

Part C: Justification

PART C: JUSTIFICATION OF THE ECLS-B QUESTIONNAIRES

C.1. Introduction

This section presents the content of the Early Childhood Longitudinal Study, Birth Cohort (ECLS-B) questionnaires in detail. There are seven sets of instruments:

- 9-month parent interview
- 9- and 18-month direct child assessments
- 9- and 18-month interviewer observations
- Resident father self-administered questionnaire
- Nonresident father instrument
- 18-month parent interview
- 18-month child care provider instrument

C.2 9-month Home Visit

C.2.1 9-month Parent Interview

The 9-month parent interview consists of 26 sections that obtain information about aspects of the child's health, growth, and development, and environmental factors that predict children's outcomes such as household composition, socioeconomic status (SES), family literacy and nonparental child care. Appendix A contains the 9-month parent instrument and a detailed description of the items included in the 9-month parent instrument.

C.2.1.1 Respondents for the 9-month Interview

Interviewers will follow established rules for determining who the best respondent or informant is for the parent interview. In most instances, the respondent will be the child's biological mother. If the child's biological mother is not living in the family household with the child, the child's

biological father or legal guardian will be identified as the primary parent informant. In cases where an infant is adopted prior to enrollment in the study, the adoptive family rather than the biological family will be the informant for the ECLS-B parent instrument. The parent instruments will include one path for nonbiological parents.

When the CAPI specifications for the parent instruments are developed, the instruments will include one logical path for biological mothers and another logical path for nonbiological parent respondents. At the beginning of the CAPI interview, interviewers will enter the data necessary to identify who the respondent is for the parent interview. The CAPI program will use that data to guide the skips or the word choices for questions so that the questions are worded or skipped as is appropriate for either a biological mother respondent or nonbiological parent respondent. The CAPI specifications will also include instructions for specific word display options for individual questions and for global word displays. For example, if the sample child is a female, the word "she" will be displayed in all gender-based pronoun displays in questions about the child. Only the 9-month parent instrument requires specific path instructions for a nonbiological parent respondent. The 9-month parent CAPI specifications will include instructions to skip the following questions for nonbiological parent respondents:

- B1-B4 Questions about breast-feeding the child
- D1-D30 Questions about pregnancy and wantedness of child
- D39-D41 Questions about separation from child
- V1-V7 Questions about employment before child was born and maternity leave
- V22 Question about current job same as job before child was born
- V29-V34 Questions about returning to a job after the birth of the child

C.2.1.2 Justification for the 9-month Parent Interview Items

Section B – Feeding and Developmental Milestones

Infant Feeding and Nutrition. Early nutrition is critical for later growth and development. Inadequate nutrition in infancy is associated with failure to thrive and various physical and intellectual

problems. Section B begins with a number of items that obtain information about early breast feeding and other feeding practices and the adequacy of infant nutritional intake.

Developmental Milestones. The very early or extremely late attainment of key developmental milestones may be associated with later intellectual giftedness or developmental abnormalities and may be influenced by the richness of the child's environment. Therefore, a set of questions was adapted from the Child Development Inventory (Ireton, 1992) to assess the age at which key milestones were achieved. Items include how old the child was when he/she first sat up, fed him/herself, and was able to crawl on his/her hands and knees.

Section C – Child Temperament

Temperament can be defined as individual differences in a set of personality characteristics that appear early in life and are probably biologically based. These characteristics include attention, activity level, sociability, and emotionality and may be associated with later education outcomes. Temperament exerts its effects both directly (a high activity level may interfere with appropriate school behavior) and indirectly, for example by influencing the quality of care that the child receives from the parents. The items included were originally developed by Rothbart (The Infant Behavior Questionnaire) and by Campos and were used in the National Longitudinal Study of Youth (NLSY) and the Canadian National Study of Children and Youth (NLSCY).

Section D – Pregnancy, Breastfeeding, and Early Child Feeding

Unplanned pregnancy is related to risk taking behaviors during pregnancy, low birth weight, poor child health, and infant mortality. Seven questions gather information about whether the pregnancy was planned, about birth control use, and the wantedness of the child. Maternal health during pregnancy is obtained by the mother's Body Mass Index (BMI), postpartum weight loss and maternal receipt and content of prenatal care, such as the use of ultrasound. Health practices during pregnancy are assessed in a set of questions that ask about vitamin and mineral supplements and about maternal risk behaviors before and during pregnancy (e.g., alcohol intake and cigarette use). Information about pregnancy complications is obtained, with supplementary information about prematurity or method of delivery obtained from birth certificates. Information is also obtained about indicators of an at-risk pregnancy by

asking whether any previous births were pre-term or low birth weight. Finally, because neonatal health is an important predictor of later child development outcomes, a set of questions obtains information about the newborn's health.

Section E – Mother's Background

The section begins by determining who the respondent lived with in his/her youth. Maternal educational attainment is also a major predictor of child outcomes, with children of better-educated mothers having more positive outcomes (White, 1982; Zill, 1996). Information is obtained about the mother's level of education, high school experiences, and grades received. In addition, cultural variations in childrearing practices may be associated with the mother's country of origin, how long she has resided in the United States, her religion, and the stability of her own family life. Several questions in this section will obtain this information.

Section F – Household Composition

Household composition determines aspects of the child's home environment, and Section F obtains a complete roster of all household members living with the child, both adults and children, their ages, gender, ethnicity, and relationship to the child.

Section G – Marriages and Partner Relationships

In order to examine the stability of parenting figures in children's lives and the parenting support mothers receive from partners, a set of questions ask about the mother's marital/partnership history. The last items in this section ask about the quality of the respondent's relationship to his/her partner because the quality of the marital relationship has been found to be associated with children's outcomes. One of the most important dimensions of marital quality has been found to be marital conflict that may have indirect effects on the child through its negative effects on parenting behavior and direct effects on the child by negatively influencing the child's psychological adjustment. A second important dimension is the parents' ability to resolve conflicts. Therefore, the last set of questions obtains information about how the couple deals with serious disagreements.

Section H – Expectations for Child Development

Parental knowledge about child development may be related to their expectations for their own child's development. Researchers have found that greater parental knowledge about child development is associated with positive parenting practices and child outcomes. The 9-month Parent Interview includes two sets of items that ask about parents' expectations for child development in order to establish a baseline measurement for this construct.

Section I – Home Educational Activities and Language Environment

Measurement of home activities that stimulate development is critical because numerous studies have indicated that high levels of positive, age-appropriate cognitive stimulation for infants is related to more optimal outcomes in social and cognitive development. One of the most important aspects of a stimulating environment is the amount of verbal interaction that infants have with parents. To obtain information about the language environment of the child, several questions ask about languages used in the home, by whom, and what language(s) is (are) spoken to the child. In addition, information is obtained about the literacy environment of the home and the amount of maternal-child literacy related activities, such as book reading. More generally, information is also obtained about parental and child shared activities, such as going to the park.

Section J – Parenting Behavior and Attitudes

Affectionate parental behavior has been associated with numerous positive outcomes for infants and toddlers, as has parental sensitivity and responsiveness to infants' signals. An important aspect of parenting styles is the extent to which parents value obedience to authority and try to control the child's behavior. Research suggests that high levels of authoritarian parenting is negatively associated with children's school outcomes. The questions in this section therefore assess authoritarian parenting attitudes.

Sections K-N – Child Care Arrangements

Most children are now in some form of nonmaternal care by the age of 6 months. Therefore, an extensive module of questions asks about the child's participation in child care arrangements. Similar information about basic child care issues is obtained for all types of child care whether a family child care provider, a relative, or a child care center. Included are the number of changes in nonparental care the child has received, the child's age at first caregiving arrangement, the quality and consistency of the care, the type and cost of care, group size and the total amount of time the child spends in care arrangements. Finally, Section N includes a set of questions about the relative importance of various considerations to the parent when selecting the child's care arrangements, such as cost, convenience, quality of care, etc.

Section O – Child Health

Risks to infant's health and physical well-being can emerge at any time. Because the stresses of serious medical illness and hospitalization can be traumatic and have widespread implications for children's subsequent growth, a series of questions obtain information about the infant's serious illnesses and hospitalizations. In addition, information is obtained about the number and location of well-baby check-ups. Because of time constraints, specific information is obtained only about the most prominent infant illnesses, including ear infections, gastrointestinal illnesses, and respiratory infections. There is also a series of questions about the child's health insurance coverage, an important determinant of the adequacy of the child's health care.

Section P – Family Health

Four groups of questions address different aspects of family health. The presence of a household member with a physical problem is assessed in a single question. The second set of questions obtains information about maternal health status and whether she is limited in what she is able to do by a health problem. Next, the respondent is asked about any alcohol and/or cigarette use. Finally, maternal depression, which has been found to be a strong predictor of children's outcomes, is assessed in a set of questions that ask about her mental health status, including depression and substance abuse.

Section Q – Household Food Sufficiency

Adequate nutrition is critical for children's growth and development. Children of low income or poverty-level families, children of adolescent mothers, and children whose parents are receiving welfare may be at risk of undernourishment. Furthermore, because of the current emphasis on welfare reform, children may be at even greater risk of undernourishment. A set of items contributed by U.S. Department of Agriculture (USDA) obtain information about household food sufficiency.

Section R – Social Support

A supportive social network can mitigate stressful life events. Because the social support network of the family is important for child outcomes, the primary caregiver is asked two sets of questions, one about sources of support and the other about her relationship with her parents.

Section S – Community Support

Support that comes from the community may influence child outcomes directly by providing opportunities and enriched experiences to the child and indirectly by supporting parenting practices and parental well-being. Because community support may interact with child and family variables, it is important to obtain such background information as religiosity, membership in community organizations, and socializing with friends and neighbors. In addition, this section asks if families receive support directly through the receipt of services (e.g., job training, transportation subsidies, and help with housing costs).

Section T – Family Routines

Predictable family routines have been found to play an important role in fostering positive educational and behavioral outcomes in school-age children, particularly in the case of future-oriented behaviors. For this reason, the primary caregiver is asked about the frequency and stability with which the family engages in certain routine activities with the child.

Section U – Biological Father's Information

Most information about resident fathers will be collected in the self-administered father questionnaire at the baseline 9-month interview. However, key variables about the biological father will be included in this interview in order to obtain information about the father's contributions to child rearing, his age, race and ethnicity, education, and his employment status and current occupation. In the case of nonresident biological fathers, information will be obtained in the interview about the level of his contact and involvement with the child, which has been found to predict more positive outcomes in children. The questions about the level of contact the biological father has with the child and the mother will be used to define the sample of eligible nonresident fathers. Information will also be obtained about nonresidential fathers' responsibility for and financial support of the child, whether he has assumed legal responsibility for child support and the extent of his involvement in child-rearing.

Section V – Maternal Education, Employment, and Income

Research on the effects of maternal employment on children's outcomes has been equivocal, therefore, it is important to obtain information about maternal employment. This is done in a series of questions that collect information about current maternal employment, the number of hours she works, and receipt of job training.

Section W – Welfare and Other Public Transfers

Receipt of public assistance is an indication of a serious level of poverty and its receipt may indicate the family's ability to increase its functioning, offering a better environment for the child. For these reasons, a set of questions ask whether the family has received certain forms of income assistance.

Section X – Household Income and Assets

Family income is an important determinant of the family's ability to meet the needs of a growing child. Yet, families with similar incomes may experience different levels of economic well-

being depending on other assets, such as home ownership and ownership of a car. Therefore, this section asks about family income and ownership of a home and a vehicle. In addition, questions are included that ask about stocks and bonds and savings and checking accounts, which are markers for engagement in the market economy and capture the family's financial liquidity and ability to manage in the face of adversity.

Section Y – Woodcock-Johnson Word Identification Test

The Word Identification subtest of the Woodcock-Johnson Psychoeducational Batteries is administered to parents at the end of the 9-month home visit. The main reason for administering this test is that parent's word knowledge and general cognitive ability have proven in numerous studies to be very important predictors of the child's cognitive and language development. The Word Identification Test, involving a test of the parent's word decoding skills, provides a brief and low-cost alternative that correlates very highly with more comprehensive measures of reading comprehension and cognitive ability.

C.2.1.3 Sensitive Questions in the 9-month Parent Interview

The 9-month parent interview does contain some items that are sensitive. All but three of these items are drawn from other national studies. The following list itemizes the 31 items that could be judged sensitive in the 9-month parent interview:

- D1 to D7: Wantedness, use of birth control
- D21 to D28: Alcohol use during pregnancy
- E14 to E15: Special classes and repeat a grade
- G7 to G8: Ever being married to biological father, ever live together in a marriage-like relationship
- G15: Reasons for arguments
- G16: Conflict resolution style
- G17: Being afraid of spouse
- P10 to P11: Current alcohol use

- P12 to P14: Depression, psychological help
- P15: Life stress items
- Q1-Q4: Household food sufficiency
- U40: Type of child support agreement for nonresident father
- U41: Whether father signed birth certificate indicating paternity

We propose to move the most sensitive of these items to a self-administered form that will be handed to the respondent for completion near the end of the interview. Although we will make every attempt to secure privacy for the respondent and avoid conducting the interview when another adult is present and within earshot, we acknowledge that some sensitive questions could pose a threat to some respondents, if their spouses knew their answers to the items. A self-administered form will serve to reduce any interviewer or social desirability effect (even in the vast majority of situations, when no other adult is present), and will make the data collection experience more private and the data less susceptible to interception by a spouse. The interviewer will incite the respondent to place the completed form in an envelope and seal it. We plan to include D1-D4, G16, G17, and P12-15 on the self-administered form.

The observations that are proposed to be made of participants and their homes pose no risk to the respondents. The Home Observation For Measurement of the Environment (HOME) scales has been used by other national surveys. The data are being collected by observation instead of direct questions in order to reduce the burden on the respondent and because some items an independent observation is deemed to provide data that are more valid and reliable. The handling of infants is limited to the interviewer assisting the parent in positioning the child for measuring, a procedure that occurs in the home under the parent's direction.

C.2.1.4 Contacting Nonresident Fathers

Because of the substantial policy interest in nonresident fathers, the ECLS-B field test will explore the feasibility of interviewing such fathers. Several existing studies, including the Child Development Supplement of the Panel Study of Income Dynamics and the Fragile Families Study, have attempted to interview nonresident fathers. These studies suggest that the costs of locating and persuading nonresident fathers to participate in the studies increases the lower the fathers' involvement in their children lives. However, no study has yet established the level of contact at which tracking and

conversion costs become prohibitive. One goal of the field test is to examine the response rates for nonresident fathers with different levels of involvement in their children's lives. Thus, the field test will attempt to interview nonresident fathers with a wide range of involvement levels, but all must have some minimal amount of contact with their children or with their children's mothers/guardians. Results from the field test will be used to determine whether to interview nonresident fathers in the actual ECLS-B and, if the answer is yes, the level of involvement that they must have to be included. For the purposes of the field test, nonresident fathers are the child's biological fathers or, for children who were adopted by both parents, the adoptive fathers.

For the field test, we will use information already being collected in Section U and Section Z in the main 9-month parent interview to determine whether to seek the respondents' permission to contact the nonresident fathers. Essentially respondents will be asked permission to contact the nonresident fathers under the following circumstances:

1. The nonresident father has seen the child in the last month; or
2. The nonresident father has not seen the child in the last month, but has had at least 7 days of contact with the child within the last 3 months; or
3. The nonresident father has not seen the child in the last month, has had less than 7 days of contact with the child within the last 3 months, but has been in touch with the mother/guardian by telephone, letter, or other means at least once a month in the last 3 months.

However, if nonresident father has not seen the child in more than a month and the mother/guardian reports that she/he does not want the father to see the child, we will not ask the mother/guardian for permission to contact the father.

C.2.2 9-month Direct Child Assessment

The direct child assessment is designed to assess several key constructs in child development. The mental and motor scales of the Bayley Scales of Infant Development (BSID-II) directly observe gross and fine motor development and receptive and expressive language skills. The Behavior Rating Scale (BRS) of the BSID-II includes observations of orientation engagement, emotional regulation, and motor quality. The Nursing Child Assessment Teaching Scale (NCATS) captures caregivers' cognitive growth fostering and the child's responsiveness to caregiver. Each of these measures

is proposed at the 9- and 18-month direct assessment. With the addition of a 30-month direct assessment using these measures growth curve modeling can be done.

C.2.2.1 BSID-II

According to Sattler (1990), the BSID-II is widely regarded as the best general measure of early child development currently available. For the purposes of ECLS-B, it has the advantage of having been used previously in such notable studies as the MacArthur Longitudinal Twin Study (Emde, et al, 1992; Plomin, Campos et al, 1990, Reznick, Corley and Robinson, 1997) as well as in numerous large-scale studies including the Early Intervention Collaborative Study (EICS) (Shonkoff, et al., 1992), the Longitudinal Consortium Studies (Lazar and Darlington, 1982), most recently in the Comprehensive Child care Developmental Program (CCDP) evaluation, and the national evaluation of Early Head Start. Most of these studies used the BSID-II for large samples, which supports its use in ECLS-B. The CCDP evaluation involved a sample of approximately 2,600 children who were administered the BSID-II, and the Early Head Start study involves a sample of approximately 3,000 children from 17 diverse communities across the country. Scores obtained on this measure, therefore, can be used for comparison with results obtained in other studies.

The BSID-II is an individually administered examination that assesses the current developmental functioning of infants and children from 1 month to 42 months. In total, the BSID-II is composed of two sets of items: 111 items that assess motor ability (such as rolling, crawling and creeping, sitting, standing, walking, running, and jumping) and 178 items that assess mental ability (such as memory, habituation, problem solving, vocalizations, language and social skills). The items in the BSID-II are arranged by developmental difficulty. The BSID-II specifies sets of items to administer to a child depending on his or her chronological age. For example, the item sets specified for a 9-month-old child include 21 items administered with 4 items observed incidentally from the mental scale, and 13 items administered from the motor scale and one item observed incidentally. The entire BSID-II requires approximately 30 minutes to administer to 24-month-olds, with somewhat less time required for 9-month-olds.

Raw scores obtained from the number of passed and failed motor ability items and mental ability items are then converted into a Psychomotor Development Index (PDI) and a Mental Development Index (MDI), which reflect the two domains of the items. These index scores are normalized standard

scores derived from a national stratified sample that included only normal infants and children (children with physical problems, prematurity, medical complications, or developmental delay were not included in the standardization sample).

Originally developed in 1933 as the California First Year Mental Scale (Bayley, 1933), it was reorganized in 1969 as the BSID and was revised in 1993 as the BSID-II (Psychological Corporation, 1993). Improvements to the revised version include better normative data, especially in the cases of infants from minority groups, infants with disabilities (including developmental delay and Down syndrome), premature infants, HIV+ infants, and infants who were prenatally drug-exposed. In addition, the second edition extended the applicable age range downward to 1 month and upward to 42 months and imported items from the Gesell. Hence, it is feasible and desirable to re-administer the BSID-II at later ages in order to obtain scores on the same measure at least three different time periods, an important consideration in a longitudinal study.

A critical psychometric property of any intelligence test to be used longitudinally is its ability to show persistent individual differences across time, especially with regard to 9- to 30-month age range when the achievement of major developmental milestones, such as locomotion and language acquisition, leads to major transformations in behavior. In the Louisville Twin Study, the MDI (mental development scale of the BSID) was administered to approximately 400 children at 12, 18 and 24 months. MDI scores showed correlations of $r = .56$ between 12 and 18 months, $r = .48$ between 12 and 24 months, and $r = .67$ between 18 and 24 months (Wilson, 1983). Others have placed the MDI's test-retest reliability between .76 and .80 (Spren and Strauss, 1991; Thompson, Fagan and Fulker, 1991).

The BSID-II manual reports relatively high internal consistency coefficients of .84 and .85 for the mental and motor scale, respectively, at 9 months of age, and an average reliability (stability) coefficient of .88 for the mental scale and .84 for the motor scale across all age levels. Test-retest reliability has been estimated between .76 and .80 (Spren & Strauss, 1991; Thompson, Fagan & Fulker, 1991).

However the BSID-II is not without some problems, particularly when testing children who are outside of the range of normal development for their chronological age, either due to prematurity, low birth weight, genetic abnormalities, or other developmental delays. Mayes (1994) administered the BSID and BSID-II to both normal and delayed infants and preschoolers and reported different scores depending upon the scoring method used. In general, the higher the item set at which testing begins, the higher the

obtained developmental age (DA), and the lower the starting item set, the lower the obtained DA. For children with developmental delay, who by definition function below their chronological age (CA), the best estimate of their development is not the child's CA. In addition, delayed children are more likely than normal children to be uneven in their development and demonstrate test scatter. This is an important consideration for the ECLS-B cohort which, because of its size, is likely to encounter a large number of children (at least in absolute terms) who show evidence of developmental delay or other physical condition that may impede testing performance. To combat this problem, we will use the same approach used in the Early Intervention Collaborative Study (EICS). In EICS, a raw score on the mental scale was obtained by first adjusting the starting age for number of weeks born premature, if necessary, and administering the test from that age until a basal and ceiling level are reached. From the raw score obtained, a mental age equivalence score can be obtained using the scales in the BSID-II manual. This method for testing children with developmental delay is also recommended by the BSID-II.

