the estimated number of people is unlikely to match perfectly the number of people in the sampled population. Any discrepancies are likely due to random sampling error and nonrandom response biases. Among these biases may be greater nonresponse for some categories of age, sex, or race. Poststratification adjusts the weights to match population control totals for key demographic variables obtained from an independent source. Thus, the NAS sampling weight was further adjusted so that the sum of all person weights equaled external population control totals.

The sample of interviewed households was divided into cells representing more detailed categories of selected variables. Poststratification adjustments were not made in each cell formed by cross-classification of categories of the stratification variables because control totals for each cell were not available. Only the marginal population control totals for those variables were determined. Therefore, raking was used to adjust the weights (28). Raking iteratively adjusts the weights so they match the marginal control totals.

The independent source for NAS population control totals was the 2002

NHIS. The NAS weights were adjusted so that the sum of the weights equaled the 2002 NHIS population counts for the following groups:

- Number of males and females in nine age groups.
- Household size.
- Number of persons of various racial and ethnic backgrounds.
- Number of males and females by asthma status.

The poststratification process also included an adjustment for potential bias that may exist because households that had no telephone at the time of the survey could not be contacted. This adjustment incorporated information about household interruptions in telephone service from NAS itself. Evidence suggests that households that had telephones at the time of the survey, but had interruptions in telephone service of 1 week or more during the year, were more similar to households with no telephone service at the time of the survey than were households with uninterrupted telephone service during the year (17,19–21). Therefore, noncoverage of households without telephones could be somewhat compensated for by proportionately increasing the weights for interviews completed in households with interrupted service. Completed interviews in households with interrupted service represent the households without telephone service at the time of the survey.

To adjust for households without telephones, the numbers of telephone and nontelephone households were determined from the 2002 NHIS. Next, from NAS, the weighted proportion of telephone households having an interruption in telephone service for at least 1 week during the past 12 months was computed. This proportion was then applied to the number of telephone households to estimate the number of telephone households with interruption. These calculations produced two control totals: one for households with telephones and no interruption in service and the other for those without telephones or with an interruption in telephone service. These control totals are mutually exclusive and exhaustive.

From NHIS, the total number of persons in telephone and nontelephone households is denoted by M and the number of persons in telephone households is M^t. The number in nontelephone households is $M - M^t$.

From NAS, the weighted proportion of persons in households with an interruption in telephone service is denoted as p^{It}. The number of persons in telephone households with interruptions in telephone service is given by $M^{It} = M^t p^{it}$. The number of persons in telephone households without interruptions in telephone service is given by $M^t - M^{It}$.

The other control total combines persons in telephone households with interruptions and persons in nontelephone households: $M^{It} + (M - M^t)$.

The final sampling weight for the responding household member in household k in an IAP area is denoted by

$$w_{fk}^p .$$

The subscript f denotes the final weight.

Production of sampling weights for the four-state study

The process to produce four-state study sampling weights was identical to that for the national study to the point of the subsampling adjustment. For the four-state study, these adjustments were made separately for each specific state for adults with asthma and children with asthma because up to one such adult and one such child could be sampled within a single household. In households with multiple asthma-positive adults, the randomly selected adult represents all of the nonselected asthma-positive adults in the household. Therefore, the sampling weight for the completed adult interview must be increased to reflect the selection probability. The adjustment multiplied the weight by the number of eligible adults in the household. The same process occured for sampled children.

Here, m_k^a denotes the number of adults with asthma in the household, and m_k^c denotes the number of children with asthma in the household. The sampling weight for the selected adult with asthma is

$$w_k^a = w_{ak}m_k^a .$$

The sampling weight for the selected child with asthma is

$$w_k^c = w_{ak}m_k^c .$$

Similarly, the nonresponse adjustment for the four-state study detailed interview was implemented separately for adults and children, with completed adult interviews representing sampled adults without a completed interview and completed child interviews representing sampled children without a completed interview. Again, the adjustment also varied by geographic area within the adult and child categories.

Households in which the selected adult had asthma is denoted as q, and q^* is the number of households in which the selected adult respondent completed a detailed interview. The nonresponse adjustment factor to account for selected adults with asthma who did not respond (in other households) is given by

$$A_3^a = \frac{\sum_{k=1}^{q} w_k^a}{\sum_{k=1}^{q} w_k^a} .$$

Similarly, the adjustment for nonresponse by selected children with asthma is given by

$$A_3^c = \frac{\sum_{k=1}^{u} w_k^c}{\sum_{k=1}^{u} w_k^c} .$$

To compute the nonresponse-adjusted weights, w_k^a is multiplied by A_3^a and w_k^c by A_3^c.

The four-state study used two independent sources of population control totals for poststratification: the 2003 BRFSS for adults and 2003 SLAITS NSCH for children. Because the NAS four-state study was restricted to asthma-positive adults and children (i.e., those who had ever been diagnosed as having asthma), only totals for those groups were culled from the BRFSS and NSCH. In NAS, asthma-positive status was determined by a positive response to the following question:

"Have you ever been told by a doctor or other health professional that you have asthma?"

The questions that determined asthma-positive status in the BRFSS and NSCH were these:

BRFSS—"Have you ever been told by a doctor, nurse, or other health professional that you had asthma?"

NSCH—"Has a doctor or other health professional ever told you that [the sampled child] has asthma?"

The NAS weights for sampled adults were adjusted so that the sum of the weights equaled the 2003 BRFSS counts of asthma-positive adults in the following groups by each state:

- Six age groups.
- Males and females.
- Number of adults of various racial and ethnic backgrounds.

The NAS weights for sampled children were adjusted so that the sum of the weights equaled the 2003 SLAITS NSCH counts of asthma-positive children in the following groups by each state:

- Three age groups.
- Males and females.
- Number of children of various racial and ethnic backgrounds.

Finally, the adjustment for nontelephone households was slightly different for the four-state study. The separate proportions of adults and children in telephone and nontelephone households were determined from the March 2004 ASEC. These proportions were applied to the state control totals of the numbers of adults and children to derive the estimated numbers of adults and children in each state in telephone and nontelephone households. The weighted proportions of adults and children in telephone households having an interruption in telephone service for at least 1 week during the past 12 months were computed from NAS. These proportions were applied to the number of adults and children in telephone households to estimate the number of adults and children in telephone households with interruption. These calculations produced two control totals for adults and two control totals

for children: one for those in households with telephones and no interruption in service and the other for those in households without telephones or with an interruption in telephone service. These control totals are mutually exclusive and exhaustive.

The final sampling weights for adult and child respondents after poststratification are denoted by

$$w_{fk}^a = w_{fk}^c .$$

Imputation of missing values of poststratification variables

Missing values of required poststratification variables were imputed either by Weighted Sequential Hot Deck (WSHD) (29) or the use of models. Table I shows the number of cases imputed for each of these variables.

In the national study, only 6.1% of the 10,054 cases required imputation of any variable, and no single variable required imputation in more than 3.1% of cases. Similarly, in the four-state study, only 3.1% of the 5,741 cases required imputation of any variable, and no single variable required imputation in more than 2.1% of cases.

Trimming weights

The weighting process resulted in a small number of extremely large weights, which can increase the variance of estimates. Extremely large weights were trimmed to reduce their impact. Trimming introduces bias in the estimates, so trimming should be minimized. Therefore, only weights that were greater than the median plus five times the interquartile range were defined as extreme and were truncated to the median plus five times the interquartile range.

Standard errors of estimates

SUDAAN software can be used to compute standard errors of estimates using the with-replacement option (See Tables II and III).

Imputation methods

Age—For the national study, no cases were missing age. The 10 cases missing age data in the four-state study

Table I. Number of values imputed for 2003 NAS poststratification variables

	Number of missing values	
Variable	National study	Four-state study
Age.	. . .	10
Sex.	. . .	11
Race.	310	122
Hispanic ethnicity	61	123
Number of telephone lines.	59	82
Interrupted telephone service	124	106

. . . Category not applicable.

NOTE: NAS is National Asthma Survey.

Table II. Summary statistics for poststratified weights, total screener and detailed interviews, national sample: NAS, 2003

	Unweighted sample size	Minimum weight	Maximum weight	Mean weight	Median weight	Sum of weights
			Weight = post_pr_int			
United States	8,621	9,108.50	114,806.07	32,339.06	26,971.21	278,795,037
			Weight = post_sr_int			
United States	7,521	9,102.80	150,939.64	37,068.88	31,259.29	278,795,037

NOTE: NAS is National Asthma Survey.

Table III. Summary statistics for poststratified weights, total screening and detailed interviews, by state and the entire four-state sample: NAS, 2003

Four-state sample	Unweighted sample size	Minimum weight	Maximum weight	Mean weight	Median weight	Sum of weights
			Weight = weight_int[1]			
Total	5,741	56.026	14,910.770	1,596.073	1,169.764	9,163,056
Alabama.	1,488	56.026	1,698.840	353.095	302.576	525,405
California	1,433	408.729	14,910.770	3,228.165	2,883.732	4,625,961
Illinois	1,313	213.474	4,434.976	1,068.409	922.778	1,402,821
Texas	1,507	342.057	6,772.682	1,731.167	1,414.565	2,608,869
			Weight = post_adult_int[2]			
Total	3,736	65.538	14,910.770	1,794.087	1,269.086	6,702,710
Alabama.	987	65.538	1,698.840	396.830	324.731	391,671
California	931	817.640	14,910.770	3,730.567	3,314.775	3,473,158
Illinois	888	213.474	4,434.976	1,178.439	1,007.008	1,046,454
Texas	930	503.346	6,772.682	1,926.266	1,662.099	1,791,427
			Weight = post_child_int[3]			
Total	2,005	56.026	10,119.622	1,227.105	949.506	2,460,346
Alabama.	501	56.026	967.894	266.934	219.651	133,734
California	502	408.729	10,119.622	2,296.420	1,695.575	1,152,803
Illinois	425	247.825	3,113.136	838.511	640.074	356,367
Texas	577	342.057	4,994.654	1,416.711	1,232.606	817,442

[1]weight_int is a person-level interview weight that includes all sample adults and sample children in the sample and reduces the analyst's work by eliminating the need to aggregate the adult and child weights to examine the whole sample. It should be used if the analyst wishes to examine characteristics of asthmatics in the entire sample across all ages.

[2]post_adult_int is a person-level interview weight that only includes sample adults 18 years of age and over; it should be used if the analyst is only interested in examining characteristics of asthmatic adults.

[3]post_child_int is a person-level interview weight that only includes sample children under 18 years of age; it should be used if the analyst is only interested in examining characteristics of asthmatic children.

NOTE: NAS is National Asthma Survey.

were assigned to the largest age category (for adults or children as applicable) used in the weighting process.

Sex—For the national study, no cases were missing sex. For the four-state study, WSHD was used to impute sex. States were used as donor pools.

Race and ethnicity—A combination race and ethnicity variable was used for weighting. If information on ethnicity was missing, the variable was imputed using WSHD. For cases imputed as non-Hispanic that were missing data on race, race was imputed using WSHD with the household base weight. The donor pools for both imputations were IAP areas for the national study and states for the four-state study.

Number of telephone lines—WSHD was used to impute the number of household telephone lines. Donor pools were defined by household size (one person, two people, three or more people) for the national study and IAP area for both studies.

Interrupted telephone service—For interruption in telephone service, WSHD was used with donor pools defined by IAP area for the national study, by state for the four-state study, and by income (those with an income below $30,000 or who did not know their income and those with income at or above $30,000 or with refused income) for both studies.

Weight trimming

In sample surveys, very large or extreme sampling weights are often truncated, or "trimmed," because large variation in weights can result in large sampling variances of survey estimates. This is especially true if the sampling weights are not correlated with values or characteristics of interest. In such situations, the few observations with very large weights may contribute unduly to the overall estimate. Large weights can also be a result of sample selection procedures and adjustments for unit nonresponse.

Though a trimming procedure reduces estimate variance, it may result in increased estimate bias. The objective of trimming is to reduce variance, so this reduction more than compensates for the increase in bias, resulting in a

smaller mean squared error than that before trimming. Therefore, trimming as little as possible is advisable.

No strict rules or procedures exist to define or trim extreme weights, and various methods of weight trimming are practiced. In some surveys that employ weighting, the size of nonresponse and other adjustments to the base sampling weights are restricted to avoid large final weights altogether. Other surveys examine the distribution of final weights to identify extreme weights and propose trimming rules. This method is more common because identifying extreme weights by examining the entire weight distribution is easier.

Some common procedures to trim weights are 1) to identify any sampling weight larger than four to five times the mean weight as an outlier weight and trim that weight by making it equal to the limit, 2) to identify any weight larger than the median weight plus five to six times the interquartile range of the final weights and trim the weight by making it equal to the limit, and 3) to truncate weights above a certain percentile (e.g., 95 or 99) in the distribution of weights. The standard deviation of weights is not used to guide trimming because it is affected by extreme weights.

Typically, once trimming has been completed, the weights of observations with untrimmed weights are increased such that the sum of the new weights equals the sum of the weights before trimming.

Trimming NAS weights—The distribution of final NAS weights was examined to identify extreme weights. A decision was made to define a final weight as extreme if it exceeded the median plus five times the interquartile range to avoid undue trimming. A formal description of the trimming process is given below.

The final poststratified sampling weight for the responding person in a household in the sample is denoted by w_{fk}^p. The number of respondent persons in the sample with a final sampling weight is n. The median of these n weights is w_m, and the interquartile range is q_r. Any weight exceeding the value $w_m + 5q_r$ is set equal to $w_m + 5q_r$. Assuming that there are trimmed g

weights, the sum of the original

weights is $\sum\limits_{i=1}^{n} w_{fk}^p$.

The sum of the new

weights is $\sum\limits_{k=1}^{n-g} w_{fk}^p + g\,(w_m + 5q_r)$.

For the two sums to be equal, the untrimmed weights are adjusted by a factor equal to

$$\frac{\sum\limits_{k=1}^{n} w_{fk}^p - g\,(w_m + 5q_r)}{\sum\limits_{k=1}^{n-g} w_{fk}^p}.$$

This adjustment is done as part of raking the weights, such that the sum of the weights agrees with various control totals in the other margins. A second round of raking occurs after trimming is complete.

Estimation of variance for national study estimates—The final weight attached to a responding person in the national study in household k in an IAP area is w_{fk}^p. For variance estimation, IAP areas should be distinguished, as these are strata for sample selection. Therefore, the final weight in IAP area h is denoted by w_{fhk}^p.

Some characteristic of interest for the respondent in household k in stratum h is denoted by y_{hk}, and y_{hk} equals 1 if the person has the characteristic and 0 if the person does not have the characteristic. Assuming n_h households are in the sample in IAP area h, the estimated proportion of persons having the characteristic in stratum h is given by

$$\hat{R}_h = \frac{\sum\limits_{k=1}^{n_h} w_{fhk}^p\, y_{hk}}{\sum\limits_{k=1}^{n_h} w_{fhk}^p}.$$

The numerator is the sum of the weights of all responding persons over all households in IAP area h having the characteristic, and it is an estimate of the number of persons with the characteristic. The denominator is the

sum of the weights of all persons and therefore gives an estimate of the number of persons in IAP area h.

The estimated total number of persons in IAP area h is denoted by

$$\hat{N}_h = \sum_{k=1}^{n_h} w_{fhk}^p .$$

For estimating the variance of the sample proportion $\hat{R}_h$, define

$$z_{hk} = \frac{w_{fhk}^p (y_{hk} - \hat{R}_h)}{\hat{N}_h}$$

and

$$\bar{z}_h = \frac{\sum_{k=1}^{n_h} z_{hk}}{n_h} .$$

An estimate of the variance of the proportion of persons having the characteristic in IAP area is given by

$$v(\hat{R}_h) = \frac{n_h}{n_h - 1} \sum_{k=1}^{n_h} (z_{hk} - \bar{z}_h)^2 .$$

The basic building block to compute variance is the IAP area because sample selection occurred at this level. For states consisting of a single IAP area, the estimate of the variance is computed using the formula given above. For states consisting of multiple IAP areas and for national-level estimates, z_{hk} is defined slightly differently. The estimated proportion at the national level is given by

$$\hat{R} = \frac{\sum_{h=1}^{L} \sum_{k=1}^{n_h} z_{hk}}{\sum_{h=1}^{L} \hat{N}_h} ,$$

where L is the number of strata (IAP areas).

For estimating the variance of $\hat{R}$, define

$$z_{hk} = \frac{w_{fhk}^p (y_{hk} - \hat{R})}{\hat{N}} ,$$

where w_{fhk}^p and y_{hk} are as defined earlier. Also z_{hk} and $\bar{z}_h$ are defined as before and

$$\hat{N} = \sum_{h=1}^{L} \hat{N}_h .$$

The variance of $\hat{R}$ is given by

$$v(\hat{R}) = \sum_{h=1}^{L} \frac{n_h}{(n_h - 1)} \sum_{k=1}^{n_h} (z_{hk} - \bar{z}_h)^2 .$$

Estimation of variance for four-state study estimates—There are two sets of estimates for the four-state study: adults and children. Variance estimation is similar to the procedure described for the national study except for adult-level estimates; the final adult weight (w_{fk}^a) is used. For child-level estimates the final child weight (w_{fk}^c) is used. Because each of the four states in the study (Alabama, California, Illinois, and Texas) contains multiple IAP areas, the variance is estimated at the IAP area level. The final weights at the IAP area level for

adults and children are denoted by w_{fhk}^a for adults and w_{fhk}^c for children.

Underestimation of variance—The formulas for variance estimation assume the weights are fixed. That is, in repeated samples of households and persons, weights attached to each person in an IAP area are assumed to be constant. However, the final weights are actually obtained after various adjustments to the base sampling weight, and these adjustments depend on the sample selected. Therefore, the variance estimates do not reflect the sampling variability of the weights. To a certain extent, the variance is underestimated. In addition, a slight overestimation of variance is due to the assumption of with-replacement sampling of households when households were actually selected without replacement. The extent of underestimation depends on variability in weights in repeated samples.

This underestimation may not be severe, as the weights have been raked to multiple control totals, and may not be highly variable in repeated samples. An alternative method of variance estimation would use a jackknife technique or resampling procedure, such as bootstrap estimation. For NIS, jackknife variance estimates of vaccination coverage rates were computed but found to be very similar to estimates obtained using Taylor-series approximation (30). Using a resampling procedure may involve a substantial amount of work, in view of the large number of strata.

Appendix III

National Study Questionnaire

SLAITS National Asthma Survey
National Study Questionnaire

Form Approved
OMB No. 0920–0406
Exp. Date 12/31/04

Section	Subject
Section	Subject
Section 1	NAS Eligibility Screening, Respondent Selection, and Initial Demographics
Section 2	History of Asthma (Symptoms & Episodes)
Section 3	Health Care Utilization
Section 4	Knowledge of Asthma/Management Plan
Section 5	Modifications to Environment
Section 6	Medications
Section 7	Family History of Asthma
Section 8	Demographic Information
	Proxy Interview Variable Listing

The following public burden estimate statement will be available as a CATI screen:

Public reporting burden of this collection of information is estimated to average 10 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to CDC/ATSDR Reports Clearance Officer, 1600 Clifton Road NE, MS D-24, Atlanta, Georgia 30333; ATTN: PRA (0920–0406).

NOTE: CATI variable names are provided with corresponding SAS data file variable names in parentheses (if different).

Section 1. NAS Eligibility Screening, Respondent Selection, and Initial Demographics

CASEID   UNIQUE HOUSEHOLD ID NUMBER

SAMP_TYPE   DERIVED. NIS/NAS OR NAS-ONLY SAMPLE GROUP

> (1) NIS/NAS SAMPLE
> (2) NAS-ONLY SAMPLE

PROX_STAT   DERIVED. DATA PROVIDED BY PROXY ONLY, SAMPLED RESPONDENT ONLY, OR BOTH PROXY AND SAMPLED RESPONDENT

> (0) NEITHER SAMPLED PERSON NOR PROXY DATA
> (1) ONLY PROXY DATA
> (2) ONLY SAMPLED PERSON DATA
> (3) BOTH PROXY AND SAMPLED PERSON DATA

COMPLETE_STATUS DERIVED. SCREENER AND INTERVIEW COMPLETE STATUS
> (0) DID NOT COMPLETE SCREENER
> (1) SCREENER COMPLETE ONLY
> (2) SAMPLED R INTERVIEW COMPLETED
> (3) PROXY R INTERVIEW COMPLETED
> (4) BOTH SAMPLED & PROXY R INTERVIEWS COMPLETED

IAPID   IAP AREA LOCATION

SPANISH   CATI FLAG. CASE PLACED IN SPANISH QUEUE

> (0) NOT PLACED IN SPANISH QUEUE
> (1) PLACED IN SPANISH QUEUE

LTR   ADVANCE LETTER MAILED TO HOUSEHOLD

> (0) NO, LETTER WAS NOT MAILED
> (1) YES, LETTER MAILED

CALLDATE   CATI DATE. DATE THE INTERVIEW WAS COMPLETED OR THE LAST DATE THE HOUSEHOLD WAS CONTACTED, IF A COMPLETED INTERVIEW WAS NOT OBTAINED.

INTRODUCTORY STATEMENT

> Now I have some important questions for both adults and children in your household that will allow us to compare people who do and do not have asthma. If nobody in your household has asthma, the interview will be very brief.

ROSTER   I need to ask questions about just one person in your household. Please tell me how many people of all ages live in your household.

> ENTER NUMBER _____

> (96) DON'T KNOW   [END INTERVIEW]
> (97) REFUSED   [END INTERVIEW]

FEMROSTER   [IF ROSTER = 1, SKIP TO R_ASTHMX01.]
> Of these people, how many are female?

> ENTER NUMBER _____

> (96) DON'T KNOW
> (97) REFUSED

> RANDOMLY SAMPLE ONE PERSON FROM HOUSEHOLD ROSTER CREATED FROM ROSTER AND FEMROSTER.

R_ASTHMX01   [Have you/Has the (SELECTED PERSON) in your household] ever been told by a doctor or other health professional that [you have/(he or she has)] asthma?

> (0) NO   [SKIP TO R_DOB (S3Q2)]
> (1) YES
> (6) DON'T KNOW   [SKIP TO R_DOB (S3Q2)]
> (7) REFUSED   [SKIP TO R_DOB (S3Q2)]

CUR_AST (S3Q2) (Do you/Does he/Does she) still have asthma?
> (0) NO
> (1) YES
> (6) DON'T KNOW
> (7) REFUSED

R_DOB (S2Q5) Please tell me [your age/the age of the (SELECTED PERSON)] in your household.
ENTER NUMBER _____   [SKIP TO R_SEX]

(996) DON'T KNOW
(997) REFUSED

AGECAT   For the purposes of this survey, it is important to get at least an age range for the person selected for the
interview. Would you please tell me if [you are/the (SELECTED PERSON) is] 18 years of age or older?

(1)   UNDER 18   [SKIP TO AGECAT_K]
(2)   18 OR OLDER   [SKIP TO AGECAT_A]
(6)   DON'T KNOW   [END INTERVIEW]
(7)   REFUSED   [END INTERVIEW]

AGECAT_K   Would you say that [the (SELECTED PERSON) is]:

(1)   0 to 5   [SKIP TO R_SEX (S2Q6)]
(2)   6 to 11 or   [SKIP TO R_SEX (S2Q6)]
(3)   12 to 17 years of age   [SKIP TO R_SEX (S2Q6)]
(6)   DON'T KNOW   [END INTERVIEW]
(7)   REFUSED   [END INTERVIEW]

AGECAT_A   Would you say that [you are/the (SELECTED PERSON) is]:

(1)   18 to 24
(2)   25 to 34
(3)   35 to 44
(4)   45 to 54
(5)   55 to 64 or
(6)   65 or older
(96) DON'T KNOW   [END INTERVIEW]
(97) REFUSED   [END INTERVIEW]

R_SEX (S2Q6) [READ IF NECESSARY]:

Are you/Is the (AGE) year old] male or female?
(1)   MALE
(2)   FEMALE
(7)   REFUSED

FLG_PROXY   DERIVED. INTERVIEW DONE BY PROXY BECAUSE OF ILLNESS.

(0)   INTERVIEW NOT CONDUCTED BY PROXY FOR ILLNESS
(1)   INTERVIEW CONDUCTED BY PROXY FOR ILLNESS

FLG_TYPE   DERIVED. EXPECTED INTERVIEW TYPE

(1)   CURRENT ASTHMA-SAMPLED PERSON INTERVIEW: DATA IN ORIGINAL FIELDS
(2)   ASTHMA, NOT CURRENT-SAMPLED PERSON INT: DATA IN ORIGINAL FIELDS
(3)   NO ASTHMA-SAMPLED PERSON INTERVIEW: DATA IN ORIGINAL FIELDS
(4)   ASTHMA-PROXY INT B/C SAMPLED PERSON UNAVAILABLE: DATA IN PROXY FIELDS
(5)   NO ASTHMA-PROXY INT B/C SAMPLED PERSON UNAVAILABLE, SAMPLED NEVER
      INTERVIEWED: DATA IN PROXY FIELDS
(6)   NO ASTHMA-PROXY INT B/C SAMPLED PERSON UNAVAILABLE, SAMPLED PERSON
      INTERVIEWED AT CALLBACK: DATA IN BOTH FIELDS
(7)   CURRENT ASTHMA-SAMPLED PERSON & PROXY INTS: DATA IN BOTH FIELDS
(8)   ASTHMA, NOT CURRENT-SAMPLED PERSON & PROXY INTS: DATA IN BOTH FIELDS
(9)   CURRENT ASTHMA-PROXY INT B/C SAMPLED PERSON ILL: DATA IN ORIGINAL FIELDS
(10) ASTHMA, NOT CURRENT-PROXY INT B/C SAMPLED PERSON ILL: DATA IN ORIGINAL FIELDS
(11) NO ASTHMA-PROXY INTERVIEW B/C SAMPLED PERSON ILL: DATA IN ORIGINAL FIELDS
(12) SAMPLED PERSON OR ASTHMA STATUS NOT DETERMINED

PROXYREL (S3Q6B)   What is your relationship to [the (AGE) year old]?

        (1)   SPOUSE
        (2)   UNMARRIED PARTNER, BOYFRIEND/GIRLFRIEND
        (3)   CHILD
        (4)   GRANDCHILD
        (5)   MOTHER (BIRTH/ADOPTIVE/STEP/FOSTER/OTHER)
        (6)   FATHER (BIRTH/ADOPTIVE/STEP/FOSTER/OTHER)
        (7)   BROTHER/SISTER
        (8)   GRANDFATHER/GRANDMOTHER
        (9)   OTHER RELATIVE
        (10) FOSTER CHILD
        (11) HOUSEMATE/ROOMMATE
        (12) ROOMER/BOARDER
        (13) OTHER NON-RELATIVE
        (90) UNRELATED LEGAL GUARDIAN
        (96) DON'T KNOW
        (97) REFUSED

RELA_CHLD (S3Q6)   [IF R_DOB (S2Q5) > 17, SKIP TO OTH_CHLD (S3Q7).]
        What is your relationship to [the (AGE) year old] who lives in this household?

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

OTH_CHLD (S3Q7)   [IF SAMPLED RESPONDENT IS SAME PERSON WHO ANSWERED R_ASTHMX01, SKIP TO AGEDGNOS (S3Q8)] {Have you/Has [the (AGE) year old/NAME]} ever been told by a doctor or other health professional that {you have/he has/she has} asthma?

        (0)   NO   [SKIP TO INS1 (S5Q1_A)]
        (1)   YES
        (6)   DON'T KNOW   [SKIP TO INS1 (S5Q1_A)]
        (7)   REFUSED   [SKIP TO INS1 (S5Q1_A)]

AGEDGNOS (S3Q8) [IF OTH_CHLD (S3Q7) = 0, 6, 7 SKIP TO INS1_A).]
        How old {were you/was [the (AGE) year old]} when {you were/he or his parent or guardian was/she or her parent or guardian was} first told by a doctor or other health professional that {you/he/she} had asthma?
        [INTERVIEWER: ENTER 0 IF LESS THAN ONE YEARS OLD]

        __ __ __   (ENTER AGE IN YEARS)
        (996) DON'T KNOW
        (997) REFUSED

CUR_AST2 (S3Q9)   [IF SAMPLED RESPONDENT IS SAME PERSON WHO ANSWERED CUR_AST (S3Q2), SKIP TO LAST_MD (S3Q10)] {Do you/Does [the (AGE) year old]} still have asthma?

        (0)   NO
        (1)   YES
        (6)   DON'T KNOW
        (7)   REFUSED

Section 2. History of Asthma (Symptoms & Episodes)

LAST_MD (S3Q10)   How long has it been since {you/[the (AGE) year old]/[the (AGE) year old]'s parents or guardians} last talked to a doctor or other health professional about (your/his/her) asthma?
        [INTERVIEWER: READ RESPONSE OPTIONS IF NECESSARY.]

        (0)   NEVER
        (1)   WITHIN THE PAST YEAR
        (2)   1 YEAR TO LESS THAN 3 YEARS AGO
        (3)   3 YEARS TO 5 YEARS AGO
        (4)   MORE THAN 5 YEARS AGO
        (6)   DON'T KNOW
        (7)   REFUSED

LAST_MED (S3Q11)   How long has it been since {you/[the (AGE) year old]} last took asthma medication?
[INTERVIEWER: READ RESPONSE OPTIONS IF NECESSARY.]

    (0) NEVER
    (1) LESS THAN ONE DAY AGO
    (2) 1–6 DAYS AGO
    (3) 1 WEEK TO LESS THAN 3 MONTHS AGO
    (4) 3 MONTHS TO LESS THAN 1 YEAR AGO
    (5) 1 YEAR TO LESS THAN 3 YEARS AGO
    (6) 3 YEARS TO 5 YEARS AGO
    (7) MORE THAN 5 YEARS AGO
  (96) DON'T KNOW
  (97) REFUSED

LASTSYMP (S3Q12)   Symptoms of asthma include coughing, wheezing, shortness of breath, chest tightness or phlegm production when {you do not/[the (AGE) year old/NAME] does not} have a cold or respiratory infection. How long has it been since {you/[the (AGE) year old]} last had any symptoms of asthma?

[INTERVIEWER: READ RESPONSE OPTIONS IF NECESSARY]

    (0) NEVER
    (1) LESS THAN ONE DAY AGO
    (2) 1–6 DAYS AGO
    (3) 1 WEEK TO LESS THAN 3 MONTHS AGO
    (4) 3 MONTHS TO LESS THAN 1 YEAR AGO
    (5) 1 YEAR TO LESS THAN 3 YEARS AGO
    (6) 3 YEARS TO 5 YEARS AGO
    (7) MORE THAN 5 YEARS AGO
  (96) DON'T KNOW
  (97) REFUSED

FLG_ASTHMA DERIVED. SOURCE OF ASTHMA STATUS REPORT

ASTHSTAT   DERIVED. ASTHMA STATUS OF HOUSEHOLD MEMBER

    (0) NO, PERSON DOES NOT HAVE ASTHMA
    (1) YES, PERSON HAS ASTHMA

LTASTHM   DERIVED. RISK FACTOR FOR LIFETIME ASTHMA PREVALENCE BASED ON BRFSS RULES

    (1) NOT AT RISK
    (2) AT RISK
    (9) DON'T KNOW/NOT SURE OR REFUSED

ASTATUS1   DERIVED. CURRENT ASTHMA STATUS OF HOUSEHOLD MEMBER BASED ON SELF-IDENTIFICATION

    (1) PERSON SELF-IDENTIFIED ASTHMA
    (0) PERSON DID NOT SELF-IDENTIFY ASTHMA
    (6) DON'T KNOW

CASTHMA   DERIVED. RISK FACTOR FOR CURRENT ASTHMA PREVALENCE BASED ON BRFSS RULES

    (1) NOT AT RISK
    (2) AT RISK
    (9) DON'T KNOW/NOT SURE OR REFUSED

ASTHMST   DERIVED. COMPUTED ASTHMA STATUS BASED ON BRFSS RULES

    (1) CURRENT
    (2) FORMER
    (3) NEVER
    (9) DON'T KNOW/NOT SURE OR REFUSED

ASTATUS2   DERIVED. CURRENT ASTHMA STATUS OF HOUSEHOLD MEMBER BASED ON SELF-REPORTED BEHAVIORS

    (1) BEHAVIORS INDICATE ASTHMA
    (0) BEHAVIORS DO NOT INDICATE ASTHMA
    (6) DON'T KNOW

IF {[CUR_AST (S3Q2) = 0, 6, 7 OR CUR_AST2 (S3Q9) = 0, 6, 7] AND
   LAST_MD (S3Q10) = 0 OR > 2 AND
   LAST_MED (S3Q11) = 0 OR > 5 AND
   LASTSYMP (S3Q12) = 0 OR > 5},
SKIP TO SECTION 3.

