

# The National Survey of Early Childhood Health

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**ABSTRACT.** *Objectives.* The National Survey of Early Childhood Health (NSECH) is a new survey that was designed to provide nationally representative data on the health and development of children and to fill an information gap in the pediatric literature on parents' views of the delivery of health care to their young children.

*Design.* The selection of topics was guided by previous studies conducted to examine parents' expectations and needs in child health supervision visits. The NSECH is a random-digit-dial telephone survey of a nationally representative sample of 2068 children aged 4 to 35 months. This sample includes an oversample of black and/or Hispanic children so that results for these minority groups could be estimated with greater precision. The sampling frame for NSECH is from the State and Local Area Integrated Telephone Survey (SLAITS), which is a program of surveys conducted by the National Center for Health Statistics that makes economical use of the large sampling frame of the National Immunization Survey (NIS). SLAITS takes advantage of the NIS screening effort by fielding interviews on other health topics with households screened for the NIS. The respondent was the parent or guardian identified as the person most responsible for the sampled child's medical care. Spanish-language interviews composed 19% of all completed interviews. The Council of American Survey Research Organizations response rate was 65.6%.

*Conclusion.* The NSECH provides a unique data set that allows a well-rounded picture of the health, health care utilization, health care content, and interpersonal quality of health services received by young children in the United States. It also contains important information about family characteristics, patterns of health-promoting behaviors, and family routines that are associated with promoting the developmental health of young children. NSECH results can also help national policy makers understand the health needs of families with young children and how well the health system is meeting those needs. *Pediatrics* 2004;113:1899–1906; *health surveys, child health, health indicators, health services.*

**ABBREVIATIONS.** AAP, American Academy of Pediatrics; NSECH, National Survey of Early Childhood Health; NCHS, National Center for Health Statistics; CDC, Centers for Disease Control and Prevention; SLAITS, State and Local Area Integrated Telephone Survey; PHDS, Promoting Healthy Development Sur-

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Received for publication Oct 20, 2003; accepted Jan 13, 2004.

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vey; NIS, National Immunization Survey; CATI, computer-assisted telephone interviewing.

With primary support from The Gerber Foundation, the American Academy of Pediatrics (AAP) and the UCLA Center for Healthier Children, Families, and Communities launched a unique national survey to address infants' and toddlers' health-related needs, pediatric health care experiences, and child-rearing practices. This article focuses on the plan and design of this nationally representative telephone survey, known as the National Survey of Early Childhood Health (NSECH). The NSECH was conducted in 2000 by the National Center for Health Statistics (NCHS) of the Centers for Disease Control and Prevention (CDC) using the State and Local Area Integrated Telephone Survey (SLAITS) mechanism.

The first 3 years of life are critical for a child's development, and the long reach of this important time of intense developmental change is increasingly well recognized.<sup>1</sup> The child's early development is characterized by a heightened sensitivity to physical or environmental insults that can cause long-term consequences.<sup>2</sup> Early exposures to malnutrition, viral infections, drugs, environmental toxins, and other harmful substances can affect the development of the nervous system and can result in a range of different consequences on cognitive and emotional development. Although these early experiences can have immediate impacts on development, the impacts are often not recognized for many years. For example, life-course epidemiologic studies have demonstrated the impact of weight gain in the first years of life on cardiovascular functioning or onset of diabetes as an adult.<sup>3,4</sup> In addition to adverse health conditions and toxic exposures, the young child's future health status can be affected by repeated exposure to adverse social conditions (eg, severe poverty, an unstable family). The quality of early parent-child relationships can create physical changes in the developing brain that mediate the development of adaptive/maladaptive behaviors in children.<sup>5–7</sup> Studies have shown, for instance, that secure attachments with a caregiver help to organize the regulatory capacity of cortical structures.<sup>8–12</sup> The prenatal and postnatal environments also influence the development of temperament and emotional traits.<sup>13–15</sup>

A broad literature suggests that a positive developmental environment includes close and ongoing caring relationships with parents and other caregivers who provide learning opportunities and support to develop the skills and capabilities that are within

the child's reach. Ideally, these adults should recognize and appropriately respond to the particular child's unique needs, and they should provide protection from threats, fears, and harms that can unduly challenge the child's capacity to respond.<sup>2</sup> One practical application of these lessons about positive child development occurs when parents and caregivers provide a young child with a rich language environment through reading, storytelling, talking, and singing. Positive developmental environments are also encouraged through programs such as Reach Out and Read, whereby parents are provided with additional knowledge, tools, and resources to create language-rich and supportive early literacy environments for their children.