There are also important benefits to using the BSID-II for developmentally delayed children that outweigh these potential scoring problems. There are few developmental measures in existence that allow both normal and delayed children to be adequately tested, and most of the known developmental measures for delayed children are highly specialized according to the specific disability or delay the child shows. Even though the BSID-II scales have not been standardized on a population of children with disabilities, the EICS used the BSID-II mental scale to assess 190 children with a variety of disabilities. The BSID-II scales were used because they are the most frequently used infant assessment instrument, and the scores are useful for comparison with normal samples (Shonkoff et al., 1992). In fact, at a meeting held by the Office of Special Education Programs, Department of Education, to discuss the measurement of children with disabilities, the consensus by agency staff and consultants was to stay with the BSID-II, as this will adequately capture the bulk of children with some form of disability. Additionally, there are methods for altering specific items so that the child's disability does not get in the way of his/her performance on these items, thereby yielding a reliable score.

There is some debate concerning the influence of the setting (home vs. laboratory) on BSID-II scores, but the empirical evidence supporting the notion that infant assessments are affected by the location in which they are administered is relatively weak. Several studies in the 70s and 80s investigated the question of home vs. laboratory effects on scores specifically for the BSID-II. Durham and Black (1978) reported that when 16- and 21-month-old children were examined in the home using the BSID-II within 3-15 days following a laboratory-based assessment (using the BSID-II) there was a statistically significant rise in scores, but when the home assessment preceded the laboratory assessment (controlling

for the time interval between tests), there was no difference in test scores. This finding was interpreted to suggest that the infant's greater familiarity with the home setting resulted in higher test scores. However, a later study designed to disentangle test-retest reliability of the BSID-II from setting effects revealed that total raw scores and their equivalent MDI were not affected by setting differences or by the sequence of the home and clinic administrations (Horner, 1980). This study involved a sample of 24 9- and 15-month-old infants (12 males and 12 females in each age group) who were tested 1 week apart in the home and clinic. The findings suggest that differences between settings may be confounded with test-retest instability, particularly for very young children. In fact, the issue of confounding influences when determining the true effect of the home (compared to out-of-home) settings on assessment scores is a theme running across many of the studies we found.

In another study, Campbell, Siegel, Parr, and Ramey (1986) used home-based administration of the BSID for a sample of 305 12-month-old infants born at full term in rural North Carolina. They found suspiciously high MDI scores for a sample systematically drawn from the entire population of an 8-county region. They then tested the competing hypotheses that either the home-based testing positively affected the scores or the 1969 Bayley norms were outdated. They found strong support for the hypothesis that the Bayley norms for 12-month-olds are outdated, and they ruled out the notion that the home setting may have affected the scores. This finding further supports our use of the second version of the Bayley, the BSID-II, rather than relying on the original version.

Westat recently conducted a pretest of the ECLS-B instruments in the style of "dress rehearsals" for the home visit involving the administration of the BSID-II along with other measures, to children ranging in age from 5 months to 20 months. According to our experiences using the BSID-II in this pretest, the entire BSID requires approximately 35 minutes to administer to 18-month-olds, and approximately 20 minutes for 9-month-olds. There is a recommended method for administering items that does not follow the order of the items but rather is based on the use of the test materials, making it easier for the administrator to move quickly through all the tasks. In the pretest, very few children did not reach basal and ceiling in the starting item set (which corresponds roughly to their chronological age). We also gained experience administering the BSID-II to a developmentally delayed infant and to twins with positive administration experiences. Finally, the parents found the BSID-II enjoyable to watch and to assist. During the pretest, they reported in observing their infant perform tasks that they did not know the infant could do, and they enjoyed assisting the administrator as it gave them a sense of being a collaborator in the study rather than simply a respondent. In general, our pretest experiences with the BSID-II were positive and support its use in ECLS-B. The pretest report also indicates some potential

problems with the administration of the BSID-II, particularly for 18-month-old children, but most of these problems can be minimized through proper training and practice with the measure.

We have had the benefit of receiving materials from the Early Head Start project, currently being conducted by Mathematica Policy Research Inc. for the Administration for Children and Families, U.S. Department of Health and Human Services. They spent considerable time devising methods to assist regular survey field researchers to administer the measure in a standardized format. They also consulted heavily with the Psychological Corporation, publishers of the BSID-II, on interpretation of some items and tasks. ECLS-B will therefore benefit greatly from these efforts, although they administered the BSID-II at different measurement intervals (14 and 24 months) and thus the materials for items sets used in ECLS-B will need to be developed, following on the work already done for Early Head Start.

Based on discussions with Mathematica, the BSID-II appears to be a "challenging but doable" instrument for use in national studies such as ECLS-B. The challenge appears to involve training the field staff sufficiently so that they administer the measure in a standard fashion and that they score the child's performance reliably. It appears that in the CCDP evaluation, conducted by Abt Associates, interviewers had difficulty becoming certified during the training period and there were concerns about their maintenance of quality control throughout the data collection period. However, Mathematica reports that they had excellent reliability and over 90 percent of their field staff were certified during the training. There are extensive methods they employed to monitor field staff performance using in-person visits and videotaping of random BSID-II assessments, as well as a 300-item checklist to determine that the tasks were done according to the requirements.

Mathematica has provided us with many of the training materials they used to train field staff in the administration of the BSID-II for the Early Head Start Study. We will use the materials they developed for 14- and 24-month assessments as a basis for developing our own training materials for the 9- and 18-month assessments. Based on Mathematica's experience, we anticipate that training on the BSID-II will last about a day and a half. The protocol for administering the BSID-II is found in Appendix B.

C.2.2.2 NCATS

The Nursing Child Assessment Satellite Training (NCAST) (Barnard, 1978) is recommended for use during the direct child assessment of ECLS-B because of its ability to predict cognitive and socioemotional outcomes at 2 and 3 years of age. NCAST is the name of the entire package consisting of two interaction tasks with six subscales scored for each task, as well as a set of assessment and early intervention programs that train service providers to assess and intervene to improve parent-child interactions in clinical settings. The two tasks and the scoring systems for each task are named: (a) the Nursing Child Assessment Feeding Scale (NCAFS) and (b) the Nursing Child Assessment Teaching Scale (NCATS). Thus NCATS refers to the specific observational system for scoring the teaching task while NCAST refers to the entire assessment and intervention package.

The NCATS has been used with success in several large-scale studies, including the EICS (Shonkoff, et al., 1992), the NICHD Early Child Care Study, the Evaluation of the CCDP, and the Memphis New Mothers Study. It is also being used in the national evaluation of Early Head Start involving a sample of approximately 3,000 infants across the country. The use of the NCATS has also been strongly recommended by a number of our consultants and has been viewed as the most viable measure of parent-child interaction by our technical review panel (TRP) because it is one of the few field-tested systems with excellent training materials, good psychometric properties, and, while brief, it produces robust scores predictive of later growth in both cognitive and social-emotional domains.

Many of the important child milestones that are taking place at 9 months of age are difficult to measure because the important processes related to developmental progress involve interactions between parent and child—the affective and behavioral components present in these interactions. For example, constructs such as temperament, attention, emotion and state regulation, communication, cognition, and even some areas of motor development are mediated by interactions with primary caregivers (i.e., the parents). Rather than compensating for the weaknesses of parent report or direct child assessment by adding items to existing parent or child instruments, it is important to sample mother-child interaction during a brief structured system such as that developed by the NCAST. Observational methods are particularly helpful in assessing important aspects of parenting behavior such as contingency, responsiveness to nonverbal cues, responses to the child's distress, use of language, and the provision of opportunities for social-emotional and cognitive growth.

The NCAST system was developed in the early 1970s through a contract to Dr. Kathryn Barnard and her team at the University of Washington School of Nursing from the Division of Nursing of the U.S. Public Health Service. The system was grounded in general systems theory and the importance of the caregiving in the early months of an infant's life to establish routines, patterns of interaction, and patterns of communication. It was informed by a groundswell of research demonstrating the critical links between caregiver-infant interaction and child development outcomes. The basis of the NCAST approach is a model of parent-infant interactions developed by Dr. Barnard.

Barnard's model focuses on the ability of the caregiver and child to adapt to one another during the first year of life, to establish a synchronous interaction directed at least initially by the parent but that responds to the infant's nonverbal cues. Optimal growth in social, cognitive, and language domains require the infant to receive sufficient quantity and quality of stimulation appropriate to the infant's developmental stage, and this is done primarily within the context of a mutually rewarding, reciprocal interaction. As parents respond to the infant's signals, infants typically provide feedback such as maintaining or terminating social interaction, modulating arousal, or showing affect. The bi-directional "give and take" of behaviors that facilitate interaction teaches an infant he or she is able to control and manipulate the environment and establishes the infant's ability to regulate his/her sleep-wake states and emotions. Thus, the caregiver (usually the mother) and the child are involved in developing a highly sophisticated interaction pattern or what has been described by a number of researchers as a mutually adaptive "waltz" (Barnard, 1976), contingency (Greenspan and Lieberman, 1980), attunement (Stern, 1985), emotional availability (Emde, 1980), reciprocity/mutuality (Brazelton et al, 1975), or synchrony (Censullo et al, 1987).

The metaphor of the waltz in Barnard's model suggests that both the infant and the mother have responsibilities to maintain the interaction, although the parent has the bulk of responsibility in the earlier stages of development, and this shifts over time as the infant's capacities grow. The infant is responsible for producing clear cues and being responsive to the caregiver. The caregiver has the responsibility of responding to the infant's cues, alleviating the infant's distress, and providing opportunities for growth and learning.

Interruptions in this adaptive process can originate in the caregiver, the child or the environment (NCAST Manual, 1994). For example, a caregiver who is depressed, stressed, or who lacks sufficient knowledge of child behavior may be less sensitive to the child's cues, unable to alleviate the child's distress, or unable to provide growth fostering situations for the child. Interference in the adaptive

process can also originate in the child if the infant is unable to give clear cues or to respond to the caregiver. These generally occur among preterm infants, those born with physical conditions that effect their ability to give cues or respond to the caregiver, and are also seen among drug-exposed infants (NCAST Manual, 1994). In fact, one of the strengths of the NCAST system, comprising the feeding scales (NCAFS) and teaching scales (NCATS) are their ability to discriminate between subsamples of infants with varying levels of developmental or environmental insults that affect their growth and development, such as those enumerated above.

NCAST has a database from approximately 2,100 infants with representation from Caucasian (54%), African-American (27%) and Hispanic (19%) mothers. There were no differences in teaching scores by gender. The NCAST Teaching Scale (NCATS) scores have shown differences between specific subgroups of families in ways that are predicted from the theory and design of the measure. Hispanic mothers tend to score lower on the Cognitive Growth Fostering subscale, but they score better on the Sensitivity to Cues and Response to Distress subscales, reflecting different styles of interacting with their children. These differences remained after controlling for maternal education, English language ability, and acculturation. Mothers with less than high school education, less than 20 years of age, and those who are abusive, stressed, or drug-using also score lower on the NCATS. Finally, the NCATS scores are lower for later born children, preterm infants, and infants at high medical or social risk. While these differences appear to suggest that the NCAST scores are biased, it is important to note that these systematic differences are coherent and predicted from the nature of the measure. These findings do not reflect measurement error per se but rather they reflect meaningful differences in parent-child interactions that are related to later developmental outcomes and substantiates the predictive and discriminative validity of the NCATS.

The psychometric properties of the NCAST Teaching Scale (NCATS) support its use in a national study such as ECLS-B. In terms of internal consistency, the alpha coefficients for the total parent score (a summary of the four parent subscales of the NCATS), the total child score (a summary of the two child subscales) and the overall total score (all subscales) were .87, .81 and .87 respectively. For the two scales of interest in ECLS-B, the Cronbach's alpha was .78 for both the Responsiveness to Caregiver and Cognitive Growth Fostering subscales, attesting strong internal consistency of these subscales despite the lower number of items contributing to the alpha coefficients. Cognitive Growth Fostering measures the caregiver's ability to provide intellectual stimulation for her child while the Responsiveness to Caregiver subscale is a measure of the child's responsiveness to the caregiver's behavior.

Reliabilities computed separately for African-American and Hispanic subsamples were also high, .89 and .87 respectively for the parent score, .83 for the child score (for both subgroups) and .90 and .88 for the NCATS total score. Test-retest reliability for the teaching scale, using observations at 1-, 4-, 8-, and 12-months was high for the total parent score (.85) and lower for the total child score (.55). These test-retest reliabilities are impressive because the multiple measures at 3- to 4-month intervals reflect developmental change as well as test-retest reliability.

The use of the NCAST Teaching Scale (NCATS) in the Comprehensive Child Development Program lends support to its use in a study such as ECLS-B. Field staff trained by the NCAST national office reached 85 percent agreement between independent coders. The CDDP sample, consisting of approximately 800 families below the 1989 Federal Poverty guidelines from 22 different project sites in 19 different states, reveal mean scores on the teaching task below the NCAST database sample (Morisset, 1996). However, compared with blacks and Hispanics, more white dyads earned low scores. At 2 years of age, 80 percent of children in the black subsample with teaching scores above the high-risk cutoff earned mental development test scores that indicate adequate development. At 2 years, the comparable value for the Hispanic group was somewhat lower (69%); it was higher (86%) for the white subsample (Morisset, 1996). For all subgroups of the CDDP sample, the teaching scale score was significantly related to the mother's education.

Data from the NCAST national database suggest that the NCATS shows excellent concurrent and predictive validity. The Cognitive Growth Fostering subscale correlates concurrently with the HOME scale for children 1-12 months old ($r = .45$), 13-24 months ($r = .46$) and 25-66 months ($r = .61$). These are strong correlation coefficients and suggest that a significant amount of variance in home environment scores can be explained solely by the NCATS. In a separate study involving 50 3-year olds and their caregivers, Tesh and Holditch-Davis (1997) report significant correlations between the HOME and the NCATS parent total score and combined parent and child total score ($r = .51$ for the parent total score and $r = .41$ for the combined total score). However, the NCATS child total score do not appear to be as strongly correlated with the HOME total score. The NCAST Teaching Scale (NCATS) Manual (NCAST, 1994) reports correlations with the child total score of .28 at 1-12 months, .08 at 13-24 months, and .19 at 25-66 months. Tesh and Holditch-Davis (1997) report a .00 correlation coefficient between the NCAST child subscale and the HOME at 3 years of age. The weaker correlations between the HOME and the NCATS child subscale are also predicted from the NCAST system model because the HOME

emphasizes the parent's provision of support for the infant and thus is less dependent on the child's cues or responsiveness to the parent's behavior.

The NCATS shows consistent concurrent and predictive validity with the BSID-II MDI scores in a variety of studies. In terms of concurrent validity, an intervention study conducted by Barnard and others (1985) of 185 multiple risk mothers (low education, medical risk prenatally, and/or low income), showed a positive correlation of .26 between overall scores on the teaching scale at 3 months of age and the 3-month BSID-II MDI scores. Significant relations among the BSID-II MDI and the NCATS individual subscales were also found. At 24 months, the Cognitive Growth Fostering subscale significantly correlated with the BSID-II MDI and PDI (r 's = .43 and .47, respectively). The NCATS parent total score was also significantly correlated with measures of mother-child conversation during a snack interaction at ages 13 and 20 months (Morisset, 1990). At 13 and 20 months the NCATS parent total score was significantly related to the proportion of the mother's speech that facilitated language (r 's = .31 at 13-months and .49 at 20 months). In fact, the Cognitive Growth Fostering subscale was the NCATS subscale most significantly correlated with the mother's language facilitation at both ages. This subscale assesses the caregiver's provision of cognitive types of experiences during an interaction that encourage and allow the infant to explore their surroundings and measures the mother's vocalizing, talking, and singing to the infant. Research consistently shows that caregivers who talk more to their infants and in a style that encourages reciprocal communication promote the child's language development (Morisset, 1988).

The NCATS total score and subscales are also able to predict later cognitive and language development in a variety of studies involving both low-risk and high-risk infant samples from diverse income and ethnic/racial groups (Barnard, 1997; Morisset, 1990, 1996). One month and 4-month teaching scale (NCATS) scores were significantly predictive of the 36-month expressive language score on the BSID (r 's = .71 and .76 respectively). NCATS total scores at 1 year predicted 24-month BSID-II language scores (R = .28), 36-month expressive and receptive language items on the BSID (r 's = .51 for auditory items and .31 for verbal items), and 5-year Weschsler Preschool and Primary Scale of Intelligence (WPPSI) scores (r 's = .40 for Performance, .50 for Verbal and .50 for total IQ). In an analysis of the CCDP data from samples of high- and low-risk infants, the 2-year NCATS parent score was correlated to the child's 5-year IQ, with correlations ranging from r = .49 to r = .81. For low-risk and preterm samples, the size of the correlation increases over time, whereas for a social risk group it is relatively high at 2 years (on the BSID-II MDI) and remains high at 5 years (on the WPPSI). The parent score on the teaching task appears more strongly related than the child total score, and, with the parent

subscales, the Cognitive Growth Fostering subscale at 3 and 10 months appears the most consistent and strongest predictor of 24-month BSID-II MDI scores (r 's = .23 and .37, respectively).

The Responsiveness to Caregiver subscale does not concurrently correlate with scores on the BSID-II (NCAST, 1994), which supports the teaching scale's discriminant validity. Rather than a prediction of cognitive outcomes, the Responsiveness to Caregiver subscale seems more strongly related to the child's socioemotional development. The Responsiveness to Caregiver subscale measures the infant's ability to respond to the caregiver's attempts to communicate and interact. Infants have crucial skills that enable them to maintain relationships, including perceptual abilities such as hearing and seeing, the capacity to look at another for a period of time, the ability to smile, be consoled, adapt their body to holding or movement, and be regular and predictable in responding. Research shows that the absence of these skills by either partner has a major impact on the nature of the caregiver-infant interaction pattern and later socioemotional development (Barnard, et al, 1989).

In a study of the Clinical Nursing Models intervention program, infant attachment security at 13 months measured by the Strange Situation procedure was significantly correlated with the NCATS child total score at 3 months but not at 12 months (r 's = .26 and -.13 respectively). It is interesting to note that the predictive validity of the NCATS child subscales was stronger than the 12-month concurrent validity, suggesting that the NCATS is picking up early interactive behaviors that serve as precursors to later attachment security. The lack of concurrent validity may also be a function of the different test situations. In the Strange Situation the infant is under a high degree of distress from the mother's absence whereas in the teaching task there is little or minimal distress and almost no separation distress. Further evidence for this comes from the work of Speiker and Booth (1988) who found that securely attached dyads scored higher on the NCATS compared with avoidant and disorganized dyads. Secure dyads also scored higher on an empirically derived subfactor of the NCAST teaching scale called positive parent-child mutuality.

In sum, there is ample evidence to support the use of the NCAST Teaching Scale (NCATS) in ECLS-B. There are also correlations between NCATS scores and maternal mood and psychosocial functioning, child behavior problems, and parental expectations and beliefs, all of which are being measured in ECLS-B. Finally, the NCATS appears sensitive to change due to interventions and changes in parent's competencies, according to data from Barnard's Clinical Nursing Models study. Thus, the NCATS is a psychometrically sound instrument that takes relatively little time to administer and yields rich descriptive and predictive results.

The NCAST system has a standard training protocol that consists of a manual and several standard training tapes. In addition, reliability is calculated using training tapes that are provided by NCAST and scored at the NCAST office. One member of the ECLS-B staff is a certified NCAST trainer and has trained other staff members to be reliable in the coding of the NCAST.

However, it has been decided that the ECLS-B interviewers will not code the NCAST teaching task as it occurs ("live coding"). Instead, the interviewers will simply videotape the mother-child interaction during the teaching task. This video will later be coded by trained NCAST staff in their office. Our pretest experience suggests that the teaching task can be successfully videotaped in less than 3 minutes. We will train our interviewers on the basic principals of the NCATS teaching task, how to help the respondent choose a teaching task, and the best way to film the teaching task itself.

C.2.2.3 Physical Growth Measurements

Recent interest in and concern about the care and education of young children and the early school years reached new heights with the establishment of the National Education Goals Panel. The Goal One Technical Planning Group of the National Education Goals Panel (1993) recommended that school readiness be considered as a multifaceted phenomenon and included the child's physical well-being as a key domain of development. There has also been increased health policy interest in the early years of childhood with the 1997 White House conferences highlighting findings from research on early brain development and out-of-home child care. Physical growth measures, as well as motor development and early health care, are important constructs to assess in this study.

According to the National Education Goals Panel, the child's physical well-being refers to the aspects of a child's health and physical growth, including proper nutrition and health care. Consistent medical and dental care, including immunizations, pediatric checkups, and assessment of physical growth, are important for early detection of potential problems that may pose obstacles to early learning.

One of the most rapid periods of physical growth for children is from birth to age 2, and thus periodic measures of children's length and weight at multiple time points during these ages are essential. Weighing and measuring children are important elements in assessing the nutritional status of a population (United Nations, 1986). By taking accurate measures we can classify children's growth

properly using internationally accepted reference standards and identify children who may be vulnerable to health problems because their physical growth does not match those of their peers.

However, these measures are often not taken in national studies, unless health and nutrition are a focus, and often they are not done with such a young sample. In providing justification for supplemental funding of ECLS-B to include health and physical measures, many National Institutes of Health (NIH) identified the need for: (1) identifying and improving the measurement of basic physical health and functioning in children; (2) evaluating and expanding the use of multiple data collection techniques, including anthropometry, direct physical assessments of health conditions, and medical provider linkages; and (3) adding follow-up questions that will probe the link between children's health conditions and household risk factors.

The 9-month direct infant assessment includes physical measurement of the infant, including weight and length. We propose to adapt the NHANES protocol for these measurements and based on discussions with NHANES researchers at Westat, we estimate a total of 3 minutes will be required for the weighing and measuring. The infant will be measured in a clean diaper. The mother will be asked to remove clothing from the baby during the parent interview (which occurs while she is holding the baby) so that the time required for the measurement does not include dressing and undressing time. (See Appendix B for the protocol of administering the height, weight, head, and arm circumference measurements.)