ELSE IF CUR_AST (S3Q2) = 1 OR CUR_AST2 (S3Q9) = 1,
CONTINUE.

    ELSE IF {[CUR_AST (S3Q2) = 0, 6, 7 OR CUR_AST2 (S3Q9) = 0, 6, 7] AND
        [LAST_MD (S3Q10) = 1, 2 OR
        LAST_MED (S3Q11) ≥ 1 AND ≤ 5 OR
        LASTSYMP (S3Q12) ≥ 1 AND ≤ 5]},
    CONTINUE.

SYMP_30D (S4Q1)   IF LASTSYMP (S3Q12) = 0 OR ≥ 5 AND ≤ 7, SKIP TO SECTION 3.
                  IF LASTSYMP (S3Q12) = 4, SKIP TO EPIS_INT.
                  During the past 30 days, how many days did {you/[the (AGE) year old/NAME]} have any symptoms of asthma?

      __ __DAYS (1–29)   [SKIP TO ASLEEP30 (S4Q3)]
      (0)   NO SYMPTOMS IN THE PAST 30 DAYS   [SKIP TO EPIS_INT]
      (30) EVERY DAY
      (96) DON'T KNOW   [SKIP TO ASLEEP30 (S4Q3)]
      (97) REFUSED   [SKIP TO ASLEEP30 (S4Q3)]

DUR_30D (S4Q2)   {Do you/Does [the (AGE) year old/NAME]} have symptoms all the time?

      (0)   NO
      (1)   YES
      (6)   DON'T KNOW
      (7)   REFUSED

      HELP SCREEN: "ALL THE TIME" MEANS SYMPTOMS THAT CONTINUE THROUGHOUT THE DAY. IT DOES NOT MEAN SYMPTOMS FOR A LITTLE WHILE EACH DAY.

ASLEEP30 (S4Q3)   During the past 30 days, on how many days did symptoms of asthma make it difficult for {you/[the (AGE) year old/NAME]} to stay asleep?

      __ __ DAYS/NIGHTS
      (0)   NONE
      (96) DON'T KNOW
      (97) REFUSED

SYMPFREE (S4Q4)   [IF SYMP_30D (S4Q1) = 30, SKIP TO EPIS_INT.] During the past two weeks, on how many days {were you/was [the (AGE) year old/NAME]} completely symptom-free, that is no coughing, wheezing, or other symptoms of asthma?

      __ __ NUMBER OF DAYS
      (96) DON'T KNOW
      (97) REFUSED

INTRODUCTORY STATEMENT

      Asthma attacks, sometimes called episodes, refer to periods of worsening asthma symptoms that make {you limit your/limit [the (AGE) year old/NAME]'s} activity more than [you usually do/(he/she) usually does], or make (you/him/her) seek medical care. [CONTINUE]

EPIS_12M (S4Q5)   [IF R_DOB (S2Q5) = 0, FILL: "Since birth"/ELSE FILL: "During the past 12 months"], {have you/has [the (AGE) year old/NAME]} had an episode of asthma or an asthma attack?

      (0)   NO   [SKIP TO INS1 (S5Q1_A)]
      (1)   YES
      (6)   DON'T KNOW   [SKIP TO INS1 (S5Q1_A)]
      (7)   REFUSED   [SKIP TO INS1 (S5Q1_A)]

      HELP SCREEN: (ADD TO ALL QUESTIONS THAT REFER TO "ASTHMA ATTACKS OR EPISODES")
      Asthma attacks, sometimes called episodes, refer to periods of worsening asthma symptoms that make {you limit your/limit [the (AGE) year old/NAME]'s} activity more than [you usually do/(he/she) usually does], or make (you/him/her) seek medical care.

EPIS_TP (S4Q6)   During the past 3 months, how many asthma episodes or attacks {have you/has [the (AGE) year old/NAME]} had?

      _ _   ATTACKS OR EPISODES DURING PAST 3 MONTHS
      (0)   NONE
      (996) DON'T KNOW
      (997) REFUSED

DUR_ASTH (S4Q7)   How long did {your/[the (AGE) year old/NAME]'s} most recent asthma episode or attack last?

        _ _ENTER AMOUNT
        (96)   DON'T KNOW   [SKIP TO COMPASTH (S4Q9)]
        (97)   REFUSED   [SKIP TO COMPASTH (S4Q9)]

DUR2ASTH (S4Q8)   ENTER PERIOD

        (1)   MINUTES
        (2)   HOURS
        (3)   DAYS
        (4)   WEEKS
        (6)   DON'T KNOW
        (7)   REFUSED

COMPASTH (S4Q9)   Compared with other episodes or attacks, was this most recent attack shorter, longer, or about the same?

        (1)   SHORTER
        (2)   LONGER
        (3)   ABOUT THE SAME
        (4)   THE MOST RECENT ATTACK WAS ACTUALLY THE FIRST ATTACK
        (6)   DON'T KNOW
        (7)   REFUSED

Section 3. Health Care Utilization

INS1 (S5Q1_A)   {Do you/[Does the (AGE) year old/NAME]} have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare?

        (0)   NO
        (1)   YES   [SKIP TO INS2 (S5Q1_B)]
        (6)   DON'T KNOW
        (7)   REFUSED

        IF   (A)   INS1 (S5Q1_A) = 0, 6, 7 OR
            (B)   R_ASTHMX01 = 0, 6, 7 OR S3Q7 = 0, 6, 7
            (C)   {[CUR_AST (S3Q2) = 0, 6, 7 OR CUR_AST2 (S3Q9) = 0, 6, 7] AND
                LAST_MD (S3Q10) = 0 OR > 2 AND
                LAST_MED (S3Q11) = 0 OR > 5 AND
                LASTSYMP (S3Q12) = 0 OR > 5},
        SKIP TO SECTION 5.

        ELSE IF INS1 (S5Q1_A) = 1, CONTINUE TO INS2 (S5Q1_B).

        ELSE SKIP TO NER_TIME (S5Q1).

INS2 (S5Q1_B)   [IF R_DOB (S2Q5) = 0, FILL: "Since birth"/ELSE FILL: "During the past 12 months"], was there any time that {you/[the (AGE) year old/NAME]} did not have any health insurance or coverage?

        (0)   NO
        (1)   YES
        (6)   DON'T KNOW
        (7)   REFUSED

        IF   (A) (R_ASTHMX01 = 0, 6, 7 OR S3Q7 = 0, 6, 7) OR
            (B) {[CUR_AST (S3Q2) = 0, 6, 7 OR CUR_AST2 (S3Q9) = 0, 6, 7] AND
             LAST_MD (S3Q10) = 0 OR > 2 AND
             LAST_MED (S3Q11) = 0 OR > 5 AND
             LASTSYMP (S3Q12) = 0 OR > 5},
        SKIP TO SECTION 5.

        ELSE SKIP TO NER_TIME (S5Q1).

NER_TIME (S5Q1)   [IF LAST_MD (S3Q10) = 0, 2, 3, 4, SKIP TO MISS_DAY (S5Q9).] [IF R_DOB (S2Q5) = 0, FILL: "Since birth"/ELSE FILL: "During the past 12 months"], how many times did {you/[the (AGE) year old/NAME]} see a doctor or other health professional for a routine checkup for (your/his/her) asthma?

        _ _ _   ENTER NUMBER
         (0)   NONE
        (996)   DON'T KNOW
        (997)   REFUSED

ER_VISIT (S5Q2)   [IF R_DOB (S2Q5) = 0, FILL: "Since birth"/ELSE FILL: "During the past 12 months"], {have you/has [the (AGE) year old/NAME]} had to visit an emergency room or urgent care center because of (your/his/her) asthma?

        (0)   NO   [SKIP TO URG_TIME (S5Q4)]
        (1)   YES
        (6)   DON'T KNOW   [SKIP TO URG_TIME (S5Q4)]
        (7)   REFUSED   [SKIP TO URG_TIME (S5Q4)]

ER_TIMES (S5Q3)   [IF R_DOB (S2Q5) = 0, FILL: "Since birth"/ELSE FILL: "During the past 12 months"], how many times did {you/[the (AGE) year old/NAME]} visit an emergency room or urgent care center because of (your/his/her) asthma?

        _ _ _   ENTER NUMBER
        (996)   DON'T KNOW
        (997)   REFUSED

URG_TIME (S5Q4)   [IF ER_TIMES (S5Q3) > 0, INSERT: "Besides those emergency room or urgent care center visits,"] [IF R_DOB (S2Q5) = 0, FILL: "Since birth"/ELSE FILL: "During the past 12 months"], how many times did {you/[the (AGE) year old/NAME]} see a doctor or other health professional for urgent treatment of worsening asthma symptoms or an asthma episode or attack?

        _ _ _   ENTER NUMBER
         (0)   NONE
        (996)   DON'T KNOW
        (997)   REFUSED

HOSP_VST (S5Q5)   [IF LASTSYMP (S3Q12) = 0 OR > 5 AND < 7, SKIP TO MISS_DAY (S5Q9).] "Since birth"/ELSE FILL: "During the past 12 months," that is since (1 YEAR AGO TODAY)], {have you/has [the (AGE) year old/NAME]} had to stay overnight in a hospital because of (your/his/her) asthma? Do not include an overnight stay in the emergency room.

        (0)   NO   [SKIP TO MISS_DAY (S5Q9)]
        (1)   YES
        (6)   DON'T KNOW   [SKIP TO MISS_DAY (S5Q9)]
        (7)   REFUSED   [SKIP TO MISS_DAY (S5Q9)]

HOSPTIME (S5Q6)   [IF R_DOB (S2Q5) = 0, FILL: "Since birth"/ELSE FILL: "During the past 12 months"], how many different times did {you/[the (AGE) year old/NAME]} stay in any hospital overnight or longer because of (your/his/her) asthma?

        _ _ _   TIMES
        (996)   DON'T KNOW
        (997)   REFUSED

HOSPPLAN (S5Q8)   The last time {you/[the (AGE) year old/NAME]} left the hospital, did a health professional talk with {you/(AGE) year old/NAME] or [the (AGE) year old/NAME]'s parents or guardians} about how to better control (your/his/her) asthma to prevent serious episodes or attacks and hospitalizations in the future?

        (0)   NO
        (1)   YES
        (6)   DON'T KNOW
        (7)   REFUSED

        [SKIP THIS QUESTION IF INTERVIEW IS FOR SAMPLED CHILD (S2Q5 < 18).]

MISS_DAY (S5Q9)   During the past 12 months, how many days were you unable to work or carry out your usual activities because of your asthma?

        _ _ _   ENTER NUMBER DAYS
         (0)   ZERO
        (996)   DON'T KNOW
        (997)   REFUSED

[SKIP THIS QUESTION IF INTERVIEW IS FOR SAMPLED ADULT (S2Q > 17).]
[FOR CHILDREN 0–4, INSERT "DAYCARE OR PRESCHOOL" IN FILL.
FOR CHILDREN 5–13, INSERT "SCHOOL" IN FILL.
FOR CHILDREN 14–17, INSERT "SCHOOL OR WORK" IN FILL.]

MISS_SCH (S5Q11)   [IF R_DOB (S2Q5) = 0, FILL: "Since birth"/ELSE FILL: "During the past 12 months," that is since (1 YEAR AGO TODAY)] about how many days of (daycare or preschool/school/school or work) did [the (AGE) year old/NAME] miss because of (his/her) asthma?

    _ _ _   ENTER NUMBER
      (0)   ZERO
    (994)   CHILD DID NOT GO TO SCHOOL IN PAST 12 MONTHS
    (995)   HOME SCHOOLED
    (996)   DON'T KNOW
    (997)   REFUSED THIS QUESTION

ACT_DAYS (S5Q12)   [IF R_DOB (S2Q5) = 0, FILL: "Since birth"/ELSE FILL: "During the past 12 months"], would you say {you/[the (AGE) year old/NAME]} limited (your/his/her) usual activities due to asthma not at all, a little, a moderate amount, or a lot?

    (1)   NOT AT ALL
    (2)   A LITTLE
    (3)   A MODERATE AMOUNT
    (4)   A LOT
    (6)   DON'T KNOW
    (7)   REFUSED

Section 4. Knowledge of Asthma/Management Plan

TCH_SIGN (S6Q1)   Has a doctor or other health professional ever taught {you/(AGE) year old/NAME] or [the (AGE) year old/NAME]'s parent or guardian}
    a.   How to recognize early signs or symptoms of an asthma episode?

    (0)   NO
    (1)   YES
    (6)   DON'T KNOW
    (7)   REFUSED

TCH_RESP (S6Q2)   Has a doctor or other health professional ever taught {you/(AGE) year old/NAME] or [the (AGE) year old/NAME]'s parent or guardian}
    b.   What to do during an asthma episode or attack?

    (0)   NO
    (1)   YES
    (6)   DON'T KNOW
    (7)   REFUSED

            [SKIP IF R_DOB (S2Q5) < 5 YEARS OLD.]

TCH_MON (S6Q3)   Has a doctor or other health professional ever taught {you/(AGE) year old/NAME] or [the (AGE) year old/NAME]'s parent or guardian}
    c.   How to use a peak flow meter, a device that measures how much air you can blow out of your lungs, to adjust daily medications?

    (0)   NO
    (1)   YES
    (6)   DON'T KNOW
    (7)   REFUSED

MGT_PLAN (S6Q4)   An asthma management plan is a printed form that tells when to change the amount or type of medicine, when to call the doctor for advice, and when to go to the emergency room. Has a doctor or other health professional EVER given {you/(AGE) year old/NAME] or [the (AGE) year old/NAME]'s parent or guardian} an asthma management plan?
[READ IF NECESSARY: Include nurses and asthma educators]

- (0)   NO
- (1)   YES
- (6)   DON'T KNOW
- (7)   REFUSED

MGT_CLAS (S6Q5)   Have {you/(AGE) year old/NAME] or [the (AGE) year old/NAME]'s parent or guardian}, ever taken a course or class on how to manage (your/his/her) asthma?

- (0)   NO
- (1)   YES
- (6)   DON'T KNOW
- (7)   REFUSED

Section 5. Modifications to Environment

> IF R_ASTHMX01 = 0, 6, 7 OR S3Q7 = 0, 6, 7,
> ASK HH_INT THROUGH S_INSIDE (S7Q10), CIGARETS (S7Q18) THROUGH EMP_STAT (S7Q20), UNEMP_R (S7Q22). THEN SKIP TO SECTION 7.
>
> ELSE, IF {[CUR_AST (S3Q2) = 0, 6, 7 OR CUR_AST2 (S3Q9) = 0, 6, 7] AND
>   LAST_MD (S3Q10) = 0 OR > 2 AND
>   LAST_MED (S3Q11) = 0 OR > 5 AND
>   LASTSYMP (S3Q12) = 0 OR > 5},
> ASK HH_INT THROUGH S_INSIDE (S7Q10), CIGARETS (S7Q18) THROUGH UNEMP_R (S7Q22), THEN SKIP TO SECTION 6.
>
> ELSE, CONTINUE.

INTRODUCTORY STATEMENT

> READ: The following questions are about {your/[the (AGE) year old/NAME]'s} household and living environment. (IF R_ASTHMX01 = 1 OR S3Q7 = 1) I will be asking about various things that may be related to experiencing asthma symptoms. [CONTINUE]

AIRCLEANER (S7Q1) Is an air cleaner or purifier regularly used inside your home?

- (0)   NO
- (1)   YES
- (6)   DON'T KNOW
- (7)   REFUSED

DEHUMID (S7Q2)   Is a dehumidifier regularly used to reduce moisture inside your home?

- (0)   NO
- (1)   YES
- (6)   DON'T KNOW
- (7)   REFUSED

KITC_FAN (S7Q3)   Is an exhaust fan that vents to the outside used regularly when cooking in your kitchen?

- (0)   NO
- (1)   YES
- (6)   DON'T KNOW
- (7)   REFUSED

COOK_GAS (S7Q4)   Is gas used for cooking?

- (0)   NO
- (1)   YES
- (6)   DON'T KNOW
- (7)   REFUSED

ENV_MOLD (S7Q5)   In the past 30 days, has anyone seen or smelled mold or a musty odor inside your home? Do not include mold on food.
- (0) NO
- (1) YES
- (6) DON'T KNOW
- (7) REFUSED

ENV_PETS (S7Q6)   Does your household have indoor pets such as dogs, cats, hamsters, birds, or other feathered or furry pets that arekept inside?
- (0) NO
- (1) YES
- (6) DON'T KNOW
- (7) REFUSED

C_ROACH (S7Q7)   In the past 30 days, has anyone seen cockroaches inside your home?
- (0) NO
- (1) YES
- (6) DON'T KNOW
- (7) REFUSED

HELP SCREEN: Studies have shown that cockroaches are a leading cause of asthma in children that live in urban areas. Cockroach droppings and carcasses can cause children to experience symptoms of asthma.

WOOD_STOVE (S7Q8)   Is a fireplace or wood burning stove used in your home?

- (0) NO
- (1) YES
- (6) DON'T KNOW
- (7) REFUSED

HELP SCREEN: OCCASIONAL USE SHOULD BE CODED AS "YES."

GAS_STOVE (S7Q9)   Are unvented gas logs, an unvented gas fireplace, or an unvented gas stove used in your home?
- (0) NO
- (1) YES
- (6) DON'T KNOW
- (7) REFUSED

HELP SCREEN: "Unvented" means no chimney.

S_INSIDE (S7Q10)   In the past week, has anyone smoked inside your home?
- (0) NO
- (1) YES
- (6) DON'T KNOW
- (7) REFUSED

HELP SCREEN: "Smoked" means "anything."

MOD_ENV (S7Q11)   FOR ADULT INTERVIEW, READ:
[FILL ONLY IF QUESTIONS HH_INT THROUGH S_INSIDE WERE ASKED OF THIS RESPONDENT]: Now, back to questions specifically about you. Has a health professional ever advised you to change things in your home, school, or work to improve your asthma?

FOR CHILD INTERVIEW, READ:
[FILL ONLY IF QUESTIONS HH_INT THROUGH S_INSIDE WERE ASKED OF THIS RESPONDENT]: Now, back to questions specifically about [the (AGE) year old/NAME]. Has a health professional ever advised you to change things in [the (AGE) year old/NAME]'s home, school, or work to improve [the (AGE) year old/NAME]'s asthma?

- (0) NO
- (1) YES
- (6) DON'T KNOW
- (7) REFUSED

MATTRESS (S7Q12)   {Do you/Does [the (AGE) year old/NAME]} use a mattress cover that is made especially for controlling dust mites?
- (0)   NO
- (1)   YES
- (6)   DON'T KNOW
- (7)   REFUSED

E_PILLOW (S7Q13)   {Do you/Does [the (AGE) year old/NAME]} use a pillow cover that is made especially for controlling dust mites?
- (0)   NO
- (1)   YES
- (6)   DON'T KNOW
- (7)   REFUSED

CARPET (S7Q14)   Do you have carpeting or rugs in {your/[the (AGE) year old/NAME]'s} bedroom?
- (0)   NO
- (1)   YES
- (6)   DON'T KNOW
- (7)   REFUSED

HOTWATER (S7Q15)   Are {your/[the (AGE) year old/NAME]'s} sheets and pillowcases washed in cold, warm, or hot water?
- (1)   COLD
- (2)   WARM
- (3)   HOT
- (6)   DON'T KNOW
- (7)   REFUSED

BATH_FAN (S7Q16)   In {your/[the (AGE) year old/NAME]'s} bathroom, {do you/does [the (AGE) year old/NAME]} regularly use an exhaust fan that vents to the outside?

- (0)   NO OR ''NO FAN''
- (1)   YES
- (6)   DON'T KNOW
- (7)   REFUSED

HELP SCREEN: IF RESPONDENT INDICATES THEY HAVE MORE THAN ONE BATHROOM, THIS QUESTION REFERS TO THE BATHROOM THEY USE MOST FREQUENTLY FOR SHOWERING AND BATHING.

[SKIP THIS QUESTION IF ENV_PETS (S7Q6) = 0, 6, 7.]

PETBEDRM (S7Q17)   Is the pet allowed in {your/[the (AGE) year old/NAME]'s} bedroom?

- (0)   NO
- (1)   YES
- (2)   SOME ARE/SOME AREN'T
- (6)   DON'T KNOW
- (7)   REFUSED

SKIP TO SECTION 6 IF INTERVIEW IS FOR SAMPLED CHILD (R_DOB/S2Q5 <18).

CIGARETS (S7Q18)   Have you smoked at least 100 cigarettes in your entire life?

- (0)   NO   [SKIP TO EMP_STAT (S7Q20)]
- (1)   YES
- (6)   DON'T KNOW   [SKIP TO EMP_STAT (S7Q20)]
- (7)   REFUSED   [SKIP TO EMP_STAT (S7Q20)]

CIG_FREQ (S7Q19)   Do you now smoke cigarettes every day, some days, or not at all?
- (1)   EVERY DAY
- (2)   SOME DAYS
- (3)   NOT AT ALL
- (6)   DON'T KNOW
- (7)   REFUSED

EMP_STAT (S7Q20)   [IF R_ASTHMX01 = 1 OR S3Q7 = 1:] We are interested in things that affect asthma in the workplace. However, first I'd like to ask how you would describe {your/[the (AGE) year old/ NAME]'s} current employment status. Would you say {you/[the (AGE) year old/NAME]} is . . .

- (1)   EMPLOYED FULL-TIME
- (2)   EMPLOYED PART-TIME
- (3)   NOT EMPLOYED
- (6)   DON'T KNOW
- (7)   REFUSED

WORKENV2 (S7Q21)   [IF R_ASTHMX01 = 0, 6, 7 OR S3Q7 = 0, 6, 7, SKIP TO UNEMP_R (S7Q22).] Was your asthma caused or made worse by chemicals, smoke, fumes, or dust in any job you ever had?

- (0)   NO
- (1)   YES
- (2)   NEVER BEEN EMPLOYED
- (6)   DON'T KNOW
- (7)   REFUSED

UNEMP_R (S7Q22)   [IF EMP_STAT (S7Q20) = 1 OR 2, SKIP TO OTC (S8Q1).] What is the main reason you are not employed?

- (1)   KEEPING HOUSE
- (2)   GOING TO SCHOOL
- (3)   RETIRED
- (4)   DISABLED
- (5)   UNABLE TO WORK FOR OTHER HEALTH REASONS
- (6)   LOOKING FOR WORK
- (7)   LAID OFF
- (8)   OTHER
- (96)   DON'T KNOW
- (97)   REFUSED

Section 6. Medications

IF LAST_MED (S3Q11) = 0, SKIP TO SECTION 7.

IF [CUR_AST (S3Q2) = 0, 6, 7 OR CUR_AST2 (S3Q9) = 0, 6, 7] AND
   LAST_MD (S3Q10) = 0 OR > 2 AND
   LASTSYMP (S3Q12) = 0 OR > 5 AND
   LAST_MED (S3Q11) = 6 OR 7,
ASK OTC (S8Q1), INHALERE (S8Q2), INHALERH (S8Q3), THEN SKIP TO SECTION 7.

OTC (S8Q1)   Over-the-counter medication can be bought without a doctor's order. {Have you/Has [the (AGE) year old/ NAME]} ever used over-the-counter medication for (your/his/her) asthma?

- (0)   NO
- (1)   YES
- (6)   DON'T KNOW
- (7)   REFUSED

INHALERE (S8Q2)   {Have you/Has [the (AGE) year old/NAME]} ever used a prescription inhaler?

- (0)   NO   [SKIP TO SCR_MED1 (S8Q4)]
- (1)   YES
- (6)   DON'T KNOW   [SKIP TO SCR_MED1 (S8Q4)]
- (7)   REFUSED   [SKIP TO SCR_MED1 (S8Q4)]

INHALERH (S8Q3)   Did a health professional show {you/the (AGE) year old/NAME] or [the (AGE) year old/NAME]'s parents or guardians} how to use the inhaler?

    (0) NO
    (1) YES
    (6) DON'T KNOW
    (7) REFUSED

SCR_MED1 (S8Q4)   [IF LAST_MED (S3Q11) = 4, 5, 6, 7, 96, OR 97, SKIP TO SECTION 7.] Now I am going to ask questions about specific prescription medications {you /[the (AGE) year old/NAME]} may have taken for asthma in the past 3 months. I will be asking for the names, amount, and how often {you take/[the (AGE) year old/NAME] takes} each medicine. I will ask separately about medication taken in various forms: pill or syrup, inhaler, and Nebulizer.

It may help to get {your/[the (AGE) year old/NAME]'s} medicines so you can read the labels. Are {your/[the (AGE) year old/NAME]'s} asthma medicines handy?

    (0) NO   [SKIP TO INH_SCR (S8Q7)]
    (1) YES
    (2) RESPONDENT KNOWS THE MEDS   [SKIP TO INH_SCR (S8Q7)]
    (6) DON'T KNOW
    (7) REFUSED   [SKIP TO INH_SCR (S8Q7)]

SCR_MED2 (S8Q5)   Can you please go get the asthma medicines while I wait on the phone?

    (0) NO   [SKIP TO INH_SCR (S8Q7)]
    (1) YES
    (6) DON'T KNOW
    (7) REFUSED   [SKIP TO INH_SCR (S8Q7)]

SCR_MED3 (S8Q6)   Am I correct that you have all the medications?

    (0) NO
    (1) YES I HAVE ALL THE MEDICATIONS
    (2) YES I HAVE SOME OF THE MEDICATIONS BUT NOT ALL
    (6) DON'T KNOW
    (7) REFUSED

INH_SCR (S8Q7)   In the past 3 months, {have you/has [the (AGE) year old/NAME]} taken prescription asthma medicine using an inhaler?

    (0) NO   [SKIP TO PILLS (S8Q27)]
    (1) YES
    (6) DON'T KNOW   [SKIP TO PILLS (S8Q27)]
    (7) REFUSED   [SKIP TO PILLS (S8Q27)]

INH_MEDS (S8Q8_01 to S8Q8_34)

> In the past 3 months, what medications did {you/[the (AGE) year old/NAME]} take by inhaler? [MARK ALL THAT APPLY. PROBE: Any other medications?]

Variable Name	Brand Name	Type (not shown in CATI)
INH_MEDX01 (S8Q8_01)	Advair	
INH_MEDX02 (S8Q8_02)	Aerobid	Corticosteroids
INH_MEDX03 (S8Q8_03)	Albuterol	Beta 2 agonist
INH_MEDX04 (S8Q8_04)	Alupent	Beta 2 agonist
INH_MEDX05 (S8Q8_05)	Atrovent	Anti-inflammatories
INH_MEDX06 (S8Q8_06)	Azmacort	Corticosteroids
INH_MEDX07 (S8Q8_07)	Beclomethasone dipropionate	Corticosteroids
INH_MEDX08 (S8Q8_08)	Beclovent	Corticosteroids
INH_MEDX09 (S8Q8_09)	Bitolterol	Beta 2 agonist
INH_MEDX10 (S8Q8_10)	Brethaire	Beta 2 agonist
INH_MEDX11 (S8Q8_11)	Budesonide	Corticosteroids
INH_MEDX12 (S8Q8_12)	Combivent	
INH_MEDX13 (S8Q8_13)	Cromolyn	Anti-inflammatories
INH_MEDX14 (S8Q8_14)	Flovent	Inhaled corticosteroid
INH_MEDX15 (S8Q8_15)	Flovent Rotadisk	Inhaled corticosteroid
INH_MEDX16 (S8Q8_16)	Flunisolide	Corticosteroids
INH_MEDX17 (S8Q8_17)	Fluticasone	Inhaled corticosteroid
INH_MEDX18 (S8Q8_18)	Intal	Anti-inflammatories
INH_MEDX19 (S8Q8_19)	Ipratropium Bromide	Anti-inflammatories
INH_MEDX20 (S8Q8_20)	Maxair	Beta 2 agonist
INH_MEDX21 (S8Q8_21)	Metaproteronol	Beta 2 agonist
INH_MEDX22 (S8Q8_22)	Nedocromil	Anti-inflammatories
INH_MEDX23 (S8Q8_23)	Pirbuterol	Beta 2 agonist
INH_MEDX24 (S8Q8_24)	Proventil	Beta 2 agonist
INH_MEDX25 (S8Q8_25)	Pulmicort Turbuhaler	Corticosteroids
INH_MEDX26 (S8Q8_26)	Salmeterol	Corticosteroids (long lasting)
INH_MEDX27 (S8Q8_27)	Serevent	Beta 2 agonist (long lasting)
INH_MEDX28 (S8Q8_28)	Terbutaline	Beta 2 agonist
INH_MEDX29 (S8Q8_29)	Tilade	Anti-inflammatories
INH_MEDX30 (S8Q8_30)	Tornalate	Beta 2 agonist
INH_MEDX31 (S8Q8_31)	Triamcinolone acetonide	Corticosteroids
INH_MEDX32 (S8Q8_32)	Vanceril	Corticosteroids
INH_MEDX33 (S8Q8_33)	Ventolin	Beta 2 agonist
INH_MEDX34 (S8Q8_34)	Other, please specify	[SKIP TO OTH_I1 (S8Q8_34A)]

> IF ANY ANSWER SELECTED FROM INH_MEDX01 (S8Q8_01)–INH_MEDX33 (S8Q8_33), SKIP TO ILP01 (S8Q16_nn).

> (0) NO
> (1) YES
> (6) DON'T KNOW   [SKIP TO REC_MED1]
> (7) REFUSED   [SKIP TO PILLS (S8Q27)]

OTH_I1 (S8Q8_34A)   ENTER OTHER MEDICATION.
> IF MORE THAN ONE MEDICATION IS GIVEN, ENTER ALL MEDICATIONS ON ONE LINE.
> _____ ENTER TEXT

INTRODUCTORY STATEMENT

> READ: I'm going to read a list of medicines to see if you recognize the name of any of the medications {you have/[CHILD'S NAME] has} taken. Please let me know if you hear the name. [CONTINUE]

DK1INHLR (S8Q9)   In the past 3 months, did {you/[the (AGE) year old/NAME]} take Flovent or Flovent Rotadisk using an inhaler?

       (0)   NO
       (1)   YES
       (6)   DON'T KNOW
       (7)   REFUSED

DK2INHLR (S8Q10)   In the past 3 months, did {you/[the (AGE) year old/NAME]} take:
       Beclovent, Vanceril, Beclomethasone dipropionate,
       Pulmicort Turbuhaler, Budesonide,
       Aerobid, Flunisolide,
       Azmacort or Triamcinolone acetonide?