Still, many parents face enormous hurdles in creating the safe, healthy, nurturing, and supportive environments that young children need. The increase in single-parent households,<sup>16–18</sup> the growing income disparity,<sup>19</sup> and other changing demographic and socioeconomic patterns increase the vulnerability of families.<sup>20,21</sup> Such pressures make it more difficult for parents to create environments that foster optimal development and can greatly increase the stress associated with parenting. It is perhaps not surprising, then, that the children of mothers who lack social support are more likely to have poor health outcomes.<sup>22</sup> Young parents with low educational levels have been shown to be in particular need of additional parenting skills and resources.<sup>23,24</sup>

Recent surveys of parents show that they want information and guidance to optimize their child's development. Although parents recognize the importance of their role in the process of their child's development, the Zero to Three Survey of Parents (sponsored by the nonprofit National Center for Infants, Toddlers, and Families) showed that parents were generally unsure about how best to act in that role.<sup>25</sup> Indeed, in the Survey of Parents of Young Children (sponsored by the Commonwealth Fund), parents reported that they received little guidance on such topics as how to discipline their child, how to encourage their child to learn, and how to deal with their child's sleeping patterns.<sup>26</sup> There is a demand for information, guidance, and interventions to help ensure the optimal development of children.

This need is reflected in the content of the pediatric office visit. Concerns about psychosocial and developmental issues now dominate the "list" of questions that mothers bring to pediatricians.<sup>27,28</sup> With the reduction in the incidence of traditional childhood diseases (as a result of interventions such as immunizations and antibiotics), these psychosocial and developmental issues have even been termed the "new morbidities." In recognition of this shift in concerns, the AAP's *Guidelines for Health Supervision III* and the Maternal and Child Health Bureau's *Bright Futures* guidelines suggest that pediatricians increase their focus on such issues as the relationship between children and their parents and the environment that parents are providing to their children.<sup>29–31</sup>

These expert panels recognize that pediatricians and other pediatric health care providers are in a

critical position to identify developmental issues and disseminate information on parenting. That is, most children in the United States visit a doctor ~12 times before the children reach their third birthday,<sup>32</sup> and doctors' offices may be the only places that essentially all US infants have contact with professionals who are trained in child health and development. Despite the interests of parents on the expert recommendations, the reality of pediatric practice is that the time available may not be sufficient, especially given the greater number of issues that child health providers should address and continuing changes in the financing of health care.

#### PURPOSE OF THE SURVEY

With the notable exception of the surveys mentioned previously, there has been a significant lack of information in the pediatric literature on parents' views of the delivery of health care to their young children. The primary purpose of the NSECH is to provide nationally representative data to address several critical questions surrounding the health and development of children:

- What are the primary health care issues facing today's parents?
- What concerns do parents have as they raise their children?
- About which developmental and parenting issues do parents want to know more?
- Which issues do pediatric health care providers already address?

Answers to these questions were sought from the parents and guardians of a randomly selected sample of children aged 4 to 35 months. In addition, the survey was constructed so that analyses could provide a framework for understanding crucial factors that have an impact on families across socioeconomic and racial/ethnic groups.

The primary funding for this survey was provided by The Gerber Foundation to the AAP. Supplemental support was provided by Maternal and Child Health Bureau of the Health Resources and Services Administration, the AAP Friends of Children Fund, and the Commonwealth Fund. Development of the NSECH content areas and survey questions was a joint effort between the AAP and the Center for Healthier Children, Families, and Communities at UCLA.