C.2.3 9-month Interviewer Observation Checklist (IOC)

In order to gain a more thorough understanding of children's home environments, interviewers will complete a brief checklist (Interview Observation Checklist-IOC) based on their observations of the mother-child interaction and the home itself. The checklist allows for additional measures to be collected without adding to the respondents' burden. Further, by including observational items that overlap with items that are asked of parents, we can obtain corroborative evidence for information provided by the parent. The checklist also allows for the collection of important information regarding the child's temperament and possible areas of communication, behavior, or neuromuscular skills that may be key precursors for development lags or potential learning problems.

The IOC consists of the following measures:

1. Eight items taken from the HOME-Short Form (HOME -SF)
2. The BSID-II BRS (30 items)
3. Three items from the Carolina Record of Individual Behavior, developed by the Frank Porter Graham Development Center.

Some other maternal-report items from the HOME-Short Form will be incorporated into the ECLS-B parent interview. The protocol for administering the interviewer observation items is included in Appendix C.

C.2.3.1 The Home Observation for Measurement of the Environment (HOME)

Rationale

Numerous researchers and studies have shown a correlation between proximal home environment variables and children's cognitive, social, and physical development, as well as the extent to which of these variables account for variance in developmental status. It is believed that this correlation does differ across sub-population groups. Researchers also believe that SES, mother's intelligence, and mother's educational achievement may play spurious roles in this correlation.

The predicative value of home environment variables is somewhat controversial. However, one measure of proximal home environment variables that has been used extensively is the HOME (Caldwell and Bradley, 1984). The HOME, and the shorter version, HOME-SF, have been used as both an input measurement to explain other child characteristics, and an individual outcome instrument. It was first developed as a more valid alternative to measures of social class or SES as indicators of the adequacy of the home environment.

The HOME has been used with success in several large-scale studies, including the EICS (Shonkoff, et al., 1992), the NLSY, the Longitudinal Observation and Intervention Study (LOIS), and the NICHD Early Child Care Study. It is also being used in the national evaluation of Early Head Start involving a sample of approximately 3,000 infants across the country.

The advantages of using HOME items in the ECLS-B study is that it does not require extensive interviewer training and it can be used at both the 9- and 18-month time periods.

The HOME Theoretical Approach

In the early 1960s, several ideas and theoretical concepts emerged that fostered the development of the HOME. First, researchers began to question the validity of the existing environmental measures that were being used to test the relationships between environment and development. SES or social class of a child's family was the measure most often used at this time to predict the child's future cognitive development. Unfortunately, this measure did not provide researchers with a precise picture of the child's living conditions, family events, or day-to-day experiences. Other measures were dependent on primarily interview or questionnaire methodologies, whose reliability and precision were questionable.

The second factor that led to the development of the HOME was the rise in popularity of early intervention programs. A measure was needed that could provide a precise portrait of the child's home environment and yet was also easy to use (Bradley and Caldwell, 1984).

The first version of the HOME, originally called the Inventory of Home stimulation or STIM, was developed by Bettye Caldwell and her colleagues at the Syracuse Early Learning Project. Over 200 items were field tested for the first version of the HOME. Based on these field tests, the HOME was reduced to a 72-item scale, and then finally to 45 items (Bradley and Caldwell, 1984).

The HOME, a combination of parent-report and observational items, assesses the quality of cognitive stimulation and the emotional support that the child receives from the family. It allows the researcher to link the quality of the child's home environment to early familial and maternal traits and behaviors.

The instrument contains 45 binary ("yes-no") items organized into 6 subscales designed to assess: (1) the mother's responsivity to the child, (2) the use of punishment and restriction, (3) the physical attributes of the home and neighborhood, (4) availability of toys and other play materials, (5) maternal involvement, and (6) variety in daily stimulation.

Psychometric Properties of the HOME

The original HOME measure, from which both ECLS-B checklist items and several ECLS-B parent-interview items have been taken, has proven to be a reliable measure. Bradley (1981) presents inter-rater reliabilities from six different studies that range from the high .80s to the low .90s. Six-month test-retest subscale correlations ranged from .45 to .87 (Bradley, Caldwell, and Eldardo, 1979), while Yeates et al. (1983) found 12 month test-retest reliabilities from .43 to .68 for infants aged 6 to 42 months. Ramey et al. (1984) found 2-year test reliabilities of .56 and .57. Finally, a high total score reliability of .86 was reported for siblings tested at least 10 months apart (Van Doorninck et al., 1981).

A study by Eldardo, Bradley, and Caldwell (1975) show that the HOME (at ages 6, 12, and 24 months) is moderately correlated with both the BSID-II (at ages 6 and 12 months) and the Stanford-Binet Intelligence Tests (at age 3). The correlations for the 6-month HOME and the 12-month Bayley range from .09 (Responsivity subscale) to .27 (Variety subscale). The correlations for the 12-month HOME and the 12-month Bayley range from .01 (Restriction subscale) to .28 (Play Materials subscale and Involvement subscale). A multiple correlation of $r=.40$ was found for the six HOME subscales and the 12-month BSID-II MDI.

Other longitudinal research suggests that the HOME is a good predictor of later cognitive, social, and physical development. In a study comparing the predictiveness of the HOME relative to the predictiveness of maternal intelligence for child's intelligence at 2, 3, and 4 years of age, Yeates et al. (1983) found that, although maternal intelligence was initially more predictive, the quality of the home environment was more predictive of cognitive development by age 4. Even when administered as early as 2 months of age, the HOME has been found to be correlated (from .34 to .72) with intelligence tests administered as late as 4½ years old. Researchers also found that the HOME at 1 and 2 years was correlated with academic achievement in the first through fourth grades of school (.33 to .65) (Bee et al., 1982; Bradley and Caldwell, 1976, 1980, 1984; Eldardo, Bradley, and Caldwell, 1985, and Van Doorninck et al., 1981.)

In addition to predicting later cognitive development, the HOME can also be used as a predictor of a variety of developmental risks, including clinical malnutrition, failure to thrive, language delay, developmental delay, and poor academic achievement (Eldardo and Bradley, 1981). Six studies

found relationships between temperamentally difficult infants and decreased stimulation and support in their homes.

The NLSY authors do note that while the HOME consists of a wide range of items that measure the quality of the home environment (family interaction patterns, physical characteristics of the home, and behavioral attributes), significant changes in the family composition, such as divorce, or the birth of a new baby, or a move to a new home, could significantly alter the stability of the measure over time. In the NLSY study, the cross-year correlations are moderately strong. The overall correlation is .54 between 1986 and 1988 and .45 between 1986 and 1990.

C.2.3.2 The BSID-II BRS

Rationale

While the BSID-II Mental and Motor scales provide the researcher and analyst with a detailed picture about infants' development, this picture can be incomplete. The BSID-II BRS presents additional information, with a more subjective viewpoint. Interviewers can contribute their insights on the child's behavior, based on their personal observations throughout the entire interview.

The BRS, which consists of a 30-item Likert-type rating scale, allows the tester to rate by observation the infant's temperament, emotion, and test-taking behavior. The BRS has three factors: orientation/engagement, emotion regulation, and motor quality. The items are scored on the basis of the interviewer's observations and provide an unobtrusive alternative to parental reports of infant temperament. Because it is an observational evaluation of the child's ongoing behavior during the structured test-taking situation, it essentially controls for context when assessing infant temperament.

The BRS is recommended for use in the ECLS-B study as a balance to the parental-report methodology. Although the interviewer will have a chance to directly observe and interact with the infants during the administration of the BSID-II MDI and PDI, the BRS is an opportunity to record interviewer observations in areas where we would otherwise rely solely on parent-reports. In addition, the BRS is applicable for both the 9- and 18-month time periods. Finally, the BRS is easy to train on, and will fit in well with the HOME Checklist discussed above. The BRS and the HOME Checklist can be filled out together, after the interview has been completed.

Psychometric Properties

Three BRS factors will be appropriate for the 9- and 18-month infants we will be assessing.

- **Orientation/Engagement:** Includes 12 items, ranging from Predominant State to Energy, to Fearfulness. Measures the child's attitude toward approaching or avoiding environmental interactions that are task-related or social in nature.
- **Emotional Regulation:** Contains 10 items, including Attention to Tasks, and Cooperation. Includes the child's activity, adaptability, persistence, and frustration tolerance.
- **Motor Quality.** Includes 8 items, including Control of Movement and Frenetic Movement. Assess muscle tone, fine and gross motor control, and the quality of movement.

To determine the content validity of the BRS, BSID-II project staff and subject-matter experts reviewed the items carefully. By comparing the BRS items to relevant literature and other child behavior rating scales, the researchers determined that the BRS assessed the relevant behavioral domains.

The BSID-II researchers also conducted exploratory factor analysis on two samples—a standardization sample and a sample of children from mixed clinical samples. The purpose of this analysis was to determine if the BRS assessed the full range of behaviors likely to be seen in all types of field situations. The three factors listed above were extracted for the 6- to 12-month-old sample, accounting for 45.6 percent of the total variance in the standardization and clinical samples. The three factors listed above were also extracted (although with slightly more items) for the 13- to 42-month-old sample, accounting for 53.5 percent of the variability in the standardization and clinical samples.

The BRS was also compared to external criterion measures. Results indicate that there are low to moderate correlations between the BRS and the MDI and PDI. For 6- to 12-month-olds, the correlations between the three factors ranged from .26 to .46 for the MDI and from .13 to .37 for the PDI. For 13- to 42-month-olds, the correlations ranged from .20 to .34 for the MDI and .18 to .23 for the PDI. The low to moderate correlations suggest that the BRS taps a unique source of variance from the Mental and Motor scales.

The BRS has also been tested to determine its ability to distinguish children with severe impairments from normal children. It was found that children who obtained MDI or PDI scores below 70 (i.e., greater than two standard deviations below the mean) also scored in the Non-Optimal range on the BRS total and factor scores.

C.2.3.3 The ECLS-B Interviewer Checklist

As mentioned earlier, the IOC is comprised of eight observational rating items from the HOME-Short Form, identical to those used in the NLSY, the entire BRS of BSID-II (30 items), and three items from the Carolina Record of Individual Behavior (CRIB). The IOC will be completed after the interviewer has left the respondent's home and will be completed at the 9-month and 18-month data collection points.

The measures selected for the IOC are designed to collect information that complements that obtained through the parent's report and the direct infant assessments. The eight HOME-SF observational items will complement the selected parent-report items that are part of the standard HOME-SF, so that comparisons between multiple data sets will be possible. These items will collect information from the home visitor about the quality of the home learning environment and the nature of the parent-child interactions observed during the home visit. The BRS of the BSID-II provides ratings of the child's temperament and approaches to learning when given the BSID-II tasks to perform. As well, the BRS provides some information about possibly atypical development, such as neuromuscular skill, social interactions, frustration tolerance and affect during the BSID-II tasks. In order to bolster the ability of the BRS to identify possibly early markers of developmental lags or disabling conditions, three items from the CRIB were also selected, upon consultation with experts in the field of early disabilities and special education. Two of the CRIB items assess the child's ability to respond to verbal communication ("Child's Communication") and to become engaged in intentional manipulation of objects ("Object Orientation"). Early lags on these items may signal potential problems for the child by indicating difficulties that prevent normal learning and knowledge acquisition. A third item, "Attention Span" measures the child's degree of persistence in attending to objects, persons or activities, and appears to cover a wider range of potential attention difficulties or skills than a similar item already included in the BRS. The three CRIB items will provide analysts with additional information about potential delay or atypical development by supplementing the observational BRS measures.

C.2.3.4 Parent-Report HOME Items

Selected maternal-report items from the HOME-SF are incorporated throughout the parent-interview component of ECLS-B. These items will be administered along with the other parent-interview questions.

Below are listed ECLS-B parent interview items that were taken from the HOME-SF. Due to client and consultant changes, however, these items are not necessarily worded identically to those in the HOME-SF:

- How often do you get a chance to read stories to or look at picture books with (CHILD)? (9 and 18 months)
- About how many children's books are available to (CHILD)? (18 months)
- How often do you get a chance to read stories to or look at picture books with (CHILD)? (18 months)
- About how many cuddly, soft, or role-playing toys does (CHILD) have? (18 months)
- About how many push or pull toys does (CHILD) have? (18 months)
- Children seem to demand attention when their parents are busy, doing housework for example. How often do you talk to (CHILD) while you are working at home? (18 months)
- In the last week, Monday through Friday, how often did at least some of the family eat breakfast together? (18 months)
- In the last week, Monday through Friday, how often did at least some of the family eat the evening meal together? (18 months)
- In the last week, Monday through Friday, how often was the evening meal served at a regular time? (18 months)

C.2.4 9-month Resident Father Self-Administered Questionnaire

Until recently, fathers were often neglected in research on children's well-being. Though that omission is currently being corrected by a profusion of new research on fathers, there are still gaps in our understanding of the role of fathers' in children's lives. The items contained in this Self-Administered

Questionnaire (SAQ) seek to learn more about fathers from the fathers themselves. The 9-month Resident Father Self-administered Questionnaire is in Appendix D.

For most of this century, researchers studying children's development have tended to focus on the role of mothers in children's development. Fathers were assumed to be on the periphery of children's lives and, therefore, of little direct importance to children's development. Recently, however, more and more researchers and policymakers are reaching the conclusions that fathers influence their children's development in a variety of ways (Lamb, 1997; Clinton, 1995). In spite of the increasing awareness that fathers matter, most large national surveys do not gather much information about fathers. We know very little about what fathers think about being fathers or about their relationship with their children. What we do know is often obtained from mothers rather than fathers (Marsiglio and Day, 1997; The Working Group on the Methodology for Studying Fathers, 1997). For many topics, however, fathers would be better providers of information than mothers. For example, attitudes of fathers about being fathers or fathers' perceptions of the amount of time they spend with their children and the types of activities they share with their children would be better gathered from fathers than from mothers.

Activities with Baby (Q1—Q2). Lamb posits three basic types of parental involvement: interaction, in which the parent is actively engaged with the child; accessibility, in which the parent is present but not involved in activities that require direct interaction with the child; and responsibility, in which the parent takes responsibility for the maintenance of the child such as scheduling doctors' visits, clothing the child, and making sure meals are ready (Lamb, 1986). The items in this section provide more information on fathers' involvement in their infants' lives, tapping all three types of parental involvement. Information will be gathered not only on the type of involvement but also on how often fathers engage in different activities with their babies.

Several recent studies have examined the specific influence of father involvement on child outcomes. Children of more involved fathers have been shown to develop more balanced gender expectations and have more positive cognitive and socioemotional outcomes than other children (Coltrane, 1995). In a study that included a sample of low-income, urban African American fathers (or father figures) and their 3-year-old children, fathers' parenting satisfaction, fathers' employment, and fathers' level of nurturance (as measured in videotaped play observation) were associated with better cognitive and language development among children, even after controlling for maternal age and education (Black, Dubowitz, and Starr, 1996). The same study also found that homes were more child-centered when fathers resided in the home with their children.

Prenatal/Neonatal Experiences (ask only of biological fathers) (Q4-Q9). The items in this section provide information about whether the father wanted the child and how involved the father was in the birth process. It is assumed that fathers who are happy to learn that the mother is pregnant and who support the mother during pregnancy and at childbirth will continue to be supportive of the mother and become actively involved with the baby. The active involvement of fathers, in turn, is assumed to lead to greater father-infant attachment, greater child well-being, and a more harmonious relationship with the mother.

Among mothers, unwanted pregnancy is associated with inadequate prenatal care, more risk-taking behavior during pregnancy (such as smoking cigarettes or drinking alcohol), and a higher incidence of infant mortality (Moore et al., 1997). Unwantedness is also associated with poor child health, lower scores on verbal development tests for preschool children, and higher levels of abuse and neglect (Moore et al., 1997). One study has found that mothers with unwanted births spend less of their free time with their children and are more likely to spank or slap their children (Barber, Axinn, & Thornton, 1997). Almost no research has examined the effect on children of having been unwanted by their fathers. The research that exists suggests that unwanted pregnancies are associated with greater marital conflict during and after pregnancy and an increased likelihood of the father abandoning the family. A reasonable hypothesis is that if the father remains in the family, he may, like mothers with unwanted children, be more punitive with, show less warmth towards, and be more neglectful of the unwanted child. He may also be less likely to assume responsibility for child rearing tasks or to assist the mother in such tasks.

Expectations for Child Development (Q10-Q11). Fathers' knowledge about child development may be related to their expectations for their own child's development. As noted earlier, researchers have found that greater parental knowledge about child development is associated with positive parenting practices and child outcomes. Fathers will be asked the same set of items as mothers about their expectations for child development.

Feelings About Being a Father (Q3, Q12-Q14). These items provide information about fathers' attitudes toward being fathers and their opinions about what activities are important for fathers to do. Some of the items are indicators of fathers' pride in and infatuation with their babies and about the extent to which they enjoy holding and cuddling their babies. It is assumed that the more fathers are proud of their role and infatuated with their babies, the more likely they will be to be involved with their

infants. Similarly, it is likely that fathers who think that fatherhood is a highly rewarding experience will be more involved in their children's lives than fathers who do not feel this way. At least one study has shown that the more fathers value the role of father, the more likely they are to be involved with their infants (Parke, 1995). Involvement in their infants' lives, in turn, is likely to lead to stronger attachments between them and their babies.

Separations from Child and Duration (Q15—Q19). Fathers who are separated from their infants for extended periods of time may have more difficulty establishing strong father-infant attachments. Studies suggest that fathers who spend more time caring for their young children may develop stronger attachments to them (Grossman, Pollack, and Golding 1988). Prolonged absences may interrupt this process. Fathers who have been away for extended periods may also relinquish many of the tasks associated with childrearing to the mothers who will have assumed such tasks in their absence. If father-infant attachments are weakened by extended periods of separation, the effect could reverberate into future relationships between the child and the father.

Fathers' Influence in Child Care Decisions (Q20-Q23). Relatively little is known about the influence fathers have in determining whether and when children will enter nonparental child care or early childhood programs. These questions will be used to help provide more information on this topic.

Relationship with Wife/Partner (Q24-Q27). Marital quality affects children's well-being in several ways. It can affect the parents' mental well-being and alter the way in which the parents interact with their children and with each other (Cummings and O'Reilly, 1997). On the positive side, high marital quality is associated with parents having a more favorable attitude about being parents, with parents using more complex sentence structures in speaking to their children, and greater child attachment and security (Cummings and O'Reilly, 1997; Pratt, Kerig, Cowan, & Cowan, 1992; Goldberg & Easterbrooks, 1984; Howes & Markman, 1984). On the negative side, marital conflict contributes to parental stress, lack of parental warmth, inconsistent childrearing, and low parental involvement all of which have negative effects on children's well-being (Cummings and O'Reilly, 1997; Holden and Ritchie, 1991; Hetherington and Clingempeel, 1992). Moreover, father-child relationships appear to suffer more than mother-child relationships when there is marital conflict in the family (Cummings and O'Reilly, 1997).

Brief Marital and Fertility History (Q28—Q33). Number of marriages: In general, persons who have previously been married experience slightly higher rates of marital disruption than those who are married for the first time. Cohabiting unions are especially unstable.

Number of biological children and when first child was born. Social scientists have long viewed mother's childbearing history as critical to understanding children's well-being. The age at which mothers begin childbearing, the number of children that they bear, and the closeness with which their children are spaced all influence not only how the baby born, but how other children in the family fare. Less is known about how fathers' fertility history influences children's well-being. Fathers with children by other mothers may have obligations to these other children that constrain the financial contributions they make to and the time they spend with their resident children. Moreover, children outside the household can introduce another layer of relationships that may affect the dynamics between fathers and their current partners and between both parents and their children.

Background Information (Q34-Q43). This section collects background information about the fathers in the study. Fathers are asked to report on their birth date, country of origin, citizenship status, and English language fluency. Children of immigrants are expected to account for more than half of the growth in the school-aged population between 1990 and 2010 (Passel and Fix, 1995). In spite of their growing numbers, relatively little is known about their educational experiences (Portes and MacLeod, 1996). Information about young children of immigrants is particularly scarce (Board on Children and Families, 1995). The few studies that exist, however, show that students' proficiency in English is directly related to their parents' English proficiency (Moore et al., 1997).

Education, Employment, and Training (Q44-Q66). The educational attainment of parents measures knowledge gained as a result of formal school and reflects "status origins" of the family. Parental attainment levels have a strong influence on the child's odds of attaining a given level of schooling, for example, completing high school or college (Hauser & Mossel, 1985; Bowles & Gintis, 1976). Possible mechanisms for the effect of parental education on child outcomes are inherited ability, access to educational resources, differences in the value the parent places on education for the child, and ascriptive biases in both the formal organization of instruction and informal social relationships within the school setting (Bidwell & Friedkin, 1988).

The items on school experiences including grades in high school, type of high school program, math courses taken, and whether the father ever required special help in school for reading

provide indirect measures of the father's cognitive attainment and learning difficulties. Cognitive attainment measures knowledge and ability rather than years of schooling. In a study of young mothers, Moore and Snyder found that even after controlling for parental education, parental cognitive attainment is associated with children's cognitive and developmental outcomes (Moore & Snyder, 1991). Obtaining information about learning disabilities and difficulties is also important because many specific learning disabilities may have a genetic or familial component. In particular, having a learning disabled father has implications for sons (Moore et al., 1997).