       (0)   NO
       (1)   YES
       (6)   DON'T KNOW
       (7)   REFUSED

DK3INHLR (S8Q11)   In the past 3 months, did {you/[the (AGE) year old/NAME]} take:
       Ventolin, Proventil, Albuterol,
       Alupent, Metaproteronol,
       Tornalate, Bitolterol,
       Maxair, Pirbuterol
       Brethaire, Terbutaline
       Serevent?

       (0)   NO
       (1)   YES
       (6)   DON'T KNOW
       (7)   REFUSED

DK4INHLR (S8Q12)   In the past 3 months, did {you/[the (AGE) year old/NAME]} take:
       Intal, Cromolyn,
       Tilade, or Nedocromil?

       (0)   NO
       (1)   YES
       (6)   DON'T KNOW
       (7)   REFUSED

DK5INHLR (S8Q13)   In the past 3 months, did {you/[the (AGE) year old/NAME]} take:
       Atrovent or Ipratropium Bromide?

       (0)   NO
       (1)   YES
       (6)   DON'T KNOW
       (7)   REFUSED

DK6INHLR (S8Q14)   Did {you/[the (AGE) year old/NAME]} take a medication by inhaler that we have not mentioned?

       (0)   NO
       (1)   YES   [SKIP TO DK7INHLR (S8Q15)]
       (6)   DON'T KNOW
       (7)   REFUSED

       IF DK6INHLR (S8Q14) = 1, CONTINUE. ALL OTHERS, SKIP TO ILP01 (S8Q16_nn).

DK7INHLR (S8Q15)   Will you please tell me what that medication was?

SPELL OUT: _____

> REPEAT ILP01 (S8Q16_nn)–ILP11 (S8Q26_nn) FOR EACH MEDICINE REPORTED IN INH_MEDS (S8Q8_nn), OR IF AN ANSWER OF (1) ''YES'' IS GIVEN FOR ANY ITEM IN DK1INHLR (S8Q9) THROUGH DK7INHLR (S8Q15). IF AN ANSWER OF (1) ''YES'' IS PROVIDED DURING QUESTIONS DK1INHLR (S8Q9) THROUGH DK6INHLR (S8Q14), USE THE PHRASE ''THIS MEDICATION'' FOR FILL ''[MEDICINE FROM INH_MEDS (S8Q8_nn) SERIES]'' FOR QUESTIONS ILP01 (S8Q16_nn) THROUGH ILP11 (S8Q26_nn).

ILP01 (S8Q16_01 to S8Q16_34)

> How long {have you/has [the (AGE) year old/NAME]} been taking [MEDICINE FROM INH_MEDS (S8Q8_nn) SERIES]? Would you say less than 6 months, 6 months to 1 year, or longer than 1 year?

> (1)   Less than 6 months
> (2)   6 months to 1 year
> (3)   Longer than 1 year
> (6)   DON'T KNOW
> (7)   REFUSED

ILP02 (S8Q17_01 to S8Q17_34)

> A spacer is a small attachment for an inhaler that makes it easier to use. {Do you/Does [the (AGE) year old/NAME]} use a spacer with [MEDICINE FROM INH_MEDS (S8Q8_nn) SERIES]?

> (0)   NO
> (1)   YES
> (6)   DON'T KNOW
> (7)   REFUSED

> HELP SCREEN: A spacer is a device that attaches to a metered dose inhaler. It holds the medicine in its chamber long enough for you to inhale it in one or two slow, deep breaths. The spacer makes it easy to take the medicines the right way, especially for young children.

> ASK IF INH_MEDS (S8Q8_nn) = 03, 04, 09, 10, 20, 21, 23, 24, 28, 30, 33, OR DK3INHLR (S8Q11) = 1; ELSE, SKIP TO ILP06 (S8Q21_nn).

ILP03 (S8Q18_03, _04, _09, _10, _20, _21, _23, _24, _28, _30, _33, _34)

> In the past 3 months, did {you/[the (AGE) year old/NAME]} take [MEDICINE FROM INH_MEDS (S8Q8_nn) SERIES] when {you/he/she had} an asthma episode or attack?

> (0)   NO
> (1)   YES
> (2)   NO ATTACK IN PAST 3 MONTHS
> (6)   DON'T KNOW
> (7)   REFUSED

ILP04 (S8Q19_03, _04, _09, _10, _20, _21, _23, _24, _28, _30, _33, _34)

> [IF THE AGE OF THE CHILD IS LESS THAN 6 YEARS OLD (S2Q5 < 6), SKIP TO ILP05 (S8Q20_nn).] In the past 3 months, did {you/[the (AGE) year old/NAME]} take [MEDICINE FROM INH_MEDS (S8Q8_nn) SERIES] before exercising?

> (0)   NO
> (1)   YES
> (2)   DIDN'T EXERCISE IN PAST 3 MONTHS
> (6)   DON'T KNOW
> (7)   REFUSED

ILP05　(S8Q20_03, _04, _09, _10, _20, _21, _23, _24, _28, _30, _33, _34)

In the past 3 months, did {you/[the (AGE) year old/NAME]} take [MEDICINE FROM INH_MEDS (S8Q8_nn) SERIES] on a regular schedule everyday?

(0)　NO
(1)　YES
(6)　DON'T KNOW
(7)　REFUSED

ASK IF INH_MEDS (S8Q8_nn) = 14, 15, 17, OR DK1_INHLR (S8Q9) = 1;
ELSE SKIP TO ILP07 (S8Q22_nn).

ILP06 (S8Q21_14, _15, _17, _34)

Is the dosage 44, 50, 100, 110, 220, or 250 micrograms for the Flovent?

(1)　44 MICROGRAMS
(2)　50 MICROGRAMS
(3)　100 MICROGRAMS
(4)　110 MICROGRAMS
(5)　220 MICROGRAMS
(6)　250 MICROGRAMS
(7)　TOOK MORE THAN 1 IN PAST 3 MONTHS
(96)　DON'T KNOW
(97)　REFUSED

ILP07　(S8Q22_01 to S8Q22_34)

On average, how many puffs {Do you/does [the (AGE) year old/NAME]} take each time {you use/he uses/she uses} [MEDICINE FROM INH_MEDS (S8Q8_nn) SERIES]?

__ __ PUFFS EACH TIME

(96)　DON'T KNOW
(97)　REFUSED

INTERVIEWER: PROBE FOR NUMBER OF PUFFS IF RANGE IS GIVEN.

ILP09 (S8Q24_01 to S8Q24_34)

How many times per day or per week {do you/does [the (AGE) year old/NAME]} use [MEDICINE FROM INH_MEDS SERIES]?

__ __ __ TIMES

(994)　LESS OFTEN THAN ONCE A WEEK　　　　[SKIP TO ILP11 (S8Q26_nn)]
(996)　DON'T KNOW　　　　　　　　　　　[SKIP TO ILP11 (S8Q26_nn)]
(997)　REFUSED　　　　　　　　　　　　[SKIP TO ILP11 (S8Q26_nn)]

ILP10 (S8Q25_01 to S8Q25_34)

ENTER PERIOD

(1)　PER DAY
(2)　PER WEEK
(6)　DON'T KNOW
(7)　REFUSED

ILP11 (S8Q26_01 to S8Q26_34)

How many full canisters of this inhaler {have you /has [the (AGE) year old/NAME]} used in the past 3 months?

[INTERVIEWER: IF RESPONDENT USED LESS THAN ONE CANISTER IN THE PAST 3 MONTHS, CODE IT AS '00']

___ CANISTERS

(96)　DON'T KNOW
(97)　REFUSED

HELP SCREEN: IF RESPONDENT INDICATES HE/SHE HAS MULTIPLE CANISTERS, (I.E., ONE IN THE CAR, ONE IN PURSE, ETC.) ASK THE RESPONDENT TO ESTIMATE HOW MANY CANISTERS HE/SHE USED.

PILLS (S8Q27)   In the past 3 months, {have you/has [the (AGE) year old/NAME]} taken any medicine in pill form for [your/his/her] asthma?

      (0)   NO   [SKIP TO SYRUP (S8Q38)]
      (1)   YES
      (6)   DON'T KNOW   [SKIP TO SYRUP (S8Q38)]
      (7)   REFUSED   [SKIP TO SYRUP (S8Q38)]

PILLS_MD (S8Q28_01 to S8Q28_48)

      What medications {Do you/does [the (AGE) year old/NAME]} take in pill form?
      [MARK ALL THAT APPLY. PROBE: Any other medications?]

VARIABLE NAMES	Medication	Type (not shown in CATI)
PILLS_MX01 (S8Q28_01)	Accolate	Leukotriene modifiers
PILLS_MX02 (S8Q28_02)	Aerolate	Methylxanthines
PILLS_MX03 (S8Q28_03)	Albuterol	Beta 2 agonist – Rescue bronchodilators
PILLS_MX04 (S8Q28_04)	Alupent	Beta 2 agonist – Rescue bronchodilators
PILLS_MX05 (S8Q28_05)	Choledyl	Methylxanthines
PILLS_MX06 (S8Q28_06)	Cromolyn	Anti-Inflammatories
PILLS_MX07 (S8Q28_07)	Deltasone	Corticosteriods
PILLS_MX08 (S8Q28_08)	Elixophyllin	Methylxanthines
PILLS_MX09 (S8Q28_09)	Intal	Anti-Inflammatories
PILLS_MX10 (S8Q28_10)	Marax	Methylxanthines
PILLS_MX11 (S8Q28_11)	Medrol	Corticosteriods
PILLS_MX12 (S8Q28_12)	Metaprel	Beta 2 agonist – Rescue bronchodilators
PILLS_MX13 (S8Q28_13)	Metaproteronol	Beta 2 agonist – Rescue bronchodilators
PILLS_MX14 (S8Q28_14)	Methylpredinisolone	Corticosteriods
PILLS_MX15 (S8Q28_15)	Montelukast	Leukotriene modifiers
PILLS_MX16 (S8Q28_16)	Nedocromil	Corticosteriods
PILLS_MX17 (S8Q28_17)	Pediapred	Corticosteriods
PILLS_MX18 (S8Q28_18)	Prednisolone	Corticosteriods
PILLS_MX19 (S8Q28_19)	Prednisone	Corticosteriods
PILLS_MX20 (S8Q28_20)	Prelone	Corticosteriods
PILLS_MX21 (S8Q28_21)	Proventil	Beta 2 agonist – Rescue bronchodilators
PILLS_MX22 (S8Q28_22)	Quibron	Methylxanthines
PILLS_MX23 (S8Q28_23)	Respid	Methylxanthines
PILLS_MX24 (S8Q28_24)	Singulair	Leukotriene modifiers
PILLS_MX25 (S8Q28_25)	Slo-phyllin	Methylxanthines
PILLS_MX26 (S8Q28_26)	Slo-bid	Methylxanthines
PILLS_MX27 (S8Q28_27)	Sustaire	Methylxanthines
PILLS_MX28 (S8Q28_28)	Theo-24	Methylxanthines
PILLS_MX29 (S8Q28_29)	Theobid	Methylxanthines
PILLS_MX30 (S8Q28_30)	Theochron	Methylxanthines
PILLS_MX31 (S8Q28_31)	Theoclear	Methylxanthines
PILLS_MX32 (S8Q28_32)	Theodur	Methylxanthines
PILLS_MX33 (S8Q28_33)	Theo-Dur	Methylxanthines
PILLS_MX34 (S8Q28_34)	Theolair	Methylxanthines
PILLS_MX35 (S8Q28_35)	Theophylline	Methylxanthines
PILLS_MX36 (S8Q28_36)	Theo-Sav	Methylxanthines
PILLS_MX37 (S8Q28_37)	Theospan	Methylxanthines
PILLS_MX38 (S8Q28_38)	Theox	Methylxanthines
PILLS_MX39 (S8Q28_39)	Tilade	Corticosteriods
PILLS_MX40 (S8Q28_40)	T-Phyl	Methylxanthines
PILLS_MX41 (S8Q28_41)	Unidur	Methylxanthines
PILLS_MX42 (S8Q28_42)	Uniphyl	Methylxanthines
PILLS_MX43 (S8Q28_43)	Ventolin	Beta 2 agonist – Rescue bronchodilators
PILLS_MX44 (S8Q28_44)	Volmax	Beta 2 agonist – Rescue bronchodilators
PILLS_MX45 (S8Q28_45)	Zafirlukast	Leukotriene modifiers
PILLS_MX46 (S8Q28_46)	Zileuton	Leukotriene modifiers
PILLS_MX47 (S8Q28_47)	Zyflo Filmtab	Leukotriene modifiers
PILLS_MX48 (S8Q28_48)	Other, please specify:	[SKIP TO OTH_P1 (S8Q29)]

IF ANY ANSWER SELECTED FROM PILLS_MX01 (S8Q28_01)–PILLS_MX47 (S8Q28_47), SKIP TO PILLX (S8Q37_nn).

        (0) NO
        (1) YES
        (6) DON'T KNOW   [SKIP TO REC_MED2]
        (7) REFUSED   [SKIP TO SYRUP (S8Q38)]

OTH_P1 (S8Q29) ENTER OTHER MEDICATION.
        IF MORE THAN ONE MEDICATION IS GIVEN, ENTER ALL MEDICATIONS ON ONE LINE.

        _____ ENTER TEXT

INTRODUCTORY STATEMENT

        READ: I'm going to read a list of medicines to see if you recognize the name of the medications {you have/[CHILD'S NAME] has} taken within the past 3 months. If you recognize any that were taken, please let me know. [CONTINUE]

DK1_PILL (S8Q30)   Did {you/[the (AGE) year old/NAME]} take:
        Accolate or Zafirlukast
        Zyflo Filmtab or Zileuton
        Singulair or Montelukast?

        (0) NO
        (1) YES
        (6) DON'T KNOW
        (7) REFUSED

DK2_PILL (S8Q31)   Did {you/[the (AGE) year old/NAME]} take:
        Intal or Cromolyn
        Tilade or Nedocromil?

        (0) NO
        (1) YES
        (6) DON'T KNOW
        (7) REFUSED

DK3_PILL (S8Q32)   Did {you/[the (AGE) year old/NAME]} take:
        Medrol, Methylpredinisolone,
        Deltasone, Prednisone,
        Pediapred,
        Prelone, or Prednisolone?

        (0) NO
        (1) YES
        (6) DON'T KNOW
        (7) REFUSED

DK4_PILL (S8Q33)   Did {you/[the (AGE) year old/NAME]} take:
        Proventil, Ventolin, Volmax, or Albuterol
        Alupent, Metaprel, or Metaproteronol?
        (0) NO
        (1) YES
        (6) DON'T KNOW
        (7) REFUSED

DK5_PILL (S8Q34)   Did {you/[the (AGE) year old/NAME]} take:
        Theophylline, Elixophyllin, Theo-Dur, Choledyl, Theo-Sav, Theospan, Theoclear, T-Phyl, Theodur, Unidur, Uniphyl, Aerolate, Theox, Marax, Theobid, Quibron, Theo-24, Sustaire, Slo-phyllin, Slo-bid, Respid, Theochron, or Theolair?

        (0) NO
        (1) YES
        (6) DON'T KNOW
        (7) REFUSED

DK6_PILL (S8Q35)   Did {you/[the (AGE) year old/NAME]} take a medication in pill form that we have not mentioned?

      (0) NO   [SKIP TO PILLX (S8Q37_nn)]
      (1) YES   [SKIP TO DK7_PILL (S8Q36)]
      (6) DON'T KNOW   [SKIP TO PILLX (S8Q37_nn)]
      (7) REFUSED   [SKIP TO PILLX (S8Q37_nn)]

DK7_PILL (S8Q36)   Will you please tell me what that medication was?

         SPELL OUT: _____

         REPEAT PILLX (S8Q37_nn) FOR EACH PILL REPORTED IN PILLS_MD (S8Q28_nn), OR IF AN ANSWER
         OF (1) ''YES'' IS GIVEN FOR QUESTIONS DK1_PILL (S8Q30) THROUGH DK6_PILL (S8Q35). IF AN
         ANSWER OF (1) ''YES'' IS PROVIDED DURING QUESTIONS DK1_PILL (S8Q30) THROUGH DK6_PILL
         (S8Q35), USE THE PHRASE ''THIS MEDICATION'' FOR FILL ''[MEDICATION LISTED IN PILLS_MD
         (S8Q28_nn)]'' FOR QUESTION PILLX (S8Q37_nn).

PILLX (S8Q37_01 TO S8Q37_48)

         How long {have you/has [the (AGE) year old/NAME]} been taking [MEDICATION LISTED IN PILLS_MD
         (S8Q28_nn)]?

      (1) LESS THAN 6 MONTHS
      (2) 6 MONTHS TO 1 YEAR
      (3) LONGER THAN 1 YEAR
      (6) DON'T KNOW
      (7) REFUSED

SYRUP (S8Q38)   In the past 3 months, {have you/has [the (AGE) year old/NAME]} taken prescription medicine in syrup form?
      (0) NO   [SKIP TO NEB_SCR (S8Q47)]
      (1) YES
      (6) DON'T KNOW   [SKIP TO NEB_SCR (S8Q47)]
      (7) REFUSED   [SKIP TO NEB_SCR (S8Q47)]

SYRUP_ID (S8Q39_01 to S8Q39_11)

         What prescriptions medications {have you/has [the (AGE) year old/NAME]} taken as a syrup?
         [MARK ALL THAT APPLY. PROBE: Any other medications?]

Variable Names	Medication
SYRUP_IX01 (S8Q39_01)	Aerolate
SYRUP_IX02 (S8Q39_02)	Albuterol
SYRUP_IX03 (S8Q39_03)	Alupent
SYRUP_IX04 (S8Q39_04)	Metaproteronol
SYRUP_IX05 (S8Q39_05)	Prednisolone
SYRUP_IX06 (S8Q39_06)	Prelone
SYRUP_IX07 (S8Q39_07)	Proventil
SYRUP_IX08 (S8Q39_08)	Slo-Phyllin
SYRUP_IX09 (S8Q39_09)	Theophylline
SYRUP_IX10 (S8Q39_10)	Ventolin
SYRUP_IX11 (S8Q39_11)	Other, please specify: [SKIP TO OTH_S1 (S8Q40)]

         IF ANY ANSWER SELECTED FROM SYRUP_IX01 (S8Q39_01)–SYRUP_IX10 (S8Q39_10), SKIP TO
         NEB_SCR (S8Q47).

      (0) NO
      (1) YES
      (6) DON'T KNOW   [SKIP TO REC_MED3]
      (7) REFUSED   [SKIP TO NEB_SCR (S8Q47)]

OTH_S1 (S8Q40)   ENTER OTHER MEDICATION.
         IF MORE THAN ONE MEDICATION IS GIVEN, ENTER ALL MEDICATIONS ON ONE LINE.

         _____ ENTER TEXT

INTRODUCTORY STATEMENT

> READ: I'm going to read a list of medicines to see if you recognize the name of the medications {you have/[CHILD'S NAME] has} taken within the past 3 months. [CONTINUE]

DK1_SYRP (S8Q41)   Which of these prescriptions medications {have you/has [the (AGE) year old/NAME]} taken as a syrup? Alupent or Metaproteronol?

- (0) NO
- (1) YES
- (6) DON'T KNOW
- (7) REFUSED

DK2_SYRP (S8Q42)   Which of these prescriptions medications {have you/has [the (AGE) year old/NAME]} taken as a syrup? Ventolin or Proventil or Albuterol?

- (0) NO
- (1) YES
- (6) DON'T KNOW
- (7) REFUSED

DK3_SYRP (S8Q43)   Which of these prescriptions medications {have you/has [the (AGE) year old/NAME]} taken as a syrup? Aerolate, Slo-Phyllin, or Theophylline?

- (0) NO
- (1) YES
- (6) DON'T KNOW
- (7) REFUSED

DK4_SYRP (S8Q44)   Which of these prescriptions medications {have you/has [the (AGE) year old/NAME]} taken as a syrup? Prelone or Prednisolone?

- (0) NO
- (1) YES
- (6) DON'T KNOW
- (7) REFUSED

DK5_SYRP (S8Q45)   Did {you/[the (AGE) year old/NAME]} take a medication in syrup form that we have not mentioned?

- (0) NO   [SKIP TO NEB_SCR (S8Q47)]
- (1) YES
- (6) DON'T KNOW   [SKIP TO NEB_SCR (S8Q47)]
- (7) REFUSED   [SKIP TO NEB_SCR (S8Q47)]

DK6_SYRP (S8Q46)   Will you please tell me what that medication was?

SPELL OUT: _____

NEB_SCR (S8Q47)   A nebulizer is a small machine with a tube and facemask or mouthpiece that you breathe through continuously. In the past 3 months, were any of {your/[the (AGE) year old/NAME]'s} asthma medicines used with a nebulizer?

- (0) NO   [SKIP TO SECTION 7]
- (1) YES
- (6) DON'T KNOW   [SKIP TO SECTION 7]
- (7) REFUSED   [SKIP TO SECTION 7]

NEB_ID (S8Q48_01 to S8Q48_08)

> In the past 3 months, what prescriptions medications {have you/has [the (AGE) year old/NAME]} taken using a nebulizer?

[MARK ALL THAT APPLY, PROBE: Any other medications?]

Variable Names	Medication
NEB_IDX01 (S8Q48_01)	Albuterol
NEB_IDX02 (S8Q48_02)	Alupent
NEB_IDX03 (S8Q48_03)	Cromolyn
NEB_IDX04 (S8Q48_04)	Intal
NEB_IDX05 (S8Q48_05)	Metaproteronol
NEB_IDX06 (S8Q48_06)	Proventil
NEB_IDX07 (S8Q48_07)	Ventolin
NEB_IDX08 (S8Q48_08)	Other, please specify: [SKIP TO OTH_N1 (S8Q49)]

IF AN ANSWER SELECTED FROM NEB_IDX01 (S8Q48_01)–NEB_IDX07 (S8Q48_07), SKIP TO SECTION 9.

(0) NO
(1) YES
(6) DON'T KNOW   [SKIP TO DK1_NEB (S8Q50)]
(7) REFUSED   [SKIP TO SECTION 7]

OTH_N1 (S8Q49)   ENTER OTHER MEDICATION.
        IF MORE THAN ONE MEDICATION IS GIVEN, ENTER ALL MEDICATIONS ON ONE LINE.

_____ ENTER TEXT

DK1_NEB (S8Q50)   In the past 3 months, which of these prescriptions medications {have you/has [the (AGE) year old/NAME]} taken using a nebulizer?
        Alupent or Metaproteronol?

(0) NO
(1) YES
(6) DON'T KNOW
(7) REFUSED

DK2_NEB (S8Q51)   In the past 3 months, which of these prescriptions medications {have you/has [the (AGE) year old/NAME]} taken using a nebulizer?
        Ventolin, Proventil or Albuterol?

(0) NO
(1) YES
(6) DON'T KNOW
(7) REFUSED

DK3_NEB (S8Q52)   In the past 3 months, which of these prescriptions medications {have you/has [the (AGE) year old/NAME]} taken using a nebulizer?
        Intal or Cromolyn

(0) NO
(1) YES
(6) DON'T KNOW
(7) REFUSED

DK4_NEB (S8Q53)   Did {you/[the (AGE) year old/NAME]} take a medication using a nebulizer that we have not mentioned?

(0) NO   [SKIP TO SECTION 7]
(1) YES
(6) DON'T KNOW   [SKIP TO SECTION 7]
(7) REFUSED   [SKIP TO SECTION 7]

DK5_NEB (S8Q54)   Will you please tell me what that medication was?

        SPELL OUT: _____

Section 7. Family History of Asthma

OTHRASTH   [IF ROSTER = 1, SKIP TO BRO_N (S9Q1).] Besides {you/[the (AGE) year old}, has anyone else in your household ever been told by a doctor or health professional that they have asthma?

    (0)   NO
    (1)   YES
    (6)   DON'T KNOW
    (7)   REFUSED

BRO_N (S9Q1)   How many biological brothers [have you/ has the (AGE) year old] ever had?

    __ __NUMBER
    (0)   NONE
   (96)   DON'T KNOW
   (97)   REFUSED

    HELP SCREEN: RESPONDENTS WHO ARE ADOPTED AND DO NOT HAVE ANY HEALTH INFORMATION REGARDING THEIR BIOLOGICAL PARENTS/SIBLINGS SHOULD BE CODED AS "DON'T KNOW."
    PARENTS/SIBLINGS WHO ARE DECEASED SHOULD BE INCLUDED.
    HALF-BROTHERS SHOULD BE INCLUDED.

SIS_N (S9Q2)   How many biological sisters [have you/has the (AGE) year old] ever had?
    __ __ NUMBER
    (0)   NONE
   (96)   DON'T KNOW
   (97)   REFUSED
    HELP SCREEN: RESPONDENTS WHO ARE ADOPTED AND DO NOT HAVE ANY HEALTH INFORMATION REGARDING THEIR BIOLOGICAL PARENTS/SIBLINGS SHOULD BE CODED AS "DON'T KNOW."
    PARENTS/SIBLINGS WHO ARE DECEASED SHOULD BE INCLUDED.
    HALF-SISTERS SHOULD BE INCLUDED.

PARENTS1 (S9Q3)   Were either of [your/the (AGE) year old's] biological parents ever told they have asthma?

    (0)   NO   [SKIP TO BROASTH1 (S9Q5)]
    (1)   YES
    (6)   DON'T KNOW   [SKIP TO BROASTH1 (S9Q5)]
    (7)   REFUSED   [SKIP TO BROASTH1 (S9Q5)]

    HELP SCREEN: RESPONDENTS WHO ARE ADOPTED AND DO NOT HAVE ANY HEALTH INFORMATION REGARDING THEIR BIOLOGICAL PARENTS/SIBLINGS SHOULD BE CODED AS "DON'T KNOW."
    PARENTS/SIBLINGS WHO ARE DECEASED SHOULD BE INCLUDED.

PARENTS2 (S9Q4)   Who?
    (1)   FATHER
    (2)   MOTHER
    (3)   BOTH
    (6)   DON'T KNOW
    (7)   REFUSED

BROASTH1 (S9Q5)   [IF BRO_N (S9Q1) = 0, 96, 97, SKIP TO SISASTH1 (S9Q7). ELSE IF BRO_N (S9Q1) > 1, SKIP TO BROASTH2 (S9Q6).] Was [your/the (AGE) year old's] biological brother ever told that he had asthma?

    (0)   NO
    (1)   YES
    (6)   DON'T KNOW
    (7)   REFUSED

    ALL SKIP TO SISASTH1 (S9Q7).

BROASTH2 (S9Q6)   How many of [your/the (AGE) year old's] biological brothers were ever told they had asthma?

      __ __NUMBER
      (0)   ZERO
      (96) DON'T KNOW
      (97) REFUSED

      HELP SCREEN: RESPONDENTS WHO ARE ADOPTED AND DO NOT HAVE ANY HEALTH INFORMATION REGARDING THEIR BIOLOGICAL PARENTS/SIBLINGS SHOULD BE CODED AS "DON'T KNOW."
      PARENTS/SIBLINGS WHO ARE DECEASED SHOULD BE INCLUDED.

SISASTH1 (S9Q7)   [IF SIS_N (S9Q2) = 0, 96, 97, SKIP TO GRANDSCR (S9Q9). ELSE IF SIS_N (S9Q2) > 1, SKIP TO SISASTH2 (S9Q8).] [IF SIS_N (S9Q2) = 1, ASK:] Was [your/the (AGE) year old's] biological sister ever told that she had asthma?

      (0)   NO
      (1)   YES
      (6)   DON'T KNOW
      (7)   REFUSED

      ALL SKIP TO GRANDSCR (S9Q9).

SISASTH2 (S9Q8)   How many of [your/the (AGE) year old's] biological sisters were ever told they had asthma?

      __ __ NUMBER
      (0)   ZERO
      (96) DON'T KNOW
      (97) REFUSED

      HELP SCREEN: RESPONDENTS WHO ARE ADOPTED AND DO NOT HAVE ANY HEALTH INFORMATION REGARDING THEIR BIOLOGICAL PARENTS/SIBLINGS SHOULD BE CODED AS "DON'T KNOW."
      PARENTS/SIBLINGS WHO ARE DECEASED SHOULD BE INCLUDED.

GRANDSCR (S9Q9)   Were any of [your/the (AGE) year old's] biological grandparents ever told they had asthma?

      (0)   NO   [SKIP TO OTHER_T (S11Q1)]
      (1)   YES
      (6)   DON'T KNOW   [SKIP TO OTHER_T (S11Q1)]
      (7)   REFUSED   [SKIP TO OTHER_T (S11Q1)]

      HELP SCREEN: RESPONDENTS WHO ARE ADOPTED AND DO NOT HAVE ANY HEALTH INFORMATION REGARDING THEIR BIOLOGICAL GRANDPARENTS SHOULD BE CODED AS "DON'T KNOW."
      GRANDPARENTS WHO ARE DECEASED SHOULD BE INCLUDED.

GRNDASTH   Which of {your/the (AGE) year old's} biological grandparents were told they had asthma?
      [MARK ALL THAT APPLY]

  (S9Q10_01) MOTHER'S MOTHER
  (S9Q10_02) MOTHER'S FATHER
  (S9Q10_03) FATHER'S MOTHER
  (S9Q10_04) FATHER'S FATHER

      (0)   NO
      (1)   YES
      (6)   DON'T KNOW
      (7)   REFUSED

      HELP SCREEN: RESPONDENTS WHO ARE ADOPTED AND DO NOT HAVE ANY HEALTH INFORMATION REGARDING THEIR BIOLOGICAL GRANDPARENTS SHOULD BE CODED AS "DON'T KNOW."
      GRANDPARENTS THAT ARE DECEASED SHOULD BE INCLUDED.

Section 8. Demographic Information

OTHER_T (S11Q1)   Now, I just have a few more general questions about you and your household. Do you have any other home phone numbers in addition to (AREA CODE AND TELEPHONE NUMBER CALLED)? Please do not include cellular phones in your answer.

        (0)   NO   [SKIP TO WO_SERVICE (S11Q7)]
        (1)   YES
        (6)   DON'T KNOW   [SKIP TO WO_SERVICE (S11Q7)]
        (7)   REFUSED   [SKIP TO WO_SERVICE (S11Q7)]

SEC_USE (S11Q2)   Is this second number for home use only, for business use only, or for both home and business use?

        (1)   HOME ONLY
        (2)   BUSINESS ONLY   [SKIP TO THIRD_TN (S11Q4)]
        (3)   BOTH HOME AND BUSINESS
        (6)   DON'T KNOW   [SKIP TO WO_SERVICE (S11Q7)]
        (7)   REFUSED   [SKIP TO WO_SERVICE (S11Q7)]

SEC_FAX (S11Q3)   Is this second number used only for computer or fax communications?
        (0)   NO
        (1)   YES
        (6)   DON'T KNOW
        (7)   REFUSED   [SKIP TO WO_SERVICE (S11Q7)]

THIRD_TN (S11Q4)   Do you have a third home phone number in addition to the two you have already told me about? Please do not include cellular phones in your answer.

        (0)   NO   [SKIP TO WO_SERVICE (S11Q7)]
        (1)   YES
        (6)   DON'T KNOW   [SKIP TO WO_SERVICE (S11Q7)]
        (7)   REFUSED   [SKIP TO WO_SERVICE (S11Q7)]

THIRD_USE (S11Q5) Is this third number for home use only, for business use only, or for both home and business use?

        (1)   HOME ONLY
        (2)   BUSINESS ONLY   [SKIP TO WO_SERVICE (S11Q7)]
        (3)   BOTH HOME AND BUSINESS
        (6)   DON'T KNOW   [SKIP TO WO_SERVICE (S11Q7)]
        (7)   REFUSED   [SKIP TO WO_SERVICE (S11Q7)]

THIRD_FAX (S11Q6)   Is this third number used only for computer or fax communications?