#### DEVELOPMENT OF THE QUESTIONNAIRE

The heart of the survey is the assessment of parents' concerns and the determination of whether these concerns are being addressed during pediatric care visits. The selection of topics was guided by previous studies conducted to examine parents' expectations and goals in child health supervision visits.<sup>33</sup> In one study conducted at a health maintenance organization in Massachusetts, 7 areas of health supervision were identified: biomedical, development, behavior, family functioning, safety education, interpersonal interactions, and system interaction. From these areas, Cheng et al<sup>33</sup> suggested categories of health supervision that included growth and nutri-

tion, sleep patterns, language development, discipline, injury prevention, physical development, family stress, and family substance abuse. Similar categories of health supervision and anticipatory guidance are suggested by the *Bright Futures* and AAP guidelines.<sup>29–31</sup>

When selecting representative health supervision topics within these different categories, the NSECH survey development team was concerned initially with what parents might desire from well-child care, as distinguished from what experts believed parents needed from well-child care. These topics were then evaluated on the basis of the following review criteria:

- Is the topic important enough for pediatricians to address?
- Is this topic included in either the AAP or *Bright Futures* guidelines for health supervision?
- Could a discussion of this topic be central to the health supervision visit?
- Is there evidence-based research to suggest that pediatricians could effect change in parents' behaviors or attitudes?
- Given limitations of parents' memories and medical knowledge, can parents provide useful responses?

These criteria were assessed on the basis of a literature review of each potential topic and were reviewed by an advisory board that was constituted for the project.

At the same time that the AAP and UCLA were developing the NSECH questionnaire, the Foundation for Accountability was in the process of piloting the Promoting Healthy Development Survey (PHDS) and beginning work on the development of the PHDS-PLUS.<sup>34</sup> The development of the NSECH and subsequent versions of the PHDS-PLUS were informed by each other in an iterative way. Several of the topics that were included in the PHDS were modified for inclusion in the NSECH, and a set of additional topics that were selected for inclusion in the NSECH were subsequently included in the PHDS-PLUS. In the end, the health supervision topics selected for the NSECH paralleled the topics selected for the PHDS and the PHDS-PLUS (Table 1). However, the question formats and answer categories in the NSECH were adapted from the self-administered PHDS to be more amenable for an interviewer-administered instrument.

Parents were asked whether the child's doctors or health providers discussed a topic with them in the past 12 months (or for children <12 months of age, since the child's birth). Because some topics were not appropriate for children of certain ages, all parents were not asked about all topics. Parents who reported that they had not discussed a topic were then asked whether a discussion of the topic would have been helpful. Because of the sensitivity of certain topics and ethical concerns about asking survey questions that could reveal illegal behaviors, parents were not asked whether issues concerning psychosocial topics and substance use would have been helpful to discuss. Rather, regardless of whether

**TABLE 1.** Health Supervision Topics Included in the NSECH

| Topic  | Inclusive Age Range |
|--|---------------------|
| Growth and nutrition                             |                     |
| Breastfeeding                                    | 4–9 mo              |
| Introduction of solid foods                      | 4–9 mo              |
| Weaning from a bottle                            | 10–18 mo            |
| Food or feeding-related issues                   | 10–35 mo            |
| Sleep patterns                                   |                     |
| Sleeping positions                               | 4–9 mo              |
| Night waking and fussing                         | 4–18 mo             |
| Sleeping with a bottle                           | 10–18 mo            |
| Bedtime routines                                 | 19–35 mo            |
| Language development                             |                     |
| Reading to child                                 | 4–35 mo             |
| How child communicates needs                     | 4–9 mo              |
| Child's use and understanding of words/phrases   | 10–35 mo            |
| Discipline                                       |                     |
| Guidance and discipline techniques               | 10–35 mo            |
| Injury prevention                                |                     |
| Car seat use                                     | 4–35 mo             |
| Burn prevention                                  | 4–9 mo              |
| Syrup of ipecac                                  | 10–18 mo            |
| Teaching about dangerous situations/places/items | 19–35 mo            |
| Other developmental issues                       |                     |
| Toilet training                                  | 10–35 mo            |
| Things child can start to do for self            | 19–35 mo            |
| Learning to get along with other children        | 19–35 mo            |
| Child care arrangements                          | 4–35 mo             |
| Family substance abuse                           |                     |
| Smoking in household                             | 4–35 mo             |
| Alcohol or drug use in household                 | 4–35 mo             |
| Family stress and other psychosocial issues      |                     |
| Availability of emotional support for parent     | 4–35 mo             |
| Spousal support of parenting efforts             | 4–35 mo             |
| Parent's physical health                         | 4–35 mo             |
| Difficulty paying for basic needs                | 4–35 mo             |
| Violence in community                            | 4–35 mo             |

these topics were discussed, parents were asked the normative question of whether doctors or health providers should, in general, discuss these psychosocial topics with parents of young children.