Father's employment status, occupation, and training are important for several reasons. First, they are highly correlated with household income. Second, the quality of stimulation that parents provide their infants and preschool children is positively associated with parental occupation and education (Gottfried, 1984). Third, father's employment and occupation are linked to his self-esteem and mental well-being. In large part because of society's emphasis on the provider role of fathers, unemployment often negatively affects the relationship between fathers and their children. Unemployed fathers are more likely to leave or limit their involvement with their families (Elder, G.H. & A. Caspi, 1988). Among employed fathers, their type of employment affects their interaction with their wives and children. Repetti (1989) found that fathers who have highly stressful occupations tend to withdraw from their wives and to provide little childrearing support. Compared to fathers with less stressful jobs, these fathers are also more likely to withdraw from their children and are more likely to exhibit anger and impatience during their interactions with their children. On the other hand, fathers engaged in complex jobs associated with high levels of challenge and autonomy tend to discipline less harshly and spend more time helping their children, particularly their sons, develop skills (Greenberger, O'Neil, & Nagel, 1994). Overall, daily participation in child care is high among fathers in lower-level white-collar jobs and professional jobs, and lower among self-employed fathers and fathers in blue-collar jobs and middle or high management positions (Gerson, 1993).

Health and Well-being (Q67-Q80). The health section obtains information on fathers' height and weight, overall health, and presence of health conditions that limit employment or learning. Fathers' height and weight are correlated with the birth weight and length of their children and with the children's physical growth. Large fathers will tend to have larger babies than will small fathers. Beyond the physical size of parents, parents' overall health can affect the health of children and has economic consequences for the families (Zill, forthcoming). Ill health in parents is a source of family stress and may even lead to family disruption. Parents who are physically ill are less likely to have the energy, attentiveness, patience, and good humor needed to take care of young children (Zill, forthcoming).

The short version of the CES-D depression scale will be used to assess fathers' mental health. Depression is defined as a negative mood state so extreme that it interferes with daily functioning and productive activity. Parents who are depressed or highly stressed are less likely to provide emotional support to their children and are more likely to employ harsh disciplinary practices (Puckering, 1989; Richters & Pellegrini, 1989; Moore et al., 1995). In their interactions with preschool children, depressed mothers were more critical, less responsive, and less active (McLoyd & Wilson, 1991). Children of depressed parents display higher levels of both externalizing (e.g., aggressive) and internalizing (e.g., anxious, depressed) behavior problems, often have deficits in social and academic competence, and are in poorer physical health than children of nondepressed parents (Downey & Coyne, 1990).

Children's exposure to cigarette smoking is linked to such health problems as increased ear infections, asthma, and other respiratory problems. Father's use of alcohol and illicit substances such as marijuana and cocaine can affect his ability to effectively parent.

Stress due to negative life circumstances and events has been found to be related to poorer caregiving behavior (Pianta, Egeland, & Sroufe, 1990) and higher levels of depressive symptoms (Hall, Williams, & Greenberg, 1985). Parents in families under strain from multiple difficulties are likely to be less successful as parents since parental stress has been found to be associated with socioemotional, behavioral, and cognitive difficulties in children (Pianta, Egeland, & Sroufe, 1990). In a similar fashion, it is expected that fathers who have experienced multiple stressful life events will be less able to successfully fill their role as fathers.

Illnesses such as schizophrenia, bipolar disorders, depression, alcoholism, and drug abuse problems have a genetic component. Thus, they tend to run in families. Such a history, of course, may have important consequences for children. The items in this section ask fathers whether any of their blood relatives, such as mothers, fathers, siblings, aunts, uncles, cousins, or grandparents, have had these types of health problems.

Living Arrangements When Growing Up (Q81-Q88). Parents own families of origin have an important influence on the type of parents that they become and the stability of the families that they form. Adults who grew up in single-parent families are more likely to divorce than are adults who grew up in stable two-parent families. Similarly, adults who came from families that experienced economic difficulties may also encounter such difficulties when they form their own families.

Education of and Closeness to Own Parents (Q89-Q92). Studies suggest that nurturant fathers became that way because of the way in which they themselves were fathered, though some became that way to compensate for deficits in fathering that they received while they were growing up (Snarey, 1993). The first path toward nurturant fatherhood is often referred to as modeling good father behavior, while the second is described as reworking negative experiences (Snarey, 1993). It is expected that fathers who feel close to their own fathers and mothers will be more involved and nurturing fathers than men who are more distant from their own parents. The evidence for reworking poor fathering, however, suggests, that men who do not feel close to their own fathers may also be more nurturant than men who give a more neutral assessment of their relationships with their own fathers.

Beyond modeling or reworking childhood experiences, families of origin are important for the emotional and financial support they provide to their children and grandchildren (Cherlin and Furstenberg, 1986). The availability of a variety of social supports to parents is associated with the security of infant-parent attachment (Crockenberg, 1981). It is assumed that fathers who have strong relationships with their families of origin will be less likely to be overwhelmed by the stresses and strains of living and thus will be better able to fill the father role.

Religion and Social Connectedness (Q93—Q96). Parents' religiosity, including high levels of religious involvement and commitment, is associated with higher levels of marital quality and spousal support, and lower levels of conflict, all of which are associated with better parenting (Brody, Stoneman, Flor, and McCrary, 1994). Greater parental religiosity is also related to more cohesive family relationships, lower levels of interparental conflict, and fewer externalizing and internalizing behaviors in children (Brody, Stoneman, and Flor, 1996).

Stressful life events, the stresses of daily living, and the stresses of parenting can be mitigated by a supportive social network. Parents with more ties to their neighbors and the larger community are more apt to have a strong social network in place than families with fewer ties. Affiliation with a religious community is one important tie. Other important ties include belonging to other community organizations, volunteering, and getting together with friends or neighbors.

C.2.5 Nonresident Father Interview

The Self-Administered Father Questionnaire discussed above will partially fill the existing gap in our knowledge of fathers and their relationships with their children. However, many fathers do not live with their children. Nearly one-third of all children are born outside of marriage, and the majority of these children do not live with their fathers. The high incidence of divorce and separation in this country leads to more children living apart from their fathers. Although many fathers who do live with their children lose contact with them over time and tend to play a smaller role in their children's lives than do resident fathers, a significant proportion of nonresident fathers do remain involved. Moreover, their involvement is important to children's lives (Amato, 1998; Nord, Brimhall, and West, 1998). For both policy reasons and to understand children's development, it is important to learn more about fathers who live apart from their children. The long version and the short version of the Nonresident Father Instrument is included in Appendix E.

Activities with Baby. See Father SAQ justification. Items will remain essentially the same. There will be a few additional ones to cover things that are more appropriate for nonresident fathers. For example, the nonresident father questionnaire includes questions about how far away the father lives from the child, how long it has been since he last saw the child, how often he sees the child, and how often he talks with the child's mother about the child.

Prenatal/Neonatal Experiences. See Father SAQ justification.

Feelings About Being a Father. See Father SAQ justification.

Relationship with Child's Mother. Mothers can act as gatekeepers, preventing fathers' access to their children. Similarly, if the relationship is highly conflicted, fathers may be less willing to spend time with the child or to provide support for the child. In order to understand fathers' involvement in their children's lives, it is important to know about how they get along with their former wives/partners. Fathers who have remarried may be discouraged by their current spouse to remain involved in the lives of children from a previous relationship. Thus, we also ask nonresident fathers about their current marital status.

Fertility History and Child Support. See Father SAQ for justification of number of biological children has fathered and when first child was born. Nonresident fathers will also be asked

about child support payments, both formal and informal (such as buying clothes or diapers for child, or giving the child's mother extra money to help out). Several studies have shown a link between receipt of child support and educational attainment and academic achievement (Knox and Bane, 1994; Baydar and Brooks-Gunn, 1994). Payment of child support also appears to be associated with a lower level of school behavior problems (McLanahan et al., 1994). Most studies focus on formal child support payments, but fathers may also provide support informally. One study found that among mothers with no child support awards, 24 percent of divorced or separated mothers and 47 percent of mothers of children born outside of marriage received some monetary support from fathers (Argys, Peters, Brooks-Gunn, and Smith, 1996). Other studies have found that fathers, particularly those who are economically disadvantaged and therefore can't make regular support payments, contribute to their children in other ways such as buying food, clothing, or diapers (Sullivan, 1993; Achatz and MacAllum, 1994).

Background Information. See Father SAQ justification.

Education, Employment, and Training. See Father SAQ justification.

Health and Well-Being. See Father SAQ justification.

Living Arrangements When Growing Up. See Father SAQ justification.

Education and Closeness to Own Parents. See Father SAQ justification.

Religion and Social Connectedness. See Father SAQ justification.

Living arrangements and household income. Fathers with stable living arrangements are likely to be better able to remain in contact with their children and may even be able to provide child care assistance and emergency care assistance to the mothers. The questions in this section obtain information on the type of housing the father lives in, whether it is subsidized housing, the number of other persons living with him, and overall household income.

C.3 18-month Home Visit

C.3.1 Justification for 18-month Parent Interview¹

The 18-month parent interview consists of 24 sections collecting updated information about the household composition and the child's parents' employment and education, the child's health, growth, and development, and environmental factors that predict children's outcomes such as SES, educational activities, and nonparental child care. Appendix F includes a detailed description of the items in the 18-month parent interview and the 18-month parent instrument.

Section B – Update Household Composition

Information about household composition will be kept current for several reasons, including the need to define familial SES, the need to construct poverty groups, and the value of the household as a social support network. A roster of all household members who are currently residing with the child will be obtained in Section B.

Section C – Child's Development

Information about the child's achievement of key developmental milestones will be obtained at 18 months in order to assess the child's growth during the intervening period. Several items from the Minnesota Child Development Inventory (MN-CDI) were selected because they are developmentally appropriate for 18-month-olds. Items C1 to C4 include how old the child was when he/she: (1) took his/her first steps; (2) started saying first words; (3) started playing with other children; and (4) started feeding him/herself. The transition from preverbal to verbal communication is a singularly critical developmental milestone for children. At 18 months, the age at which children are typically making this transition, early communication (Items C5 to C7) will be measured by the expressive language and language comprehension subscales of the MN-CDI (Ireton, 1992) and by the "Early Words" and "Words

¹ In preparing the justification of the proposed content for the Parent Interview, we have made free use of a report that Kristin Moore and others at Child Trends produced for NCES entitled *Rationales for Proposed Birth Cohort Study*. We wish to acknowledge the tremendous amount of work that they invested in preparing that useful report.

Children Use" subscales of the MacArthur Communication Development Inventory (M-CDI; Fenson, Dale, Reznick, Bates, Thal, and Pethick, 1994).

Attachment (Items C8 to C12), the child's formation of an enduring affective bond with the primary caregiver, is an important achievement in the child's socioemotional development and by 18 months the child's organization with respect to his/her relationships with key parental caregivers is relatively stable. To assess the child's attachment, we propose adapting two of the rating scales used in the NICHD study of the quality of early child care that assess the child's behavior in separations from and reunions with the parent.² The first rating scale, Caregiver Ratings of Parent-Child Behaviors When Parent Leaves, asks the parent to describe the child's behavior at times of separation from the parent. The second rating scale, Caregiver Ratings of Parent-Child Behaviors When Parent Returns, and asks the parent to describe the child's behaviors upon reunion with the parent. To make these scales applicable to children who are not yet in formal alternate child care, the questions were changed to include any separation from the parent lasting over an hour when another adult is put in charge of the child. In addition, due to time constraints, a short set of items were selected from the larger sets on the basis of their ability to discriminate securely, anxiously and avoidantly attached children.

Sections D and E – Update Mother's and Resident Father's Education, Employment and Income

Parental education predicts positive outcomes for children in many aspects of child development. In addition, parental employment determines the availability of material and nonmaterial resources for the child. Less is known about the direct effects of father's education and employment on children's development beyond their relationship to household income. It is generally known, however, that maternal education is one of the strongest predictors of positive child outcomes. It is imperative, therefore, that questions be included that ask about parental education, occupation, and income. This information is obtained for both the mother and the father in parallel questions in Sections D and E.

²Data in support of these instruments have not yet been published. We are, however, in contact with project members who have informed us that preliminary results should be available in the coming months.

Section F – Home Educational Activities and Environment

An environment that is rich in stimulating materials positively influences cognitive development and subsequent achievements of children. In addition to the beneficial effects of joint parent-child book reading, there is also evidence that parents who read more for themselves tend to have children who read at earlier ages (Teale, 1984). In addition to verbal interaction, engaging young children in shared activities, such as going shopping or to a zoo, is another form of cognitive stimulation for children. This section includes a collection of questions that obtain information about the family literacy environment and familial engagement in stimulating activities. In addition, it is necessary to "child proof" the home as much as possible to allow the child to explore the environment safely. Therefore, Item F14 asks about a number of safety practices that may be followed in the home.

Section G – Expectations for Child Development

Items G1 and G2 obtain information about parental knowledge about child development, which has implications for individual child development. In general, knowledge of child development affects parents' child rearing practices, for example by influencing how parents structure their interactions with their children as well as how they organize the child's environment. Further, parents' expectations for their children's school performance and their ideas about children's ability (Item G3) are also powerful predictors of children's ideas about their own academic ability in elementary grades (Entwisle & Baker, 1983; Parsons, Adler, & Kaczala, 1982). This sections includes sets of questions that ask about parental knowledge of child development and aspirations for children. Because these may be affected by the child's rate and level of development and by family experiences, it is important to measure aspirations and expectations over time to allow comparison with 9-month responses.

Section H – Marriages and Partner Relationships

Because martial relationships and structure so strongly influence child development and outcomes, we will update the martial history data we gathered in the 9-month interview. Questions H1 to H9 ask about the respondent's current marriage or relationship, as well as marital happiness and conflict.

Section I-L – Child Care Arrangements

With the increase in children in substitute care has come increased debate about the consequences for various child outcome measures. The complexity of children's child care arrangements, the variability of the characteristics of the care, and the fluidity with which children pass from one arrangement to the other are important information that must be captured. Therefore, Sections I-L collect basic information from the parent about the child's nonparental care arrangements, including the number of arrangements the child currently has, the adult: child ratio, the number of children in the group, the languages spoken, etc. Because the child care interview occurs at 18-months, we also ask for the child care provider's name and address.

Section M – Child Health

Health (Items M9 to M33, M38 to M41) plays a pivotal role in the lives of children. In the infancy and toddler period, the child's health status depends on a number of parental and community factors. One way parents contribute to children's well-being is by insuring that the child has adequate nutritional intake. Adequate nutrition is a prerequisite for maintaining children's physical well-being. A series of questions (Items M1 to M8) obtain information about basic issues in children's early nutrition and eating habits. Parents also contribute to children's health and well-being by securing adequate health care for children, usually through the obtainment of health insurance coverage. A series of questions obtain information about the child's health, health insurance coverage and whether the child was unable to receive care due to a lack of insurance (Items M34 to M43, M47).

Section N – Family Health

Parenting resources can be limited. The presence of another child with a disability in the family reduces the amount of parenting resources available to the other child(ren). Therefore the parent is asked to update the presence of any household members with disabilities in Items N1 and N2. Maternal health status (Items N2 to N5) also contributes to the parenting resources that are available to the child. The extent of limitations to the mother's activities due to the presence of maternal health problems is assessed in a set of three questions. Items N6 to N12 ask about maternal engagement in behaviors that are considered health risks, such as smoking and drinking. According to Shonkoff (1992), maternal

depression has important implications for child outcomes, and Items N13 to N45 the mother about her past history with depression and her current feelings and behaviors that may indicate depression. Finally, information about the health of close family members is obtained in items N46 and N47.

Section O – Household Food Sufficiency

Adequate nutrition is critical to physical well-being. Section O consists of 16 items that were provided by USDA and ask about the adequacy of the family's food sufficiency, with particular attention paid to the nutritional intake of the child.

Section P – Community Support

Community support may influence child outcomes by supporting parenting practices and by providing enriching experiences for the child. Support may be obtained from county centers, community action groups and Neighborhood Watch programs. Item P1 asks about whether the family has received any services from various community agencies, including job training, education assistance, utilities assistance, parent education, etc.

Section Q – Neighborhood Quality/Safety

The neighborhood can be a source of social support or a source of stress and potential danger for the family. For example, substandard housing is associated with infant death. And neighborhoods differ greatly in the degree of safety for young children. Motor vehicle accidents are a leading cause of death for young children. To control for housing quality, the parent is asked about the quality of, and satisfaction, with current housing, and perceptions of neighborhood quality, and the extent of the parental social network. To control for residential stability, the parent is asked how many different places the family has lived and whether residential instability has resulted in extended separations of the child from the parent.

Section R – Parenting Behavior and Attitudes

Affectionate behavior by parents is associated with several positive outcomes for toddlers, including a secure child-mother attachment relationship (Ainsworth, Blehar, Waters, & Wall, 1978). Sensitivity and responsiveness to toddlers' signals is also associated with positive outcomes for children. Negative parenting practices are associated with poor outcomes for children in both the cognitive and social domains. Section R includes several questions about child rearing practices that were adapted from the Block (1965) Child Rearing Practices Report. A shortened version of the CRPR assesses child-rearing patterns and is divided into two subscales: (1) authoritarian parenting, which involved the frequent use of physical punishment, verbal reprimands, prohibitions, etc; and (2) authoritative parenting, which assesses emphasis on inductive methods, reasoning with the child, appreciation of the child's accomplishments, the fostering of individuality of the child, and encouragement of open communication between parent and child. Twelve items (Item R5) were selected for inclusion in ECLS-B, 5 assessing authoritarian control, 4 items assessing authoritative parenting, and 3 items that assess adherence to rules.

Section S – Social Support

A supportive social network has been found to affect the quality of parenting provided to the child as well as affecting the child's security of attachment (Belsky & Isabella, 1988; Goldberg & Easterbrook, 1984; Isabella & Belsky, 1985). Therefore this section includes a series of questions that ask about parental sources of support when faced with emotional problems, financial problems, parenting problems, and in cases of emergency.

Section T – Family Routines

Family routines and the regularity of family life provide a predictable structure to a child's day and are associated with positive educational and behavior outcomes in children. To examine the contribution of predictable family daily routines to children's later cognitive competence, this section asks the primary caregiver to report about the child's daily mealtime and bedtime routines, including the timing of the meal, who is present, how often the family eats together, etc. These questions are included at this data collection point in order to capture the increased participation of the child in these daily routines.

Section U – Biological Father's Information

According to Lamb (1986), fathers contribute to their children's development in three ways. One is by engaging in mutual interactions with the child. Another is by simply being accessible to the child. The third is by accepting responsibility for the care of the child. The father's ability to accept responsibility for caring for the child and maintaining the child's well-being would be affected by the father's employment status collected in section E. The extent of the father's actual responsibility for the child's care is assessed in a series of questions that ask whether the father is involved in caring for the child and whether the father has legally agreed to provide child support and, if so, what the financial arrangement is.

Section V – Welfare and Other Public Assistance

Receipt of public assistance is important to include because it reflects a serious level of poverty and because the status of receipt may change over time, particularly with current emphases on welfare reform. Because of the pervasive effects of poverty and because of the potential for public assistance to mitigate these negative effects, a set of questions ask the parent about the receipt of such assistance as TANF, WIC, and Medicaid.

Section W – Household Income

There are many ways in which parental income level may affect the attainments, health, and behavior of children (Children's Defense Fund, 1994; Duncan & Brooks-Gunn, 1997; Hill & Sandfort, 1995; Huston, 1991; Korbin, 1992). Family income can affect children because money can be used to buy things that promote optimal growth and development. Lack of resources to purchase toys or good quality child care may mean that low-income children do not have as many stimulating experiences as do children in more affluent families. Stressful lives and less positive emotional health may themselves influence the day-to-day interactions between parents and children. So, for example, low-income parents may exhibit more inconsistent or harsh behavior with their children, or they may be less emotionally available for their children. Therefore, household income is a critical datum that must be obtained.

C.3.2 18-month Direct Child Assessment

Please refer to the 9-month justifications (Section C.2.2.) of the BSID-II, the NCATS, and the Physical Growth Measurements. In addition to these constructs, we propose to measure attachment security using the Attachment Q-Sort during the 18-month direct assessment. As stated below, attachment security is an important precursor to socioemotional development. The protocol for the 18-month direct child assessments is included in Appendix B.

C.3.2.1 Attachment Q-Sort

Westat's approach to instrument development for ECLS-B has been to assess comprehensive aspects of children's early growth and development using state-of-the-art psychometrically sound measurement methods that, to the extent possible, involve multiple sources (parents, child care providers and interviewer/observers). We also place a premium on balancing the scientific rigor of the methods with budgetary, logistic and respondent burden constraints.

In this study, children's health and development comprise key dependent variables, against which the predictive value of a large number of home environment, child care, parenting, family background, and community factors will be tested. Within the broad scope of children's health and development, we have been following a "track" in the measurement plan that aims to comprehensively assess five key aspects, one of which is social-emotional development.

At the 18-month period, one of the best indicators of the child's social-emotional development is attachment, and attachment theory has become the dominant paradigm for capturing young children's early social development. It also fits well with the use of the NCAST which allows measurement of parent-child interaction variables that are precursors to both attachment formation and language development and the other measurement procedures already proposed for ECLS-B (i.e. the BSID-II, temperament measures, expressive and receptive language). Because ECLS-B is the first national study to follow children from birth to school age, the addition of an in-depth measure of attachment would greatly enhance the validity of the data and the usefulness of the findings.

The revised study design which specifies a second in-person home visit when the children reach 18 months of age (and deleting the two telephone interviews at 12- and 18-months) presents an opportunity for including a valid and reliable assessment of infant attachment. The formation of secure attachments with caregivers has become recognized as a hallmark of socioemotional growth and development (Easterbrooks and Resnick, 1988). Many research studies, including large-scale national studies such as the Early Head Start national evaluation, the Comprehensive Child Care Development Project, and the NICHD Early Child Care Study employ measures of attachment spanning the age range of 12-months through 3 years.