        (0)   NO
        (1)   YES
        (6)   DON'T KNOW
        (7)   REFUSED

NUM_PHON   DERIVED. NUMBER OF TELEPHONES FOR HOME USE

WO_SERVICE (S11Q7)   During the past 12 months, has your household been without telephone service for 1 week or more? Please do not include cellular phones in your answer.

        (0)   NO   [SKIP TO R_ETH_2 (HISPANIC)]
        (1)   YES
        (6)   DON'T KNOW   [SKIP TO R_ETH_2 (HISPANIC)]
        (7)   REFUSED   [SKIP TO R_ETH_2 (HISPANIC)]

C11Q21_A (S11Q8)   For how long was your household without telephone service in the past 12 months? (ENTER THE NUMBER, THEN CONTINUE TO THE NEXT SCREEN TO ENTER TIME PERIOD.)

        ENTER NUMBER __ __ __
        (996)   DON'T KNOW   [SKIP TO R_ETH_2 (HISPANIC)]
        (997)   REFUSED   [SKIP TO R_ETH_2 (HISPANIC)]

C11Q21 (S11Q9)   ENTER PERIOD

      (1)   DAYS
      (2)   WEEK(S)
      (3)   MONTH(S)
      (6)   DON'T KNOW
      (7)   REFUSED

NOPHONE   DERIVED. NUMBER OF DAYS WITHOUT TELEPHONE SERVICE

R_ETH_2 (HISPANIC) [Are you/Is the (AGE) year old] of Hispanic or Latino origin?

      (0)   NO
      (1)   YES
      (6)   DON'T KNOW
      (7)   REFUSED

HISPANIC_DERIVED   DERIVED. HISPANIC ORIGIN OF HOUSEHOLD MEMBER.

R_RACE2   Now, I'm going to read a list of categories. Please choose one or more of the following categories to describe [yourself/the (AGE) year old]. [Are you/Is the (AGE) year old] white, black or African-American, American Indian, Alaska Native, Asian, or Native Hawaiian or Other Pacific Islander?
[MARK ALL THAT APPLY]

(S2Q11_01)   WHITE
(S2Q11_02)   BLACK/AFRICAN-AMERICAN
(S2Q11_03)   AMERICAN INDIAN
(S2Q11_04)   ALASKA NATIVE
(S2Q11_05)   ASIAN
(S2Q11_06)   NATIVE HAWAIIAN
(S2Q11_07)   PACIFIC ISLANDER

      (0)   NO
      (1)   YES
      (6)   DON'T KNOW
      (7)   REFUSED

      HELP SCREEN: BE SURE TO READ THE ENTIRE QUESTION AS WRITTEN (INCLUDING ALL RESPONSE CATEGORIES).

      RACE INFORMATION IS COLLECTED BY SELF-IDENTIFICATION. IT IS "WHATEVER RACE YOU CONSIDER YOURSELF TO BE." DO NOT TRY TO EXPLAIN OR DEFINE ANY OF THE GROUPS. MULTIPLE RACES MAY BE SELECTED.

RACE   DERIVED. RACE OF HOUSEHOLD MEMBER

RACEARRAY   DERIVED. ARRAY OF RESPONSES TO RACE VARIABLE

R_EDUC
HEIGHT1 (S2Q18)   [IF THE SAMPLED PERSON IS UNDER 5, I.E. R_DOB (S2Q5) < 05, SKIP TO (S2Q14_1).] The next questions are about [your/the (AGE) year old's] education level. What is the highest level of school that [you have/the (AGE) year old has] completed?

      _ _ENTER HIGHEST GRADE COMPLETED (1–12)
      (13)   GRADUATED HIGH SCHOOL
      (14)   SOME POST-HIGH SCHOOL, BUT NOT BACHELOR'S DEGREE (B.A.)
      (15)   COLLEGE GRADUATE—BACHELOR'S DEGREE OR B.A.
      (16)   SOME GRADUATE OR PROFESSIONAL SCHOOL (WITH OR WITHOUT DEGREE)
      (17)   PRESCHOOL/HEADSTART
      (18)   KINDERGARTEN
      (19)   NO FORMAL SCHOOLING
      (96)   DON'T KNOW
      (97)   REFUSED

HEIGHT1—FEET
  (S2Q14_1)
HEIGHT2—INCHES
  (S2Q14_2)
HEIGHT3—CENTIMETERS
  (S2Q14_3)

How tall [are you/is the (AGE) year old]?
__ __ feet/__ __inches   OR   __ __ __centimeters

(96)   DON'T KNOW   (996)   DON'T KNOW
(97)   REFUSED   (997)   REFUSED

HELP SCREEN: WE ARE INTERESTED IN LOOKING AT HOW HEIGHT AND WEIGHT MAY BE
RELATED TO ASTHMA FOR PEOPLE WHO DO AND DO NOT HAVE ASTHMA.

HEIGHT   DERIVED. RESPONDENT HEIGHT IN INCHES.

WEIGHT1—POUNDS
  (S2Q15_1)
WEIGHT2—KILOGRAMS
  (S2Q15_2)

How much [do you/does the (AGE) year old] weigh?
__ __ __ pounds   OR   __ __ __kilograms

(996) DON'T KNOW   (996) DON'T KNOW
(997) REFUSED   (997) REFUSED

HELP SCREEN: WE ARE INTERESTED IN LOOKING AT HOW HEIGHT AND WEIGHT MAY BE
RELATED TO ASTHMA FOR PEOPLE WHO DO AND DO NOT HAVE ASTHMA.

WEIGHT   DERIVED. RESPONDENT WEIGHT IN POUNDS.

BIRTHW1—POUNDS
  (S2Q16_1) BIRTHW2—OUNCES
  (S2Q16_2)
BIRTHW3—GRAMS
  (S2Q16_3)

[ASK BIRTHWT ONLY FOR SAMPLED PERSON'S AGE (S2Q5) < 18.] How much did [the (AGE) year old]
weigh at birth?

__ __ pounds /__ __ ounces   OR   __ __ __ __ grams   [SKIP TO INC_TOT (S10Q1)]

(96)   DON'T KNOW   (9996)   DON'T KNOW   [SKIP TO BIRTHRF (S2Q17)]
(97)   REFUSED   (9997)   REFUSED   [SKIP TO BIRTHRF (S2Q17)]

BIRTHWEIGHT   DERIVED. CHILD'S BIRTHWEIGHT IN GRAMS

BIRTHRF (S2Q17)   At birth, did [the (AGE) year old/NAME] weigh less than 5 1/2 pounds?
                  [INTERVIEWER NOTE: 5 1/2 pounds = 2500 GRAMS]

(0)   NO
(1)   YES
(6)   DON'T KNOW
(7)   REFUSED

INC_TOT (S10Q1)   What was the total combined income of your household in (FILL LAST CALENDAR YEAR), including
                  income from all sources including wages, salaries, unemployment payments, public assistance, Social
                  Security or retirement benefits, help from relatives, and so forth? Can you tell me that amount before taxes?

{_____ RECORD INCOME
(999999996)   DON'T KNOW   [SKIP TO RANGE_20 (S10Q3)]
(999999997)   REFUSED   [SKIP TO RANGE_20 (S10Q3)]

HELP SCREEN: RESPONDENT MAY GIVE A RANGE AS AN ANSWER TO THIS QUESTION. BE
PREPARED TO PROBE FOR A MORE ACCURATE ANSWER.

RANGE_20 (S10Q3)   For the purposes of this survey, it is important to get at least a range for the total income received by all members of your household in [FILL YEAR]. Would you say that the total combined income, before taxes, was above or below $20,000?

    (1) MORE THAN $20,000   [SKIP TO RANGE_40 (S10Q9)]
    (2) $20,000   [SKIP TO C11Q22 (S11Q11)]
    (3) LESS THAN $20,000   [SKIP TO RANGE_10 (S10Q4)]
    (6) DON'T KNOW   [SKIP TO C11Q22 (S11Q11)]
    (7) REFUSED   [SKIP TO C11Q22 (S11Q11)]

RANGE_10 (S10Q4)   Was the total combined household income more or less than $10,000?

    (1) MORE THAN $10,000   [SKIP TO RANGE_15 (S10Q6)]
    (2) $10,000   [SKIP TO C11Q22 (S11Q11)]
    (3) LESS THAN $10,000   [SKIP TO RANGE_7 (S10Q5)]
    (6) DON'T KNOW   [SKIP TO C11Q22 (S11Q11)]
    (7) REFUSED   [SKIP TO C11Q22 (S11Q11)]

RANGE_7 (S10Q5)   Was it more than $7,500?

    (0) NO   [SKIP TO C11Q22 (S11Q11)]
    (1) YES   [SKIP TO C11Q22 (S11Q11)]
    (6) DON'T KNOW   [SKIP TO C11Q22 (S11Q11)]
    (7) REFUSED   [SKIP TO C11Q22 (S11Q11)]

RANGE_15 (S10Q6)   Was it more than $15,000?

    (0) NO   [SKIP TO RANGE_12 (S10Q8)]
    (1) YES   [SKIP TO RANGE_17 (S10Q7)]
    (6) DON'T KNOW   [SKIP TO C11Q22 (S11Q11)]
    (7) REFUSED   [SKIP TO C11Q22 (S11Q11)]

RANGE_17 (S10Q7) Was it more than $17,500?

    (0) NO   [SKIP TO C11Q22 (S11Q11)]
    (1) YES   [SKIP TO C11Q22 (S11Q11)]
    (6) DON'T KNOW   [SKIP TO C11Q22 (S11Q11)]
    (7) REFUSED   [SKIP TO C11Q22 (S11Q11)]

RANGE_12 (S10Q8)   Was it more than $12,500?

    (0) NO   [SKIP TO C11Q22 (S11Q11)]
    (1) YES   [SKIP TO C11Q22 (S11Q11)]
    (6) DON'T KNOW   [SKIP TO C11Q22 (S11Q11)]
    (7) REFUSED   [SKIP TO C11Q22 (S11Q11)]

RANGE_40 (S10Q9)   Was the total combined household income more or less than $40,000?

    (1) MORE THAN $40,000   [SKIP TO RANGE_60 (S10Q10)]
    (2) $40,000   [SKIP TO C11Q22 (S11Q11)]
    (3) LESS THAN $40,000   [SKIP TO RANGE_30 (S10Q13)]
    (6) DON'T KNOW   [SKIP TO C11Q22 (S11Q11)]
    (7) REFUSED   [SKIP TO C11Q22 (S11Q11)]

RANGE_60 (S10Q10)   Was the total combined household income more or less than $60,000?

    (1) MORE THAN $60,000   [SKIP TO RANGE_75 (S10Q16)]
    (2) $60,000   [SKIP TO C11Q22 (S11Q11)]
    (3) LESS THAN $60,000   [SKIP TO RANGE_50 (S10Q11)]
    (6) DON'T KNOW   [SKIP TO C11Q22 (S11Q11)]
    (7) REFUSED   [SKIP TO C11Q22 (S11Q11)]

RANGE_50 (S10Q11)   Was the total combined household income more or less than $50,000?

       (1)   MORE THAN $50,000   [SKIP TO C11Q22 (S11Q11)]
       (2) $50,000   [SKIP TO C11Q22 (S11Q11)]
       (3)   LESS THAN $50,000   [SKIP TO RANGE_45 (S10Q12)]
       (6)   DON'T KNOW   [SKIP TO C11Q22 (S11Q11)]
       (7)   REFUSED   [SKIP TO C11Q22 (S11Q11)]

RANGE_45 (S10Q12)   Was the total combined household income more or less than $45,000?

       (1)   MORE THAN $45,000   [SKIP TO C11Q22 (S11Q11)]
       (2)   LESS THAN $45,000   [SKIP TO C11Q22 (S11Q11)]
       (6)   DON'T KNOW   [SKIP TO C11Q22 (S11Q11)]
       (7)   REFUSED   [SKIP TO C11Q22 (S11Q11)]

RANGE_30 (S10Q13)   Was the total combined household income more or less than $30,000?

       (1)   MORE THAN $30,000   [SKIP TO RANGE_35 (S10Q14)]
       (2) $30,000   [SKIP TO C11Q22 (S11Q11)]
       (3)   LESS THAN $30,000   [SKIP TO RANGE_25 (S10Q15)]
       (6)   DON'T KNOW   [SKIP TO C11Q22 (S11Q11)]
       (7)   REFUSED   [SKIP TO C11Q22 (S11Q11)]

RANGE_35 (S10Q14)   Was the total combined household income more or less than $35,000?

       (1)   MORE THAN $35,000   [SKIP TO C11Q22 (S11Q11)]
       (2)   LESS THAN $35,000   [SKIP TO C11Q22 (S11Q11)]
       (6)   DON'T KNOW   [SKIP TO C11Q22 (S11Q11)]
       (7)   REFUSED   [SKIP TO C11Q22 (S11Q11)]

RANGE_25 (S10Q15)   Was the total combined household income more or less than $25,000?

       (1)   MORE THAN $25,000   [SKIP TO C11Q22 (S11Q11)]
       (2)   LESS THAN $25,000   [SKIP TO C11Q22 (S11Q11)]
       (6)   DON'T KNOW   [SKIP TO C11Q22 (S11Q11)]
       (7)   REFUSED   [SKIP TO C11Q22 (S11Q11)]

RANGE_75 (S10Q16)   Was the total combined household income more or less than $75,000?

       (1)   MORE THAN $75,000   [SKIP TO C11Q22 (S11Q11)]
       (2) $75,000   [SKIP TO C11Q22 (S11Q11)]
       (3)   LESS THAN $75,000   [SKIP TO C11Q22 (S11Q11)]
       (6)   DON'T KNOW   [SKIP TO C11Q22 (S11Q11)]
       (7)   REFUSED   [SKIP TO C11Q22 (S11Q11)]

BESTINCOME   DERIVED. BEST INCOME VALUE

C11Q22 (S11Q11)   Please tell me your Zip Code.
        ___ ___ ___ ___ ___ (00001–99995)
       (99996)   DON'T KNOW
       (99997)   REFUSED

CLOSING STATEMENT

       Those are all the questions I have for you. I'd like to thank you on behalf of the Centers for Disease Control and Prevention for the time and effort you've spent answering these questions. If you have any questions about this survey, you may call my supervisor toll-free at 1–866–775–6858. If you have questions about your rights as a survey participant, you may call the chairman of the Institutional Review Board at 1–800–223–8118. Thanks again.

Proxy Variable Listing

[THE FOLLOWING QUESTIONS ARE ASKED IF SAMPLED ADULT NOT AVAILABLE AT THE INITIAL CALL.]

INS1P (S5Q1_AP)   Does [the (AGE) year old/NAME] have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare?

    (0) NO
    (1) YES   [SKIP TO INS2P (S5Q1_BP)]
    (6) DON'T KNOW
    (7) REFUSED

INS2P (S5Q1_BP)   [IF INS1P (S5Q1_AP) = 0, 6, 7, SKIP TO AIRCLEANEP (S7Q1P).] [IF R_DOB (S2Q5) = 0, FILL: "Since birth"/ELSE FILL: "During the past 12 months"], was there any time that [the (AGE) year old/NAME] did not have any health insurance or coverage?

    (0) NO
    (1) YES
    (6) DON'T KNOW
    (7) REFUSED

AIRCLEANEP (S7Q1P)   Is an air cleaner or purifier regularly used inside your home?

    (0) NO
    (1) YES
    (6) DON'T KNOW
    (7) REFUSED

DEHUMIDP (S7Q2P)   Is a dehumidifier regularly used to reduce moisture inside your home?

    (0) NO
    (1) YES
    (6) DON'T KNOW
    (7) REFUSED

KITC_FANP (S7Q3P)   Is an exhaust fan that vents to the outside used regularly when cooking in your kitchen?

    (0) NO
    (1) YES
    (6) DON'T KNOW
    (7) REFUSED

COOK_GASP (S7Q4P)   Is gas used for cooking?

    (0) NO
    (1) YES
    (6) DON'T KNOW
    (7) REFUSED

ENV_MOLDP (S7Q5P)   In the past 30 days, has anyone seen or smelled mold or a musty odor inside your home? Do not include mold on food.

    (0) NO
    (1) YES
    (6) DON'T KNOW
    (7) REFUSED

ENV_PETSP (S7Q6P)   Does your household have indoor pets such as dogs, cats, hamsters, birds, or other feathered or furry pets that are kept inside?

    (0) NO
    (1) YES
    (6) DON'T KNOW
    (7) REFUSED

C_ROACHP (S7Q7P)   In the past 30 days, has anyone seen cockroaches inside your home?

        (0)   NO
        (1)   YES
        (6)   DON'T KNOW
        (7)   REFUSED

        HELP SCREEN: Studies have shown that cockroaches are a leading cause of asthma in children that live in urban areas. Cockroach droppings and carcasses can cause children to experience symptoms of asthma.

WOOD_STOVP (S7Q8P)   Is a fireplace or wood burning stove used in your home?

        (0)   NO
        (1)   YES
        (6)   DON'T KNOW
        (7)   REFUSED

        HELP SCREEN: OCCASIONAL USE SHOULD BE CODED AS "YES."

GAS_STOVEP (S7Q9P)   Are unvented gas logs, an unvented gas fireplace, or an unvented gas stove used in your home?

        (0)   NO
        (1)   YES
        (6)   DON'T KNOW
        (7)   REFUSED

        HELP SCREEN: "Unvented" means no chimney.

S_INSIDE (S7Q10P)   In the past week, has anyone smoked inside your home?

        (0)   NO
        (1)   YES
        (6)   DON'T KNOW
        (7)   REFUSED

        HELP SCREEN: "Smoked" means "anything."
        SKIP TO OTHRASTHP IF INTERVIEW IS FOR SAMPLED CHILD (R_DOB/S2Q5 < 18).

CIGARETSP (S7Q18P)   {Has (the (AGE) year old) smoked at least 100 cigarettes in [his or her]} entire life?

        (0)   NO   [SKIP TO EMP_STATP (S7Q20P)]
        (1)   YES
        (6)   DON'T KNOW   [SKIP TO EMP_STATP (S7Q20P)]
        (7)   REFUSED   [SKIP TO EMP_STATP (S7Q20P)]

CIG_FREQP (S7Q19P)   Does [the (AGE) year old] now smoke cigarettes every day, some days, or not at all?

        (1)   EVERY DAY
        (2)   SOME DAYS
        (3)   NOT AT ALL
        (6)   DON'T KNOW
        (7)   REFUSED

EMP_STATP (S7Q20P)   [IF R_ASTHMX01 = 1 OR S3Q7 = 1:] We are interested in things that affect asthma in the workplace. However, first I'd like to ask how you would describe [the (AGE) year old/NAME]'s current employment status. Would you say [the (AGE) year old/NAME] is . . .

        (1)   EMPLOYED FULL-TIME
        (2)   EMPLOYED PART-TIME
        (3)   NOT EMPLOYED
        (6)   DON'T KNOW
        (7)   REFUSED

UNEMP_RP (S7Q22P)   [IF EMP_STATP (S7Q20P) = 1 OR 2, SKIP TO OTHRASTHP] What is the main reason [the (AGE) year old is] not employed?

    (1) KEEPING HOUSE
    (2) GOING TO SCHOOL
    (3) RETIRED
    (4) DISABLED
    (5) UNABLE TO WORK FOR OTHER HEALTH REASONS
    (6) LOOKING FOR WORK
    (7) LAID OFF
    (8) OTHER
  (96) DON'T KNOW
  (97) REFUSED

OTHRASTHP   Besides [the (AGE) year old/NAME], has anyone else in your household ever been told by a doctor or health professional that they have asthma?

    (0) NO
    (1) YES
    (6) DON'T KNOW
    (7) REFUSED

OTHER_TP (S11Q1P)   Now, I just have a few more general questions about you and your household. Do you have any other home phone numbers in addition to (AREA CODE AND TELEPHONE NUMBER CALLED)? Please do not include cellular phones in your answer.

    (0) NO   [SKIP TO WO_SERVICP (S11Q7P)]
    (1) YES
    (6) DON'T KNOW   [SKIP TO WO_SERVICP (S11Q7P)]
    (7) REFUSED   [SKIP TO WO_SERVICP (S11Q7P)]

SEC_USEP (S11Q2P)   Is this second number for home use only, for business use only, or for both home and business use?

    (1) HOME ONLY
    (2) BUSINESS ONLY   [SKIP TO THIRD_TNP (S11Q4P)]
    (3) BOTH HOME AND BUSINESS
    (6) DON'T KNOW   [SKIP TO WO_SERVICP (S11Q7P)]
    (7) REFUSED   [SKIP TO WO_SERVICP (S11Q7P)]

SEC_FAXP (S11Q3P)   Is this second number used only for computer or fax communications?

    (0) NO
    (1) YES
    (6) DON'T KNOW
    (7) REFUSED   [SKIP TO WO_SERVICP (S11Q7P)]

THIRD_TNP (S11Q4P)   Do you have a third home phone number in addition to the two you have already told me about? Please do not include cellular phones in your answer.

    (0) NO   [SKIP TO WO_SERVICP (S11Q7P)]
    (1) YES
    (6) DON'T KNOW   [SKIP TO WO_SERVICP (S11Q7P)]
    (7) REFUSED   [SKIP TO WO_SERVICP (S11Q7P)]

THIRD_USEP (S11Q5P)   Is this third number for home use only, for business use only, or for both home and business use?

    (1) HOME ONLY
    (2) BUSINESS ONLY   [SKIP TO WO_SERVICP (S11Q7P)]
    (3) BOTH HOME AND BUSINESS
    (6) DON'T KNOW   [SKIP TO WO_SERVICP (S11Q7P)]
    (7) REFUSED   [SKIP TO WO_SERVICP (S11Q7P)]

THIRD_FAXP (S11Q6P)   Is this third number used only for computer or fax communications?

        (0)   NO
        (1)   YES
        (6)   DON'T KNOW
        (7)   REFUSED

WO_SERVICP (S11Q7P)   During the past 12 months, has your household been without telephone service for 1 week or more? Please do not include cellular phones in your answer.

        (0)   NO   [SKIP TO R_ETH_2P (HISPANICP)]
        (1)   YES
        (6)   DON'T KNOW   [SKIP TO R_ETH_2P (HISPANICP)]
        (7)   REFUSED   [SKIP TO R_ETH_2P (HISPANICP)]

C11Q21_AP (S11Q8P)   For how long was your household without telephone service in the past 12 months?

(ENTER THE DAYS, WEEKS, OR MONTHS, THEN CONTINUE TO THE NEXT SCREEN TO ENTER TIME PERIOD.)

ENTER NUMBER __ __ __
        (996) DON'T KNOW   [SKIP TO R_ETH_2P (HISPANICP)]
        (997) REFUSED   [SKIP TO R_ETH_2P (HISPANICP)]

C11Q21P (S11Q9P)   ENTER PERIOD

        (1)   DAYS
        (2)   WEEK(S)
        (3)   MONTH(S)
        (6)   DON'T KNOW
        (7)   REFUSED

[NOTE: DEMOGRAPHICS (R_ETH_2P to BIRTHRFP) ARE ONLY ASKED FOR THE SAMPLED RESPONDENT.]

R_ETH_2P (HISPANICP) (Is the (AGE) year old) of Hispanic or Latino origin?

        (0)   NO
        (1)   YES
        (6)   DON'T KNOW
        (7)   REFUSED

R_RAC2P   Now, I'm going to read a list of categories. Please choose one or more of the following categories to describe (the (AGE) year old/NAME). (Is the (AGE) year old/NAME) White, Black or African-American, American Indian, Alaska Native, Asian, or Native Hawaiian or Other Pacific Islander?
[MARK ALL THAT APPLY]

  (S2Q11_01P) WHITE
  (S2Q11_02P) BLACK/AFRICAN-AMERICAN
  (S2Q11_03P) AMERICAN INDIAN
  (S2Q11_04P) ALASKA NATIVE
  (S2Q11_05P) ASIAN
  (S2Q11_06P) NATIVE HAWAIIAN
  (S2Q11_07P) PACIFIC ISLANDER

        (0)   NO
        (1)   YES
        (6)   DON'T KNOW
        (7)   REFUSED

HELP SCREEN: BE SURE TO READ THE ENTIRE QUESTION AS WRITTEN (INCLUDING ALL RESPONSE CATEGORIES).

RACE INFORMATION IS COLLECTED BY SELF-IDENTIFICATION. IT IS ''WHATEVER RACE YOU CONSIDER YOURSELF TO BE.'' DO NOT TRY TO EXPLAIN OR DEFINE ANY OF THE GROUPS. MULTIPLE RACES MAY BE SELECTED.]

R_EDUCP (S2Q18P)   [SKIP IF A PERSON'S AGE IS UNDER 5, I.E. R_DOB < 05.] The next questions are about [the (AGE) year old/NAME]'s education level. What is the highest level of school that [the (AGE) year old/NAME] has completed?

    _ _   ENTER HIGHEST GRADE COMPLETED (1–12)
    (13)   GRADUATED HIGH SCHOOL
    (14)   SOME POST-HIGH SCHOOL, BUT NOT BACHELOR'S DEGREE (B.A.)
    (15)   COLLEGE GRADUATE—BACHELOR'S DEGREE OR B.A.
    (16)   SOME GRADUATE OR PROFESSIONAL SCHOOL (WITH OR WITHOUT DEGREE)
    (17)   PRESCHOOL/HEADSTART
    (18)   KINDERGARTEN
    (19)   NO FORMAL SCHOOLING
    (96)   DON'T KNOW
    (97)   REFUSED

HEIGHT1P—FEET
  (S2Q14_1P)
HEIGHT2P—INCHES
  (S2Q14_2P)
HEIGHT3P—CENTIMETERS
  (S2Q14_3P)

                How tall is {the (AGE) year old/NAME}?

                __ __ feet/__ __inches OR __ __ __centimeters

                (96)   DON'TKNOW   (996)   DON'TKNOW
                (97)   REFUSED   (997)   REFUSED

                HELP SCREEN: WE ARE INTERESTED IN LOOKING AT HOW HEIGHT AND WEIGHT MAY BE RELATED TO ASTHMA FOR PEOPLE WHO DO AND DO NOT HAVE ASTHMA.

WEIGHT1P—POUNDS
  (S2Q15_1P)
WEIGHT2P—KILOGRAMS
  (S2Q15_2P)

                How much does {the (AGE) year old/NAME} weigh?

                __ __ __ pounds OR __ __ __kilograms

                (996) DON'T KNOW   (996) DON'T KNOW
                (997) REFUSED   (997) REFUSED

                HELP SCREEN: WE ARE INTERESTED IN LOOKING AT HOW HEIGHT AND WEIGHT MAY BE RELATED TO ASTHMA FOR PEOPLE WHO DO AND DO NOT HAVE ASTHMA.

BIRTHW1P—POUNDS
  (S2Q16_1P)
BIRTHW2P—OUNCES
  (S2Q16_2P)
BIRTHW3P—GRAMS
  (S2Q16_3P)

                [ASK BIRTHWTP ONLY FOR SAMPLED PERSONS WITH AGE < 18 (R_DOB/S2Q5).] How much did [the (AGE) year old/NAME] weigh at birth?

                __ __ pounds /__ __ ounces OR __ __ __ __ grams [SKIP TO INC_TOTP (S10Q1P)]

                (96)   DON'T KNOW   (9996)   DON'T KNOW   [SKIP TO BIRTHRFP (S2Q17P)]
                (97)   REFUSED   (9997)   REFUSED   [SKIP TO BIRTHRFP (S2Q17P)]

BIRTHRFP (S2Q17P)   At birth, did [the (AGE) year old/NAME] weigh less than 5 1/2 pounds?
[INTERVIEWER NOTE: 5 1/2 pounds = 2500 GRAMS]

    (0)   NO
    (1)   YES
    (6)   DON'T KNOW
    (7)   REFUSED

INC_TOTP (S10Q1P)   What was the total combined income of your household in [CATI: FILL LAST CALENDAR YEAR], including income from all sources including wages, salaries, unemployment payments, public assistance, Social Security or retirement benefits, help from relatives, and so forth? Can you tell me that amount before taxes?

$_____ RECORD INCOME

(999999996)   DON'T KNOW   [SKIP TO RANGE_20P (S10Q3P)]
(999999997)   REFUSED   [SKIP TO RANGE_20P (S10Q3P)]

HELP SCREEN: RESPONDENT MAY GIVE A RANGE AS AN ANSWER TO THIS QUESTION. BE PREPARED TO PROBE FOR A MORE ACCURATE ANSWER.

RANGE_20P (S10Q3P)   For the purposes of this survey, it is important to get at least a range for the total income received by all members of your household in [FILL YEAR]. Would you say that the total combined income, before taxes, was above or below $20,000?

    (1)   MORE THAN $20,000   [SKIP TO RANGE_40P (S10Q9P)]
    (2) $20,000   [SKIP TO C11Q22P (S11Q11P)]
    (3)   LESS THAN $20,000   [SKIP TO RANGE_10P (S10Q4P)]
    (6)   DON'T KNOW   [SKIP TO C11Q22P (S11Q11P)]
    (7)   REFUSED   [SKIP TO C11Q22P (S11Q11P)]

RANGE_10P (S10Q4P)   Was the total combined household income more or less than $10,000?

    (1)   MORE THAN $10,000   [SKIP TO RANGE_15P (S10Q6P)]
    (2) $10,000   [SKIP TO C11Q22P (S11Q11P)]
    (3)   LESS THAN $10,000   [SKIP TO RANGE_7P (S10Q5P)]
    (6)   DON'T KNOW   [SKIP TO C11Q22P (S11Q11P)]
    (7)   REFUSED   [SKIP TO C11Q22P (S11Q11P)]

RANGE_7P (S10Q5P)   Was it more than $7,500?

    (0)   NO   [SKIP TO C11Q22P (S11Q11P)]
    (1)   YES   [SKIP TO C11Q22P (S11Q11P)]
    (6)   DON'T KNOW   [SKIP TO C11Q22P (S11Q11P)]
    (7)   REFUSED   [SKIP TO C11Q22P (S11Q11P)]

RANGE_15P (S10Q6P)   Was it more than $15,000?

    (0)   NO   [SKIP TO RANGE_12P (S10Q8P)]
    (1)   YES   [SKIP TO RANGE_17P (S10Q7P)]
    (6)   DON'T KNOW   [SKIP TO C11Q22P (S11Q11P)]
    (7)   REFUSED   [SKIP TO C11Q22P (S11Q11P)]

RANGE_17P (S10Q7P)   Was it more than $17,500?

    (0)   NO   [SKIP TO C11Q22P (S11Q11P)]
    (1)   YES   [SKIP TO C11Q22P (S11Q11P)]
    (6)   DON'T KNOW   [SKIP TO C11Q22P (S11Q11P)]
    (7)   REFUSED   [SKIP TO C11Q22P (S11Q11P)]

RANGE_12P (S10Q8P)   Was it more than $12,500?

    (0)   NO   [SKIP TO C11Q22P (S11Q11P)]
    (1)   YES   [SKIP TO C11Q22P (S11Q11P)]
    (6)   DON'T KNOW   [SKIP TO C11Q22P (S11Q11P)]
    (7)   REFUSED   [SKIP TO C11Q22P (S11Q11P)]

RANGE_40P (S10Q9P)   Was the total combined household income more or less than $40,000?