The remainder of the NSECH was shaped by a consideration of the factors that may be associated with comprehensive care, the potential covariates that may affect the receipt of health supervision, and the parenting behaviors and early childhood home activities that may be associated with health outcomes and health care experiences. Content areas and question wording from existing surveys and measurement scales were given special consideration because their use permitted comparisons with other estimates and minimized the need for extensive pre-testing. The following surveys were reviewed:

- Consumer Assessment of Health Plans, sponsored by the Agency for Health care Research and Quality
- Children With Special Health Care Needs Screener<sup>35</sup>
- Early Childhood Longitudinal Study, conducted by the National Center for Education Statistics
- Medical Expenditure Panel Survey, conducted by Agency for Health care Research and Quality
- Medical Outcomes Study, conducted by RAND
- National Health Interview Survey, conducted by the NCHS

- National Survey of Children With Special Health Care Needs, conducted by the NCHS
- Panel Study of Income Dynamics Child Development Supplement, conducted by the Institute for Social Research, University of Michigan
- Parents' Evaluation of Developmental Status<sup>36</sup>
- Pediatric Developmental Services Survey, sponsored by the Commonwealth Fund
- Promoting Healthy Development Survey, conducted by the Foundation for Accountability
- Survey of Parents With Young Children, sponsored by the Commonwealth Fund<sup>26</sup>

The content of the final questionnaire is described in Table 2 and has been published elsewhere.<sup>37</sup> A pretest of the questionnaire with a convenience sample of 9 volunteers with children 4 to 35 months of age provided an initial test of the length and flow of the instrument. Findings from this pretest were incorporated into the instrument.

### SURVEY DESIGN

The NSECH was a list-assisted random-digit-dial telephone survey of a nationally representative sample of 2068 children aged 4 to 35 months. This sample included an oversample of black and/or Hispanic children so that results for these racial/ethnic groups could be estimated with greater precision. After careful consideration of several survey mechanisms and proposals from survey research organizations, SLAITS was selected as the platform for this survey.

#### The SLAITS Mechanism

SLAITS is a program of surveys conducted by NCHS that makes economical use of the large sampling frame of the National Immunization Survey (NIS). The NIS is a joint effort of the NCHS and the National Immunization Program at the CDC that provides estimates of vaccination coverage levels for children 19 to 35 months of age in 78 geographic areas that encompass the entire US population.<sup>38</sup> To accomplish this goal, nearly 1 million telephone numbers are dialed every year; people who answer the telephone are screened for the presence of children in the NIS age range. The prevalence of these households is small (~4%), so the NIS does not conduct an interview in most households that it contacts. SLAITS takes advantage of this substantial screening effort by fielding interviews on other health topics with households screened for the NIS.

The age eligibility range for the NSECH (4-35 months of age) substantially overlapped with the NIS age eligibility range (19-35 months of age). For children who were eligible for both surveys, the NSECH interview followed the NIS interview. Although this design provided for a lengthy interview for the parents of roughly half of the sample, the overlap offered 2 considerable advantages to the NSECH: 1) the significant costs of screening households for age eligibility were borne by the NIS, and 2) the content of the NIS provided detailed immunization coverage estimates that could be linked with the NSECH data. Use of the SLAITS mechanism for the NSECH also allowed the UCLA/AAP survey devel-