There is good reason to use a measure of attachment. Security of attachment in the first two years has been systematically related to variations in maternal caregiving behavior. Secure attachment is related to higher cognitive and social functioning, higher levels of self-esteem, better peer skills and greater 'ego-resilience' during toddlerhood. Moreover, attachment classifications of infants are consistently correlated with maternal responsiveness, competence and maternal self-confidence. Attachment security has also been linked to more positive marital adjustment, and other qualities of the marital relationship, and to levels of social support provided to the parent by family members and friends. Thus, children's attachment seems not just an important precursor to the child's later social-emotional development, but it is a marker of factors operating within and external to the parent-child relationship that explain individual differences in growth trajectories.

The most well known measure of attachment at the 12-18 month age range is the Strange Situation. This assessment tool was developed for use initially in a longitudinal study of the infant-mother relationship and has been reliably used from 12 to 18 months of age. While the Strange Situation was developed from extensive home-based observation, it is primarily a laboratory-based instrument and may not be suitable for in-home assessments in a large, national study.

The Attachment Q-Sort procedure was developed as an economical alternative to the Strange Situation to describe attachment security, dependency and sociability of children between 12-months and 5 years of age who are observed in the home. Its advantages include allowing for the study of larger samples in naturalistic settings, keeping the observers blind to the constructs that are being assessed, and lending itself to a wide array of quantitative analytic techniques (Waters and Deane, 1985). It seems particularly valuable in studying social development across a variety of cultures including children from China, Colombia, Germany, Israel, Japan, Norway and the United States (Posada, Gao, et al, 1995). It has also been applied in both live and videotaped assessments with equally reliable results and it can be

done by parents trained in the Q-Sort procedure, or by outside observers. In one study, there were marked similarities in the Q-set scores for sites using different observational methods (live vs. videotape), for children from different cultures (American and French-Canadian), and for children ranging in age from 18 to 36 months (Strayer, Verissimo, Vaughn, and Howes, 1995).

The attachment Q-Sort has been used in a large number of studies, including the NICHD Early Child Care Study. Maternal-completed Q-Sorts were related in ways predicted by attachment theory to Strange Situation classifications (Vaughn and Waters, 1990; Howes and Hamilton, 1992; Bosso, Corter and Abramovitch, 1990), levels of parenting stress (Jarvis and Creasey, 1991; Teti et al, 1991), quality of parent-child relationships (Teti et al, 1991), marital satisfaction (Goldberg and Easterbrooks, 1984; Howes and Markman, 1989), and the child's relationships with younger siblings (Bosso et al, 1990). There have been a number of studies supporting the validity of the attachment Q-Sort when used as either an observer-based or parent-completed measure. Researchers have achieved good results using relatively untrained observers, including the child's parents as observers and reporters of the child's secure-base behavior (Posada, Gao, et al, 1995). Recent reports from Posada and others suggest that the Q-set items do not require as much instruction as originally envisioned and that they still provide reliable indicators of attachment-related behavior. However, Teti and McGourty (1994) caution that observers must be confident that they obtained a sufficiently varied and large sample of the parent-child behavior, and mothers must be carefully trained. Nevertheless, they reported a high level of agreement between observations of mothers and trained observers. Thus, the wide age range that the measure can accommodate as well as its utility and robustness in different observational contexts and cultures makes it uniquely compatible with the goals and direction of ECLS-B.

C.3.3 18-month IOC

The 18-month IOC measures are identical to the 9-month IOC items, described in Section C.2.3. The protocol for the interviewer observations is included in Appendix C.

C.4 18-month Child Care Provider Telephone Interview

The 18-month child care provider telephone interview will be administered to one non-parental child care provider of the 18-month old child. It is important to identify which provider among

possibly several are providing the most amount of care to the child, and it is also important to identify the type of child care arrangement the child is in, because both these factors have been identified in previous research as important variables affecting the child's well-being and experiences in alternate child care. It is also important to identify the type of child care arrangement in order for the telephone interviewer to know the respondent who will be contacted. As mentioned earlier, when there is a center-based arrangement, there is a brief interview of the child care center director, followed by an interview of the person who is most in charge of the target child at the center. In all other arrangements, we interview only the direct child care provider who spends the most time with the child.

There are four basic types of child care arrangements commonly available to parents, and child care providers from all four arrangements will be asked to participate in the telephone interview. The definition of the four types is based on the 1995 National Household Education Survey on the care and educational experiences of young children titled "Child Care and Early Education Program Participation of Infants, Toddlers and Preschoolers" (NCES 95-824, 1996).

The four basic types of child care are known as: center-based care, family day care, in-home care, and relative care. Generally, **center-based care** provides children with care and education in a nonresidential setting such as day care centers. A more elaborated definition of center-based care comes from the 1990 National Child Care Survey as follows: "Established settings where children are cared for in a group away from their homes for all or part of the day" (NCCS, 1990, pp. 442).

When supplemental child care is provided in home-based settings, it is important to distinguish between care provided in the child's own home or in the home of someone else, and whether the care is provided by a relative of the child (other than the child's own parents) or by a nonrelative. These distinctions determine which of the three other types of care arrangements the child may be in at the time of the 18-month home visit. Care provided by a nonrelative in the caregiver's home is commonly called **family day care** (NCES 95-824, 1996). The 1990 National Child Care Survey defines family day care as: "A private home where an adult cares for children from infancy through school age on a regular basis." Further, the 1990 National Child Care Survey also indicates that the care is provided at the home of the caregiver and not in the child's own home. Thus, if the care is provided in the child's own home, the type of arrangement would not be considered family day care and must fall within the remaining two categories: relative care and in-home care. According to the 1996 National Household Education Survey, **relative care** is defined as care provided by a relative other than the child's parents, in the child's own home. This is usually care by a grandmother, aunt, cousin, or other relative. Finally, if the care is

provided by a non-relative in the child's own home, such as by a part-time or live-in nanny, the care is called **in-home child care**.

In order to accurately classify the type of care provided by the child care provider, we ask the parent a number of questions regarding the location of the care, whether other children are present, and who provides the care. To make sure we have arrived at a correct classification, we also use information given by the child care provider during the first part of the interview. In this way, we can ensure that the type of child care arrangement is properly classified. As well, we try not to rely on the parent's report of the type of child care arrangement, because often parents do not know the distinctions between types of arrangements very well, or may leave out important information regarding the type of arrangement the child is currently experiencing.

Section A – Introduction

This section verifies the information about caregiving arrangements that was collected during the 18-month parent interview as well as verifying the identity of the child's primary caregiver, type of care, and the name of the center's director.

Section B – Center Information

Questions in Section B attempt to capture the variables that have been found in previous surveys to influence child care quality. These variables include the type and location of care, i.e., whether center-based or family-based; the adult-to-child ratio; the number of children cared for, which indicates opportunity for contact with other children and for group activities; the quality of the caregiver's interaction with the child; caregiver training and experience; and the child-centeredness of the environment. Information is also obtained about whether the child care is accredited or licensed, for-profit, independent, religiously affiliated, etc. In addition, in the case of paid care, information about the cost of child care is obtained because it has been found to be associated with quality care.

Section C – Staffing

This section obtains information from the center director about staffing issues, such as the size of the staff, number of full- and part-time staff, and the rate of staff turnover. The number of children cared for and the adult-to-child ratio are important variables that are associated with quality: a large group size and a low adult-to-child ratio have been associated with several negative outcomes for children. As well, a high staff turnover indicates instability of care over time and has been associated with several negative outcomes for children's cognitive and socioemotional development. Instability of care can also occur if it is the center's policy to routinely change caregivers (for example, when a child reaches a predetermined age or has achieved an important developmental milestone, such as toilet training) or to keep the same child(ren) with the same caregiver for the entire duration of care. Therefore question C6 asks about the center's policy about continuity of care.

Section D – Center Services

Item D1, Health and Developmental Screenings, obtains information about the kinds of services, if any, the center provides for its children and families. The services listed are among those that ensure the physical, emotional and cognitive development of children, all of which are important predictors of later child development outcomes.

Section E – Transition to Caregiver

The items in this section simply obtain the name of the child's primary caregiver and set the stage for the transition to the primary caregiver's interview.

Section F – Care of Focal Child

This section begins by obtaining basic information, in items F1 to F4, from the primary caregiver about how long the child has been in the care of this individual and how much care the child receives, i.e., how many hours per day and days per week. Items F5 through F9 obtain information about how much help from other adults the primary caregiver has when caring for the child. The information

obtained in this set of questions can also be used in conjunction with information provided in the Parent Interview about the number of different child care arrangements the child has had. The remainder of the items in this section establish basic information about the language environment the child experiences while under the care of this individual.

Section G – Other Children in Care

The size of the group of children that child care providers care for at any one time has been found to be an important predictor of the quality of care, especially in center-based care. Therefore items G1 through G5 obtain information about the size of the group who share the caregiving when the child is present and the group's age range which can indicate the amount of demand placed on the primary caregiver. It is also possible that the effects of group size may be mediated by the characteristics of other children in care. For example, a relatively large number of younger children, a wide age range, or the presence of special needs children or non-English speaking children, may place additional demands on the caregiver's ability to provide adequate nurturant care. These competing demands may reduce the availability of care to any one child. Therefore, items G6 through G10 obtain information about the characteristics of children in the child's group.

Section H – Child's Development

One of the most important developmental milestones that children typically achieve during the toddler period is communicative ability, both through gestures and through the acquisition of language. All the items in this section obtain information about children's communicative abilities. The questions are arranged such that if the child is able to speak in 2-word utterances, the questions about communication via gestures can be skipped. For children who are preverbal, Item H2 obtains information about the child's ability to communicate by using four gestures that are common at this age. These items were selected from the "Actions and Gestures" subscale of the MacArthur Communication Development Inventory because they are appropriate for 18-month olds and are behaviors that child care providers are likely to observe in the children they care for. Item H3 includes items that tap children's expressive language and language comprehension.

Section I – Child Temperament

Section I obtains information about children's temperament, generally defined as individual differences in a set of personality characteristics appearing early in life that have a probable constitutional biological basis. It is thought that these characteristics have both direct and indirect effects on children's later educational outcomes. The child's ability to pay attention, for example, may be directly associated with the child's ability to learn. An example of an indirect effect would be the caregiver's frustration with caring for a difficult child may have a negative impact on the caregiver's ability to provide nurturant care. The three items in the 18-Month Child care Provider Interview that measure temperament were taken from NLSY and NLSCY: (1) "How often do you have trouble soothing or calming child when he/she is crying or upset? (2) "How much does child smile, laugh or make happy sounds?" and, (3) "For most caregivers, how difficult would [Child] be to take care of?"

Section J – Caregiver-Child Relationship

The child-caregiver relationship is a critical aspect of child care quality. Research suggests that the quality of the child-caregiver relationship is an important predictor of children's outcomes. Therefore, Section J includes two sets of items that assess the quality of the child-caregiver relationship. The first set of six items was selected from the 15-item Short Form of the Student-Teacher Relationship Scale (STRS: Pianta, 1996), which has its conceptual roots in attachment theory and research. The STRS has been used as a measure of student-teacher relationship in several large-scale national studies, including the NICHD Study of Early Child Care, and the Cost, Quality, and outcomes in Child Care Study, and in many smaller-scale studies. Three items assess the closeness of the relationship between the caregiver and the child and three items assess conflict between the caregiver and child. Only those items that were age appropriate were included. The second set of items were selected from the Child-Caregiver Relationship Inventory (van Ijzendoorn, 1998) and measure the caregiver's general perception of the quality of the child-rearing relationship between the caregiver and the child.

Section K – Parental Involvement

Questions K1-K4 comprise a brief set of four questions that obtain information about parents' involvement in the child's alternate care. One question asks about the extent of parental

involvement in the child's care. Two questions ask about the frequency and direction of communications about the child's well-being while under the child care provider's care and one question obtains information about the caregivers' attitudes toward spontaneous visits from parents. Item K5 consists of a subset of questions from van Ijzendoorn's (1998) Parent-Caregiver Relationship Inventory (PCRI) and obtains information about the quality of the relationship between the parent and the caregiver. This instrument has been used in a survey of a national Dutch sample (N-568 children). Seven items were selected to assess the provider's impression of the relationship with the parent. This set of items is similar to that used in the Parent Interview to obtain the parent's impression of the relationship.

Section L – Caregiver Beliefs and Attitudes

Caregiver knowledge and beliefs about child development may be related to the development of the children in their care. Items L1 and L2 obtain information about the caregiver's knowledge of child development the early years, the achievement of basic developmental milestones and the ages at which children achieve certain milestones. These items were selected from the Knowledge of Infant Development Inventory (MacPhee, 1988) and have been used previously in large scale studies of child development. Item L3 assesses beliefs about typical child-rearing issues, such as the need for strict rules, the best age for beginning toilet-training, etc. The items included in this set assess the extent to which caregivers value obedience to authority and try to control the behavior of children in their care. Similar items are included in the 18-month Parent interview, so the consistency of attitudes between parents and caregivers can be examined. Item L4 consists of a subset of items from the Child Rearing Practices Report (CRPR) that have been modified to measure caregiver practices and attitudes toward child rearing. There are two subscales that include an authoritarian pattern of child care and an authoritative pattern.

Item L5 asks caregivers to indicate how important various factors are in providing quality child care. There is some research to suggest that there is variability in caregiver attitudes about what constitutes quality care. For example, some caregivers believe that the most important consideration is providing a safe environment whereas other emphasize the importance of establishing a warm and nurturant relationship with the child.

Caregiver perceptions of stressful caregiving events are likely to have an impact on the quality of care the caregiver is able to provide. Item L6 asks respondents to indicate how frequent typical

routine caregiving events are and then to indicate whether they are perceived as stressful or not. In items L7 and L8, caregivers are asked about their neighborhood as a place to provide care to children. Neighborhood quality is of particular importance for informal care providers who often care for children in their homes because neighborhoods differ greatly in their of safety. The neighborhood where the child is cared for is a variable that may have an impact on development.

Section M – Learning Environment

Items M1 to M9 obtain information about the learning materials and educational activities that are available to the child while in the provider's care, such as the number of books available to child and how often the caregiver reads to the child(ren). Item M10 asks the caregiver about health and safety practices that enable the child to explore the environment safely. These "child-proofing" practices include such precautions as using electrical outlet covers, keeping hazardous materials in locked cabinets, having working smoke detectors. These practices are particularly important at this age because it is at this time that the toddler is becoming mobile and exploring the environment. In addition, similar questions about health and safety practices are asked during the parent interview, which will enable comparisons across caregiving settings.

Items M11 and M12 obtain information about the meals and snacks, if any, provided to the child by the child care provider. These two items were contributed by the USDA and are asked only of center directors and family child care providers.

Section N – Caregiver Background

Items N1-N11 obtain basic sociodemographic information about the caregiver in order to describe the basic resources that caregivers may have available to them when caring for the child. Among the important background variable are gender, age, race, ethnicity and country of origin, marital status and whether the caregiver has any children. Items N12 and N13 ask about the number of books the caregiver has read in the past year. Items N14-N28 obtain information about the caregiver's qualifications in terms of general education level, training specific to early childhood, and previous experience.

There has been recent interest in studying why people provide child care in other studies of child care providers (e.g., the NICHD Early Child Care Research Network). Asking the items in question N29 about motivation for providing child care will allow further investigation of how this topic is related to child care quality and child outcome.

Section O – Caregiver Health

The first two questions (O1 and O2) ask the care provider to rate her current health status (as excellent, good, etc.) and whether a health problem limits her ability to work. The next three questions (O3-O5) ask about the caregiver's current smoking habits and whether anyone else smokes around the child while the child is in care.

Section P – Income

Several major studies, such as the National Child Care Study (NCCS) and the National Child Care Staffing Study (NCCSS) have found that higher salaries were associated with higher quality child care environments. Therefore, caregivers are asked about the amount of income they earn for providing child care in Section O. In addition to salary earned for providing child care, household income is obtained from caregivers. Depending on the location of care provision, the caregiver's income may have more or less of an effect on child's care. For example, caregivers from low-income households may exhibit more inconsistent or harsh behavior with their children, or they may be less emotionally available for their children.

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APPENDIX A

Divider Title: _____

Appendix A

JUSTIFICATION FOR THE ECLS-B 9-MONTH PARENT INTERVIEW

The 9-month Early Childhood Longitudinal Study-Birth Cohort (ECLS-B) interview will be conducted by a trained interviewer, during a home visit with the best respondent, usually the child's mother. The interview contains child-oriented questions, for example on the infant's routines, feeding habits, temperament, health, and developmental milestones. In addition, items about the level of education, income and employment status, health, quality of relationships, and literacy are asked about the infant's parents. Finally, general baseline data is gathered in the areas of household composition, child care, and marital information. The interview is expected to last approximately 50 minutes and will generally be conducted prior to the administration of the Bayley Child Instrument.

Section B—Feeding and Developmental Milestones

Section B begins by asking about breast-feeding and regular eating patterns (B1-B7). Both formula and breast milk are sources of early adequate nutrition levels among infants and toddlers. Breast milk contains antibodies to protect against illness (such as respiratory and gastrointestinal illnesses and ear infections), is associated with especially positive health outcomes among low birth weight infants, and among mothers, lowers the chance of breast cancer later in life while promoting a faster recovery from childbirth (Eiger & Olds, 1987). The American Academy of Pediatrics recommends that infants receive breast milk for the first 6 to 12 months of life (Glick, 1997). Despite the positive health outcomes among mothers and children, there is a lower incidence of breast-feeding among younger, poorer, less educated, and minority women (Eiger & Olds, 1987).

A set of 11 questions, provided by U.S. Department of Agriculture (USDA), obtains information about the nature of the child's early nutrition. Several of these items obtain data about early breastfeeding versus formula feeding. (Other items ask about when the child began receiving different types of solid foods, as well as drinking from a self-held cup.) Choosing whether to breastfeed or formula feed has numerous health and nutritional implications for the infant. Promotion of breastfeeding is one of the objectives specified by the U.S. Department of Health and Human Services (HHS) in its Healthy People 2000 report (HHS, 1990). Almost all of the benefits of breastfeeding depend on the duration of breastfeeding. Recent evidence indicates that even some of the immunological benefits of breastfeeding cannot be observed if the duration

of breastfeeding has been shorter than approximately 3 months (Bedinghaus and Doughten, 1994; Howie et al, 1990). It is, therefore, extremely important to determine duration of breastfeeding, as well as initiation of breastfeeding.

Food and nutritional intake (B8-B12) is also an important aspect of early child health. Inadequate nutrition among infants and young children is related to failure to thrive and may be associated with physical problems, deficits in intellectual and socioemotional development, and may have lasting effects on children's physical and mental health (Dwyer & Argent, 1990). Poor nutrition in the first months and years of life, when the brain is rapidly developing, may lead to intellectual impairment (Balazs, Jordan, Lewis, & Patel, 1986; Sewell, Price, & Karp, 1993). Infants and toddlers who are undernourished have also been found to have substantially reduced levels of visual and physical exploration of their environment, which is associated with early cognitive development (Barrett, Radke-Yarrow, & Klein, 1982; Cravioto & Arrieta, 1986). In addition, parents who are malnourished have been found to provide lower levels of cognitive, social, and emotional stimulation to their infants (Wachs et al., 1992). Children of disadvantaged parents, children of teenage mothers, and children whose parents are currently receiving welfare may be at a higher risk of nutritional problems (Hofferth, 1987).

The introduction of supplemental foods is not only significant for their nutritional content but also for establishing health eating habits and providing a transition to a modified adult diet. In order to establish sound eating habits and avoid further inadvertent forced feeding, it is important that supplemental foods are not introduced before an infant can turn away from food and express satiety. On the other hand, it is recommended that supplemental foods be introduced by about 6 months of age (American Academy of Pediatrics, 1993). Delayed introduction may lead to difficulties of accepting food at a later age (FNS, 1993a).

There appears to be a consensus regarding the earliest time of initiation of foods other than breast milk or formula. It is recommended that the decision regarding the initiation of supplemental foods be based on physical, psychological, and physiological maturity of the infant (FNS, 1993a.) An infant who can sit and independently support his or her head and neck, can draw in the lower lip as a spoon is removed from the mouth, can keep food in the mouth and swallow rather than pushing it back out, and is able to express satiety, is assumed to be ready to receive supplemental foods alongside nursing (American Academy of Pediatrics, 1993; Bedinghaus and Doughten, 1994; FNS, 1993a; Fomon, 1993).

The mother or caregiver must make many choices during the transitional phase of infant feeding regarding which foods to introduce, when to introduce them, and in what order. This study will allow analysts to document whether inappropriately early introduction of supplemental foods occurs among Women, Infants, and Children (WIC) mothers, and if so, the extent to what those feeding practices are prevalent.

During the transitional phase, the method of feeding supplemental foods is significant because of its implications regarding the infant's health and the development of good eating habits. In general, it is recommended that no supplemental foods be fed by a bottle or an infant feeder (FNS, 1993a). Furthermore, there exists a consensus among medical professionals that fruit juices must not be given to infants in a bottle, due to the risk of dental cavities (American Academy of Pediatrics, 1993; Fomon, 1993). The data collected will allow the analysts to compare the feeding practices adopted by WIC mothers to the recommendations of FNS.