<div style="margin-left:2em">

(1)   MORE THAN $40,000   [SKIP TO RANGE_60P (S10Q10P)]
(2) $40,000   [SKIP TO C11Q22P (S11Q11P)]
(3)   LESS THAN $40,000   [SKIP TO RANGE_30P (S10Q13P)]
(6)   DON'T KNOW   [SKIP TO C11Q22P (S11Q11P)]
(7)   REFUSED   [SKIP TO C11Q22P (S11Q11P)]

</div>

RANGE_60P (S10Q10P)   Was the total combined household income more or less than $60,000?

<div style="margin-left:2em">

(1)   MORE THAN $60,000   [SKIP TO RANGE_75P (S10Q16P)]
(2) $60,000   [SKIP TO C11Q22P (S11Q11P)]
(3)   LESS THAN $60,000   [SKIP TO RANGE_50P (S10Q11P)]
(6)   DON'T KNOW   [SKIP TO C11Q22P (S11Q11P)]
(7)   REFUSED   [SKIP TO C11Q22P (S11Q11P)]

</div>

RANGE_50P (S10Q11P)   Was the total combined household income more or less than $50,000?

<div style="margin-left:2em">

(1)   MORE THAN $50,000   [SKIP TO C11Q22P (S11Q11P)]
(2) $50,000   [SKIP TO C11Q22P (S11Q11P)]
(3)   LESS THAN $50,000   [SKIP TO RANGE_45P (S10Q12P)]
(6)   DON'T KNOW   [SKIP TO C11Q22P (S11Q11P)]
(7)   REFUSED   [SKIP TO C11Q22P (S11Q11P)]

</div>

RANGE_45P (S10Q12P)   Was the total combined household income more or less than $45,000?

<div style="margin-left:2em">

(1)   MORE THAN $45,000   [SKIP TO C11Q22P (S11Q11P)]
(2)   LESS THAN $45,000   [SKIP TO C11Q22P (S11Q11P)]
(6)   DON'T KNOW   [SKIP TO C11Q22P (S11Q11P)]
(7)   REFUSED   [SKIP TO C11Q22P (S11Q11P)]

</div>

RANGE_30P (S10Q13P)   Was the total combined household income more or less than $30,000?

<div style="margin-left:2em">

(1)   MORE THAN $30,000   [SKIP TO RANGE_35P (S10Q14P)]
(2) $30,000   [SKIP TO C11Q22P (S11Q11P)]
(3)   LESS THAN $30,000   [SKIP TO RANGE_25P (S10Q15P)]
(6)   DON'T KNOW   [SKIP TO C11Q22P (S11Q11P)]
(7)   REFUSED   [SKIP TO C11Q22P (S11Q11P)]

</div>

RANGE_35P (S10Q14P)   Was the total combined household income more or less than $35,000?

<div style="margin-left:2em">

(1)   MORE THAN $35,000   [SKIP TO C11Q22P (S11Q11P)]
(2)   LESS THAN $35,000   [SKIP TO C11Q22P (S11Q11P)]
(6)   DON'T KNOW   [SKIP TO C11Q22P (S11Q11P)]
(7)   REFUSED   [SKIP TO C11Q22P (S11Q11P)]

</div>

RANGE_25P (S10Q15P)   Was the total combined household income more or less than $25,000?

<div style="margin-left:2em">

(1)   MORE THAN $25,000   [SKIP TO C11Q22P (S11Q11P)]
(2)   LESS THAN $25,000   [SKIP TO C11Q22P (S11Q11P)]
(6)   DON'T KNOW   [SKIP TO C11Q22P (S11Q11P)]
(7)   REFUSED   [SKIP TO C11Q22P (S11Q11P)]

</div>

RANGE_75P (S10Q16P)   Was the total combined household income more or less than $75,000?

<div style="margin-left:2em">

(1)   MORE THAN $75,000
(2) $75,000
(3)   LESS THAN $75,000
(6)   DON'T KNOW
(7)   REFUSED

</div>

C11Q22P (S11Q11P)   Please tell me your Zip Code.

<div style="margin-left:2em">

___ ___ ___ ___ ___ (00001–99995) (99996)
DON'T KNOW
(99997)   REFUSED

</div>

CLOSING STATEMENT

Those are all the questions I have for you. I'd like to thank you on behalf of the Centers for Disease Control and Prevention for the time and effort you've spent answering these questions. [the (AGE) year old/NAME] about (his/her) asthma.] If you have any questions about this survey, you may call my supervisor toll-free at 1–866–775–6858. If you have questions about your rights as a survey participant, you may call the chairman of the Institutional Review Board at 1–800–223–8118. Thanks again.

Appendix IV

Four-State Study Questionnaire

SLAITS National Asthma Survey
National Study Questionnaire

Section	Subject
Section 1	NAS Eligibility Screening, Respondent Selection, and Initial Demographics
Section 2	History of Asthma (Symptoms & Episodes)
Section 3	Health Care Utilization
Section 4	Knowledge of Asthma/Management Plan
Section 5	Modifications to Environment
Section 6	Medications
Section 7	Family History of Asthma
Section 8	Demographic Information

The following public burden estimate statement will be available as a CATI screen:

Public reporting burden of this collection of information is estimated to average 18 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to CDC/ATSDR Reports Clearance Officer, 1600 Clifton Road NE, MS D-24, Atlanta, Georgia 30333; ATTN: PRA (0920–0406).

NOTE: CATI variable names are provided with corresponding SAS data file variable names, if different, in parentheses.

Section 1. NAS Eligibility Screening, Respondent Selection, and Initial Demographics

CASEID   HOUSEHOLD ID NUMBER

CASEIDX UNIQUE ASTHMA INTERVIEW ID NUMBER

CALLDATE CATI DATE. DATE THE INTERVIEW WAS COMPLETED OR THE LAST DATE THE HOUSEHOLD WAS CONTACTED, IF A COMPLETED INTERVIEW WAS NOT OBTAINED.

SAMP_TYPE DERIVED. NIS/NAS OR NAS-ONLY SAMPLE GROUP

    (1) NIS/NAS SAMPLE
    (2) NAS-ONLY SAMPLE

IAPID   IAP AREA LOCATION

SPANISH   CATI FLAG. CASE PLACED IN SPANISH QUEUE

    (0) NOT PLACED IN SPANISH QUEUE
    (1) PLACED IN SPANISH QUEUE

LTR   Advance letter mailed to household

    (0) NO, LETTER WAS NOT MAILED
    (1) YES, LETTER MAILED

INTRODUCTORY STATEMENT
    Now I have some questions regarding asthma for both adults and children in your household.

SCR_OTHRS (S2Q2) Including yourself, has anyone living in your household ever been told by a doctor or other health professional that they have asthma?
    [INCLUDE EXERCISE-INDUCED ASTHMA]

    (0) NO
    (1) YES
    (6) DON'T KNOW
    (7) REFUSED

    IF SCR_OTHRS (S2Q2) = 0, 6, 7, END INTERVIEW.

ROST   I need to randomly select household members for the interview. How many people 18 years of age or older who live in your household have been diagnosed with asthma?

    _ _ _ ENTER NUMBER OF PEOPLE (RANGE 00–30)   [SKIP TO ROSTKID]
    (96) DON'T KNOW   [END INTERVIEW]
    (97) REFUSED   [END INTERVIEW]

ROSTKID   How many people under 18 years of age who live in your household have been diagnosed with asthma?

    _ _ _ ENTER NUMBER OF PEOPLE (RANGE 00–30)
    (96) DON'T KNOW   [END INTERVIEW]
    (97) REFUSED   [END INTERIVEW]

    RANDOMLY SAMPLE ONE ADULT FROM ROST IF > 0 AND ONE CHILD FROM ROSTKID IF > 0.

R_DOB (S2Q5) Please tell me [your age/the age of the (SELECTED PERSON) in your household].

    ENTER NUMBER ____
    (996) DON'T KNOW   [END INTERVIEW]
    (997) REFUSED   [END INTERVIEW]

R_SEX (S2Q6) [READ IF NECESSARY] [Are you/Is the (AGE) year old] male or female?

    (1) MALE
    (2) FEMALE
    (7) REFUSED

HH_TOTAL DERIVED. NUMBER OF PEOPLE WITH ASTHMA IN THE HOUSEHOLD

COMPLETE DERIVED. TOTAL NUMBER OF HOUSEHOLD MEMBERS WHO WERE SAMPLED AND COMPLETED AN INTERVIEW

FLG_PROXY DERIVED. INTERVIEW DONE BY PROXY BECAUSE OF ILLNESS

PROXYREL (S3Q6B)   [ASK IF ADULT INTERVIEW IS TO BE DONE BY PROXY BECAUSE OF ILLNESS.] What is your relationship to [the (AGE) year old]?

- (1) SPOUSE
- (2) UNMARRIED PARTNER, BOYFRIEND/GIRLFRIEND
- (3) CHILD
- (4) GRANDCHILD
- (5) MOTHER (BIRTH/ADOPTIVE/STEP/FOSTER/OTHER)
- (6) FATHER (BIRTH/ADOPTIVE/STEP/FOSTER/OTHER)
- (7) BROTHER/SISTER
- (8) GRANDFATHER/GRANDMOTHER
- (9) OTHER RELATIVE
- (10) FOSTER CHILD
- (11) HOUSEMATE/ROOMMATE
- (12) ROOMER/BOARDER
- (13) OTHER NON-RELATIVE
- (90) UNRELATED LEGAL GUARDIAN
- (96) DON'T KNOW
- (97) REFUSED

RELA_CHLD (S3Q6)   [RELA_CHLD IS ONLY ASKED FOR AGE (R_DOB/S2Q5) < 18] What is your relationship to [the (AGE) year old/NAME] who lives in this household?

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

OTH_CHLD (S3Q7)   {Have you/Has [the (AGE) year old/NAME]} ever been told by a doctor or other health professional that {you have/he has/she has} asthma?

- (0) NO   [END INTERVIEW]
- (1) YES
- (6) DON'T KNOW   [END INTERVIEW]
- (7) REFUSED   [END INTERVIEW]

AGEDGNOS (S3Q8)   How old {were you/was [the (AGE) year old/NAME]} when (you were/he or his parent or guardian was/she or her parent or guardian was) first told by a doctor or other health professional that (you/he/she) had asthma? [INTERVIEWER: ENTER 0 IF LESS THAN ONE YEARS OLD]

    __ __ __ (ENTER AGE IN YEARS)
- (996) DON'T KNOW
- (997) REFUSED

CUR_AST2 (S3Q9)   {Do you/Does [the (AGE) year old/NAME]} still have asthma?

- (0) NO
- (1) YES
- (6) DON'T KNOW
- (7) REFUSED

Section 2. History of Asthma (Symptoms & Episodes)

LAST_MD (S3Q10)   How long has it been since {you/[the (AGE) year old/NAME] or [the (AGE) year old/NAME]'s parents or guardians} last talked to a doctor or other health professional about (your/his/her) asthma?

- (0) NEVER
- (1) WITHIN THE PAST YEAR
- (2) 1 YEAR TO LESS THAN 3 YEARS AGO
- (3) 3 YEARS TO 5 YEARS AGO
- (4) MORE THAN 5 YEARS AGO
- (6) DON'T KNOW
- (7) REFUSED

LAST_MED (S3Q11)   How long has it been since {you/[the (AGE) year old/NAME]} last took asthma medication?

    (0)   NEVER
    (1)   LESS THAN ONE DAY AGO
    (2)   1–6 DAYS AGO
    (3)   1 WEEK TO LESS THAN 3 MONTHS AGO
    (4)   3 MONTHS TO LESS THAN 1 YEAR AGO
    (5)   1 YEAR TO LESS THAN 3 YEARS AGO
    (6)   3 YEARS TO 5 YEARS AGO
    (7)   MORE THAN 5 YEARS AGO
    (96) DON'T KNOW
    (97) REFUSED

INTRODUCTORY STATEMENT

    READ: Symptoms of asthma include coughing, wheezing, shortness of breath, chest tightness, or phlegm production when {you do not/[the (AGE) year old/NAME] does not} have a cold or respiratory infection. [CONTINUE]

LASTSYMP (S3Q12)   How long has it been since {you/[the (AGE) year old/NAME] last had any symptoms of asthma?
                   [INTERVIEWER: READ RESPONSE OPTIONS IF NECESSARY]

    (0)   NEVER
    (1)   LESS THAN ONE DAY AGO
    (2)   1–6 DAYS AGO
    (3)   1 WEEK TO LESS THAN 3 MONTHS AGO
    (4)   3 MONTHS TO LESS THAN 1 YEAR AGO
    (5)   1 YEAR TO LESS THAN 3 YEARS AGO
    (6)   3 YEAR TO 5 YEARS AGO
    (7)   MORE THAN 5 YEARS AGO
    (96) DON'T KNOW
    (97) REFUSED

ASTHSTAT   DERIVED. ASTHMA STATUS OF HOUSEHOLD MEMBER

    (0)   NO, PERSON DOES NOT HAVE ASTHMA
    (1)   YES, PERSON HAS ASTHMA

LTASTHM   DERIVED. RISK FACTOR FOR LIFETIME ASTHMA PREVALENCE BASED ON BRFSS RULES

    (1)   NOT AT RISK
    (2)   AT RISK
    (9)   DON'T KNOW/NOT SURE OR REFUSED

ASTATUS1   DERIVED. CURRENT ASTHMA STATUS OF HOUSEHOLD MEMBER BASED ON SELF-IDENTIFICATION

    (1)   PERSON SELF-IDENTIFIED ASTHMA
    (0)   PERSON DID NOT SELF-IDENTIFY ASTHMA
    (6)   DON'T KNOW

CASTHMA   DERIVED. RISK FACTOR FOR CURRENT ASTHMA PREVALENCE BASED ON BRFSS RULES

    (1)   NOT AT RISK
    (2)   AT RISK
    (9)   DON'T KNOW/NOT SURE OR REFUSED

ASTHMST   DERIVED. COMPUTED ASTHMA STATUS BASED ON BRFSS RULES

    (1)   CURRENT
    (2)   FORMER
    (3)   NEVER
    (9)   DON'T KNOW/NOT SURE OR REFUSED

ASTATUS2   DERIVED. CURRENT ASTHMA STATUS OF HOUSEHOLD MEMBER BASED ON SELF-REPORTED BEHAVIORS

    (1)   BEHAVIORS INDICATE ASTHMA
    (0)   BEHAVIORS DO NOT INDICATE ASTHMA
    (6)   DON'T KNOW

FLG_TYPE   DERIVED. EXPECTED INTERVIEW TYPE

    (1)   SAMPLED PERSON INT: SYMPTOMS, MEDS, DR VISITS IN PAST 3 YRS
    (2)   SAMPLED PERSON INT: NO SYMPTOMS, MEDS, DR VISITS IN PAST 3 YRS
    (3)   SAMPLED PERSON ILL, PROXY INT: SYMPTOMS, MEDS, DR VISITS IN PAST 3 YRS
    (4)   SAMPLED PERSON ILL, PROXY INT: NO SYMPTOMS, MEDS, DR VISITS IN PAST 3 YRS
    (5)   SAMPLED PERSON OR ASTHMA STATUS NOT DETERMINED

IF THIS IS AN ADULT INTERVIEW (R_DOB/S2Q5 > 17) AND
 CUR_AST2 (S3Q9) = 0, 6, 7 AND
 LAST_MD (S3Q10) = 0 OR > 2 AND
 LAST_MED (S3Q11) = 0 OR > 5 AND
 LASTSYMP (S3Q12) = 0 OR > 5,
SKIP TO INS1 (S5Q1_A). COMPLETE INS1 (S5Q1_A), INS2 (S5Q1_B), HH_INT through S_INSIDE (S7Q10), CIGARETS (S7Q18) through UNEMP_R (S7Q22), SECTION 6 [OTC (S8Q1) through INHALERH (S8Q3), if applicable], SECTION 7 [START AT BRO_N (S9Q1)], AND DEMOGRAPHICS [OTHER_T (S11Q1) THROUGH C11Q22 (S11Q11)].

IF THIS IS A CHILD INTERVIEW (R_DOB/S2Q5 < 18) AND
 CUR_AST2 (S3Q9) = 0, 6, 7 AND
 LAST_MD (S3Q10) = 0 OR > 2 AND
 LAST_MED (S3Q11) = 0 OR > 5 AND
 LASTSYMP (S3Q12) = 0 OR > 5,
SKIP TO INS1 (S5Q1_A). COMPLETE INS1 (S5Q1_A), INS2 (S5Q1_B), HH_INT through S_INSIDE (S7Q10), SECTION 6 [OTC (S8Q1) through INHALERH (S8Q3), if applicable], SECTION 7 [START AT BRO_N (S9Q1)] and DEMOGRAPHICS [OTHER_T (S11Q1) through C11Q22 (S11Q11)].

IF CUR_AST2 (S3Q9) = 1, CONTINUE.

IF CUR_AST2 (S3Q9) = 0, 6, 7 AND
 [LAST_MD (S9Q10) = 1, 2 OR
 LAST_MED (S3Q11) ≥ 1 AND ≤ 5 OR
 LASTSYMP (S3Q12) ≥ 1 AND ≤ 5],
CONTINUE.

IF BOTH AN ADULT AND CHILD WERE SAMPLED, COMPLETE DETAILED INTERVIEWS FOR BOTH, BUT ASK HOUSEHOLD-LEVEL QUESTIONS ONLY FOR THE FIRST INTERVIEW COMPLETED.

SYMP_30D (S4Q1) IF LASTSYMP (S3Q12) = 0 OR ≥ 5 AND ≤ 7, SKIP TO SECTION 3.
      IF LASTSYMP (S3Q12) = 4, SKIP TO EPIS_INT.

  During the past 30 days, how many days did {you/[the (AGE) year old/NAME]} have any symptoms of asthma?

  __ __ DAYS (1–29)   [SKIP TO ASLEEP30 (S4Q3)]
  (0) NO SYMPTOMS IN THE PAST 30 DAYS [SKIP TO EPIS_INT]
  (30) EVERY DAY
  (96) DON'T KNOW   [SKIP TO ASLEEP30 (S4Q3)]
  (97) REFUSED   [SKIP TO ASLEEP30 (S4Q3)]

DUR_30D (S4Q2) {Do you/Does [the (AGE) year old/NAME]} have symptoms all the time?

  (0) NO
  (1) YES
  (6) DON'T KNOW
  (7) REFUSED

  HELP SCREEN: "ALL THE TIME" MEANS SYMPTOMS THAT CONTINUE THROUGHOUT THE DAY. IT DOES NOT MEAN SYMPTOMS FOR A LITTLE WHILE EACH DAY.

ASLEEP30 (S4Q3) During the past 30 days, on how many days did symptoms of asthma make it difficult for {you/[the (AGE) year old/NAME]} to stay asleep?

  __ __ DAYS/NIGHTS
  (0) NONE
  (96) DON'T KNOW
  (97) REFUSED

SYMPFREE (S4Q4) [IF SYMP_30D = 30, SKIP TO EPIS_INT.] During the past two weeks, on how many days {were you/was [the (AGE) year old/NAME]} completely symptom-free, that is no coughing, wheezing, or other symptoms of asthma?

  __ __ NUMBER OF DAYS
  (96) DON'T KNOW
  (97) REFUSED

INTRODUCTORY STATEMENT

  READ: Asthma attacks, sometimes called episodes, refer to periods of worsening asthma symptoms that make {you limit your/limit [the (AGE) year old/NAME]'s} activity more than {you usually do/[he/she] usually does}, or make {you/him/her} seek medical care. [CONTINUE]

EPIS_12M (S4Q5)   During the past 12 months, {have you/has [the (AGE) year old/NAME]} had an episode of asthma or an asthma attack?

        (0) NO   [SKIP TO INS1 (S5Q1_A)]
        (1) YES
        (6) DON'T KNOW   [SKIP TO INS1 (S5Q1_A)]
        (7) REFUSED   [SKIP TO INS1 (S5Q1_A)]

        HELP SCREEN: (ADD TO ALL QUESTIONS THAT REFER TO "ASTHMA ATTACKS OR EPISODES")
        Asthma attacks, sometimes called episodes, refer to periods of worsening asthma symptoms that make {you limit your/limit [the (AGE) year old/NAME]'s} activity more than [you usually do/(he/she) usually does], or make (you/him/her) seek medical care.

EPIS_TP (S4Q6)   During the past 3 months, how many asthma episodes or attacks {have you/has [the (AGE) year old/NAME]} had?

        __ __   ATTACKS OR EPISODES DURING PAST 3 MONTHS
        (0)   NONE
        (996) DON'T KNOW
        (997) REFUSED

DUR_ASTH (S4Q7)   How long did {your/[the (AGE) year old/NAME]'s} most recent asthma episode or attack last?
        ENTER AMOUNT

        __ __
        (96) DON'T KNOW   [SKIP TO COMPASTH (S4Q9)]
        (97) REFUSED   [SKIP TO COMPASTH (S4Q9)]

DUR2ASTH (S4Q8)   ENTER PERIOD

        (1) MINUTES
        (2) HOURS
        (3) DAYS
        (4) WEEKS
        (6) DON'T KNOW
        (7) REFUSED

COMPASTH (S4Q9)   Compared with other episodes or attacks, was this most recent attack shorter, longer, or about the same?

        (1) SHORTER
        (2) LONGER
        (3) ABOUT THE SAME
        (4) THE MOST RECENT ATTACK WAS ACTUALLY THE FIRST ATTACK
        (6) DON'T KNOW
        (7) REFUSED

Section 3. Health Care Utilization

INS1 (S5Q1_A)   {Do you/[Does the (AGE) year old/NAME]} have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare or Medicaid?

        (0) NO   [SKIP TO NER_TIME (S5Q1)]
        (1) YES
        (6) DON'T KNOW   [SKIP TO NER_TIME (S5Q1)]
        (7) REFUSED   [SKIP TO NER_TIME (S5Q1)]

INS2 (S5Q1_B)   [IF R_DOB (S2Q5) = 0, FILL: "Since birth,"/ELSE FILL: "During the past 12 months], was there any time that {you/[the (AGE) year old/NAME]} did not have any health insurance or coverage?

        (0) NO
        (1) YES
        (6) DON'T KNOW
        (7) REFUSED

NER_TIME (S5Q1)   [IF LAST_MD (S3Q10) = 0, 2, 3, OR 4, SKIP TO MISS_DAY (S5Q9).] [IF R_DOB (S2Q5) = 0, FILL: "Since birth,"/ELSE FILL: "During the past 12 months], how many times did {you/[the (AGE) year old/NAME]} see a doctor or other health professional for a routine checkup for (your/his/her) asthma?

        __ __ __ ENTER NUMBER
        (0)   NONE
        (996) DON'T KNOW
        (997) REFUSED

ER_VISIT (S5Q2)   [IF R_DOB (S2Q5) = 0, FILL: "Since birth,"/ELSE FILL: "During the past 12 months], {have you/has [the (AGE) year old/NAME]} had to visit an emergency room or urgent care center because of (your/his/her) asthma?

     (0)   NO   [SKIP TO URG_TIME (S5Q4)]
     (1)   YES
     (6)   DON'T KNOW   [SKIP TO URG_TIME (S5Q4)]
     (7)   REFUSED   [SKIP TO URG_TIME (S5Q4)]

     HELP SCREEN: An urgent care center treats people with illnesses or injuries that must be addressed immediately and cannot wait for a regular medical appointment.

ER_TIMES (S5Q3)   [IF R_DOB (S2Q5) = 0, FILL: "Since birth,"/ELSE FILL: "During the past 12 months"], how many times did {you/[the (AGE) year old/NAME]} visit an emergency room or urgent care center because of (your/his/her) asthma?

     __ __ __ ENTER NUMBER
     (996)   DON'T KNOW
     (997)   REFUSED

     HELP SCREEN: An urgent care center treats people with illnesses or injuries that must be addressed immediately and cannot wait for a regular medical appointment.

URG_TIME (S5Q4)   [IF ER_TIMES (S5Q3) > 0, INSERT: "Besides those emergency room or urgent care center visits,"] [IF R_DOB (S2Q5) = 0, FILL: "Since birth,"/ELSE FILL: "During the past 12 months], how many times did {you/[the (AGE) year old/NAME]} see a doctor or other health professional for urgent treatment of worsening asthma symptoms or an asthma episode or attack?

     __ __ __ ENTER NUMBER

     (0)   NONE
     (996)   DON'T KNOW
     (997)   REFUSED

     HELP SCREEN: An urgent care center treats people with illnesses or injuries that must be addressed immediately and cannot wait for a regular medical appointment.

HOSP_VST (S5Q5)   [IF LASTSYMP (S3Q12) = 0 OR > 5 AND < 7, SKIP TO MISS_DAY (S5Q9).] [IF R_DOB (S2Q5) = 0, FILL: "Since birth,"/ELSE FILL: "During the past 12 months, that is since (1 YEAR AGO TODAY)], {have you/has [the (AGE) year old/NAME]} had to stay overnight in a hospital because of (your/his/her) asthma? Do not include an overnight stay in the emergency room.

     (0)   NO   [SKIP TO MISS_DAY (S5Q9)]
     (1)   YES
     (6)   DON'T KNOW   [SKIP TO MISS_DAY (S5Q9)]
     (7)   REFUSED   [SKIP TO MISS_DAY (S5Q9)]

HOSPTIME (S5Q6)   [IF R_DOB (S2Q5) = 0, FILL: "Since birth,"/ELSE FILL: "During the past 12 months"], how many different times did {you/[the (AGE) year old/NAME]} stay in any hospital overnight or longer because of (your/his/her) asthma?

     __ __ __ TIMES
     (996)   DON'T KNOW
     (997)   REFUSED

HOSPPLAN (S5Q8)   The last time {you/[the (AGE) year old/NAME]} left the hospital, did a health professional talk with {you/(AGE) year old/NAME] or [the (AGE) year old/NAME] parents or guardians} about how to better control (your/his/her) asthma to prevent serious episodes or attacks and hospitalizations in the future?

     (0)   NO
     (1)   YES
     (6)   DON'T KNOW
     (7)   REFUSED

     [SKIP THIS QUESTION IF INTERVIEW IS FOR SAMPLED CHILD (S2Q5< 18).]

MISS_DAY (S5Q9)   During the past 12 months, how many days were you unable to work or carry out your usual activities because of your asthma?

     __ __ __ENTER NUMBER DAYS
     (0)   ZERO
     (996)   DON'T KNOW
     (997)   REFUSED

     [SKIP THIS QUESTION IF INTERVIEW IS FOR SAMPLED ADULT (S2Q5 > 17).]
     [FOR CHILDREN 0–4, INSERT "DAYCARE OR PRESCHOOL" IN FILL.
     FOR CHILDREN 5–13, INSERT "SCHOOL" IN FILL.
     FOR CHILDREN 14–17, INSERT "SCHOOL OR WORK" IN FILL.]

MISS_SCH (S5Q11)   [IF R_DOB (S2Q5) = 0, FILL: "Since birth,"/ELSE FILL: "During the past 12 months, that is since (1 YEAR AGO TODAY)"] about how many days of [daycare or preschool/school/ school or work] did [the (AGE) year old/NAME] miss because of (his/her) asthma?

         __ __ __ ENTER NUMBER
           (0)   ZERO
         (994)   CHILD DID NOT GO TO SCHOOL IN PAST 12 MONTHS
         (995)   HOME SCHOOLED
         (996)   DON'T KNOW
         (997)   REFUSED

ACT_DAYS (S5Q12)   [IF R_DOB (S2Q5) = 0, FILL: "Since birth,"/ELSE FILL: "During the past 12 months," would you say {you/[the (AGE) year old/NAME]} limited (your/his/her) usual activities due to asthma not at all, a little, a moderate amount, or a lot?

         (1)   NOT AT ALL
         (2)   A LITTLE
         (3)   A MODERATE AMOUNT
         (4)   A LOT
         (6)   DON'T KNOW
         (7)   REFUSED

Section 4. Knowledge of Asthma/Management Plan

TCH_SIGN (S6Q1)   Has a doctor or other health professional ever taught {you/the (AGE) year old/NAME] or [the (AGE) year old/NAME]'s parent or guardian} . . .

a. How to recognize early signs or symptoms of an asthma episode?

         (0)   NO
         (1)   YES
         (6)   DON'T KNOW
         (7)   REFUSED

TCH_RESP (S6Q2)   Has a doctor or other health professional ever taught {you/the (AGE) year old/NAME] or [the (AGE) year old/NAME]'s parent or guardian} . . .

b. What to do during an asthma episode or attack?

         (0)   NO
         (1)   YES
         (6)   DON'T KNOW
         (7)   REFUSED

[SKIP IF SAMPLED CHILD (R_DOB/S2Q5) < 5 YEARS OLD.]

TCH_MON (S6Q3)   Has a doctor or other health professional ever taught {you/the (AGE) year old/NAME] or [the (AGE) year old/NAME]'s parent or guardian} . . .

c. How to use a peak flow meter, a device that measures how much air you can blow out of your lungs, to adjust daily medications?

         (0)   NO
         (1)   YES
         (6)   DON'T KNOW
         (7)   REFUSED

MGT_PLAN (S6Q4)   An asthma management plan is a printed form that tells when to change the amount or type of medicine, when to call the doctor for advice, and when to go to the emergency room. Has a doctor or other health professional EVER given {you/the (AGE) year old/NAME] or [the (AGE) year old/NAME]'s parent or guardian} an asthma management plan?
[READ IF NECESSARY: Include nurses and asthma educators]

         (0)   NO
         (1)   YES
         (6)   DON'T KNOW
         (7)   REFUSED

MGT_CLAS (S6Q5)   Have {you/the (AGE) year old/NAME] or [the (AGE)year old/NAME]'s parent or guardian} ever taken a course or class on how to manage (your/his/her) asthma?

         (0)   NO
         (1)   YES
         (6)   DON'T KNOW
         (7)   REFUSED

Section 5. Modifications to Environment

> IF CUR_AST2 = 0, 6, 7 AND
> LAST_MD (S3Q10) = 0 > 2 AND
> LAST_MED (S3Q11) = 0 OR > 5 AND
> LASTSYMP (S3Q12) = 0 OR > 5,
> ASK HH_INT THROUGH S_INSIDE (S7Q10), CIGARETS (S7Q18) THROUGH UNEMP_R (S7Q22). THEN,
> SKIP TO SECTION 6 [OTC (S8Q1) THROUGH INHALERH (S8Q3), IF APPLICABLE.
>
> QUESTIONS HH_INT THROUGH S_INSIDE (S7Q10) ARE HOUSEHOLD-LEVEL
> QUESTIONS AND SHOULD BE ASKED ONLY ONCE IN A HOUSEHOLD.
>
> QUESTIONS MOD_ENV (S7Q11) THROUGH UNEMP_R (S7Q22) ARE INDIVIDUAL-LEVEL
> QUESTIONS AND SHOULD BE ASKED OF (OR ABOUT) EACH PERSON WITH ASTHMA.

INTRODUCTORY STATEMENT

> READ: The following questions are about {your/[the (AGE) year old/NAME]'s} household and living environment. I will be asking about various things that may be related to experiencing asthma symptoms. [CONTINUE]

AIRCLEANER (S7Q1)   Is an air cleaner or purifier regularly used inside your home?

> (0) NO
> (1) YES
> (6) DON'T KNOW
> (7) REFUSED

DEHUMID (S7Q2)   Is a dehumidifier regularly used to reduce moisture inside your home?

> (0) NO
> (1) YES
> (6) DON'T KNOW
> (7) REFUSED

KITC_FAN (S7Q3)   Is an exhaust fan that vents to the outside used regularly when cooking in your kitchen?

> (0) NO
> (1) YES
> (6) DON'T KNOW
> (7) REFUSED

COOK_GAS (S7Q4)   Is gas used for cooking?