**TABLE 2.** Major Survey Domains and Questionnaire Items Included in the NSECH

|   |
|---|
| Health care utilization   |
| No. of doctor visits  |
| Presence and location of a usual source of care                         |
| Presence and type of usual provider                                     |
| Age, race, and gender of usual provider                                 |
| Reasons for selecting usual provider                                    |
| Parental perception of pediatric care                                   |
| Length of last doctor visit   |
| Whether parent asked all questions he/she wanted to ask                 |
| Rating of quality of last visit   |
| Rating of importance of well-child care                                 |
| Health status of child  |
| Interactions with health care providers                                 |
| Whether health supervision topics were discussed                        |
| Unmet need for discussion of health supervision topics                  |
| Receipt of family-centered care   |
| Receipt of developmental assessments                                    |
| Receipt of referrals to specialists                                     |
| Attendance at birth/parenting classes                                   |
| Receipt of referrals to classes   |
| Whether child was born prematurely                                      |
| Child's birth weight  |
| Duration of breastfeeding   |
| Age of introduction to solid foods                                      |
| Family interactions and home safety                                     |
| Whether bedtime, naptime, and mealtime routines are same every day      |
| Frequency of family interactions, including reading, outings, and meals |
| No. of children's books in house  |
| Hours spent watching television   |
| Frequency of parental aggravation                                       |
| Rating of quantity of time spent with child                             |
| Frequency and type of discipline used                                   |
| Whether selected childproofing measures were used in home               |
| Presence of syrup of ipecac in home                                     |
| Hours spent in childcare  |
| Type of child care used   |
| Parental and child health   |
| Parent's mental health  |
| Rating of parental coping skills  |
| Whether parent can get emotional and child-rearing support              |
| Parent's concerns about child's development and health                  |
| Whether child has selected health conditions                            |
| Whether child needs or uses prescription medicine                       |
| Whether child has elevated need for or use of medical care              |
| Unmet need for medical care   |
| Delayed receipt of medical care   |
| Reasons that care was not received or was delayed                       |
| Frequency of overnight hospital stays                                   |
| Frequency of telephone calls to doctor's office                         |
| Financial welfare and health insurance                                  |
| Extent of difficulties paying for child's expenses                      |
| Presence of coverage at time of interview                               |
| Type of coverage  |
| Gaps in coverage during past year                                       |
| Whether health care is managed  |
| Receipt of Women, Infants, and Children benefits                        |
| Demographic and household information                                   |
| Race/ethnicity of child and mother                                      |
| Mother's educational level  |
| Mother's employment status  |
| Mother's marital status   |
| Household income  |

opment team to tap NCHS's considerable experience with questionnaire design, sampling, weighting, estimation, and analysis procedures for surveys of children's health and health care issues.

#### Survey Procedures

Survey operations for the NSECH have been described in detail elsewhere and are only summarized

here.<sup>37</sup> Sample selection, interviewing, and preparation of sampling weights were conducted by staff of Abt Associates Inc under contract to the CDC. Interviews were performed from telephone centers in Chicago and Las Vegas.

Because the NSECH sample used the larger NIS sample, a random subsample of the telephone lines called for the NIS was selected and designated for either the national sample or the oversample. The national sample of telephone lines was drawn from each geographic area in rough proportion to the number of children who were 4 to 35 months of age in each area, adjusted for the estimated prevalence of households with young children among those telephone lines. Each selected telephone line was then called, screened to identify whether the line belonged to a household, and, if so, screened for the presence of children younger than 3 years. The interviewer asked for the birth dates of all children younger than 3 years. In households with >1 NSECH age-eligible child, 1 was randomly selected for the interview.

The procedure for identifying and interviewing black and/or Hispanic children in the oversample varied slightly from the procedures for the national sample that were just described. Telephone lines for the oversample were drawn from each geographic area in rough proportion to the number of minority (ie, black and/or Hispanic) children aged 4 to 35 months in each area, adjusted for the estimated prevalence of households with young minority children among those telephone lines, and modified slightly to reduce the number of screening interviews required. For the oversample, the interviewers asked for the birth dates, race, and ethnicity of all children younger than 3 years. Only households with age-eligible black and/or Hispanic children were eligible for the NSECH oversample.

Before calling, advance letters were mailed to households that had directory-listed telephone numbers. These letters provided a toll-free telephone number to allow respondents to contact Abt Associates staff, obtain information about the study, or begin the interview immediately. Letters were printed in English on 1 side and Spanish on the other. Spanish-language telephone interviewers were available to conduct interviews using a translated questionnaire.

All interviews, including those conducted in Spanish, were completed by trained interviewers using computer-assisted telephone interviewing (CATI) technology. This data-collection method enhances interviewing accuracy and efficiency. For example, interviewer errors are reduced as the interviewer is automatically guided through the questionnaire on the basis of answers to previous questions. The CATI system also checks selected responses to ensure that they are within the proper range and are consistent with previous responses. By eliminating the interviewers' need to concentrate on the survey flow, the CATI system also helps speed up the interview. The NSECH interviews averaged 35 minutes and 36 seconds in NIS-ineligible households and 32 minutes and 40 seconds in NIS-eligible households. Certain

demographic questions were included during the NIS interview and did not have to be repeated for the NSECH interview.