In the middle range of variation in children's early development, few studies have found significant associations between the age at which infants achieve early developmental milestones (B13-B22) and their later intellectual functioning. However, extremely late or extremely early attainment of key milestones are associated with developmental abnormalities or intellectual giftedness. Moreover, the extent to which infants reach particular sensorimotor and cognitive milestones (e.g., sitting, crawling, walking) may be associated in part with the kinds of physical and verbal stimulation they have received from the environment and may also subsequently affect the kinds of physical and social feedback that the child receives. Parents of children who do not follow the "normal" pattern of expectations for development (e.g., due to prematurity, Down syndrome, etc.) have been found to be more intrusive with their infants. Although this is probably due to the low responsiveness of the infant, it may lead to the unfortunate consequence of increasingly negative interactions in the future. Therefore, it is important to know how well the child's developmental progress meshes with or is discordant with parental expectations. In addition, this information would be helpful for growth curve modeling by providing converging evidence for the starting points of the child's developmental trajectory: whether the child's early developmental progress was on target or whether delays were apparent at an early age or emerged later. Information obtained about children's early developmental progress would also provide convergent evidence for standardized assessment scores.

For these reasons, a set of six questions were adapted from the "Child Development Chart, First 21 Months" of the MN-CDI (Ireton, 1992). The mother is first asked whether the

child can do a particular item, and, if yes, how old the child was at the time a particular developmental skill was first demonstrated. For the 9-month interview, items were identified as being appropriate for inclusion according to the following criteria: (1) they are important indicators of developmental progress in their own right; (2) they are among the most salient skills that are easily observable by mothers; (3) their salience makes them easily remembered and easily reported by mothers; (4) they do not overlap with any of the items that are included in the BSID. The 9-month items include how old the child was when he/she first sat him/herself up; how old the child was when he/she first started eating solid food; and how old the child was when he/she started feeding him/herself. The latter item, feeding self, is one that most 9-month-olds will not have achieved yet, however it is included in the 18-month interview and forms the bridge between the 9-month and 18-month milestones. Finally, items were adapted from the MN-CDI rather than from the Vineland Adaptive Behavior Scales because the wording of items on the MN-CDI is more straightforward and easily understood by parents of all educational levels. The items selected, however, do appear in both the Vineland Adaptive Behavior Scales and in the MN-CDI, which further suggests that these items are of central importance in assessing milestones.

Section C—Child Temperament

Temperament is generally defined as individual differences in a set of personality characteristics appearing early in life that have a probable constitutional biological basis. Individual differences in temperamental dimensions such as attention, activity level, sociability, and emotionality are conceptually associated with later child educational outcomes both directly and indirectly through the effect that these characteristics have on both adults and other children with whom the child interacts. In addition, temperament characteristics appear to be moderately enduring in early childhood. Longitudinal studies of temperament in infancy and early childhood have found moderate stability for some temperament dimensions across the infant-toddler period and early childhood (Broberg, Lamb & Hwang, 1990).

The proposed plan in ECLS-B is to measure temperament (C1-C8) only at the 9-month visit. It is generally agreed that, from 12 months and following, temperament becomes combined with the effects of parent-child interactions and the social environment to form early attachment relationship patterns and other social-emotional constructs.

By one year, temperament also has an influence on the child's emergent learning styles. Children who are highly active and seek novel stimuli tend to explore the environment more and show early signs of curiosity to learn about the environment. Children who are more inhibited or who are slow to warm up may not engage in high levels of curiosity and exploration but rather show a more incremental, careful approach to learning about the environment and may be somewhat slower to develop new skills. Although these more inhibited children learn the necessary skills for school readiness, they show a different method or style for learning that continues in later ages. They may initially react negatively to new stimuli and will display a slower, more determined or methodical approach. Further, these children may not rely so strongly on social or interpersonal cues in learning because of their inherent shyness around others. These are among the more important reasons for including temperament in ECLS-B. Temperament emerges early in life and underlies some of the later differences in children's learning styles.

The items selected to measure temperament were taken from the National Longitudinal Study of Youth (NLSY) and the Canadian National Study of Children and Youth (NLSCY). Most of the items in the NLSY were included, although a few items were combined (e.g., "Turns away and cries at stranger" and "Turns away and cries as unfamiliar animal" became "Turns away and cries at stranger or unfamiliar animal") to reduce administration time. Four items were dropped because they were redundant. Inclusion of these NLSY and NLSCY items will allow comparisons between the ECLS-B and the U.S. NLSY and Canadian NLSCY surveys.

The temperament items in the NLSY and the NLSCY were originally those developed by Rothbart for the Infant Behavior Questionnaire (IBQ) and by Campos and were suggested by our consultants as the key indicators of early child temperament. All items refer to specific behaviors in specific situations. Parents are asked to judge the frequency of specific behaviors during the past 2 weeks. As in the NLSY and the NLSCY, the response categories for the temperament items in the ECLS-B range from "Almost never" to "Almost always." Items have been selected from the Activity Level, Distress to Novel Stimuli, and Negativity/Difficulty constructs based on advice from our consultants. Two items measure distress or fearfulness to novel stimuli including: (1) "When child sees a stranger or unfamiliar animal, how often does he/she turn away or cry as if afraid?" and (2) "When child hears an unexpected loud sound, how often does he/she cry or become upset?" Because the negativity/difficulty construct is the most predictive, several items from that subscale were selected for inclusion: (1) "How often do you have trouble soothing or calming child when he/she is crying or upset?" (2) "How often does child get hungry at about the same time each day?" and, (3) "Please rate the overall degree of

difficulty your child would present for the average parent." Finally, one item, "How often does child wave his/her arms and/or legs during feeding," measures the child's activity level.

These constructs and items were also selected because they complement but are not redundant with the Behavior Rating Scale (BRS) of the Bayley which obtains observational measures of different aspects of children's temperament, including emotional regulation, orientation and engagement with the testing situation and materials and the quality of the child's gross and fine motor abilities. Specifically, the emotional regulation factor of the BRS measures children's attention to and persistence at and frustration with tasks, orientation to and cooperation with the tester, and adaptability to transition in test materials, as well as negative affect. The orientation/engagement factor measures predominant arousal state, energy level, initiative, enthusiasm and exploration of objects, and social engagement with the examiner. The motor quality factor assesses the child's pacing of movements and the presence of hypotonicity or hypertonicity. The NLSY items describe the child's temperament in the home on a daily basis whereas the BRS assesses the child's behavior and responses to a novel and challenging testing situation.

Section D—Pregnancy, Breast-Feeding, and Early Child Feeding

The first set of questions in Section D of the interview gathers information on unplanned pregnancy (D1-D7, D11). Unplanned pregnancies are related to taking risks during pregnancy (e.g., smoking or drinking alcohol), low birth weight, poor child health, and infant mortality. There is also evidence that mothers with unwanted births spend less time with their children and tend to spank or slap them (Barber, Axinn, & Thornton, 1997). Having an unwanted pregnancy can also negatively affect a marriage or partner relationship and a mother's mental health (Baydar & Grady, 1993; Brown & Eisenberg, 1995; Carnegie Corporation of New York, 1994). The wantedness of the pregnancy is assessed in a small set of questions that ask about pre-pregnancy birth control use, how much the mother and the father wanted a child at the time the pregnancy occurred, and how soon after finding out about the pregnancy did the mother tell the child's father.

Although weight gain during pregnancy is collected from the birth certificate, prepregnancy weight (D12, D19-D20) is also needed to calculate Body Mass Index (BMI) and will also help get at postpartum weight loss. Current research shows maternal prepregnancy weight status and pregnancy weight gain as major determinants for newborn weight and size,

even in highly developed countries. Although pregnancy weight again was significantly higher in underweight women than in normal weight, higher pregnancy weight gain was not able to compensate for the negative impact of poor weight status before pregnancy (Kirchengast and Hartmann, 1998).

Section D also obtains information on factors related to having a healthy pregnancy and delivery, such as receipt and content of prenatal care (D8-D18). (Because this information focuses primarily on pregnancy experiences, it will be collected at the 9-month baseline interview only. Data about pregnancy collected in a later interview would be subject to recall problems, and would be substantially more unreliable.) Receipt of prenatal care is an important factor in assuring that mothers have healthy pregnancies. In addition to ensuring medical monitoring to enable the early diagnosis and treatment of conditions that could affect the health of the child, it also provides mothers with information on proper nutrition and vitamin supplements and the need to eliminate health risk behaviors.

A number of studies have indicated a relationship between the use of prenatal care services and birth outcomes (Gortmaker, 1979; Alexander and Korenbrot, 1995). Adequate utilization of prenatal care has been associated with improved birth weights, and the amelioration of the risk of preterm delivery (Sokol, Woolf, Rosen, et al, 1980; Poland, Ager, Sokol, 1991). Inadequate prenatal care utilization has been associated with increased risks of delivering a low birth weight infant, premature birth, neonatal mortality, infant mortality, and maternal mortality (Fisher, LoGerfo, Daling, 1985; Lieberman, Ryan, Monson, et al, 1987; Koonin, Atrash, Lawson, Smith, 1991).

However, many of the studies examining the relationship between prenatal care utilization and birth outcomes were based on summary utilization measures, such as the Kessner Index. The index is an algorithm derived from the total number of prenatal care visits and when the trimester prenatal care began, adjusted for gestational age at delivery, and can be derived from information on the birth certificate (Kessner, 1973). Few studies have had the opportunity to examine content of prenatal care.

In 1989, a report of the U.S. Public Health Service Expert Panel on the Content of Prenatal Care, entitled *Caring for Our Future: The Content of Prenatal Care*, attempted to go beyond the published literature and delineate that components should be included in providing the most effective prenatal care. The report noted that many prenatal care practices have not been

studied and that many practices that were studied were not evaluated rigorously or with adequate research design.

The few studies that do exist on the content of prenatal care indicate that women who receive the advice recommended by the expert panel were less likely to deliver a low birth weight infant (Kogan, Alexander, Kotelchuck, et al, 1994). However a number of women did not report receiving the recommended care, and racial differences were reported in the care received (Kogan, Alexander, Kotelchuck, et al, 1994). Therefore, questions are included in ECLS-B that ask about prenatal care, when it was first received and how many prenatal care visits the mother had, per trimester, with a health provider prior to delivery. Prenatal care information is also obtained from the birth certificate.

The use of ultrasound (D18) can provide added confidence about the accuracy of gestation information. Most ultrasounds in the first half of pregnancy are for routine reasons, with usually no abnormalities found. At least two research programs have shown an excess of non-right-handedness among children exposed in utero to just one or two ultrasound scans. (Handedness has also been associated with maternal age and difficult pregnancies, information that the ECLS-B also plans to collect.) The excess of left-handed children was small and nonsignificant; the excess of apparently ambidextrous children was larger. Since ECLS-B has the potential of administering an objective test of handedness in future waves, information collected at baseline about prenatal sonography is all the more valuable. Such information would make it possible to test the hypothesis put forth by subtle prenatal insult that forces a switch in cerebral dominance. Handedness may serve as one proxy for brain functioning and its use.

Information about maternal health practices (D21-D27) are obtained in a set of questions that ask about vitamin and mineral supplements and about maternal risk behaviors before and during pregnancy (alcohol intake and cigarette use). In some cases, women begin using a substance after getting pregnant, or after the birth of her child. The questions on substance use provide information on the timing of smoking during pregnancy and dose of cigarettes smoked (Kharrazi, et al, forthcoming,). Children's exposure to maternal smoking has been shown to have many health consequences, including low birth weight, infant mortality, respiratory infections, asthma, and modest impairments of cognitive development (Wetzman, M et al, 1992). Cigarette smoking during pregnancy can also be harmful to the mother, leading to placenta previa, abruptio placentae, and bleeding during pregnancy. Alcohol use during pregnancy has been cited as the most common known nongenetic cause of mental retardation among children and youth (IOM, 1996).

Information about smoking is also available on the birth certificate. However, these items have been found to be among the least reliable and valid items on the birth certificate, underestimating smoking during pregnancy by 15 to 28 percent (Piper et al., 1993; Buescher et al., 1993). Underestimation occurs because previously recorded information on smoking listed in medical records is not always noted on the birth certificates. In addition, underreporting is common in the medical records themselves because some pregnant women do not report smoking to their doctor or care providers (Dietz, Adams, Kendrick, Mathis, et al., 1998). Two studies found that 28 to 35 percent of pregnant women who reported to their prenatal care providers that they did not smoke had nicotine levels indicating active smoking (Windsor, Lowe, Perkins, et al., 1993). Interview data, while still subject to underreporting bias, should be more useful. In a study comparing accuracy of smoking data on birth certificates to questionnaire data (specifically, the PRAMS question asking about smoking in the last 3 months of pregnancy), the authors found that the "prevalence of prenatal smoking was lower using birth certificate data than using PRAMS questionnaire data" (Dietz, Adams, Kendrick, Mathis, et al., 1998). In the six states where the study was conducted, completeness of ascertainment of smoking during pregnancy (defined as the percent of smokers reported on the birth certificate divided by the total number of smokers—reported on *both* the certificate and the PRAMS questionnaire—in the sample) was lower on the birth certificate than on the questionnaire (completed 2 to 6 months after birth). On the birth certificate, completeness of ascertainment of prenatal smoking decreased as a woman's education increased. On the PRAMS question, completeness decreased only among women aged less than 20 years; there was not variation in completeness by education or marital status (Dietz, Adams, Kendrick, Mathis, et al., 1998). Obviously, while still subject to underestimation, the PRAMS smoking items are more reliable than the birth certificate smoking data.

Medical complications during pregnancy (D28) and delivery can have lasting effects on children's growth and development as well. Complications or early delivery may result in a low birth weight infant, who will have a much greater risk of developmental and behavioral problems, lower educational achievement, and poorer health (Frisbie, Forbes, & Pullum, 1996; McCormick, 1989; National Commission on Children, 1991; McCormick, Gortmaker, and Sobol, 1990). For these reasons, the mother is asked about whether she had any complications during pregnancy and, if so, what was the nature of the problem. Although the mother is not asked directly about prematurity or the method of delivery, that information will be obtained from the child's birth certificate.

In addition, several questions address issues related to pregnancy planning (D29-D30), including maternal past pregnancies and the number of and timing of children the mother plans to have.

In addition, a set of questions obtains information about the health of the child as a newborn (D33-D38). Neonatal physical well-being is an important predictor of later child development outcomes: without it the infant's physical growth, cognitive, emotional and social development are in jeopardy. Poor health status at birth and in infancy exerts its effects in both direct and indirect pathways. The direct effect is through the physical consequences that may endure beyond the neonatal period (National Commission on Children, 1991a). The indirect effect of compromised infant health status is through the social consequences that are secondary to the original physical problem (Alexander & Entwisle, 1988). Several questions assess the child's health status perinatally. These questions obtain information about whether the child had any medical problems at birth that required care in the hospital or the NICU, and for how long did the child receive this care.

A few questions at the end of the section ask about any occasions when the respondent and the child were separated (D39-D41). (We are only asking about periods of 1 week or more.) It has been shown that periods of separation, in the first 8 months on the infant's life, can lead to problems with the infant's development of a secure attachment to the primary caregiver.

Section E—Mother's Background

Several background variables are important to include in the parent interview in order to describe the basic resources and risks mothers have that may affect their children's development. Questions on mothers' backgrounds will be first asked in the 9-month interview; characteristics that may change over time (e.g., employment, education) will be asked about again in the followup interview.

The stability of the mother's family may be an important predictor of the psychological well-being of the mother and her attitudes about child rearing that affect the resources and stability that the mother is in turn able to provide for her child. For this reason several items ask about the continuity of care that the mother received as she was growing up. For example, whether she lived with both her biological mother and biological father as a child

(E1-E6), and whether her family was financially sufficient or received AFDC (E7-E8). The latter is also relevant to research questions about intergenerational transmission of dependency.

Mother's educational attainment (E11-E18) is a major predictor of child outcomes, with better-educated mothers having children with more positive outcomes (White, 1982; Zill, 1996). Parent education has also been shown to predict children's success in the early primary grades (Alexander & Entwisle, 1988). Mothers' high school experiences, such as grades received in school, type of program (e.g., academic or vocational), types of math classes taken, and parents' education level (E9-E10), can be combined to estimate their cognitive abilities (Orvis & Gahart, 1989). If mothers report needing special help in school, this may be indicative of a learning disability that could have a genetic or familial component. Therefore, information is obtained about whether she ever had to repeat a grade, had special help with reading, and, if a high school graduate, what type of high school program (college prep, commercial, or vocational) she attended.

Section F—Household Composition

Of primary interest under the household composition construct is the number and types of parents present in the household (F1-F13). Research indicates that a wide range of outcomes for children are better if two biological parents who interact with minimal conflict are present (Dawson, 1991; McLanahan & Sandefur, 1994; Morrison & Cherlin, 1992; Peterson & Zill, 1986). Children living with single mothers are also important to identify. Single mothers are more likely to be poor (Garfinkel & McLanahan, 1986; Bane & Ellwood, 1983), and their children are likely to have lower educational attainment (Aquilino, 1996). Also, knowing the total number of household members in children's households will indicate possible overcrowding, which could negatively affect children's well being or health. Measuring the number of children in the household will give some information on the extent to which parents must divide their caregiving and attention among children. For these reasons, Section F obtains a complete roster of all household members, their ages, gender, ethnicity, and relationship to the child.

Race and ethnicity is also obtained for each member of the household matrix. Questions F12 and F13 are from the Census Bureau. The racial classification used by the Census Bureau adhere to the October 1997 revised standards for the classification of Federal data on race and ethnicity, issued by the Office of Management and Budget (OMB). Each answer provided by a respondent represents self-classification according to the race or races with which the

respondent most closely identifies. This question includes both racial and national origin or sociocultural groups and attempts to reflect the increasing racial and ethnic diversity of the U.S. population. The term "African American" is included to reflect the increased prevalence of the term in the past decade (Census Bureau, 1998).

Section G—Marriages and Partner Relationships

The mother's marital history (G1-G13), and history of other cohabiting relationships, will be measured in Section G to give some indication of the stability of parenting figures in children's lives and support for mothers in parenting. It is known that children of parents who experience a marital separation or divorce typically show more problems in their learning and development than other children whose parents live together. Separation and divorce have been linked to children's emotional distress (Chase-Lansdale & Hetherington 1990; Furstenberg 1990), declines in school achievement, and increases in problem behaviors at school (McLanahan & Sandefur 1994).

The last few items in this section obtain information about the quality of the mother's relationship to the child's father (G14-G17). Low marital satisfaction and high conflict are predictive of future marital disruption. High marital quality has been found to be associated with positive outcomes for children, such as parents having more favorable attitudes about being parents, parents using more complex sentence structures in speaking to their children, and greater child attachment and security (Cummings and O'Reilly, 1997; Pratt, Kerig, Cowan, & Cowan, 1992; Goldberg & Easterbrooks, 1984; Howes & Markman, 1984). However, among the various dimensions of marital quality, the dimension of marital conflict in particular has been found to be associated with child outcomes, such as emotional disturbances, problems with interpersonal interaction, and diminished academic performance, including poor grades and teacher reports of problems in achievement and abilities. There is also evidence that the greater the frequency of conflict, the more difficulties exhibited by children (Cummings & Davies, 1994).

Marital conflict may have an impact on young children in two ways. First, marital conflict has been shown to have negative effects on parenting behavior, thus negatively affecting the parent-child relationship and child outcomes (Belsky, 1984). Second, there appear to be direct effects of conflict on children. Conflict between parents at home and between parents who do not reside together have been found to negatively influence children's psychological adjustment (Grych & Fincham, 1990; Shaw & Emery, 1987). It has also been shown that 1- to 2-

year-olds attempt to intervene between angry parents with comforting or distracting behavior, which is considered inappropriate and burdensome for young children and may interfere with other important developmental tasks, such as exploration. There is evidence that children of married parents in high conflict relationships have adjustment problems that are similar to those experienced by children of single parents (Hanson, 1993; Peterson & Zill, 1986).

Four questions are included that obtain information about the characteristics of the mothers marriage (or current relationship). One question asks her to describe the level of happiness of her marriage or relationship. Another question asks about how often the mother and her spouse or partner engage in such positive activities as laughing together, or talking about things that interest them both.

Not all forms of conflict are equally harmful to children (Cummings & Davies, 1994). One important factor appears to be the parents' ability to reach resolution. In one study of 2-year-olds, aggression and distress following conflict diminished substantially following complete conflict resolution (Cummings, Iannotti, & Zahn-Waxler, 1985). Another factor is whether the conflict involves physical aggression. Exposure to violent conflict, in particular, is associated with serious behavioral and emotional disorders in children (Cummings & Davies, 1994; Debowitz & King, 1995; Grych & Fincham, 1993). In addition, children in homes where domestic violence is happening between adults are much more likely to be battered themselves. Among battered women, 85 percent report that their children are abused as well (Straus, Gelles, & Steinmetz, 1980). Therefore, the last set of questions obtains information about how the couple deals with serious disagreements and how often they argue heatedly, for example, or discuss disagreements calmly or reach a compromise.

Section H—Expectations for Child Development

The extent to which parents are aware of the general process of child development may be related to their own child's development. Parental knowledge of developmental milestones (H1-H2) is associated with positive parenting practices and child outcomes, especially among families at risk (e.g., Field, Widmayer, Greenberg, & Stoller, 1982; Greenberg & Crnic, 1988; Stern, 1990). Also, abusive parents have been found to have unreasonably high expectations for their children's behavior; it is thought that this may lead to frustrations when children do not live up to these expectations, which in turn promotes abusive behavior. Items asking about parents' expectations for child development have been proposed for both the 9- and

18-month interviews. The 9-month measurement point was deemed critical because of the need for baseline measurement of this construct; and at this early age, mothers are first becoming acquainted with the needs and abilities of their infants. The 18-month interview was chosen because of significant gains in development made by children between the 9- and 18-month age span (e.g., walking and language development).