> (0) NO
> (1) YES
> (6) DON'T KNOW
> (7) REFUSED

ENV_MOLD (S7Q5)   In the past 30 days, has anyone seen or smelled mold or a musty odor inside your home? Do not include mold on food.

> (0) NO
> (1) YES
> (6) DON'T KNOW
> (7) REFUSED

ENV_PETS (S7Q6)   Does your household have indoor pets such as dogs, cats, hamsters, birds, or other feathered or furry pets that are kept inside?

> (0) NO
> (1) YES
> (6) DON'T KNOW
> (7) REFUSED

C_ROACH (S7Q7)   In the past 30 days, has anyone seen cockroaches inside your home?

> (0) NO
> (1) YES
> (6) DON'T KNOW
> (7) REFUSED
>
> HELP SCREEN: Studies have shown that cockroaches are a leading cause of asthma in children that live in urban areas. Cockroach droppings and carcasses can cause children to experience symptoms of asthma.

WOOD_STOVE (S7Q8)   Is a fireplace or wood burning stove used in your home?

        (0)   NO
        (1)   YES
        (6)   DON'T KNOW
        (7)   REFUSED

        HELP SCREEN: OCCASIONAL USE SHOULD BE CODED AS ''YES.''

GAS_STOVE (S7Q9)   Are unvented gas logs, an unvented gas fireplace, or an unvented gas stove used in your home?

        (0)   NO
        (1)   YES
        (6)   DON'T KNOW
        (7)   REFUSED

        HELP SCREEN: ''Unvented'' means no chimney.

S_INSIDE (S7Q10)   In the past week, has anyone smoked inside your home?

        (0)   NO
        (1)   YES
        (6)   DON'T KNOW
        (7)   REFUSED

        HELP SCREEN: ''Smoked'' means ''anything.''

MOD_ENV (S7Q11)   FOR ADULT INTERVIEW, READ: [FILL ONLY IF QUESTIONS HH_INT THROUGH S_INSIDE WERE ASKED OF THIS RESPONDENT]: Now, back to questions specifically about you. Has a health professional ever advised you to change things in your home, school, or work to improve your asthma?

        FOR CHILD INTERVIEW, READ: [FILL ONLY IF QUESTIONS HH_INT THROUGH S_INSIDE WERE ASKED OF THIS RESPONDENT]: Now, back to questions specifically about [the (AGE) year old/NAME]. Has a health professional ever advised you to change things in [the (AGE) year old/NAME]'s home, school, or work to improve [the (AGE) year old/NAME]'s asthma?

        (0)   NO
        (1)   YES
        (6)   DON'T KNOW
        (7)   REFUSED

MATTRESS (S7Q12)   {Do you/Does [the (AGE) year old/NAME]} use a mattress cover that is made especially for controlling dust mites?

        (0)   NO
        (1)   YES
        (6)   DON'T KNOW
        (7)   REFUSED

E_PILLOW (S7Q13)   {Do you/Does [the (AGE) year old/NAME]} use a pillow cover that is made especially for controlling dust mites?

        (0)   NO
        (1)   YES
        (6)   DON'T KNOW
        (7)   REFUSED

CARPET (S7Q14)   Do you have carpeting or rugs in {your/[the (AGE) year old/NAME]'s} bedroom?

        (0)   NO
        (1)   YES
        (6)   DON'T KNOW
        (7)   REFUSED

HOTWATER (S7Q15)   Are {your/[the (AGE) year old/NAME]'s} sheets and pillowcases washed in cold, warm, or hot water?

        (1)   COLD
        (2)   WARM
        (3)   HOT
        (6)   DON'T KNOW
        (7)   REFUSED

BATH_FAN (S7Q16)   In {your/[the (AGE) year old/NAME]'s} bathroom, {Do you/does [the (AGE) year old/NAME]} regularly use an exhaust fan that vents to the outside?

> (0)   NO OR "NO FAN"
> (1)   YES
> (6)   DON'T KNOW
> (7)   REFUSED

> HELP SCREEN: IF RESPONDENT INDICATES THEY HAVE MORE THAN ONE BATHROOM, THIS QUESTION REFERS TO THE BATHROOM THEY USE MOST FREQUENTLY FOR SHOWERING AND BATHING.

> [SKIP THIS QUESTION IF ENV_PETS = 0, 6, 7.

PETBEDRM (S7Q17)   Is the pet allowed in {your/[the (AGE) year old/NAME]'s} bedroom?

> (0)   NO
> (1)   YES
> (2)   SOME ARE/SOME AREN'T
> (6)   DON'T KNOW
> (7)   REFUSED

> SKIP TO SECTION 6 IF INTERVIEW IS FOR SAMPLED CHILD (R_DOB/S2Q5 < 18).

CIGARETS (S7Q18)   Have you smoked at least 100 cigarettes in your entire life?

> (0)   NO   [SKIP TO EMP_STAT (S7Q20)]
> (1)   YES
> (6)   DON'T KNOW   [SKIP TO EMP_STAT (S7Q20)]
> (7)   REFUSED   [SKIP TO EMP_STAT (S7Q20)]

CIG_FREQ (S7Q19)   Do you now smoke cigarettes every day, some days or not at all?

> (1)   EVERY DAY
> (2)   SOME DAYS
> (3)   NOT AT ALL
> (6)   DON'T KNOW
> (7)   REFUSED

EMP_STAT (S7Q20)   We are interested in things that affect asthma in the workplace. However, first I'd like to ask how you would describe your current employment status. Would you say . . .

> (1)   EMPLOYED FULL-TIME
> (2)   EMPLOYED PART-TIME
> (3)   NOT EMPLOYED
> (6)   DON'T KNOW
> (7)   REFUSED

WORKENV2 (S7Q21)   Was your asthma caused or made worse by chemicals, smoke, fumes, or dust in any job you ever had?

> (0)   NO
> (1)   YES
> (2)   NEVER BEEN EMPLOYED
> (6)   DON'T KNOW
> (7)   REFUSED

UNEMP_R (S7Q22)   [IF EMP_STAT (S7Q20) = 1 OR 2, SKIP TO OTC (S8Q1).] What is the main reason you are not employed?

> (1)   KEEPING HOUSE
> (2)   GOING TO SCHOOL
> (3)   RETIRED
> (4)   DISABLED
> (5)   UNABLE TO WORK FOR OTHER HEALTH REASONS
> (6)   LOOKING FOR WORK
> (7)   LAID OFF
> (8)   OTHER
> (96) DON'T KNOW
> (97) REFUSED

Section 6. Medications

> IF LAST_MED (S3Q11) = 0, SKIP TO SECTION 7.

> IF CUR_AST2 (S3Q9) = 0, 6, 7, AND
>   LAST_MD (S3Q10) = 0 OR > 2 AND
>   LASTSYMP (S3Q12) = 0 OR > 5 AND
>   LAST_MED (S3Q11) = 6 OR 7,

ASK OTC (S8Q1), INHALERE (S8Q2), INHALERH (S8Q3), THEN SKIP TO SECTION 7.

OTC (S8Q1)   Over-the-counter medication can be bought without a doctor's order. {Have you/Has [the (AGE) year old/NAME]} ever used over-the-counter medication for (your/his/her) asthma?

      (0)   NO
      (1)   YES
      (6)   DON'T KNOW
      (7)   REFUSED

INHALERE (S8Q2)   {Have you/Has [the (AGE) year old/NAME]} ever used a prescription inhaler?

      (0)   NO   [SKIP TO SCR_MED1 (S8Q4)]
      (1)   YES
      (6)   DON'T KNOW   [SKIP TO SCR_MED1 (S8Q4)]
      (7)   REFUSED   [SKIP TO SCR_MED1 (S8Q4)]

INHALERH (S8Q3)   Did a health professional show {you/the (AGE) year old/NAME] or [the (AGE) year old/NAME's] parents or guardians} how to use the inhaler?

      (0)   NO
      (1)   YES
      (6)   DON'T KNOW
      (7)   REFUSED

SCR_MED1 (S8Q4)   [IF LAST_MED (S3Q11) = 4, 5, 6, 7, 96, or 97, SKIP TO SECTION 7.] Now I am going to ask questions about specific prescription medications {you/[the (AGE) year old/NAME]} may have taken for asthma in the past 3 months. I will be asking for the names, amount, and how often {you take/[the (AGE) year old/NAME] takes} each medicine. I will ask separately about medication taken in various forms: pill or syrup, inhaler, and Nebulizer.

    It may help to get {your/[the (AGE) year old/NAME]'s} medicines so you can read the labels. Are {your/[the (AGE) year old/NAME]'s} asthma medicines handy?

      (0)   NO   [SKIP TO INH_SCR (S8Q7)]
      (1)   YES
      (2)   RESPONDENT KNOWS THE MEDS   [SKIP TO INH_SCR (S8Q7)]
      (6)   DON'T KNOW
      (7)   REFUSED   [SKIP TO INH_SCR (S8Q7)]

SCR_MED2 (S8Q5)   Can you please go get the asthma medicines while I wait on the phone?

      (0)   NO   [SKIP TO INH_SCR (S8Q7)]
      (1)   YES
      (8)   DON'T KNOW
      (9)   REFUSED   [SKIP TO INH_SCR (S8Q7)]

SCR_MED3 (S8Q6)   Am I correct that you have all the medications?

      (0)   NO
      (1)   YES, I HAVE ALL THE MEDICATIONS
      (2)   YES, I HAVE SOME OF THE MEDICATIONS BUT NOT ALL
      (6)   DON'T KNOW
      (7)   REFUSED

INH_SCR (S8Q7)   In the past 3 months, {have you/has [the (AGE) year old/NAME]} taken prescription asthma medicine using an inhaler?

      (0)   NO   [SKIP TO PILLS (S8Q27)]
      (1)   YES
      (6)   DON'T KNOW   [SKIP TO PILLS (S8Q27)]
      (7)   REFUSED   [SKIP TO PILLS (S8Q27)]

INH_MEDS (S8Q8_01 to S8Q8_34)

    In the past 3 months, what medications did {you/[the (AGE) year old/NAME]} take by inhaler? [MARK ALL THAT APPLY. PROBE: Any other medications?]

INH_MEDS (S8Q8_01 to S8Q8_34)
>In the past 3 months, what medications did {you/[the (AGE) year old/NAME]} take by inhaler? [MARK ALL THAT APPLY. PROBE: Any other medications?]

Variable Name	Brand Name	Type (not shown in CATI)
INH_MEDX01 (S8Q8_01)	Advair	
INH_MEDX02 (S8Q8_02)	Aerobid	Corticosteroids
INH_MEDX03 (S8Q8_03)	Albuterol	Beta 2 agonist
INH_MEDX04 (S8Q8_04)	Alupent	Beta 2 agonist
INH_MEDX05 (S8Q8_05)	Atrovent	Anti-inflammatories
INH_MEDX06 (S8Q8_06)	Azmacort	Corticosteroids
INH_MEDX07 (S8Q8_07)	Beclomethasone dipropionate	Corticosteroids
INH_MEDX08 (S8Q8_08)	Beclovent	Corticosteroids
INH_MEDX09 (S8Q8_09)	Bitolterol	Beta 2 agonist
INH_MEDX10 (S8Q8_10)	Brethaire	Beta 2 agonist
INH_MEDX11 (S8Q8_11)	Budesonide	Corticosteroids
INH_MEDX12 (S8Q8_12)	Combivent	
INH_MEDX13 (S8Q8_13)	Cromolyn	Anti-inflammatories
INH_MEDX14 (S8Q8_14)	Flovent	Inhaled corticosteroid
INH_MEDX15 (S8Q8_15)	Flovent Rotadisk	Inhaled corticosteroid
INH_MEDX16 (S8Q8_16)	Flunisolide	Corticosteroids
INH_MEDX17 (S8Q8_17)	Fluticasone	Inhaled corticosteroid
INH_MEDX18 (S8Q8_18)	Intal	Anti-inflammatories
INH_MEDX19 (S8Q8_19)	Ipratropium Bromide	Anti-inflammatories
INH_MEDX20 (S8Q8_20)	Maxair	Beta 2 agonist
INH_MEDX21 (S8Q8_21)	Metaproteronol	Beta 2 agonist
INH_MEDX22 (S8Q8_22)	Nedocromil	Anti-inflammatories
INH_MEDX23 (S8Q8_23)	Pirbuterol	Beta 2 agonist
INH_MEDX24 (S8Q8_24)	Proventil	Beta 2 agonist
INH_MEDX25 (S8Q8_25)	Pulmicort Turbuhaler	Corticosteroids
INH_MEDX26 (S8Q8_26)	Salmeterol	Corticosteroids (long lasting)
INH_MEDX27 (S8Q8_27)	Serevent	Beta 2 agonist (long lasting)
INH_MEDX28 (S8Q8_28)	Terbutaline	Beta 2 agonist
INH_MEDX29 (S8Q8_29)	Tilade	Anti-inflammatories
INH_MEDX30 (S8Q8_30)	Tornalate	Beta 2 agonist
INH_MEDX31 (S8Q8_31)	Triamcinolone acetonide	Corticosteroids
INH_MEDX32 (S8Q8_32)	Vanceril	Corticosteroids
INH_MEDX33 (S8Q8_33)	Ventolin	Beta 2 agonist
INH_MEDX34 (S8Q8_34)	Other, please specify	[SKIP TO OTH_I1 (S8Q8_34A)]

>IF ANY ANSWER SELECTED FROM INH_MEDX01 (S8Q8_01)–INH_MEDX33 (S8Q8_33), SKIP TO ILP01 (S8Q16_nn).
>
>(0) NO
>(1) YES
>(6) DON'T KNOW   [SKIP TO REC_MED1]
>(7) REFUSED   [SKIP TO PILLS (S8Q27)]

OTH_I1 (S8Q8_34A)   ENTER OTHER MEDICATION.
>IF MORE THAN ONE MEDICATION IS GIVEN, ENTER ALL MEDICATIONS ON ONE LINE.
>_____ ENTER TEXT

INTRODUCTORY STATEMENT

>READ: I'm going to read a list of medicines to see if you recognize the name of any of the medications {you have/[CHILD'S NAME] has} taken. Please let me know if you hear the name. [CONTINUE]

DK1INHLR (S8Q9)   In the past 3 months, did {you/[the (AGE) year old/NAME]} take Flovent or Flovent Rotadisk using an inhaler?

>(0) NO
>(1) YES
>(6) DON'T KNOW
>(7) REFUSED

DK2INHLR (S8Q10)   In the past 3 months, did {you/[the (AGE) year old/NAME]} take:

        Beclovent, Vanceril, Beclomethasone dipropionate,
        Pulmicort Turbuhaler, Budesonide,
        Aerobid, Flunisolide,
        Azmacort, or Triamcinolone acetonide?

    (0)   NO
    (1)   YES
    (6)   DON'T KNOW
    (7)   REFUSED

DK3INHLR (S8Q11)   In the past 3 months, did {you/[the (AGE) year old/NAME]} take:
        Ventolin, Proventil, Albuterol,
        Alupent, Metaproteronol,
        Tornalate, Bitolterol,
        Maxair, Pirbuterol,
        Brethaire, Terbutaline, or
        Serevent?

    (0)   NO
    (1)   YES
    (6)   DON'T KNOW
    (7)   REFUSED

DK4INHLR (S8Q12)   In the past 3 months, did {you/[the (AGE) year old/NAME]} take:
        Intal, Cromolyn,
        Tilade, or Nedocromil?

    (0)   NO
    (1)   YES
    (6)   DON'T KNOW
    (7)   REFUSED

DK5INHLR (S8Q13)   In the past 3 months, did {you/[the (AGE) year old/NAME]} take:
        Atrovent or Ipratropium Bromide?

    (0)   NO
    (1)   YES
    (6)   DON'T KNOW
    (7)   REFUSED

DK6INHLR (S8Q14)   Did {you/[the (AGE) year old/NAME]} take a medication by inhaler that we have not mentioned?

    (0)   NO
    (1)   YES   [SKIP TO DK7INHLR (S8Q15)]
    (6)   DON'T KNOW
    (7)   REFUSED

    IF DK6INHLR (S8Q14) = 1, CONTINUE. ALL OTHERS, SKIP TO ILP01 (S8Q16_nn).

DK7INHLR (S8Q15)   Will you please tell me what that medication was?

        SPELL OUT: _____

    REPEAT ILP01 (S8Q16_nn)–ILP11 (S8Q26_nn) FOR EACH MEDICINE REPORTED IN INH_MEDS
    (S8Q8_nn), OR IF AN ANSWER OF (1) "YES" IS GIVEN FOR ANY ITEM IN DK1INHLR (S8Q9) THROUGH
    DK7INHLR (S8Q15). IF AN ANSWER OF (1) "YES" IS PROVIDED DURING QUESTIONS DK1INHLR
    (S8Q9) THROUGH DK6INHLR (S8Q15), USE THE PHRASE "THIS MEDICATION" FOR FILL "[MEDICINE
    FROM INH_MEDS (S8Q8_nn) SERIES]" FOR QUESTIONS ILP01 (S8Q16_nn) THROUGH ILP11 (S8Q26_nn).

ILP01 (S8Q16_01 to S8Q16_34)

    How long {have you/has [the (AGE) year old/NAME]} been taking [MEDICINE FROM INH_MEDS (S8Q8_nn)
    SERIES]? Would you say less than 6 months, 6 months to 1 year, or longer than 1 year?

    (1)   LESS THAN 6 MONTHS
    (2)   6 MONTHS TO 1 YEAR
    (3)   LONGER THAN 1 YEAR
    (6)   DON'T KNOW
    (7)   REFUSED

ILP02 (S8Q17_01 to S8Q17_34)

A spacer is a small attachment for an inhaler that makes it easier to use. {Do you/Does [the (AGE) year old/NAME]} use a spacer with [MEDICINE FROM INH_MEDS (S8Q8_nn) SERIES]?

    0)   NO
    (1)   YES
    (6)   DON'T KNOW
    (7)   REFUSED

HELP SCREEN: A spacer is a device that attaches to a metered dose inhaler. It holds the medicine in its chamber long enough for you to inhale it in one or two slow, deep breaths. The spacer makes it easy to take the medicines the right way, especially for young children.

ASK IF INH_MEDS (S8Q8_nn) = 03, 04, 09, 10, 20, 21, 23, 24, 28, 30, 33, OR DK3INHLR (S8Q11) = 1; ELSE, SKIP TO ILP06 (S8Q21_nn).

ILP03 (S8Q18_03, _04, _09, _10, _20, _21, _23, _24, _28, _30, _33, _34)

In the past 3 months, did {you/[the (AGE) year old/NAME]} take [MEDICINE FROM INH_MEDS (S8Q8_nn) SERIES] when {you/he/she had} an asthma episode or attack?

    (0)   NO
    (1)   YES
    (2)   NO ATTACK IN PAST 3 MONTHS
    (6)   DON'T KNOW
    (7)   REFUSED

ILP04 (S8Q19_03, _04, _09, _10, _20, _21, _23, _24, _28, _30, _33, _34)

[IF THE AGE OF THE CHILD IS LESS THAN 6 YEARS (S2Q5 < 6), SKIP TO ILP05 (S8Q20_nn).] In the past 3 months, did {you/[the (AGE) year old/NAME]} take [MEDICINE FROM INH_MEDS (S8Q8_nn) SERIES] before exercising?

    (0)   NO
    (1)   YES
    (2)   DIDN'T EXERCISE IN PAST 3 MONTHS
    (6)   DON'T KNOW
    (7)   REFUSED

ILP05 (S8Q20_03, _04, _09, _10, _20, _21, _23, _24, _28, _30, _33, _34)

In the past 3 months, did {you/[the (AGE) year old/NAME]} take [MEDICINE FROM INH_MEDS (S8Q8_nn) SERIES] on a regular schedule everyday?

    (0)   NO
    (1)   YES
    (6)   DON'T KNOW
    (7)   REFUSED

ASK IF INH_MEDS (S8Q8_nn) = 14, 15, 17, OR DK1_INHLR (S8Q9) = 1; ELSE SKIP TO ILP07 (S8Q22_nn).

ILP06 (S8Q21_14, _15, _17, _34)

Is the dosage 44, 50, 100, 110, 220, or 250 micrograms for the Flovent?

    (1)   44 MICROGRAMS
    (2)   50 MICROGRAMS
    (3)   100 MICROGRAMS
    (4)   110 MICROGRAMS
    (5)   220 MICROGRAMS
    (6)   250 MICROGRAMS
    (7)   TOOK MORE THAN 1 IN PAST 3 MONTHS
    (96)   DON'T KNOW
    (97)   REFUSED

ILP07 (S8Q22_01 to S8Q22_34)

On average, how many puffs {Do you/does [the (AGE) year old/NAME]} take each time {you use/he uses/she uses} [MEDICINE FROM INH_MEDS (S8Q8_nn) SERIES]?

    __ __ PUFFS EACH TIME
    (96)   DON'T KNOW
    (97)   REFUSED

INTERVIEWER: PROBE FOR NUMBER OF PUFFS IF RANGE IS GIVEN.

ILP09 (S8Q24_01 to S8Q24_34)
How many times per day or per week {Do you/does [the (AGE) year old/NAME]} use [MEDICINE FROM INH_MEDS (S8Q8_nn) SERIES]?

__ __ __ TIMES

(994)   LESS OFTEN THAN ONCE A WEEK   [SKIP TO ILP11 (S8Q26_nn)]
(996)   DON'T KNOW   [SKIP TO ILP11 (S8Q26_nn)]
(997)   REFUSED   [SKIP TO ILP11 (S8Q26_nn)]

ILP10 (S8Q25_01 to S8Q25_34)
ENTER PERIOD

(1)   PER DAY
(2)   PER WEEK
(6)   DON'T KNOW
(7)   REFUSED

ILP11 (S8Q26_01 to S8Q26_34)
How many full canisters of this inhaler {have you /has [the (AGE) year old/NAME]} used in the past 3 months?

[INTERVIEWER: IF RESPONDENT USED LESS THAN ONE CANISTER IN THE PAST 3 MONTHS, CODE IT AS '00']

___ CANISTERS
(96)   DON'T KNOW
(97)   REFUSED

HELP SCREEN: IF RESPONDENT INDICATES HE/SHE HAS MULTIPLE CANISTERS, (I.E., ONE IN THE CAR, ONE IN PURSE, ETC.) ASK THE RESPONDENT TO ESTIMATE HOW MANY CANISTERS HE/SHE USED.

PILLS (S8Q27)   In the past 3 months, {have you/has [the (AGE) year old/NAME]} taken any medicine in pill form for your/his/her asthma?

(0)   NO   [SKIP TO SYRUP (S8Q38)]
(1)   YES
(6)   DON'T KNOW   [SKIP TO SYRUP (S8Q38)]
(7)   REFUSED   [SKIP TO SYRUP (S8Q38)]

PILLS_MD (S8Q28_01 to S8Q28_48)
What medications {Do you/does [the (AGE) year old/NAME]} take in pill form?
[MARK ALL THAT APPLY. PROBE: Any other medications?]

Variable names	Medication	Type (not shown in CATI)
PILLS_MX01 (S8Q28_01)	Accolate	Leukotriene modifiers
PILLS_MX02 (S8Q28_02)	Aerolate	Methylxanthines
PILLS_MX03 (S8Q28_03)	Albuterol	Beta 2 agonist – Rescue bronchodilators
PILLS_MX04 (S8Q28_04)	Alupent	Beta 2 agonist – Rescue bronchodilators
PILLS_MX05 (S8Q28_05)	Choledyl	Methylxanthines
PILLS_MX06 (S8Q28_06)	Cromolyn	Anti-inflammatories
PILLS_MX07 (S8Q28_07)	Deltasone	Corticosteriods
PILLS_MX08 (S8Q28_08)	Elixophyllin	Methylxanthines
PILLS_MX09 (S8Q28_09)	Intal	Anti-inflammatories
PILLS_MX10 (S8Q28_10)	Marax	Methylxanthines
PILLS_MX11 (S8Q28_11)	Medrol	Corticosteriods
PILLS_MX12 (S8Q28_12)	Metaprel	Beta 2 agonist – Rescue bronchodilators
PILLS_MX13 (S8Q28_13)	Metaproteronol	Beta 2 agonist – Rescue bronchodilators
PILLS_MX14 (S8Q28_14)	Methylpredinisolone	Corticosteriods
PILLS_MX15 (S8Q28_15)	Montelukast	Leukotriene modifiers
PILLS_MX16 (S8Q28_16)	Nedocromil	Corticosteriods
PILLS_MX17 (S8Q28_17)	Pediapred	Corticosteriods
PILLS_MX18 (S8Q28_18)	Prednisolone	Corticosteriods
PILLS_MX19 (S8Q28_19)	Prednisone	Corticosteriods
PILLS_MX20 (S8Q28_20)	Prelone	Corticosteriods
PILLS_MX21 (S8Q28_21)	Proventil	Beta 2 agonist – Rescue bronchodilators
PILLS_MX22 (S8Q28_22)	Quibron	Methylxanthines
PILLS_MX23 (S8Q28_23)	Respid	Methylxanthines
PILLS_MX24 (S8Q28_24)	Singulair	Leukotriene modifiers
PILLS_MX25 (S8Q28_25)	Slo-phyllin	Methylxanthines
PILLS_MX26 (S8Q28_26)	Slo-bid	Methylxanthines
PILLS_MX27 (S8Q28_27)	Sustaire	Methylxanthines
PILLS_MX28 (S8Q28_28)	Theo-24	Methylxanthines
PILLS_MX29 (S8Q28_29)	Theobid	Methylxanthines

PILLS_MX30 (S8Q28_30)	Theochron	Methylxanthines
PILLS_MX31 (S8Q28_31)	Theoclear	Methylxanthines
PILLS_MX32 (S8Q28_32)	Theodur	Methylxanthines
PILLS_MX33 (S8Q28_33)	Theo-Dur	Methylxanthines
PILLS_MX34 (S8Q28_34)	Theolair	Methylxanthines
PILLS_MX35 (S8Q28_35)	Theophylline	Methylxanthines
PILLS_MX36 (S8Q28_36)	Theo-Sav	Methylxanthines
PILLS_MX37 (S8Q28_37)	Theospan	Methylxanthines
PILLS_MX38 (S8Q28_38)	Theox	Methylxanthines
PILLS_MX39 (S8Q28_39)	Tilade	Corticosteriods
PILLS_MX40 (S8Q28_40)	T-Phyl	Methylxanthines
PILLS_MX41 (S8Q28_41)	Unidur	Methylxanthines
PILLS_MX42 (S8Q28_42)	Uniphyl	Methylxanthines
PILLS_MX43 (S8Q28_43)	Ventolin	Beta 2 agonist – Rescue bronchodilators
PILLS_MX44 (S8Q28_44)	Volmax	Beta 2 agonist – Rescue bronchodilators
PILLS_MX45 (S8Q28_45)	Zafirlukast	Leukotriene modifiers
PILLS_MX46 (S8Q28_46)	Zileuton	Leukotriene modifiers
PILLS_MX47 (S8Q28_47)	Zyflo Filmtab	Leukotriene modifiers
PILLS_MX47 (S8Q28_48)	Other, please specify:	[SKIP TO OTH_P1 (S8Q29)]

IF ANY ANSER SELECTED FROM PILLS_MX01 (S8Q28_01)–PILLS_MX47 (S8Q28_47), SKIP TO PILLX (S8Q37_nn).

(0)   NO
(1)   YES
(6)   DON'T KNOW   [SKIP TO REC_MED2]
(7)   REFUSED   [SKIP TO SYRUP (S8Q38)]

OTH_P1 (S8Q29)   ENTER OTHER MEDICATION.
          IF MORE THAN ONE MEDICATION IS GIVEN, ENTER ALL MEDICATIONS ON ONE LINE.

          _____ ENTER TEXT

REC_MED2   READ: I'm going to read a list of medicines to see if you recognize the name of the medications {you have/[CHILD'S NAME] has} taken within the past 3 months. If you recognize any that were taken, please let me know.
          [CONTINUE]

DK1_PILL (S8Q30)   Did {you/[the (AGE) year old/NAME]} take:
          Accolate or Zafirlukast
          Zyflo Filmtab or Zileuton
          Singulair or Montelukast?

(0)   NO
(1)   YES
(6)   DON'T KNOW
(7)   REFUSED

DK2_PILL (S8Q31)   Did {you/[the (AGE) year old/NAME]} take:
          Intal or Cromolyn
          Tilade or Nedocromil?

(0)   NO
(1)   YES
(6)   DON'T KNOW
(7)   REFUSED

DK3_PILL (S8Q32)   Did {you/[the (AGE) year old/NAME]} take:
          Medrol, Methylpredinisolone,
          Deltasone, Prednisone,
          Pediapred,
          Prelone, or Prednisolone?

(0)   NO
(1)   YES
(6)   DON'T KNOW
(7)   REFUSED

DK4_PILL (S8Q33)   Did {you/[the (AGE) year old/NAME]} take:
Proventil, Ventolin, Volmax, or Albuterol
Alupent, Metaprel, or Metaproteronol?

    (0)   NO
    (1)   YES
    (6)   DON'T KNOW
    (7)   REFUSED

DK5_PILL (S8Q34)   Did {you/[the (AGE) year old/NAME]} take:
Theophylline, Elixophyllin, Theo-Dur, choledyl, Theo-Sav, Theospan, Theoclear, T-Phyl, Theodur, Unidur, Uniphyl, Aerolate, Theox, Marax, Theobid, Quibron, Theo-24, Sustaire, Slo-phyllin, Slo-bid, Respid, Theochron, or Theolair?

    (0)   NO
    (1)   YES
    (6)   DON'T KNOW
    (7)   REFUSED

DK6_PILL (S8Q35)   Did {you/[the (AGE) year old/NAME]} take a medication in pill form that we have not mentioned?

    (0)   NO   [SKIP TO PILLX (S8Q37_nn)]
    (1)   YES   [SKIP TO DK7_PILL (S8Q36)]
    (6)   DON'T KNOW   [SKIP TO PILLX (S8Q37_nn)]
    (7)   REFUSED   [SKIP TO PILLX (S8Q37_nn)]

DK7_PILL (S8Q36)   Will you please tell me what that medication was?

        SPELL OUT: _____

        REPEAT PILLX (S8Q37_nn) FOR EACH PILL REPORTED IN PILLS_MD (S8Q28_nn), OR IF AN ANSWER OF (1) "YES" IS GIVEN FOR QUESTIONS DK1_PILL (S8Q30) THROUGH DK6_PILL (S8Q35). IF AN ANSWER OF (1) "YES" IS PROVIDED DURING QUESTIONS DK1_PILL (S8Q30) THROUGH DK6_PILL (S8Q35), USE THE PHRASE "THIS MEDICATION" FOR FILL "[MEDICATION LISTED IN PILLS_MD (S8Q28_nn)]" FOR QUESTION PILLX (S8Q37_nn).

PILLX (S8Q37_01 TO S8Q37_48)
How long {have you/has [the (AGE) year old/NAME]} been taking [MEDICATION LISTED IN PILLS_MD (S8Q28_nn)]?

    (1)   LESS THAN 6 MONTHS
    (2)   6 MONTHS TO 1 YEAR
    (3)   LONGER THAN 1 YEAR
    (6)   DON'T KNOW
    (7)   REFUSED

SYRUP (S8Q38)   In the past 3 months, {have you/has [the (AGE) year old/NAME]} taken prescription medicine in syrup form?

    (0)   NO   [SKIP TO NEB_SCR (S8Q47)]
    (1)   YES
    (6)   DON'T KNOW   [SKIP TO NEB_SCR (S8Q47)]
    (7)   REFUSED   [SKIP TO NEB_SCR (S8Q47)]

SYRUP_ID (S8Q39_01 to S8Q39_11)
What prescriptions medications {have you/has [the (AGE) year old/NAME]} taken as a syrup?
[MARK ALL THAT APPLY. PROBE: Any other medications?]