Before the interview, respondents were informed about the voluntary nature of their participation, the authorizing legislation (section 306 of the US Public Health Service Act), the strict confidentiality of the information collected (as required by section 308d of the US Public Health Service Act), the content of the survey, and the expected duration. The Institutional Review Boards of the CDC, Abt Associates, UCLA, and the AAP approved these procedures.

### Sample Size and Response Rates

From February 16, 2000, to July 31, 2000, interviews were completed for 2068 children aged 4 to 35 months. Of these, 1208 young children were in the national sample and 860 young children were in the oversample. Selected demographic characteristics of the 2068 children and their mothers and their households are presented in Table 3.

The respondent was the parent or guardian identified by the person who answered the telephone as the most responsible for the sampled child's medical care. For most children sampled, the respondent was the mother of the child (87%); a father (11%), grandparent (2%), or other guardian (<1%) responded for the remaining children. Nearly 50% of the sampled children were eligible for the NIS. Spanish-language interviews composed 19% of all completed interviews.

The Council of American Survey Research Organizations response rate<sup>39</sup> was 65.6%. This rate is equivalent to the American Association for Public Opinion Research's response rate 3 using the assumptions detailed by Ezzati-Rice et al.<sup>40,41</sup> The Council of American Survey Research Organizations rate is calculated as the product of the proportion of telephone lines that could be positively identified as residential or nonresidential (87.6%), the proportion of completed age and race/ethnicity screening interviews among known households (94.5%), and the proportion of completed NSECH interviews among known age-eligible households (79.2%).

### Dissemination

The NSECH provides a unique data set that allows a reasonably well-rounded picture of the health, health care utilization, health care content, and interpersonal quality of health services received by young children in the United States. It also contains important information about family characteristics, patterns of health-promoting behaviors, and family routines that are associated with promoting the developmental health of young children. Population-based estimates from the NSECH are expected to be of value to a number of audiences: pediatricians and other health care providers, health plan administrators, public and private purchasers of insurance, researchers, and child advocates. NSECH results can also help national policy makers to understand the health needs of families with young children and how well the health system is meeting those needs.

For allowing use of the data by all interested re-

**TABLE 3.** Percentage of Young Children (4–35 Months of Age) in the NSECH Sample and the US Population, by Selected Demographic Characteristics

| Selected Demographic Characteristic      | No. of Children in Sample | % of Children in US Population (Estimated)* |
|--|---------------------------|---|
| Characteristics of the child             |                           |   |
| Age of child, mo                         |                           |   |
| 4–9                                      | 432                       | 19†   |
| 10–18                                    | 674                       | 28†   |
| 19–35                                    | 962                       | 53†   |
| Gender of child                          |                           |   |
| Male                                     | 1078                      | 52†   |
| Female                                   | 990                       | 48†   |
| Race and ethnicity of child              |                           |   |
| White non-Hispanic                       | 718                       | 61†   |
| Black non-Hispanic                       | 477                       | 15†   |
| Other non-Hispanic                       | 56                        | 4†  |
| Hispanic                                 | 817                       | 19†   |
| Characteristics of the child's mother    |                           |   |
| Age of mother, y                         |                           |   |
| <20                                      | 151                       | 7   |
| 20–24                                    | 444                       | 22  |
| 25–29                                    | 563                       | 26  |
| 30–34                                    | 495                       | 25  |
| ≥35                                      | 405                       | 21  |
| Race and ethnicity of mother             |                           |   |
| White non-Hispanic                       | 818                       | 63  |
| Black non-Hispanic                       | 440                       | 14  |
| Other non-Hispanic                       | 72                        | 5   |
| Hispanic                                 | 728                       | 18  |
| Marital status of mother                 |                           |   |
| Married                                  | 1312                      | 69  |
| Divorced/widowed/separated               | 177                       | 9   |
| Never married                            | 571                       | 22  |
| Educational attainment of mother         |                           |   |
| Less than high school                    | 443                       | 21†   |
| High school graduate                     | 655                       | 34†   |
| More than high school                    | 970                       | 46†   |
| Employment status of mother              |                           |   |
| Full-time employment                     | 785                       | 35  |
| Part-time employment                     | 368                       | 20  |
| Not employed                             | 908                       | 46  |
| Characteristics of the child's household |                           |   |
| Annual (1999) income                     |                           |   |
| ≤\$7500                                  | 153                       | 7   |
| \$7501–\$17 500                          | 377                       | 16  |
| \$17 501–\$25 000                        | 301                       | 12  |
| \$25 001–\$35 000                        | 265                       | 13  |
| \$35 001–\$45 000                        | 190                       | 10  |
| \$45 001–\$60 000                        | 197                       | 11  |
| \$60 001–\$75 000                        | 122                       | 7   |
| >\$75 000                                | 242                       | 14  |
| Don't know/refused                       | 221                       | 10  |
| Number of adults 18 y and over           |                           |   |
| 1  | 228                       | 10  |
| 2  | 1438                      | 75  |
| ≥3                                       | 399                       | 14  |
| Number of children under 18 y            |                           |   |
| 1  | 662                       | 30  |
| 2  | 719                       | 36  |
| 3  | 447                       | 23  |
| ≥4                                       | 240                       | 11  |