At 9-months, one set of questions asks the respondent whether s/he agrees with statements such as "All infants need the same amount of sleep" and "Children learn all of their language by copying what they have heard adults say." A second set of questions is included that obtains information about the mother's expectations about when she thinks babies (in general) become able to do certain things, of which "know right from wrong," "be ready for toilet training," or "cooperate and share when playing" are a few examples.

Section I—Home Educational Activities and Language Environment

Measurement of home activities that stimulate development is considered critical and has been proposed for both measurement time points. Numerous studies have indicated that high levels of positive, age-appropriate cognitive stimulation for infants is related to better social and mental development in children (Bakeman & Brown, 1980), including measures of cognitive development and IQ in preschool and later (Bradley & Caldwell, 1976a, 1976b, 1980, 1984a; Bradley, Caldwell, & Elardo, 1979; Bradley et al., 1989; Lozoff, Park, Radan, & Wolf, 1995), and school achievement (van Doorninick, Caldwell, Wright, & Frankenberg, 1981). Research has also suggested that cognitive stimulation in very early life may have implications for brain development and cognitive potential (National Commission on Children, 1991).

The amount of verbal interaction that infants have with their parents has been shown to influence children's language development, including language production and reading ability, as well as other academic skills, such as mathematics, in the school years (e.g., Bradley & Caldwell, 1980, 1984b; Bradley et al., 1989). Verbal interactions include singing, playing games, talking, and reading. Clarke-Stewart (1980) found that mother-infant verbal interaction and verbally mediated toy play were associated with cognitive development. One aspect of verbal interaction to study is the extent to which a non-English language is used in the household. There is some evidence that frequent use of a non-English language is related to lower test achievement among Hispanic students (Fernandes & Nielsen, 1986). To obtain information about the

language environment of the child (I1-I6), several questions are asked about language(s) used in the home and by whom and what language(s) is (are) spoken to the child.

Information about the literacy environment in the home (I7-I8) and maternal literacy-related activities is obtained in several questions about how many books there are in the home and how often the mother reads books, magazines and newspapers. As well, information is obtained about the frequency of book reading to the child (I9). There is also evidence that parents who read more tend to have children who read at earlier ages (Teale, 1984). This may be because children who observe their parents reading to themselves may become more motivated to learn to read and to actually read themselves than are children whose parents do not read.

Engaging young children in shared activities (I10) is another form of cognitive stimulation for children. Clarke-Stewart (1980) found that fathers who were able to keep their infants interested in games such as peek-a-boo, ball toss, and bouncing had more cognitively advanced children. Another activity is taking outings, such as to parks and playgrounds, to provide children with opportunities for exploration, exercise, and social interaction. Early literacy development has also been shown to be related to family social interactions not necessarily intended to foster language development (e.g., shopping), especially among low-income samples (Teale, 1984). In addition to direct book reading to the child, information is obtained about the frequencies of various types of stimulating or educational activities with the child, such as singing songs or nursery rhymes, going to the park, and taking the child shopping or on errands.

Section J—Parenting Behavior and Attitudes

An important dimension of parenting behavior is warmth, physical affection, and emotional supportiveness. A robust finding in child development research is that parental warmth exhibited in the first few years of life is one of the strongest predictors of positive developmental outcomes. Furthermore, supportive parenting is associated with positive outcomes for children, even in the presence of extreme socioeconomic disadvantage (Marsiglio, 1995; Sampson & Laub, 1994).

Affectionate behavior by parents is associated with several positive outcomes for infants and toddlers, including a secure infant-mother attachment relationship (Ainsworth, Blehar, Waters, & Wall, 1978). Warm, affectionate behavior towards a child may also make the parent a

more powerful model for young children. Studies of pro-social development have indicated that children are more likely to try to imitate the behavior of a model who has exhibited warm, nurturing behavior than models showing more matter-of-fact behavior (Eisenberg & Mussen, 1989; Radke-Yarrow, Zahn-Waxler, & Chapman, 1983). Negative parenting practices are associated with poor outcomes for children in both the cognitive and social domains. Such negative practices include harsh discipline, high levels of control, ridicule, teasing, and extreme nonresponsiveness. Although not well studied among young children, such negative parenting practices may interfere with the establishment and maintenance of secure infant-parent attachment relationships (Bowlby, 1988) and with the development of perceived competence and mastery motivation (Harter, 1978).

Sensitivity and responsiveness to infants' signals is also associated with positive outcomes for children. Caregiver responsiveness is an important contributor to the establishment of secure infant-parent attachment relationships (e.g., Ainsworth et al., 1978; Belsky & Isabella, 1988; Egeland & Farber, 1984; Smith & Pederson, 1988), the development of emotion regulation (Tronick, 1989), mastery motivation (Harter, 1983), and literacy development (Baydar, Brooks-Gunn, & Furstenberg, 1993; van Aken & Riksen-Walraven, 1992).

One important aspect of parenting styles is the extent to which parents value obedience to authority and try to control their children's behavior. Research suggests that high levels of control or authoritarian parenting (J1) is negatively associated with school-related abilities in childhood (Hess & McDevitt, 1984) and adolescence (Connell & Wellborn, 1991; Dornbusch, et al., 1987). Harter (1978) found that parents who respond positively to their young children's attempts to independently master their environments, including exploration and attempts to master challenging tasks, facilitate the development of high levels of perceived competence and mastery motivation. In contrast, parents who discourage or punish independent behavior may lead their children to perceive themselves to be incompetent and unwilling to take on and master new challenges.

There may also be cultural differences in parenting styles and the value placed on controlling behavior and its effect on children. For instance, in a study of American-born and immigrant parents (Okagaki & Sternberg, 1993), immigrant parents rated conformity over autonomy as an important value in child rearing; in contrast American-born parents favored autonomy over conformity. In another study, Baumrind (1972) found that authoritarian parenting styles were more common among middle-class African American families than middle-class

white families, and that, unlike in the white families, authoritarian parenting in African American families was associated with independence and assertiveness in young daughters.

In consideration of the above discussion, a set of questions is included in Section J that assesses authoritarian parenting attitudes. The respondent indicates agreement with one of two opposing attitudes or beliefs, such as "You can (vs. you cannot) spoil a tiny baby by picking him up every time he cries," or, "Small babies should be fed on a regular schedule," versus "Small babies should be fed when they are hungry."

Sections K-N—Child Care Arrangements

A high and rising proportion of children spend time in nonmaternal care, and increasing numbers of them enter this care at a very young age. The NICHD Early Child Care Research Network (1996) found that 64 percent of their sample were in some form of nonmaternal care at age 6 months. In the United States as a whole, 19 percent of children less than age 1 with employed mothers were in center-based care in 1993, with the remainder in informal types of care such as care by a relative or family day care provider (U.S. Bureau of the Census, 1993). We propose to measure children's participation in child care arrangements (K1-M18) starting at the 9-month interview, and to update this information in more depth with the Childcare Provider Interview at the 18-month followup. It is considered important to capture changes in children's nonparental care arrangements over time, since consistency of care is a critical factor impacting child outcomes (discussed below). The earliest years of children's lives may be relatively turbulent as far as changes in arrangements, so it will be optimal to ask parents about child care at both measurement points, to improve the accuracy of their reports. It is also important to coordinate data collection about arrangements from parents with collection of information from child care providers, which is planned when the children are 18 months old.

There is no consensus in the research to suggest that child care at a very young age is beneficial or harmful. The NICHD Early Child Care Research Network (1997) found that while child care in the first year did not have a negative effect, children in high quality care settings scored higher on tests of cognitive and linguistic development. Thus, the effect of child care at very young ages may depend on its quality.

In fact, the quality and consistency of child care over time are crucial factors in the impact of child care on children. The quality and stability of care have been found to be related

to children's cognitive and socioemotional development (Hayes, Palmer, & Zaslow, 1990; Whitebook, Howes, & Phillips, 1989; Zaslow, 1991). In addition, Howes (1988) found that with family characteristics controlled, higher quality early child care (center-based or family day care) was predictive of better academic progress, better school skills, and fewer behavior problems in boys, and of better school skills and fewer behavior problems in girls at the end of first grade. Similarly, preschool students in model child care centers have exhibited more complex play patterns than their peers at marginally adequate child care centers (Howes & Matheson, 1992).

The type and site of care are closely associated with other variables affecting quality, such as the availability of contact with peers, planned educational activities, and whether care takes place in a child-centered environment. Children cared for in their own homes generally have less contact with other children; also the setting tends to be oriented for adults. At the same time, home care usually has a lower adult-child ratio. Family-based day care may provide more opportunities for contact with other children, but is usually not provided in a child-centered environment. Center-based care provides more opportunities for group activities, adult-child interaction and socialization; caregivers are also more likely to be trained, and the environment is more likely to be child-centered. These factors most often found in center-based care have been shown to affect children's scores in tests of social and cognitive competence (Clarke-Stewart, 1989; Harms, 1992; Kisker, Hofferth, Phillips, & Farquhar, 1991).

The cost of child care is also closely associated with its quality, as measured by such factors as training and education of providers and the child/provider ratio. Higher costs for parents consistently reduce the likelihood that families will choose center-based care and are a stronger predictor of type of care chosen than many measures of quality such as the child-adult ratio (Hofferth, 1991; Hofferth & Wissoker, 1992). Hofferth et al. (1991) found that many working parents spend substantial proportions of their income on child care. This can reduce the resources available for other purposes and place parents under stress.

Group size and child/adult ratio are also important quality factors. Several studies have shown that caregivers for larger groups of young children are less responsive, less socially stimulating, and more restrictive (Howes, 1983). Larger group size has also been found to increase distress, apathy, and potentially harmful behavior in infants and to negatively affect social competence, cooperation and involvement in tasks, verbal initiative, and cognitive test scores among older children (Clarke-Stewart, 1989; Holloway & Reichart-Erikson, 1989; Ruopp, Travers, Glanz, & Coelen, 1979). However, some studies have found that the child-adult ratio was a more important predictor than group size in center-based care (Burchinal, Roberts, Nabors,

& Bryant, 1996; Scarr, Eisenberg, & Deater-Deckard, 1994; Whitebook et al, 1989). In home-based care, group size has more consistently been shown to have negative effects with caregivers being less sensitive, less responsive, and engaging in less interaction with children when they are caring for larger groups (Howes, 1983; Stallings, 1980).

Several studies of outcomes for toddlers in center-based care have shown that lower child-adult ratios have a considerable positive impact (Allhusen, 1992; Ruopp et al., 1979; Whitebook et al., 1989). The NICHD Early Child Care Research Network data (1996) have shown that sensitivity of caregivers' responses for infant care are closely related to the child-adult ratio, with 1:1 ratio settings scoring considerably higher than others. This finding applies to both home and center-based settings. For preschoolers, results have been less consistent, however (Clarke-Stewart, Gruber, & Fitzgerald, 1994; Ruopp et al., 1979).

Another important factor is the amount of time children spend in care arrangements, although research findings are inconsistent as to its effect on child outcomes. Belsky and Rovine (1988) and Clarke-Stewart (1989) found that infants who experienced routine nonmaternal care for 20 or more hours per week during their first year of life were significantly more likely to be classified as insecurely attached to their mothers. Some have argued that spending long hours away from a baby may affect the mother's ability to be responsive to her child (Brazelton, 1985; Sroufe, 1988). Yet Roggman, Langlois, Hubbs-Tait, and Rieser-Danner (1994) found no significant association between time in nonmaternal care and attachment security. The NICHD Early Child Care Research Network (1996) has found that infants' attachment to their mothers is most strongly affected if they experience "dual risk," that is, long hours in child care combined with poor quality care at home. In a later study, the Research Network (1997) found that hours in care did not have a significant relationship on cognitive development for 2-year-olds.

Because of the importance of the question of day care quality and characteristics for child outcomes, the most in-depth information about day care quality will be obtained in the day care provider interviews. Presumably, our most accurate information about quality issues will come from the providers themselves as the primary caregiver may not observe these aspects first hand.

In Sections K through M of the 9-month parent interview, information will be obtained about the basic day care issues, including the age at which the child's alternate care began; the type of care the child receives (whether center-based, care by a relative, family day

care); the cost of the care; the group size and the adult:child ratio; and the number of different arrangements that the child is in at the present time.

Section N contains a set of questions about the relative importance of various considerations when selecting child care (N1), such as reasonable cost, a caregiver who is available flexible hours that suit your schedule, and a place that is close to a job.

Section O—Child Health

Although neonatal health is deemed critical for later growth and development, the physical well-being of the infant beyond the neonatal period continues to be of great importance. Risks to infants' health and physical well-being can continue beyond the neonatal period. As infants (even those who are unencumbered by ongoing physical problems) develop, their need for medical care continues in the form of routine immunizations and well-baby check-ups. Furthermore, well baby visits are important opportunities for education and pediatric intervention with families. Such visits may be the only chance that many parents have to speak with professionals about their concerns about their children's developmental and psychological well-being (Bornstein & Genevro, 1996). A by-product of well baby checks is that mothers often receive education about well baby care and this information may be related to certain maternal health-related behaviors, both for herself and for her child.

Because the stresses of serious medical illness and hospitalization can be traumatic for children, with potentially wide-ranging implications for growth and development, it is important to examine the occurrence of disability, serious illness and hospitalization on children's developmental outcomes. Section O includes questions that obtain information about the number of well-baby check-ups (O2) that the child has had as well as where these checkups occurred (O3) (i.e., whether at a private practice, and HMO, a clinic, etc.).

Another set of questions asks the primary caregiver about the types of any illnesses and/or injuries (O7-O35) the child has had that required medical attention or hospitalizations. In addition, if the child has been hospitalized for any reason, then the number of hospitalizations and the amount of time the child has spent in the hospital are obtained. There are also a number of questions that determine whether the child has been diagnosed with any serious medical or developmental problems or conditions (O36-O39) (such as cerebral palsy, Down syndrome,

asthma, heart defects) and whether the child (or the family) is receiving any special services due to this diagnosed problem.

Frequent illnesses during childhood can impact greatly on a child's development due to the missed days of participating in physical activity, socializing, and normal developmental behavior/activities. The validity of maternal reports about medically attended conditions has been shown to be both valid and relatively well-reported. The NICHD Study of Early Child Care reviewed medical records for as many cases of reported illness as possible. There was a high correlation between maternal report of both taking the child to the doctor and the condition of the child (as recorded in the medical records compared to the mother's report). GI, respiratory, and ear infections were the primary conditions that were reported in the NICHD study by 9 months of age. This is consistent with much of the earlier literature. After 9 months, the GI conditions tend to decrease. The ear infections continue to peak at about 18 months of age, also consistent with earlier literature. Respiratory conditions are the most prevalent throughout and are important to monitor because chronic respiratory systems are associated with significantly higher risk of experiencing an asthma attack, and higher risk of hospital admission due to asthma (Neville, et al, 1995).

Patterns for injury change rapidly with the developmental status of the child; however, falls are the most common cause of injury for either the first 9 months or toddler period. Injury reports increase as the child ages. Other studies show that in the early period, falls are often due to caretaker issues such as dropping the child or leaving the child on inappropriate surfaces (and hidden abuse—which may be coming from a fall). As the child becomes more mobile, the falls are generally associated with the environment (such as stairs, furniture surfaces, etc). These findings are also consistent with the results from the 1988 Child Health Supplement. Asking specifically about the "most serious injury" is consistent with WHO procedures. It is also expected that only more serious injuries would be recalled in any case.

Because of the time constraints, specific information about the most prevalent illnesses (e.g., respiratory, GI/diarrhea, and ear infections) and injuries should be explicitly asked about. For each of the conditions, we want to know a minimum: Has the child ever had the condition, has the child had the condition in the last 3 months, and how old was the child when the condition was first diagnosed.

Otitis deserves more thorough questioning because of its prevalence and importance for language development. Otitis media is the most frequent diagnosis for children at visits to

physicians' offices, as well as the most common reason for outpatient use of antimicrobials (Schappert, 1992; McGraig, 1995). It has been estimated that by age three, about three-quarters of children will have had at least one episode of otitis media, and more than one-third will have had recurrent infections (defined as three or more episodes) (Klein, 1994). The most prevalent complication of otitis media is conductive hearing and is due to fluid in the middle ear. While the hearing loss is usually temporary, it may impair children's cognitive, language, and emotional development (Paradise, 1981; Bluestone, Klein, Paradise, et al, 1983). One longitudinal study on the long-term effects of otitis media indicated that duration of middle ear effusion in the first 3 years of life was associated with lower scores on tests of cognitive ability at age 7 (Teele, Klein, Chase, et al, 1990).

The question on hearing screening in the birth hospital or following discharge was devised *de nova*. Preliminary estimates suggest that by the year 2000, more than 25 percent of all newborns—not just low weight or other high risk babies—will have their hearing tested soon after birth, or, for those in extended NICU stays, just prior to discharge home. Those infants who do not "pass" the initial hearing screening in the hospital are referred for "diagnostic" hearing tests; after going home. Also, any infants who were not screened in the hospital and who are observed not responding to speech or sounds at home will often be tested by trained audiologists/otolaryngologists in the first 6-9 months of life. Studies are now demonstrating that early diagnosis and intervention for hearing impaired infants is crucial to language acquisition, providing that hearing aids are fit or other effective strategies are utilized.

Regarding apnea monitoring, NIDCD has findings from a population-based study of low birth weight children—the Missouri study—that suggest that those selected for apnea monitoring have delays at 18 months (compared to birth weight matched control infants). Results are based on the Denver II Developmental Screening Exam (Hoffman, H.R., MacTurk, et al, 1988). The areas of developmental delay are some of those of primary interest in ECLS-B. Information on the use of home apnea monitors is particularly relevant for MLBW and VLBW babies and can be used to document changes since 1988.

Section O also contains several questions on the child's health insurance (O41-O51). The number and percent of children under 18 years old without health insurance coverage is estimated to be between 9 and 10 million (13-14 percent of children) (Bureau of the Census, 1996). The 9 to 10 million children include 2.8 million children under 6 years of age. The proportion of children who have had a period without health insurance is larger still (Cunningham and Hahn, 1994). Lack of health care coverage for children has been cited as an important factor

in delayed access to acute and preventive care (Spillman, 1992). Children without health insurance have fewer immunizations and are at increased risk for delaying early treatment of health problems that may lead to complication requiring hospitalizations (Maureer, 1993; Braveman, Olvia, Miller et al, 1989). Children without health insurance are also less likely to have seen a doctor in the past year and have fewer physician visits (Cornelius, 1993). Moreover, children who have had a period of health without health care coverage are less likely to have had a regular source of care (Kogan, Alexander, Teitelbaum, et al, 1995).

Further, the recently legislated Children's Health Insurance program (CHIP) was designed to provide health insurance to children not covered by either Medicaid or another program. This survey will be among the first to assess the impact of this program in states that have enacted the program. The survey will also provide a rare opportunity to assess longitudinally the continuity of health care coverage.

Section P—Family Health

In Section P, there are questions that address different aspects of the general status of the family's health. The first set consists of only 1 question: whether there are any other household members in the family with physical problems or disabilities (P1). A household member with a disability can have a negative impact on child outcomes. Household members with disabilities require greater attention and caregiving from their families. As a result, the nondisabled children may suffer from the availability of only a limited amount of attention and caregiving. Likewise, the nondisabled children may be expected to contribute to the caregiving of a disabled member, thus placing an unfair burden on young children.

Secondly, a major emphasis in this section is on maternal health (P2-P11) with the principal data collection point occurring at the 9-month interview with follow-up information being obtained at the 18-month interview. At the time of the 9-month interview, information will be obtained about the mother's current health status using a small set of questions that ask her to rate her current health status (as excellent, good, etc.), whether a health problem prevents her from or limits her ability to work at a job, and whether and where she receives routine medical care. Mothers will also be asked about her current smoking habits, and alcohol intake, if any.

Additionally, maternal mental health status has an impact on maternal childcare activities. Maternal depression (P12-P14), for example, can have profound and pervasive

negative effects on child outcomes. High levels of depression interfere with daily functioning and therefore interfere with parenting and caregiving activities thus leading to poorer child outcomes. For example, children of depressed parents show high levels of both externalizing (i.e., aggressive) and internalizing (i.e., anxious or depressed) behavior problems with concomitant problems in social competence and academic performance. Therefore, mothers will be asked about their mental health status, including depression and substance use. It can be hypothesized that the onset of maternal depression early during the child's infancy would have more profound effects upon the child, due to inadequate nurturance, it is important to assess maternal mental health early in the child's infancy. These data will then be updated at the time of the 18-month interview.

Section Q—Household Food Sufficiency

Adequate nutrition (Q1-Q16) is also critical for children's growth and development. Malnutrition can lead to failure to thrive and may be associated with such physical problems as iron-deficient anemia and with deficits in intellectual and socioemotional development (Dwyer & Argent, 1990). Inadequate nutrition in infancy, a time of rapid brain growth, can lead to intellectual impairment (Balazs, Jordan, Lewis & Patel, 1986; Sewel, Price & Karp, 1993) and decreased visual and physical exploration of the environment (Barrett, Radke-Yarrow & Klein, 1982; Cravioto & Arrieta, 1986).

Although inadequate caloric intake is a major cause of malnutrition, it can also be due to dysfunctional feeding interactions, colic, and, sometimes neglect or outright abuse. Regardless of its cause, undernourishment that leads to failure to thrive and poor growth can have persistent and direct effects on later physical, cognitive, and socioemotional development. Malnutrition can also have indirect effects in that undernourished children can be apathetic and lethargic, which can interfere with the child's competent exploration of the environment, establishment of peer relationships and lack of emotional expression. In addition, such lack of socioemotional responsiveness can, in turn, interfere with the ability of caretakers to provide positive interactions and a stimulating environment for the child.