Variable names	Medication
SYRUP_IX01 (S8Q39_01)	Aerolate
SYRUP_IX02 (S8Q39_02)	Albuterol
SYRUP_IX03 (S8Q39_03)	Alupent
SYRUP_IX04 (S8Q39_04)	Metaproteronol
SYRUP_IX05 (S8Q39_05)	Prednisolone
SYRUP_IX06 (S8Q39_06)	Prelone
SYRUP_IX07 (S8Q39_07)	Proventil
SYRUP_IX08 (S8Q39_08)	Slo-Phyllin
SYRUP_IX09 (S8Q39_09)	Theophylline
SYRUP_IX10 (S8Q39_10)	Ventolin
SYRUP_IX11 (S8Q39_11)	Other, please specify: [SKIP TO OTH_S1 (S8Q40)]

IF ANY ANSWER SELECTED FROM SYRUP_IX01 (S8Q39_01)–SYRUP_IX10 (S8Q39_10), SKIP TO NEB_SCR (S8Q47).

    (0)   NO
    (1)   YES
    (6)   DON'T KNOW   [SKIP TO REC_MED3]
    (7)   REFUSED   [SKIP TO NEB_SCR (S8Q47)]

OTH_S1 (S8Q40)   ENTER OTHER MEDICATION.
           IF MORE THAN ONE MEDICATION IS GIVEN, ENTER ALL MEDICATIONS ON ONE LINE.

          _____ ENTER TEXT

REC_MED3   READ: I'm going to read a list of medicines to see if you recognize the name of the medications {you have/[CHILD'S NAME] has} taken within the past 3 months. [CONTINUE]

DK1_SYRP (S8Q41)   Which of these prescriptions medications {have you/has [the (AGE) year old/NAME]} taken as a syrup? Alupent or Metaproteronol?

    (0)   NO
    (1)   YES
    (6)   DON'T KNOW
    (7)   REFUSED

DK2_SYRP (S8Q42)   Which of these prescriptions medications {have you/has [the (AGE) year old/NAME]} taken as a syrup? Ventolin or Proventil or Albuterol?

    (0)   NO
    (1)   YES
    (6)   DON'T KNOW
    (7)   REFUSED

DK3_SYRP (S8Q43)   Which of these prescriptions medications {have you/has [the (AGE) year old/NAME]} taken as a syrup? Aerolate, Slo-Phyllin, or Theophylline?

    (0)   NO
    (1)   YES
    (6)   DON'T KNOW
    (7)   REFUSED

DK4_SYRP (S8Q44)   Which of these prescriptions medications {have you/has [the (AGE) year old/NAME]} taken as a syrup? Prelone or Prednisolone?

    (0)   NO
    (1)   YES
    (6)   DON'T KNOW
    (7)   REFUSED

DK5_SYRP (S8Q45)   Did {you/[the (AGE) year old/NAME]} take a medication in syrup form that we have not mentioned?

    (0)   NO   [SKIP TO NEB_SCR (S8Q47)]
    (1)   YES
    (6)   DON'T KNOW   [SKIP TO NEB_SCR (S8Q47)]
    (7)   REFUSED   [SKIP TO NEB_SCR (S8Q47)]

DK6_SYRP (S8Q46)   Will you please tell me what that medication was?

          SPELL OUT: _____

NEB_SCR (S8Q47)   A nebulizer is a small machine with a tube and facemask or mouthpiece that you breathe through continuously. In the past 3 months, were any of {your/[the (AGE) year old/NAME]'s} asthma medicines used with a nebulizer?

    (0)   NO   [SKIP TO SECTION 7]
    (1)   YES
    (6)   DON'T KNOW   [SKIP TO SECTION 7]
    (7)   REFUSED   [SKIP TO SECTION 7]

NEB_ID (S8Q48_01 to S8Q48_08)
          In the past 3 months, what prescriptions medications {have you/has [the (AGE) year old/NAME]} taken using a nebulizer?
          [MARK ALL THAT APPLY. PROBE: Any other medications?]

Variable names	Medication
NEB_IDX01 (S8Q48_01)	Albuterol
NEB_IDX02 (S8Q48_02)	Alupent
NEB_IDX03 (S8Q48_03)	Cromolyn
NEB_IDX04 (S8Q48_04)	Intal
NEB_IDX05 (S8Q48_05)	Metaproteronol
NEB_IDX06 (S8Q48_06)	Proventil
NEB_IDX07 (S8Q48_07)	Ventolin
NEB_IDX08 (S8Q48_08)	Other, please specify: [SKIP TO OTH_N1 (S8Q49)]

IF AN ANSWER SELECTED FROM NEB_IDX01 (S8Q48_01)–NEB_IDX07 (S8Q48_07), SKIP TO SECTION 9.

    (0) NO
    (1) YES
    (6) DON'T KNOW   [SKIP TO DK1_NEB (S8Q50)]
    (7) REFUSED   [SKIP TO SECTION 7]

OTH_N1 (S8Q49)   ENTER OTHER MEDICATION.
        IF MORE THAN ONE MEDICATION IS GIVEN, ENTER ALL MEDICATIONS ON ONE LINE.

      _____ ENTER TEXT

DK1_NEB (S8Q50) In the past 3 months, which of these prescriptions medications {have you/has [the (AGE) year old/NAME]} taken using a nebulizer?
      Alupent or Metaproteronol?

    (0) NO
    (1) YES
    (6) DON'T KNOW
    (7) REFUSED

DK2_NEB (S8Q51) In the past 3 months, which of these prescriptions medications {have you/has [the (AGE) year old/NAME]} taken using a nebulizer?
      Ventolin, Proventil or Albuterol?

    (0) NO
    (1) YES
    (6) DON'T KNOW
    (7) REFUSED

DK3_NEB (S8Q52) In the past 3 months, which of these prescriptions medications {have you/has [the (AGE) year old/NAME]} taken using a nebulizer?
      Intal or Cromolyn?

    (0) NO
    (1) YES
    (6) DON'T KNOW
    (7) REFUSED

DK4_NEB (S8Q53) Did {you/[the (AGE) year old/NAME]} take a medication using a nebulizer that we have not mentioned?

    (0) NO   [SKIP TO SECTION 7]
    (1) YES
    (6) DON'T KNOW   [SKIP TO SECTION 7]
    (7) REFUSED   [SKIP TO SECTION 7]

DK5_NEB (S8Q54) Will you please tell me what that medication was?

      SPELL OUT: _____

Section 7. Family History of Asthma

BRO_N (S9Q1) How many biological brothers [have you/has the (AGE) year old] ever had?

      __ __NUMBER

    (0) NONE
    (96) DON'T KNOW
    (97) REFUSED

      HELP SCREEN: RESPONDENTS WHO ARE ADOPTED AND DO NOT HAVE ANY HEALTH INFORMATION REGARDING THEIR BIOLOGICAL PARENTS/SIBLINGS SHOULD BE CODED AS "DON'T KNOW."
      PARENTS/SIBLINGS WHO ARE DECEASED SHOULD BE INCLUDED.
      HALF-BROTHERS SHOULD BE INCLUDED.

SIS_N (S9Q2)   How many biological sisters [have you/has the (AGE) year old] ever had?

__ __NUMBER
(0)   NONE
(96)   DON'T KNOW
(97)   REFUSED

HELP SCREEN: RESPONDENTS WHO ARE ADOPTED AND DO NOT HAVE ANY HEALTH INFORMATION
REGARDING THEIR BIOLOGICAL PARENTS/SIBLINGS SHOULD BE CODED AS ''DON'T KNOW.''
PARENTS/SIBLINGS WHO ARE DECEASED SHOULD BE INCLUDED.
HALF-SISTERS SHOULD BE INCLUDED.

PARENTS1 (S9Q3)   Were either of [your/the (AGE) year old's] biological parents ever told they have asthma?

(0)   NO   [SKIP TO BROASTH1 (S9Q5)]
(1)   YES
(6)   DON'T KNOW   [SKIP TO BROASTH1 (S9Q5)]
(7)   REFUSED   [SKIP TO BROASTH1 (S9Q5)]

HELP SCREEN: RESPONDENTS WHO ARE ADOPTED AND DO NOT HAVE ANY HEALTH INFORMATION
REGARDING THEIR BIOLOGICAL PARENTS/SIBLINGS SHOULD BE CODED AS ''DON'T KNOW.''
PARENTS/SIBLINGS WHO ARE DECEASED SHOULD BE INCLUDED.

PARENTS2 (S9Q4)   Who?

(1)   FATHER
(2)   MOTHER
(3)   BOTH
(6)   DON'T KNOW
(7)   REFUSED

BROASTH1 (S9Q5)   [IF BRO_N (S9Q1) = 0, 96, 97, SKIP TO SISASTH1 (S9Q7). ELSE IF BRO_N (S9Q1) > 1, SKIP TO
BROASTH2 (S9Q6).] IF BRO_N (S9Q1) = 1, ASK: Was {your/the (AGE) year old's} biological brother ever
told that he had asthma?

(0)   NO
(1)   YES
(6)   DON'T KNOW
(7)   REFUSED

ALL SKIP TO SISASTH1 (S9Q7).

BROASTH2 (S9Q6)   How many of {your/the (AGE) year old's} biological brothers were ever told they had asthma?

__ _ _NUMBER
(0)   ZERO
(96)   DON'T KNOW
(97)   REFUSED

HELP SCREEN: RESPONDENTS WHO ARE ADOPTED AND DO NOT HAVE ANY HEALTH INFORMATION
REGARDING THEIR BIOLOGICAL PARENTS/SIBLINGS SHOULD BE CODED AS ''DON'T KNOW.''
PARENTS/SIBLINGS WHO ARE DECEASED SHOULD BE INCLUDED.

SISASTH1 (S9Q7)   [IF SIS_N (S9Q2) = 0, 96, 97, SKIP TO GRANDSCR (S9Q9). ELSE IF SIS_N (S9Q2) > 1, SKIP TO
SISASTH2 (S9Q8).] [IF SIS_N = 1, ASK:] Was {your/the (AGE) year old's} biological sister ever told that she
had asthma?

(0)   NO
(1)   YES
(6)   DON'T KNOW
(7)   REFUSED

ALL SKIP TO GRANDSCR (S9Q9).

SISASTH2 (S9Q8)   How many of {your/the (AGE) year old's} biological sisters were ever told they had asthma?

__ __ NUMBER
(0)   ZERO
(96)   DON'T KNOW
(97)   REFUSED

HELP SCREEN: RESPONDENTS WHO ARE ADOPTED AND DO NOT HAVE ANY HEALTH INFORMATION
REGARDING THEIR BIOLOGICAL PARENTS/SIBLINGS SHOULD BE CODED AS ''DON'T KNOW.''
PARENTS/SIBLINGS WHO ARE DECEASED SHOULD BE INCLUDED.

GRANDSCR (S9Q9)   Were any of {your/the (AGE) year old's} biological grandparents ever told they had asthma?

        (0)   NO   [SKIP TO OTHER_T (S11Q1)]
        (1)   YES
        (6)   DON'T KNOW   [SKIP TO OTHER_T (S11Q1)]
        (7)   REFUSED   [SKIP TO OTHER_T (S11Q1)]

        HELP SCREEN: RESPONDENTS WHO ARE ADOPTED AND DO NOT HAVE ANY HEALTH INFORMATION REGARDING THEIR BIOLOGICAL GRANDPARENTS SHOULD BE CODED AS "DON'T KNOW." GRANDPARENTS WHO ARE DECEASED SHOULD BE INCLUDED.

GRNDASTH   Which of {your/the (AGE) year old's} biological grandparents were told they had asthma?]

(S9Q10_01)   MOTHER'S MOTHER
(S9Q10_02)   MOTHER'S FATHER
(S9Q10_03)   FATHER'S MOTHER
(S9Q10_04)   FATHER'S FATHER

        (0)   NO
        (1)   YES
        (6)   DON'T KNOW
        (7)   REFUSED

        HELP SCREEN: RESPONDENTS WHO ARE ADOPTED AND DO NOT HAVE ANY HEALTH INFORMATION REGARDING THEIR BIOLOGICAL GRANDPARENTS SHOULD BE CODED AS "DON'T KNOW." GRANDPARENTS THAT ARE DECEASED SHOULD BE INCLUDED.

Section 8. Demographic Information

OTHER_T (S11Q1)   [IF THE FIRST ASTHMA DETAILED INTERVIEW HAS BEEN DONE, SKIP TO R_ETH_2 (HISPANIC), ELSE ASK:] Now, I just have a few more general questions about you and your household. Do you have any other home phone numbers in addition to (AREA CODE AND TELEPHONE NUMBER CALLED)? Please do not include cellular phones in your answer.

        (0)   NO   [SKIP TO WO_SERVICE (S11Q7)]
        (1)   YES
        (6)   DON'T KNOW   [SKIP TO WO_SERVICE (S11Q7)]
        (7)   REFUSED   [SKIP TO WO_SERVICE (S11Q7)]

SEC_USE (S11Q2)   Is this second number for home use only, for business use only, or for both home and business use?

        (1)   HOME ONLY
        (2)   BUSINESS ONLY   [SKIP TO THIRD_TN (S11Q4)]
        (3)   BOTH HOME AND BUSINESS
        (6)   DON'T KNOW   [SKIP TO WO_SERVICE (S11Q7)]
        (7)   REFUSED   [SKIP TO WO_SERVICE (S11Q7)]

SEC_FAX (S11Q3)   Is this second number used only for computer or fax communications?

        (0)   NO
        (1)   YES
        (6)   DON'T KNOW
        (7)   REFUSED   [SKIP TO WO_SERVICE (S11Q7)]

THIRD_TN (S11Q4)   Do you have a third home phone number in addition to the two you have already told me about? Please do not include cellular phones in your answer.

        (0)   NO   [SKIP TO WO_SERVICE (S11Q7)]
        (1)   YES
        (6)   DON'T KNOW   [SKIP TO WO_SERVICE (S11Q7)]
        (7)   REFUSED   [SKIP TO WO_SERVICE (S11Q7)]

THIRD_USE (S11Q5)   Is this third number for home use only, for business use only, or for both home and business use?

        (1)   HOME ONLY
        (2)   BUSINESS ONLY   [SKIP TO WO_SERVICE (S11Q7)]
        (3)   BOTH HOME AND BUSINESS
        (6)   DON'T KNOW   [SKIP TO WO_SERVICE (S11Q7)]
        (7)   REFUSED   [SKIP TO WO_SERVICE (S11Q7)]

THIRD_FAX (S11Q6)   Is this third number used only for computer or fax communications?

        (0)   NO
        (1)   YES
        (6)   DON'T KNOW
        (7)   REFUSED

NUM_PHON   DERIVED. NUMBER OF TELEPHONES FOR HOME USE

WO_SERVICE (S11Q7)   During the past 12 months, has your household been without telephone service for 1 week or more? Please do not include cellular phones in your answer.

        (0)   NO   [SKIP TO R_ETH_2 (HISPANIC)]
        (1)   YES
        (6)   DON'T KNOW   [SKIP TO R_ETH_2 (HISPANIC)]
        (7)   REFUSED   [SKIP TO R_ETH_2 (HISPANIC)]

C11Q21_A (S11Q8)   For how long was your household without telephone service in the past 12 months?
(ENTER THE NUMBER, THEN CONTINUE TO THE NEXT SCREEN TO ENTER TIME PERIOD.)

        ENTER NUMBER __ __ __

        (996)   DON'T KNOW   [SKIP TO R_ETH_2 (HISPANIC)]
        (997)   REFUSED   [SKIP TO R_ETH_2 (HISPANIC)]

C11Q21 (S11Q9)   ENTER PERIOD

        (1)   DAYS
        (2)   WEEK(S)
        (3)   MONTH(S)
        (6)   DON'T KNOW
        (7)   REFUSED

NOPHONE   DERIVED. NUMBER OF DAYS WITHOUT TELEPHONE SERVICE

R_ETH_2 (HISPANIC) (Are you/Is [the (AGE) year old]) of Hispanic or Latino origin?

        (0)   NO
        (1)   YES
        (6)   DON'T KNOW
        (7)   REFUSED

R_RACE2   Now, I'm going to read a list of categories. Please choose one or more of the following categories to describe (yourself/the (AGE) year old). (Are you/Is the (AGE) year old) White, Black or African-American, American Indian or Alaska Native, Asian, or Native Hawaiian or Other Pacific Islander?
[MARK ALL THAT APPLY]

        (S2Q11_01)   WHITE
        (S2Q11_02)   BLACK/AFRICAN-AMERICAN
        (S2Q11_03)   AMERICAN INDIAN
        (S2Q11_04)   ALASKA NATIVE
        (S2Q11_05)   ASIAN
        (S2Q11_06)   NATIVE HAWAIIAN
        (S2Q11_07)   PACIFIC ISLANDER

        (0)   NO
        (1)   YES
        (6)   DON'T KNOW
        (7)   REFUSED

        HELP SCREEN: BE SURE TO READ THE ENTIRE QUESTION AS WRITTEN (INCLUDING ALL RESPONSE CATEGORIES).

        RACE INFORMATION IS COLLECTED BY SELF-IDENTIFICATION. IT IS "WHATEVER RACE YOU CONSIDER YOURSELF TO BE." DO NOT TRY TO EXPLAIN OR DEFINE ANY OF THE GROUPS. MULTIPLE RACES MAY BE SELECTED.

RACE   DERIVED. RACE OF HOUSEHOLD MEMBER

RACEARRAY   DERIVED. ARRAY OF RESPONSES TO RACE VARIABLE

R_EDUC (S2Q18)   [IF THE SAMPLED PERSON IS UNDER 5, I.E. R_DOB (S2Q5) < 05, SKIP TO HEIGHT1 (S2Q14_1).] The next questions are about [your/the (AGE) year old's] education level. What is the highest level of school that [you have/the (AGE) year old has] completed?

        _ _   ENTER HIGHEST GRADE COMPLETED (1–12)
        (13)   GRADUATED HIGH SCHOOL
        (14)   SOME POST-HIGH SCHOOL, BUT NOT BACHELOR'S DEGREE (B.A.)
        (15)   COLLEGE GRADUATE—BACHELOR'S DEGREE OR B.A.
        (16)   SOME GRADUATE OR PROFESSIONAL SCHOOL (WITH OR WITHOUT DEGREE)
        (17)   PRESCHOOL/HEADSTART
        (18)   KINDERGARTEN
        (19)   NO FORMAL SCHOOLING
        (96)   DON'T KNOW
        (97)   REFUSED

HEIGHT1—FEET
  (S2Q14_1)
HEIGHT2—INCHES
  (S2Q14_2)
HEIGHT3—CENTIMETERS
  (S2Q14_3)

How tall {are you/is [the (AGE) year old]}?

__ __ feet / __ __inches   OR   __ __ __centimeters

(96) DON'T KNOW   (996) DON'T KNOW
(97) REFUSED   (997) REFUSED

HELP SCREEN: WE ARE INTERESTED IN LOOKING AT HOW HEIGHT AND WEIGHT MAY BE RELATED TO ASTHMA FOR PEOPLE WHO DO AND DO NOT HAVE ASTHMA.

HEIGHT   DERIVED. RESPONDENT HEIGHT IN INCHES.

WEIGHT1—POUNDS
  (S2Q15_1)
WEIGHT2—KILOGRAMS
  (S2Q15_2)

How much {do you/ does the (AGE) year old} weigh?

__ __ __ pounds OR __ __ __kilograms

(996) DON'T KNOW   (996) DON'T KNOW
(997) REFUSED   (997) REFUSED

HELP SCREEN: WE ARE INTERESTED IN LOOKING AT HOW HEIGHT AND WEIGHT MAY BE RELATED TO ASTHMA FOR PEOPLE WHO DO AND DO NOT HAVE ASTHMA.

WEIGHT   DERIVED. RESPONDENT WEIGHT IN POUNDS.

BIRTHW1—POUNDS
  (S2Q16_1)
BIRTHW2—OUNCES
  (S2Q16_2)
BIRTHW3—GRAMS
  (S2Q16_3)

[ASK BIRTHWT ONLY FOR SAMPLED PERSONS AGE (S2Q5) < 18.] How much did [the (AGE) year old] weigh at birth?

__ __ pounds /__ __ ounces   OR   __ __ __ __ grams   [SKIP TO INC_TOT (S10Q1)]

(96) DON'T KNOW   (9996) DON'T KNOW [SKIP TO BIRTHRF S2Q17]
(97) REFUSED   (9997) REFUSED   [SKIP TO BIRTHRF (S2Q17)]

BIRTHWEIGHT   DERIVED. CHILD'S BIRTHWEIGHT IN GRAMS

BIRTHRF   At birth, did [the (AGE) year old/NAME] weigh less than 5 1/2 pounds?
(S2Q17)   [INTERVIEW NOTE: 5 1/2 pounds = 2500 GRAMS]

(0) NO
(1) YES
(6) DON'T KNOW
(7) REFUSED

INC_TOT (S10Q1)   What was the total combined income of your household in (FILL LAST CALENDAR YEAR), including income from all sources including wages, salaries, unemployment payments, public assistance, Social Security or retirement benefits, help from relatives, and so forth? Can you tell me that amount before taxes?

$_____ RECORD INCOME
(999999996) DON'T KNOW   [SKIP TO RANGE_20 (S10Q3)]
(999999997) REFUSED   [SKIP TO RANGE_20 (S10Q3)]

HELP SCREEN: RESPONDENT MAY GIVE A RANGE AS AN ANSWER TO THIS QUESTION. BE PREPARED TO PROBE FOR A MORE ACCURATE ANSWER.

RANGE_20 (S10Q3)   For the purposes of this survey, it is important to get at least a range for the total income received by all members of your household in [FILL YEAR]. Would you say that the total combined income, before taxes, was above or below $20,000?

      (1)   MORE THAN $20,000   [SKIP TO RANGE_40 (S10Q9)]
      (2) $20,000   [SKIP TO C11Q22 (S11Q11)]
      (3)   LESS THAN $20,000   [SKIP TO RANGE_10 (S10Q4)]
      (6)   DON'T KNOW   [SKIP TO C11Q22 (S11Q11)]
      (7)   REFUSED   [SKIP TO C11Q22 (S11Q11)]

RANGE_10 (S10Q4)   Was the total combined household income more or less than $10,000?

      (1)   MORE THAN $10,000   [SKIP TO RANGE_15 (S10Q6)]
      (2) $10,000   [SKIP TO C11Q22 (S11Q11)]
      (3)   LESS THAN $10,000   [SKIP TO RANGE_7 (S10Q5)]
      (6)   DON'T KNOW   [SKIP TO C11Q22 (S11Q11)]
      (7)   REFUSED   [SKIP TO C11Q22 (S11Q11)]

RANGE_7 (S10Q5) Was it more than $7,500?

      (0)   NO   [SKIP TO C11Q22 (S11Q11)]
      (1)   YES   [SKIP TO C11Q22 (S11Q11)]
      (6)   DON'T KNOW   [SKIP TO C11Q22 (S11Q11)]
      (7)   REFUSED   [SKIP TO C11Q22 (S11Q11)]

RANGE_15 (S10Q6) Was it more than $15,000?

      (0)   NO   [SKIP TO RANGE_12 (S10Q8)]
      (1)   YES   [SKIP TO RANGE_17 (S10Q7)]
      (6)   DON'T KNOW   [SKIP TO C11Q22 (S11Q11)]
      (7)   REFUSED   [SKIP TO C11Q22 (S11Q11)]

RANGE_17 (S10Q7) Was it more than $17,500?

      (0)   NO   [SKIP TO C11Q22 (S11Q11)]
      (1)   YES   [SKIP TO C11Q22 (S11Q11)]
      (6)   DON'T KNOW   [SKIP TO C11Q22 (S11Q11)]
      (7)   REFUSED   [SKIP TO C11Q22 (S11Q11)]

RANGE_12 (S10Q8)   Was it more than $12,500?

      (0)   NO   [SKIP TO C11Q22 (S11Q11)]
      (1)   YES   [SKIP TO C11Q22 (S11Q11)]
      (6)   DON'T KNOW   [SKIP TO C11Q22 (S11Q11)]
      (7)   REFUSED   [SKIP TO C11Q22 (S11Q11)]

RANGE_40 (S10Q9) Was the total combined household income more or less than $40,000?

      (1)   MORE THAN $40,000   [SKIP TO RANGE_60 (S10Q10)]
      (2) $40,000   [SKIP TO C11Q22 (S11Q11)]
      (3)   LESS THAN $40,000   [SKIP TO RANGE_30 (S10Q13)]
      (6)   DON'T KNOW   [SKIP TO C11Q22 (S11Q11)]
      (7)   REFUSED   [SKIP TO C11Q22 (S11Q11)]

RANGE_60 S10Q10)   Was the total combined household income more or less than $60,000?

      (1)   MORE THAN $60,000   [SKIP TO RANGE_75 (S10Q16)]
      (2) $60,000   [SKIP TO C11Q22 (S11Q11)]
      (3)   LESS THAN $60,000   [SKIP TO RANGE_50 (S10Q11)]
      (6)   DON'T KNOW   [SKIP TO C11Q22 (S11Q11)]
      (7)   REFUSED   [SKIP TO C11Q22 (S11Q11)]

RANGE_50 (S10Q11)   Was the total combined household income more or less than $50,000?

      (1)   MORE THAN $50,000   [SKIP TO C11Q22 (S11Q11)]
      (2) $50,000   [SKIP TO C11Q22 (S11Q11)]
      (3)   LESS THAN $50,000   [SKIP TO RANGE_45 (S10Q12)]
      (6)   DON'T KNOW   [SKIP TO C11Q22 (S11Q11)]
      (7)   REFUSED   [SKIP TO C11Q22 (S11Q11)]

RANGE_45 (S10Q12)   Was the total combined household income more or less than $45,000?

        (1)   MORE THAN $45,000   [SKIP TO C11Q22 (S11Q11)]
        (2)   LESS THAN $45,000   [SKIP TO C11Q22 (S11Q11)]
        (6)   DON'T KNOW   [SKIP TO C11Q22 (S11Q11)]
        (7)   REFUSED   [SKIP TO C11Q22 (S11Q11)]

RANGE_30 (S10Q13)   Was the total combined household income more or less than $30,000?

        (1)   MORE THAN $30,000   [SKIP TO RANGE_35 (S10Q14)]
        (2) $30,000   [SKIP TO C11Q22 (S11Q11)]
        (3)   LESS THAN $30,000   [SKIP TO RANGE_25 (S10Q15)]
        (6)   DON'T KNOW   [SKIP TO C11Q22 (S11Q11)]
        (7)   REFUSED   [SKIP TO C11Q22 (S11Q11)]

RANGE_35 (S10Q14)   Was the total combined household income more or less than $35,000?

        (1)   MORE THAN $35,000   [SKIP TO C11Q22 (S11Q11)]
        (2)   LESS THAN $35,000   [SKIP TO C11Q22 (S11Q11)]
        (6)   DON'T KNOW   [SKIP TO C11Q22 (S11Q11)]
        (7)   REFUSED   [SKIP TO C11Q22 (S11Q11)]

RANGE_25 (S10Q15)   Was the total combined household income more or less than $25,000?

        (1)   MORE THAN $25,000   [SKIP TO C11Q22 (S11Q11)]
        (2)   LESS THAN $25,000   [SKIP TO C11Q22 (S11Q11)]
        (6)   DON'T KNOW   [SKIP TO C11Q22 (S11Q11)]
        (7)   REFUSED   [SKIP TO C11Q22 (S11Q11)]

RANGE_75 (S10Q16)   Was the total combined household income more or less than $75,000?

        (1)   MORE THAN $75,000   [SKIP TO C11Q22 (S11Q11)]
        (2) $75,000   [SKIP TO C11Q22 (S11Q11)]
        (3)   LESS THAN $75,000   [SKIP TO C11Q22 (S11Q11)]
        (6)   DON'T KNOW   [SKIP TO C11Q22 (S11Q11)]
        (7)   REFUSED   [SKIP TO C11Q22 (S11Q11)]

BESTINCOME   DERIVED. BEST INCOME VALUE

C11Q22 (S11Q11)   Please tell me your Zip Code.

        ___ ___ ___ ___ ___ (00001–99995)
        (99996)   DON'T KNOW
        (99997)   REFUSED

CLOSING STATEMENT

        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've spent answering these questions. If you have any questions about this survey, you may call my supervisor toll-free at 1–866–775–6858. If you have questions about your rights as a survey participant, you may call the chairman of the Institutional Review Board at 1–800–223–8118. Thanks again.

Appendix V

Summary of NAS Pretests

The SLAITS 2003 NAS fielded a series of four pretests to determine the most effective data collection methodology for the main study—one that would obtain the highest possible response rates, produce asthma prevalence estimates, and gather high-quality analytic data on people with asthma. Although the basic questionnaire remained the same (particularly for the detailed asthma interview), the sampling and screening procedures varied substantially among the pretests. This appendix briefly summarizes each of the four pretests. Table VI provides detail on how specific elements differed by pretest.

Pretest I

Sample design—The Pretest I screening methodology collected demographic information (i.e., age, sex, race, and ethnicity) and asthma status for all household members to allow calculation of asthma prevalence rates. These items were administered at the beginning of the interview. The screening interview respondent was the household member who was determined to be most knowledgeable about the health of all members. Detailed interviews were conducted with up to one asthma-positive adult and one asthma-positive child.

Data collection—The NIS advance letter in use at the time was mailed to address-matched cases. No mention of asthma was made in the letter. The pretest was conducted between September 17, 2001, and November 15, 2001, in eight urban areas within the four pilot states initially chosen for the study (Jefferson County, Alabama; Chicago, Illinois; Dallas, El Paso, Houston, and Bexar Counties and Houston, Texas; and Santa Clara and San Diego Counties, California).

Results—A total of 461 household screening interviews and 73 detailed asthma interviews were completed. The Pretest I interview completion rate was 82.8%, the screener completion rate was

54.4%, and the resolution rate was 82.6%. The unweighted CASRO response rate, equal to the product of these three components, was 37.2%. Because the screener completion rate was lower than anticipated, a second pretest was planned to examine ways to increase screener-level response.

Pretest II

Sample design—For Pretest II, the study design was modified in several ways. First, three new general recruitment questions related to "breathing problems" were added at the beginning of the screening interview in an attempt to increase salience and respondent interest. The request for the most knowledgeable household respondent to come to the telephone to answer the household screening questions was eliminated. Instead, anyone over the age of 17 years who answered the telephone was asked to complete the screening interview. In households where no one had asthma, the person who answered the telephone provided the demographic information needed to develop prevalence rates. Finally, the screening interview time was reduced by shortening the informed consent script, revising the ethnicity question to yes or no format, and dropping a question that asked for the total number of people in the household (which was now derived from the household roster). No changes were made in the procedures for detailed interviews.

Data collection—As in the first pretest, the NIS advance letter in use at the time was mailed to address-matched cases. However, for Pretest II, the letter was revised to note that some households might be asked questions about asthma. The second pretest was conducted from November 13, 2001, through January 7, 2002, in three urban areas (Jefferson County, Alabama; Chicago, Illinois; and Houston, Texas). Pretest II was designed and implemented prior to the actual completion of Pretest I.

Results—A total of 313 household screening interviews and 47 detailed asthma interviews were completed in the second pretest. The interview

completion rate was 95.5%. The screener completion rate was 68.0%, and the resolution rate was 84.7%. The unweighted CASRO response rate was 55.0%. Though response rates in Pretest II were substantially higher than those of Pretest I, there was interest in testing other approaches to improve response rates. Therefore, a third pretest was fielded.