\* Percentages may not sum to 100% because of rounding.

† These estimates are not based on survey responses. Rather, these estimates were fixed (by adjusting the sampling weights) to match population parameters from the National Vital Statistics System for children born in the United States from May 1997 to December 1999.

searchers, a SAS (version 6) public use microdata file can be downloaded from [www.cdc.gov/nchs/slaits.htm](http://www.cdc.gov/nchs/slaits.htm). This file contains 1 record per child included in the survey. With the exception of information suppressed to protect the confidentiality of the survey subjects, all information about the child and his or her household was included on the file. NCHS takes

extraordinary steps to ensure that the identity of data subjects cannot be determined. With the NSECH data file, these steps included the suppression of children's birth dates and state of residence (although age in months and census region are included). In addition, immunization history data obtained from the NIS were not included on the data

file. Researchers who are interested in these data may use the NCHS Research Data Center, which permits access to confidential data under strictly controlled conditions. Instructions for use of the Research Data Center are online at [www.cdc.gov/nchs/r&d/rdc.htm](http://www.cdc.gov/nchs/r&d/rdc.htm).

Population-based estimates that generalize to the US population of children aged 4 to 35 months are possible using the sampling weights that are attached to each record. These weights were based on the varying probability of selection of a household and a child within that household. They have been adjusted to account for the oversample of minority children, for households with multiple telephone lines, for household nonresponse, and for noncoverage of nontelephone households.<sup>42,43</sup> Also, poststratification adjustments fine-tuned the weights so that population-based estimates match the race/ethnicity, gender, age, and maternal education statistics obtained from the National Vital Statistics System (see Table 3). Researchers are cautioned that classical statistical methods for variance calculations and hypothesis testing with weighted estimates may be misleading because the survey's complex sample design involved clustering and stratification. Computer programs such as SUDAAN or Stata therefore should be used for calculations of variances.

Two reports have been published by the NCHS: one describes the technical aspects of the survey,<sup>37</sup> and another highlights key estimates on the basis of the survey data.<sup>44</sup> Both are available on the same web site as the public use data set, but these reports hardly touch the surface of the research questions that may be possible to address using this data set. Articles in this issue of *Pediatrics* will answer several of these questions, and creative researchers will undoubtedly find the NSECH valuable to address many other questions in the future. The survey instrument and design may also be used with future periodic national samples to monitor change in pediatric care and parents' concerns, and pediatricians and child advocates may wish to consider whether parts of the NSECH questionnaire are practicable for monitoring parents' concerns in their offices and in their communities.

#### ACKNOWLEDGMENTS

This research was made possible by funding from The Gerber Foundation, the American Academy of Pediatrics Friends of Children Fund, the Maternal and Child Health Bureau in the Health Resources and Services Administration (5-U05MC-00010200), and The Commonwealth Fund.

The NSECH was a collaborative effort that would not have been possible without the support and generous contributions of many of our colleagues: Marcie Cynamon, Lance Rodewald, and Jeanne Santoli from CDC; Christina Bethell and Colleen Peck Reuland from Foundation for Accountability; Michael Kogan, Christina Park, and Stella Yu from Maternal and Child Health Bureau; and Miles Hochstein, Moira Inkelas, Ritesh Mistry, Michael Regalado, Harvinder Sareen, and Mark Schuster from UCLA.

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