Pretest III

Sample design—The goal of Pretest III was to investigate additional methods to increase response. The data collection approach was changed to uncouple the NIS screener and interview and the NAS interview. Rather than proceeding directly to the NAS interview, households that completed the NIS screener and interview were mailed a separate NAS-specific advance letter and recontacted for NAS after approximately 3 weeks using an introduction that mentioned only NAS. In addition, known households that did not complete the NIS screener or interview during NIS data collection were contacted for the NAS after the NIS data collection period closed.

The recontacted sample was divided into two groups to test differing content of advance letters and introductory scripts. The NAS-specific advance letter and introductory script for the first group had an asthma-specific focus. These items for the second group focused more generally on air quality and health. The second group also received two additional questions at the beginning of the survey asking about air quality in their neighborhood. This experiment was designed to determine whether the more general air quality focus might increase response in asthma-negative households.

The final change implemented for the third pretest moved the initial demographic questions to the end of the survey for respondents eligible for the detailed interview. This change was intended to minimize the number of breakoffs occurring before a household member was sampled.

Data collection—As noted above, separate NAS-specific advance letters were mailed to households identified

Table IV. NAS Pretest III unweighted response rates by group

Percentage rate	Percent of asthma group	Percent of air quality group	Percent of total sample
Interview completion rate	76.2	79.5	77.9
Screener completion rate	54.2	52.8	53.5
Resolution rate.	77.9	77.9	77.9
CASRO response rate	32.2	32.7	32.5

NOTES: NAS is National Asthma Survey. CASRO is the Council of American Survey Research Organizations.

during earlier NIS administration. The third pretest was conducted from March 6, 2002, through July 10, 2002, in four states (Alabama, California, Illinois, and Texas). Full-state samples were used for this pretest, as opposed to the urban samples used in the first two pretests.

Results—A total of 5,529 household screening interviews and 981 detailed asthma interviews were completed in the third pretest. The overall interview completion rate was 77.9%. The screener completion rate was 53.5%, and the resolution rate was 77.9%. The unweighted CASRO response rate was 32.5%. No significant differences were observed in the CASRO response rate between the asthma-focused and air quality-focused groups (Table IV).

The changes implemented as part of the third pretest were unsuccessful in raising response rates. In fact, the response rates were lower than those observed in either of the previous pretests, so a fourth pretest was designed and implemented.

Pretest IV

Sample design—In Pretest IV, the NIS and NAS interviews were rejoined, and two separate screening approaches were tested. In the first screening approach (Approach A), all household members were rostered, one adult was sampled in all households, and one child was sampled in households with children. Once selected, the sampled persons were screened for asthma. If the sampled adult or child had asthma, the adult (or, for a child, a parent or guardian) completed a detailed interview. A shorter screening interview, which included household environment questions and demographics, was administered to sampled respondents who screened negative for lifetime asthma. In the second screening approach (Approach B), households were immediately screened for the presence of asthma. In asthma-negative households, the interview was terminated. In asthma-positive households, a maximum of one adult and one child with asthma were randomly sampled for a detailed interview.

Data collection—The NIS advance letter in use at the time was mailed to address-matched cases. As in Pretest I, no mention of asthma was made in the letter. The data collection for the fourth pretest took place between July 17, 2002, and November 4, 2002. Full-state samples in Alabama, California, Illinois, and Texas were used for Pretest IV.

Results—Among the 4,268 persons screened using Approach A, 250 detailed asthma interviews were completed. As Table V shows, the interview completion rate was 88.1%. The screener completion rate was 50.5%, and the resolution rate was 82.9%. The unweighted CASRO response rate was 36.9%. Among the 2,800 households that were screened using Approach B, a total of 266 detailed asthma interviews

were completed. The interview completion rate was 76.8%. The screener completion rate was 84.5%, and the resolution rate was 83.4%. The unweighted CASRO response rate was 54.1%.

Conclusion

A plan for main study data collection in 2003 was developed by incorporating selected design elements from the four pretests. A national study, with an estimated 10,000 completed screening interviews, would be fielded. In addition, a separate state-specific study would be fielded in four states used for the pretests—Alabama, California, Illinois, and Texas—with an estimated 12,000 screening interviews completed per state. The national study questionnaire synthesized and refined the previous pretest methodologies in that it retained the most successful elements of previous questionnaires, sampled only one person, and allowed proxy interviews for sampled respondents not immediately available. The questionnaire, which was most similar to the questionnaire used in Pretest IV, Approach A, was designed to produce prevalence rates and detailed analytical data on persons with asthma. The questionnaire chosen for the state-specific study was used in Pretest IV, Approach B, which gathered detailed analytical data for persons with asthma without allowing production of prevalence rates.

Although Pretest II generated the highest response rates of the four pretests and could be used to calculate prevalence rates, it was not chosen for the main study because of the burdensome screening household roster process. This protocol collected demographic information (i.e., age, sex, race, and ethnicity) and asthma status for all household members at the beginning of the interview, which can be burdensome, especially to respondents who reside in large or transient households (See Table VI).

Table V. NAS Pretest IV unweighted response rates

Percentage rate	Percent of Approach A	Percent of Approach B
Interview completion rate	88.1	76.8
Screener completion rate	50.5	84.5
Resolution rate.	82.9	83.4
CASRO response rate	36.9	54.1

NOTE: NAS is National Asthma Survey. CASRO is the Council of American Survey Research Organizations.

Table VI. SLAITS 2003 National Asthma Survey: Summary of pretests

	Pretest I	Pretest II	Pretest III	Pretest IV
Data collection period	September 17, 2001–November 15, 2001	November 13, 2001–January 7, 2002	March 6, 2002–July 10, 2002	July 17, 2002–November 4, 2002
Asthma prevalence.	All household members screened	All household members screened	All household members screened	Approach A: One adult and one child screened Approach B: Household is immediately screened (any household member)
Number of household members sampled for detailed interview	Randomly select up to two with asthma: one adult and one child	Randomly select up to two with asthma: one adult and one child	Randomly select up to two with asthma: one adult and one child	Approach A: Randomly select one adult and one child; asthma status unknown Approach B: Randomly select up to two with asthma: one adult and one child
Respondent to provide household screening information necessary for sampling	Most knowledgeable person	Any household member over age 17	Any household member over age 17	Any household member over age 17
Advance letter.	NIS advance letter; no mention of asthma	NIS advance letter that mentions asthma	Separate NAS advance letter mailed approximately 3 weeks after NIS is complete. Two experimental groups: asthma and air quality	NIS advance letter; no mention of asthma
Informed consent script for screening.	Standard script with most knowledgeable person providing informed consent before screening questions	Shortened and moved to follow initial "breathing" questions	Shortened and moved to follow initial "breathing" questions	Approach A: Standard script with most knowledgeable person providing informed consent before screening questions Approach B: After-asthma screening, rostering, and sampling of respondents
Total number of persons in household	Separate question asking total persons in household	Question removed; information derived from household roster	Question removed; information derived from household roster	Approach A: Derived from household roster Approach B: Not determined
Hispanic ethnicity question	Detailed Hispanic categories	General yes or no question	General yes or no question	General yes or no question
Breathing and air quality questions.	None	Addition of general "breathing" questions	Addition of general "breathing" questions plus general "air quality" questions in one-half of the sample	None
Placement of demographic measures.	Household with asthma: telephone information and income at end of survey; all others after initial informed consent script Household without asthma: All demographics asked after informed consent	Household with asthma: telephone information and income at end of survey; all others after initial informed consent script Household without asthma: All demographics asked after informed consent	Household with asthma: age and sex of household members after initial informed consent script; all others asked at the end of detailed asthma interview Household without asthma: All demographics asked after informed consent	Approach A: Household with asthma: asked at the end of the detailed asthma interview Household without asthma: Asked after informed consent Approach B: All demographics asked at the end of the detailed asthma interview

Table VI. SLAITS 2003 National Asthma Survey: Summary of pretests—Con.

Data collection period	Pretest I September 17, 2001– November 15, 2001	Pretest II November 13, 2001– January 7, 2002	Pretest III March 6, 2002– July 10, 2002	Pretest IV July 17, 2002– November 4, 2002
Location	Jefferson County, Alabama; Chicago, Illinois; Dallas, El Paso, and Bexar Counties and Houston, Texas; Santa Clara and San Diego Counties, California	Jefferson County, Alabama; Chicago, Illinois; Houston, Texas	California, Illinois, Alabama, and Texas state samples	California, Illinois, Alabama, and Texas state samples
Connection to NIS	Occurs immediately after NIS screener or interview	Occurs immediately after NIS screener or interview	Minimum of 3-week delay after NIS screener or interview	Occurs immediately after NIS screener or interview
NIS unresolved cases	Finalized with NIS-level disposition	Finalized with NIS-level disposition	Dialed for NAS after the close of the NIS quarter	Finalized with NIS-level disposition

NOTES: SLAITS is State and Local Area Integrated Telephone Survey. NIS is National Immunization Survey. NAS is National Asthma Survey.

Advance letter for Pretest I

FROM THE DIRECTOR
NATIONAL CENTER FOR HEALTH STATISTICS

Within the next few weeks, your household may be called to take part in an important national study about the health of children and teenagers. The survey is being conducted by the U.S. Department of Health and Human Services.

We are relying on your help to make this study a success. Local, State, and federal health authorities depend on the results of this study to measure the progress of health care for the country. Although participation is completely voluntary and there is no penalty for not answering any question, we hope you will agree to participate. The information we are gathering will help shape health care policy in the years ahead.

Your telephone number was selected at random using scientific methods, and your address was obtained through commercial listings. This study is authorized by the Public Health Service Act [Secs. 306 & 2102 (a)(7)], and by law, information you provide during the interview will be kept strictly confidential. The information reported in this survey will be summarized for research purposes only.

You may call our toll-free telephone number (1–800–290–1296) to participate immediately or visit the study's web site at http://www.cdc.gov/nis to learn more about the study. This study has been approved by the NCHS Institutional Review Board. If you have questions about your rights as a study participant, you may call Margot Palmer, Institutional Review Board chairman, toll-free at 1–800–223–8118.

We appreciate your taking the time to talk to us. Thank you for your assistance.

Sincerely,

Edward J. Sondik, Ph.D.
Director, National Center for Health Statistics
Centers for Disease Control and Prevention

If you prefer to contact us using a TTY, please call the AT&T Relay Service at 1–800–682–8786 and request that 1–800–290–1296 be called.

Advance letter for Pretest II

FROM THE DIRECTOR
NATIONAL CENTER FOR HEALTH STATISTICS

Within the next few weeks, your household will be called to take part in an important national study being conducted by the **U.S. Department of Health and Human Services**. This study, designed to help local, State, and federal health authorities understand how to improve health care services, is about health-related topics including asthma in adults and children and vaccinations for young children.

Childhood immunization rates are at an all-time high of 78%, but many children have not received all of their immunizations. **Asthma** is one of the nation's most common and costly chronic conditions, affecting more than 14.5 million Americans, including about 4.5 million children. The Department of Health and Human Services is committed to improving immunization and other health care services.

You may call the study's toll-free telephone number (1–866–775–6858) to participate immediately or to obtain more information about the study's background and content. You may also visit the study's web site at http://www.cdc.gov/nis for more information. If you have a child between 18 and 35 months of age, please take a moment to locate the child's immunization records. They will help you during the interview.

We are relying on your help to make this study a success. Although participation is completely voluntary and there is no penalty for not answering any question, we hope you will agree to participate. The information we are gathering will help shape health care policy in the years ahead. If you would like to learn more about your rights as a respondent, please contact the Chair of the Institutional Review Board at 1–800–223–8118.

Your telephone number was selected at random using scientific methods, and your address was obtained through commercial listings. When the interviewer calls, you will be asked a few questions to determine whether or not your household is eligible for participation in this study.

We appreciate your taking the time to talk to us. Thank you for your assistance.

Sincerely,

Edward J. Sondik, Ph.D.
Director, National Center for Health Statistics
Centers for Disease Control and Prevention

If you prefer to contact us using a TTY, please call the AT&T Relay Service at 1–800–682–8786 and request that 1–866–775–6858 be called.

Advance letters and introductory scripts for Pretest III

NIS advance letter

FROM THE DIRECTOR
NATIONAL CENTER FOR HEALTH STATISTICS

Within the next few weeks, your household will be called to take part in an important national study being conducted by the **U.S. Department of Health and Human Services**. This study provides important information for measuring the progress of vaccination for young children for the country.

Childhood immunization rates are at an all-time high of 78%, but many children have not received all of their immunizations. The Department of Health and Human Services is committed to improving immunization services and reducing the costs of vaccines. Local, State, and federal health authorities depend on the results of this study to measure the progress of immunization for the country.

The results of this study also help local, State, and federal health authorities understand how to improve health care services for all children. Therefore, some households may be asked questions about the types of health and related services their children need or use.

You may call Jim Murphy at the study's toll-free telephone number (1–866–775–6858) to participate immediately or to obtain more information about the study's background and content. You may also visit the study's web site at http://www.cdc.gov/nis for more information. If you have a child between 18 and 35 months of age, please take a moment to locate the child's immunization records. They will help you during the interview.

We are relying on your help to make this study a success. Although participation is completely voluntary and there is no penalty for not answering any question, we hope you will agree to participate. The information we are gathering will help shape health care policy in the years ahead. If you would like to learn more about your rights as a respondent, please contact the Chair of the Institutional Review Board at 1–800–223–8118.

Your telephone number was selected at random using scientific methods, and your address was obtained through commercial listings. When the interviewer calls, you will be asked a few questions to determine whether or not your household is eligible for participation in this study.

We appreciate your taking the time to talk to us. Thank you for your assistance.

Sincerely,

Edward J. Sondik, Ph.D.
Director, National Center for Health Statistics
Centers for Disease Control and Prevention

If you prefer to contact us using a TTY, please call the AT&T Relay Service at 1–800–682–8786 and request that 1–866–775–6858 be called.

Asthma-focused NAS advanced letter

Dear Resident,

The National Center for Environmental Health and the National Center for Health Statistics, Centers for Disease Control and Prevention, are requesting your help for an important study about asthma comparing characteristics of people who do and do not have asthma. A professional interviewer will be contacting you soon to conduct an interview at your convenience.

Asthma is one of the nation's most common and costly chronic conditions, affecting more than 14.5 million Americans. Untreated or improperly treated asthma results in higher health care costs for everyone. This study will provide important information to help the National Center for Environmental Health improve health care for people with asthma and reduce health care costs overall.

Your help in this study is voluntary, but we urge you to participate. Because we are talking to only a sample of households in your area, everyone's participation is extremely important to the completeness and accuracy of the study's results. The information you provide will be kept completely confidential, as required by law. No individual person or household will be identified in reports resulting from the study.

We hope that you will take a few minutes to help with this important research, and thank you in advance for your time. You may call our toll-free telephone number (1–866–775–6858) to participate immediately.

If you have any questions about the study, please call our toll-free number, 1–866–775–6858. This study has been approved by the National Center for Health Statistics Institutional Review Board. If you have questions about your rights as a study participant, you may call the Institutional Review Board chairman, toll-free at 1–800–223–8118.

Sincerely,

Richard Joseph Jackson, MD, MPH
Director
National Center for Environmental Health

If you prefer to contact us using a TTY, please call the AT&T Relay Service at 1–800–682–8786 and request that 1–866–775–6858 be called.

Air quality-focused NAS advance letter

Dear Resident,

The National Center for Environmental Health and the National Center for Health Statistics, Centers for Disease Control and Prevention, are requesting your help for an important study about air quality and health. A professional interviewer will be contacting you soon to conduct an interview at your convenience.

Your help in this study is voluntary, but we urge you to participate. Because we are talking to only a sample of households in your area, everyone's participation is extremely important to the completeness and accuracy of the study's results. The information you provide will be kept completely confidential, as required by law. No individual person or household will be identified in reports resulting from the study.

Your telephone number was randomly selected from all possible telephone numbers in your area. We obtained your address from commercial listings in order to mail you this letter.

We hope that you will take a few minutes to help with this important research, and thank you in advance for your time. You may call our toll-free telephone number (1–866–775–6858) to participate immediately.

If you have any questions about the study, please call our toll-free number, 1–866–775–6858. This study has been approved by the National Center for Health Statistics Institutional Review Board. If you have questions about your rights as a study participant, you may call the Institutional Review Board chairman, toll-free at 1–800–223–8118.

Sincerely,

Richard Joseph Jackson, MD, MPH
Director
National Center for Environmental Health

If you prefer to contact us using a TTY, please call the AT&T Relay Service at 1–800–682–8786 and request that 1–866–775–6858 be called.

Asthma-focused introductory script

Hello, my name is [INTERVIEWER NAME]. I'm calling on behalf of the Centers for Disease Control and Prevention. We're conducting a study regarding asthma, comparing characteristics of people who do and do not have asthma. Your telephone number has been selected at random. Your participation is voluntary and your answers will be kept private.

Air quality-focused introductory script

Hello, my name is [INTERVIEWER NAME]. I'm calling on behalf of the Centers for Disease Control and Prevention. We're conducting a study regarding air quality and health. Your telephone number has been selected at random. Your participation is voluntary and your answers will be kept private.

Advance letter for Pretest IV

FROM THE DIRECTOR
NATIONAL CENTER FOR HEALTH STATISTICS

Within the next few weeks, your household will be called to take part in an important national study being conducted by the **U.S. Department of Health and Human Services**. This study provides important information for measuring the progress of vaccination for young children for the country.

Childhood immunization rates are at an all-time high of 78%, but many children have not received all of their immunizations. The Department of Health and Human Services is committed to improving immunization services and reducing the costs of vaccines. Local, State, and federal health authorities depend on the results of this study to measure the progress of immunization for the country.

The results of this study also help local, State, and federal health authorities understand how to improve health care services for all children. Therefore, some households may be asked questions about the types of health and related services their children need or use.

You may call Jim Murphy at the study's toll-free telephone number (1–866–775–6858) to participate immediately or to obtain more information about the study's background and content. You may also visit the study's web site at http://www.cdc.gov/nis for more information. If you have a child between 18 and 35 months of age, please take a moment to locate the child's immunization records. They will help you during the interview.

We are relying on your help to make this study a success. Although participation is completely voluntary and there is no penalty for not answering any question, we hope you will agree to participate. The information we are gathering will help shape health care policy in the years ahead. If you would like to learn more about your rights as a respondent, please contact the Chair of the Institutional Review Board at 1–800–223–8118.

Your telephone number was selected at random using scientific methods, and your address was obtained through commercial listings. When the interviewer calls, you will be asked a few questions to determine whether or not your household is eligible for participation in this study.

We appreciate your taking the time to talk to us. Thank you for your assistance.

Sincerely,

Edward J. Sondik, Ph.D.
Director, National Center for Health Statistics
Centers for Disease Control and Prevention

If you prefer to contact us using a TTY, please call the AT&T Relay Service at 1–800–682–8786 and request that 1–866–775–6858 be called.

Appendix VI

Advance Letters

Advance letter for cases in the NIS and NAS sample

FROM THE DIRECTOR
NATIONAL CENTER FOR HEALTH STATISTICS

Within the next few weeks, your household will be called to take part in an important national study being conducted by the **U.S. Department of Health and Human Services**. This study provides important information for measuring the progress of vaccination for young children for the country.

Childhood immunization rates are at an all-time high of 78%, but many children have not received all of their immunizations. The Department of Health and Human Services is committed to improving immunization services and reducing the costs of vaccines. Local, State, and federal health authorities depend on the results of this study to measure the progress of immunization for the country.

The results of this study also help local, State, and federal health authorities understand how to improve health care services. Therefore, some households may be asked questions about asthma and other health-related topics or services.

You may call Jim Murphy at the study's toll-free telephone number (1–866–775–6858) to participate immediately or to obtain more information about the study's background and content. You may also visit the study's web site at http://www.cdc.gov/nis for more information. If you have a child between 18 and 35 months of age, please take a moment to locate the child's immunization records. They will help you during the interview.

We are relying on your help to make this study a success. Although participation is completely voluntary and there is no penalty for not answering any question, we hope you will agree to participate. The information we are gathering will help shape health care policy in the years ahead.

Your telephone number was selected at random using scientific methods, and your address was obtained through commercial listings. When the interviewer calls, you will be asked a few questions to determine whether or not your household is eligible for participation in this study.

This study is authorized by the Public Health Service Act, and by law, information you provide during the interview will be kept strictly confidential. The information reported in this survey will be summarized for research purposes only.

We appreciate your taking the time to talk to us. Thank you for your assistance.

Sincerely,

Edward J. Sondik, Ph.D.
Director, National Center for Health Statistics
Centers for Disease Control and Prevention

If you prefer to contact us using a TTY, please call the AT&T Relay Service at 1–800–682–8786 and request that 1–866–775–6858 be called.

Advance letter for cases in the NAS-only (augmentation) sample

FROM THE DIRECTOR
NATIONAL CENTER FOR ENVIRONMENTAL HEALTH

Dear Resident,

The National Center for Environmental Health and the National Center for Health Statistics, Centers for Disease Control and Prevention, are requesting your help in an important health study about asthma. A professional interviewer will be contacting you soon to conduct a telephone interview at your convenience. *If no one in your household has asthma, we have only a few questions about your household so that people with and without asthma can be compared. For most households, this interview will be very brief.*

Asthma is one of the nation's most common and costly chronic conditions, affecting more than 14.5 million Americans. Untreated or improperly treated asthma results in higher health care costs for everyone. Your participation in this study will provide important information to assist the National Center for Environmental Health in improving the health of people with asthma and in reducing the cost of health care.

Your telephone number was selected at random using scientific methods, and your address was obtained through commercial listings. Your participation in this study is completely voluntary and there is no penalty for not answering any question. All information you provide will be kept confidential as required by law. No individual person or household will be identified in any reports resulting from the study.

We hope that you will take a few minutes to help with this important research, and thank you in advance for your time. You may call our toll-free telephone number (1–866–775–6858) to participate immediately if you want.

We appreciate your taking the time to talk to us. Thank you for your assistance.

Sincerely,

Henry Falk, M.D., M.P.H., Director
National Center for Environmental Health

You may have questions about your rights as a participant in this research study. If so, please call the office of the Institutional Review Board at the National Center for Health Statistics, toll-free, at 1–800–223–8118. Please leave a brief message with your name and phone number. Say that you are calling about Protocol #2001–06. Your call will be returned as soon as possible.

If you prefer to contact us using a TTY, please call the AT&T Relay Service at 1–800–682–8786 and request that 1–866–775–6858 be called.

Appendix VII

Disposition Code Frequencies and Unweighted Response Rate Calculations

Table VII. SLAITS 2003 National Asthma Survey: National study case disposition frequencies

Disposition	Sample category code	Number	Percent of total sample
Total number of phone lines in the sample	. . .	55,204	100.00
No contact	UH	4,692	8.50
3 + fax or modem prior to any contact	Z	913	1.65
2 + temporarily not in service	Z	799	1.45
Nonworking number	Z	3,227	5.85
Number changed	Z	288	0.52
Answering machine—known household	UO	91	0.16
Answering machine—nonresidential	Z	262	0.47
Answering machine—residential status unknown	UH	1,705	3.09
Answering service—nonresidential	Z	5	0.01
Spanish case—residential status unknown	UH	2	0.00
Other language case—residential status unknown	UH	4	0.01
Physical or mental impairment case—residential status unknown	UH	6	0.01
Appointment at introduction—residential status unknown	UH	502	0.91
Callback at introduction—residential status unknown	UH	88	0.16
Hangup during introduction	UH	1,337	2.42
Refusal at introduction	UH	3,290	5.96
Callback—known household	UO	222	0.40
Appointment—known household	UO	73	0.13
Refusal—known household	UO	295	0.53
NIS-level callback	UO	3	0.01
NIS-level appointment	UO	2	0.00
NIS-level refusal	UO	22	0.04
Not residential	Z	1,967	3.56
Refusal prior to NAS screening	UO	2,469	4.47
Callback prior to NAS screening	UO	370	0.67
Appointment prior to NAS screening	UO	154	0.28
Refusal at or prior to NAS item BATH_FAN (S7Q16)[1]	R	10	0.02
Callback at or prior to NAS item BATH_FAN (S7Q16)[1]	R	218	0.39
Refusal—partial interview	P	11	0.02
Callback—partial interivew	P	23	0.04
Emancipated minor household—known household, unknown eligibility; interviews were not conducted in households in which no one over the age of 17 years resided..	UO	24	0.04
Other language case—known household, unknown eligibility	UO	430	0.78
Other language case—known eligible household	Y	19	0.03
Screened—asthma-negative household	X	8,852	16.04
Completed household interview	I	870	1.58
Converted household interview	I	51	0.09
GENESYS ID*plus*—resolved numbers (nonworking, business, and modem numbers)	Z	21,908	39.69

. . . Category not applicable.

[1]The variable BATH_FAN (S7Q16) denotes the point at which a sampled respondent interview is considered a "partially complete" interview (also known as "partial complete"). That is, sampled-respondent cases need to complete at least through the variable BATH_FAN (S7Q16) and proxy-respondent cases need to complete at least through the variable S_INSIDEP (S7Q10P) for these cases to be considered partially completed interviews (in contrast to full interviews, where all questions are asked).

NOTES: SLAITS is State and Local Area Integrated Telephone Survey. NIS is National Immunization Survey. NAS is National Asthma Survey.

Table VIII. Unweighted response rate calculations for the National Asthma Survey, national sample: 2003

Calculation of response rates	Calculated rate (percent)	Formula
Interview completion rate	79.50	$(I+P)/(I+P+R+Y)$
Screener completion rate	70.80	$(I+P+R+X+Y)/(I+P+R+X+Y+UO)$
Resolution rate	78.90	$(I+P+R+X+Y+UO+Z)/(I+P+R+X+Y+UO+Z+UH)$
CASRO response rate	44.40	. . .

. . . Category not applicable.

NOTES: Formulas based on letter codes identified in Table VII, "Design and Operation of the National Asthma Survey," *Vital and Health Statistics* series report, vol 1, no 46. CASRO is the Council of American Survey Research Organizations.

Table IX. SLAITS 2003 National Asthma Survey: Four-state study case disposition frequencies

Disposition	Sample category code	Number	Percent of total sample
Total	. . .	210,109	100.00
No contact	UH	18,962	9.02
3 + fax or modem prior to any contact	Z	3,063	1.46
2 + temporarily not in service	Z	3,131	1.49
Nonworking number	Z	14,768	7.03
Number changed	Z	1,359	0.65
Answering machine—known household	UO	379	0.18
Answering machine—nonresidential.	Z	1,020	0.49
Answering machine—residential status unknown	UH	6,514	3.10
Answering service—nonresidential	Z	28	0.01
Answering service—residential status unknown	UH	4	0.00
Spanish case—residential status unknown	UH	33	0.02
Other language case—residential status unknown	UH	58	0.03
Physical or mental impairment case—residential status unknown	UH	28	0.01
Appointment at introduction—residential status unknown	UH	1,961	0.93
Callback at introduction—residential status unknown	UH	281	0.13
Hangup during introduction	UH	5,140	2.45
Refusal at introduction	UH	7,843	3.73
Callback—known household	UO	1,323	0.63
Appointment—known household.	UO	334	0.16
Refusal—known household.	UO	1,199	0.57
NIS-level callback	UO	37	0.02
NIS-level appointment	UO	7	0.00
NIS-level refusal.	UO	216	0.10
Not residential	Z	6,302	3.00
Refusal prior to NAS screening	UO	4,572	2.18
Callback prior to NAS screening	UO	645	0.31
Appointment prior to NAS screening . . . . .¹.	UO	84	0.04
Refusal at or prior to NAS item BATH_FAN (S7Q16)¹	R	1,673	0.80
Callback at or prior to NAS item BATH_FAN (S7Q16)¹	R	334	0.16
Appointment at or prior to NAS item BATH_FAN (S7Q16)¹	R	183	0.09
Refusal—partial interview	P	84	0.04
Callback—partial interiew	P	20	0.01
Appointment—partial interview	P	9	0.00
Emancipated minor household—known household, unknown eligibility; interviews were not conducted in households in which no one over the age of 17 years resided.	UO	88	0.04
Other language case—known household, unknown eligibility	UO	1,260	0.60
Other language case—known eligible household.	Y	10	0.00
Physical or mental impairment case—known eligible household	R	8	0.00
Screened—asthma-negative household	X	40,852	19.44
Completed household interview	I	4,664	2.22
Converted household interview	I	348	0.17
GENESYS ID*plus*—resolved numbers (nonworking, business, and modem numbers)	Z	81,285	38.69

. . . Category not applicable.

¹The variable BATH_FAN (S7Q16) denotes the point at which a sampled respondent interview is considered a "partially complete" interview (also known as "partial complete"). That is, sampled-respondent cases need to complete at least through the variable BATH_FAN (S7Q16) and proxy-respondent cases need to complete at least through the variable S_INSIDEP (S7Q10P) for these cases to be considered partially completed interviews (in contrast to full interviews, where all questions are asked).

NOTES: SLAITS is State and Local Area Integrated Telephone Survey. NIS is National Immunization Survey. NAS is National Asthma Survey.

Table X. Unweighted response rate calculations for the National Asthma Survey, four-state sample: 2003

Calculation of response rates	Calculated rate (percent)	Formula
Interview completion rate	69.90	$(I+P)/(I+P+R+Y)$
Screener completion rate	82.60	$(I+P+R+X+Y)/(I+P+R+X+Y+UO)$
Resolution rate	80.60	$(I+P+R+X+Y+UO+Z)/(I+P+R+X+Y+UO+Z+UH)$
CASRO response rate.	46.50	. . .

. . . Category not applicable.

NOTES: Formulas based on letter codes identified in Table IX, ''Design and Operation of the National Asthma Survey,'' *Vital and Health Statistics* series report, vol 1, no 46. CASRO is the Council of American Survey Research Organizations.

Appendix VIII

Weighted Frequencies and Percentages for Selected Variables

Table XI. Unweighted and weighted estimates of the frequency and percentage of persons diagnosed with asthma during their lifetime (ASTHSTAT), national sample, all ages: NAS, 2003

Reporting status of adult data	Unweighted number of persons of all ages with asthma	Weighted estimate of number of persons of all ages with asthma	Standard error of weighted estimate of number of persons of all ages with asthma	Percent of persons with asthma	Standard error of percent of persons with asthma
Self-reported responses only; excludes proxy responses	919	30,877,453	1,143,131.27	11.08	0.40
Self-reported and proxy-reported responses .	976	30,877,453	1,099,091.58	11.08	0.39

NOTE: NAS is National Asthma Survey.

Table XII. Unweighted and weighted estimates of the frequency and percentage of persons of all ages who had an asthma episode or attack in the 12 months prior to the date of interview (S4Q5), four-state sample (weight_int): NAS, 2003

Four-state sample	Unweighted number of asthmatic persons who had an asthma attack in the past 12 months	Weighted estimate of number of asthmatic persons who had an asthma attack in the past 12 months	Standard error of weighted estimate of asthmatic persons who had an asthma attack in the past 12 months	Percent of asthmatic persons who had an asthma attack in the past 12 months	Standard error of percent of asthmatic persons who had an asthma attack in the past 12 months
Total	2,896	4,418,991.02	97,708.02	64.33	1.05
Alabama	790	270,955.64	9,291.01	66.36	1.71
California	676	2,155,905.86	81,894.68	62.68	1.79
Illinois	641	671,753.18	27,828.96	63.34	1.82
Texas	789	1,320,376.34	44,489.82	67.35	1.64

NOTE: NAS is National Asthma Survey.

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