Children of low-income or poverty-level families, children of adolescent mothers, and children whose parents are receiving welfare may be at a greater risk of undernourishment. Furthermore, because of current efforts at welfare reform and cutbacks in federal funding of food stamps, children are at even greater risk of undernourishment with its negative implications for

physical well-being. Clearly, the need for repeated assessments of children's physical well-being at multiple time periods becomes important for evaluating the adequacy of child nutrition.

Items obtaining information about these issues have been contributed by USDA. This series consists of 16 items and comprises Section Q, Household Food Sufficiency. (Additional items obtaining information about breastfeeding and early formula feeding and related issues can be found in Section B.)

Section R—Social Support

A supportive social network can mitigate stressful life events, the stresses of daily living, and the stresses of parenting. Support for parenting is an aspect of marital quality that has been found to affect the quality of parenting provided to the child as well as affecting the child's security of attachment (Belsky & Isabella, 1988; Goldberg & Easterbrook, 1984; Isabella & Belsky, 1985). Marital conflict, on the other hand, is associated with child behavioral problems and emotional disturbances, problems with interpersonal interactions and poor academic performance as reflected in poor grades and teacher reports. And, the greater the frequency of marital conflicts, the more difficulties children have (Cummings & Davies, 1994).

More generally, the more social support the primary caregiver has, the more likely the child is to form a secure infant-mother attachment (Crockenberg, 1981). In addition, among African-American families, mothers with a larger support network were found to be more responsive in interaction with their infants and provide more stimulation than mothers with smaller social networks (Burchinal, Follmer, & Bryant, 1996). On the other hand, among unemployed mothers, lack of social support is related to increased depressive symptomatology (Hall, Williams & Greenberg, 1985). In addition, the child's grandparents may play a significant role in providing social support to the child (Jendrek, 1994). This support can be extensive, as in the case of a custodial relationship in which the grandparent is the child's legal guardian or living with the child's family as part of an extended family. The grandparent may also be the major provider of day care while the child's primary caregivers work during the day.

Because the social support network of the family is so important for child outcomes, the primary caregiver will be asked two sets of questions. One is a small set of questions about sources of support (R1-R5) when faced with emotional problems, financial problems, parenting problems and in the case of an emergency. The importance of grandparents (that is, the

respondent's own parents) will be investigated through a set of questions that ask the caregiver to describe the quality of the relationship with the grandparents (R12 and R13) and how much or little s/he wants to be like them. Because the social support network can be an important mitigating factor in the stressful transition to parenthood, these questions will be asked at the 9-month interview, when this transition is still occurring. Updated information about the social support network will be obtained again at 18 months.

The age of the respondent's biological mother and father (R6-R8 and R9-R11) (the sampled child's grandmother and grandfather) is also asked for. If the grandmother has already died, then the length of time since death and age of death is asked for. The goal is to allow for calculation of age when the sampled child's mother and father were born. Should ECLS-B be followed up over the long-term, future researchers may be able to test the relationship between reproductive age of the maternal grandmother and grandfather on the longevity of the grandchildren. Specifically, Gavrilov and Gavrilov (1997) have hypothesized from biological theories of aging that human parental age at reproduction has a long-term independent life-shortening effect on offspring longevity. ECLS-B can provide insights on these questions in the future, particularly since it goes beyond existing datasets in the richness of data on SES, parenting, and other mediating factors. Such research is not only of great scientific interest, but it is also of practical importance when one considers the growing trend toward childbearing at older ages in modern societies.

Section S—Community Support

An important aspect of neighborhood quality and resources is community support, which may influence child outcomes through an indirect pathway, for example by supporting parenting practices and parental psychological well-being. Affluent communities are more likely to have a larger number of formal and informal organizations that offer varying types of support. Libraries, for example, often have storytelling circles for toddlers and preschoolers, computer classes for young children, literacy classes for adults. Some school districts offer organized after school programs for latchkey children. Some churches have extensive community programs accessible to all ages. County centers may offer parent training classes as well as other continuing education programs. Community action groups active in the neighborhood can also be a source of support for residents, for example Neighborhood Watch programs bring residents together to increase neighborhood safety. Neighbors and family friends, too, can provide social support by watching out for each other's well-being and the well-being of each other's children.

In addition, the availability of safe places for children to spend recreational time within the neighborhood, at parks, pools, playground and ball fields, is of obvious direct benefit to children as well as to parents by reducing the demands of constant caregiving.

Because the opportunity for community support may interact with child and family variables, it is important to obtain such background information as socializing with friends and neighbors (S1), attendance of religious services (S2), and parental membership in community organizations (S3). Children at the age of 1 year, at the threshold of critical developmental milestones, are just beginning to venture out with their caregivers into the community, for example to playgrounds and perhaps stocking up on picture books at the library.

Finally, questions about receipt of services (S4), such as job training, transportation subsidies, housing subsidies and income assistance will be asked because of the critical contribution of each to the very basic needs of family well-being.

Section T—Family Routines

Family routines provide a predictable structure to a child's day. Routines and the regularity of family life (T1-T6) have been found to play an important role in educational and behavioral outcomes among school-age children (Maccoby & Minookin, 1992). Family routines, for example, may provide family members with a source of stability and predictability that is a helpful support during periods of stressful transitions (Boyce, Jensen, Sherman & Peacock, 1983).

Children benefit from routines in several ways. Families with predictable routines such as regular meals and bedtimes, were more likely to show interest and participating in preschools among low-income African-American children enrolled in Head Start (Keltner, 1990). Routines may also be associated with relatively stable conditions within a family and may increase the child's ability to predict daily routines. Stability has also been found to be associated with secure infant-mother attachment and the maintenance of security across time (Vaughn, Egeland, Sroufe & Waters, 1979). In addition, the work of Nelson (K. Nelson, 1978), suggests that routine daily activities form the basis of event representations which, she claims, become the basic building blocks of cognitive growth. Event representations of predictable routine daily activities, therefore, are the foundation for the later developing symbolic representation in Nelson's theory of event knowledge. The predictability of routine daily events may also be related

to the development of future oriented processes such as intentionality, expectation, goal setting, and planning (Haith, Benson, Roberts & Pennington, 1994).

One of the most prominent of future-oriented activities is planning. Planning is a cognitive skill that is crucial to adaptive functioning in many domains, most notably academic performance (Gauvain, 1997). Parents who are predictable in their behaviors and who demonstrate strong planning abilities in their routine activities may facilitate the development of future-oriented behavior in infants (Benson, 1994)) and later planning skills in their children (Palkovitz, 1997).

Routines that may be important for infants and young children are regular routines for meals and snacks, and regularity in afternoon nap and evening bedtimes. For example, a predictable bedtime routine may be especially helpful for infants with temperamental difficulty in adapting to changes in routines by helping the baby learn to anticipate the bedtime event. And, learning how to go to sleep may help the infant learn emotional self-regulation. As an index of household predictability and stability of routine caregiving events, the primary caregiver will be asked about the frequency and stability with which the family engaged in certain routine activities with the child. These questions will be asked at the 9-month interview, because it is a time when the initial disruption of the newborn period has subsided and new family routines are being established. These questions will be updated at the 18-month visit, marking the increased participation of the child in these routine activities.

Section U—Biological Father's Information

Most information on resident fathers will be collected in a self-administered father questionnaire at the baseline 9-month interview. However, some key variables are proposed for follow-up interviews with mothers, in order to gather subsequent information about fathers' contributions to child rearing. After a set of questions that establish the residential status of the child's biological father (U1-U5), information is obtained about non-resident biological fathers' age (U6), race and ethnicity (U7-U9), and his education (U10-U12).

Particular attention is paid to the biological father's employment status and current occupation (U13-U29). The relationship between fathers' employment status and child well-being has not been as widely studied as maternal employment. However, it is expected that children will be better off when their fathers are employed because of their contribution to

household finances. Because of the strong societal norm for men to take on the role of family provider, employed fathers may also be more active participants in the family and child rearing when they feel they are fulfilling their roles and obligations. Some research has indicated that employed fathers are more involved with their children than unemployed fathers (McAdoo, 1988; Danziger & Radin, 1990; Elder & Caspi, 1988; Hawkins, 1992; Wilson, 1987). On the other hand, there is some evidence that fathers with restrictive work schedules or very stressful jobs tend to be less involved with their families (Gerson, 1993; Repetti, 1989, 1994).

Further information will also be collected from mothers about nonresident biological fathers (U30-U44). Data will be obtained from the mother about the level of contact and involvement nonresident fathers have with their children. Researchers have found that children of more involved fathers develop more balanced gender expectations and have more positive cognitive and socioemotional outcomes than other children do (Coltrane, 1995). Also, in a study that included a sample of low-income, urban African American fathers (or father figures) and their 3-year-old children, fathers' parenting satisfaction, employment and level of nurturance (as measured by videotaped play observation) were associated with better cognitive and language development among children, even after controlling for maternal age and education (Dubowitz, & Starr, 1996). Many studies suggest that the relationship between an absent parent and his child is associated with positive outcomes (Marsiglio, 1995). Moore et al. (1996) found that the negative effects of divorce were mediated by contact with the absent parent; for boys, they found no significant association between divorce and high school completion or anti-social behavior if the relationship with the absent parent was accounted for. However, Greene and Moore (1996) were unable to find a relationship between father visitation and child outcomes. To characterize the involvement of nonresidential fathers, information will be collected about his geographic proximity to the child, and whether the nonresidential father has assumed legal responsibility for the child by acknowledging paternity or providing child support.

Child support is an important issue related to nonresident fathers, because of its contribution to the financial well-being of children, especially low-income, female-headed families (Garfinkel & McLanahan, 1994; Marsiglio, 1995; Nord & Zill, 1996a, 1996b). Greene and Moore (1996) also found that both informal and formal means of child support by absent fathers is associated with positive child outcomes.

Section V—Mother's Education, Employment, and Income

The effect of maternal employment (V1-V30) on family life and child characteristics is a matter of considerable debate (Parcel & Menaghan, 1994a, 1994b). There is some evidence that early maternal return to work after the birth of a child has a negative impact on child outcomes (Belsky & Eggebeen, 1991). Other researchers have found mixed results (Desai, Chase-Lansdale, & Michael, 1989; NICHD Early Child Care Research Network, 1996b; Smith, 1997). It does appear, however, that maternal role satisfaction, that is her satisfaction with the balance she has achieved between working individual and mother, is a stronger and more consistent predictor of child outcomes than is simple maternal employment status, with maternal conflict about roles being associated with poorer child outcomes (Zaslow, Ravinovich & Suwalsky, 1991).

From a practical point of view, maternal employment may reduce mother's time for childcare activities as well as for housekeeping activities. It may also increase stress levels in employed mothers by increasing their workload and by increasing their concern about the adequacy of substitute caregiving. On the other hand, the increase in income may also reduce stress and at the same time improve family well-being.

A series of questions collect information about current maternal employment status, the number of hours the mother works per week, whether she receives job training, how old the child was when she went back to work, her reasons for going back to work (or not working) after the child was born.

In addition, a small number of questions obtain information about the mother's initial intentions (V31, V32, V34), at the time of the child's birth, about returning to work, for example how old did she want the child to be before she returned to work. Then the mother is asked what her primary reason was for (or not) returning to work (V33).

Because maternal employment is an influential variable for family well-being, maternal well-being and child outcomes, it is important to obtain information about maternal employment history. Because employment may vary over time, these data will be obtained at both phases of the study

Section W—Welfare and Other Public Transfers

Receipt of public assistance (W1-W12) has been proposed for measurement at both the 9- and 18-month time points, because it reflects a serious level of poverty and the status of receipt may change over time. For many children, poverty is not a persistent fact of life but a temporary event—one out of every three children experiences poverty for a single year (Duncan, 1991). In analyzing patterns of poverty among children under age four for the subsequent 15 years, Duncan and Rodgers (1988) found that African-American children lived in poverty for an average of 5.5 years, while non-African American children lived in poverty 0.9 years on average. The duration of poverty has been found to have a powerful effect on both cognitive development and behavior among children under age 5 (Duncan, Brooks-Gunn, & Klebanov, 1994; Moore, Morrison, Coiro, & Blumenthal, 1994).

Poverty and welfare receipt are higher among families with young children (National Center for Children in Poverty, 1996). Receipt of TANF benefits, particularly if receipt is long-term, reflects a high level of economic deprivation and generally low human capital on the part of the mother (Bane & Ellwood, 1983; Driscoll & Moore, 1996; Zill et al., 1991). McLloyd and Wilson (1991) found that poor single mothers were substantially more likely to be depressed and to provide a non-stimulating environment to their children, ages ten to seventeen. Children of welfare families demonstrate poorer outcomes across a variety of domains compared to more advantaged children (Moore, Krysan, Nord, & Peterson, 1991). On the other hand, net of TANF status and income, receipt of associated benefits such as food stamps, WIC, and Medicaid should have positive implications for children's physical health and development. Therefore information about receipt of these programs and services is collected using the questions in Section W.

Section X—Household Income and Assets

There are many ways in which parental income level may affect the attainments, health, and behavior of children (Children's Defense Fund, 1994; Duncan & Brooks-Gunn, 1997; Hill & Sandfort, 1995; Huston, 1991; Korbin, 1992). Family income can affect children because money can be used to buy things that promote optimal growth and development. For instance, money can purchase food and health care for adequate nutrition and positive health outcomes. Money may provide resources such as books, toys, and musical instruments that stimulate cognitive development. Money also makes it more likely that families can purchase high quality childcare. Lack of resources to purchase toys or good quality childcare may mean that low-

income children do not have as many stimulating experiences as do children in more affluent families.

Household income is a critical determinant of the family's material standard of living, neighborhood and housing quality, opportunities for stimulating recreation and cultural experiences, and the stress and psychological well-being of the parents. Because of its wide ranging implications and its potential variability across time, measurement of household income (X1-X4) has been proposed for both time points, 9-months and 18-months.

Parents themselves may be influenced by low income, such that their lives are more stressful, conflictual, and unpredictable (Conger & Elder, 1994; McLoyd, 1990). Economic instability is also associated with marital conflict, which may have a negative influence on children's experiences (Gordon, Osborne, & Conger, 1997). Parents' emotional health may be compromised, resulting in more depressive, irritable, or volatile moods. Stressful lives and less positive emotional health may themselves influence the day-to-day interactions between parents and children. So, for example, low-income parents may exhibit more inconsistent or harsh behavior with their children, or they may be less emotionally available for their children.

On the other hand, some argue against the causal role of income (Mayer, 1997). Indeed as often the case for measures of family background, there is substantial selectivity into being low income (Driscoll & Moore, 1996), and risk factors tend to co-occur. However, a substantial body of research suggests that poverty has both short- and long-term effects on children's development, particularly deep and sustained poverty (Duncan & Brooks-Gunn, 1997). In addition, income volatility has been found to impair children's development and adjustment to school. Duncan (1991) found that many households with children under age 5 experience extreme ups and downs in the amount of money available to the family, especially as a result of divorce or remarriage. Fluctuations into and out of poverty have been shown to be associated with poorer home learning environment, lower reading and math scores, and greater behavior problems in children (Moore, Morrison, Zaslow, and Gleib, 1994).

Since the 1980s, the United States has been experiencing substantial economic growth as measured by both per family income and wealth. Very little research has actually included assets in looking at child health and development, because few data sets have had this information. Recent research suggests that family economic conditions in early childhood have the greatest affect on achievement, especially among children with low income (Duncan, et al.,

1998). Wealth accumulated is an important aspect that helps to shape that life chances of children, and can signal a family's potential investment in the human capital of their child(ren).

Some of the best work emerging in wealth studies is done by Edward Wolff who has pointed out that families receiving similar income can experience different levels of economic well-being depending on assets such as housing and consumer durables (e.g., vehicles). In their book, *Black Wealth/White Wealth*, Oliver and Shapiro (1995) demonstrate that even when blacks and whites display similar characteristics (e.g., by education and occupation), a difference of \$43, 143 in home equity and financial assets remains. Financial assets that contribute to a family's net worth helps to secure a family's well-being, and provides resources to help survive economic and personal down-turns. By ignoring wealth, studies that rely only on income measures will seriously underestimate inequalities, particularly racial inequalities where substantial wealth disparities have already been documented.

Ownership of a house (X6) is important to capture, as is vehicle ownership (X9). Stocks and bonds (X10) help to capture a family's engagement in the market economy and the associated risks, and effectively separates the middle from the upper class. Savings and checking accounts (X11) capture a family's liquidity and ability to weather short-term economic shocks.

Section Y—Woodcock-Johnson Word Identification Test

We propose administering the Word Identification subtest of the Woodcock Johnson-Psychoeducational Batteries to parents, at the end of the 9-month visit. The updated edition of the Woodcock-Johnson Battery (WJ-R) is a carefully constructed, normed, and widely-used test battery. The set of individually administered tests is designed to assess the intellectual and academic development of individuals from preschool through adulthood (Woodcock & Johnson, 1989; Salvia & Ysseldyke, 1991). National norms for U.S. preschoolers and kindergartners as well as older children and adults are available for this component subtest and establishes a broad standardization sample with which to compare the ECLS-B parents. Other advantages of this test battery are the availability of alternate forms of the subtests and a Spanish-language version of the test, which has been normed on a Hispanic population. The internal consistency reliability of the subtest with adults averages .91.

The main reason for administering this test is that parent's word knowledge and general cognitive ability have proven in numerous studies to be very important predictors of the

child's cognitive and language development. In fact, once parental education is controlled, there is still a large amount of variance in children's later development that is explained by the parent's cognitive ability. Although we feel it is very important to precisely measure this, we also recognize the burden such a comprehensive test would place on the respondents and the limits of time and cost in the 9-month home visit as planned. The Letter-Word Identification test, involving a test of the parent's word decoding skills, provides a brief and low-cost alternative that correlates very highly with more comprehensive measures of reading comprehension and cognitive ability. While it is not a broad measure of reading ability, the scores on this subtest are so highly correlated with other tests of reading skills that it serves as a "proxy" indicator of this critical construct.

This test was recommended to us by Catherine Snow, one of the country's pre-eminent researchers in early language development, who uses this in her own research with parents. Even though this is admittedly a "quick and dirty" measure of the parent's language skills, the importance of this construct and the relatively low additional burden placed on respondents justifies the cost. For approximately 3 extra minutes added to the home visit, we might be able to obtain another 10-15 percent of the variance explained in children's subsequent language ability. Finally, if it is given at the 9-month home visit, rather than the 18-month home visit, it becomes important prospective data that can support a causal connection between the parent's reading ability and the child's subsequent language skills. Thus, within the context of a prospective, longitudinal study, an earlier test of the parent's ability becomes a powerful predictor of the child's ability before the child has fully developed that ability.

The Letter-Word Identification items administered to parents consist of words that appear in large type on the pages of the test book, six to a page, in increasing levels of complexity. Rather than using the test booklet, we will have each page of the test book reproduced (assuming the publisher's permission) on cardstock, with the correct pronunciation of the words indicated on the back of each card. Only the primary caregiver will be administered this test and we will work to refine the instructions so as to reduce any potential negative reaction.

During the past pretest/cognitive testing we administered the Woodcock-Johnson Letter-Word Identification Test to parents and found that it was generally accepted by most parents. The test required approximately 3 minutes to administer and while parents were curious about why it was administered, most did not reveal negative reactions. The one or two parents who did show negative reactions were mainly curious about the test and we feel their participation in the study would not have been adversely affected by its inclusion. In general, we

speculate that the slight negative reactions to the test could have been minimized by having a better set of instructions to orient the parent to the purpose of the test, and these will be developed prior to the field test.

For individuals with disabilities (sight or hearing), we would find an appropriate accommodation, such as cards on Braille for sight-impaired parents. We would consult with specialists in other disabilities to determine which other accommodations are warranted (many hearing-impaired parents are able to speak aloud using reasonably good diction, so this may not be a problem for them, but again we will check with experts). In terms of Spanish-speaking parents, we would need to make a decision about whether to test just in English or to give the Spanish version of the test (either in combination with the English or solely). We would work with NCES to determine the most appropriate method for administering this test to non-native English speakers, including those whose primary language is neither English nor Spanish.

PROTOCOL FOR THE 9-MONTH PARENT INTERVIEW WOODCOCK-JOHNSON WORD IDENTIFICATION TEST

The Woodcock-Johnson test will be administered at the end of the 9-month parent interview. Interviewers will show respondents lists of words (6 words per page) from a booklet, asking the respondent to read and say aloud each word. Interviewers will progress down the lists until 6 items in a row are missed or the end of the booklet is reached. The task lasts approximately 3 minutes.

In the cognitive testing, we had the interviewers read the following directions to the respondent before beginning the task. All of the respondents understood the directions and found them to be clear and helpful.

"We have one more activity that we would like you to help us with. It is a word-identification task and should take no more than 5-minutes to complete. We are going to show you a list of words and then we will ask you say each word aloud. Some of the words will seem very easy while some will seem difficult. Just read the word and say it out loud."

The starting point for parents will vary depending on their education level, as follows: Grades 3 to 4 start at Item 24, Grades 5 to 9 start at Item 30, and parents with education of Grade 10 and higher start at Item 36. There are basal and ceiling rules that can be built into a CAPI version of the test administration. The interviewer must test by complete pages (six words to a page) until the 6 lowest-numbered items administered are correct, or until the page with item 24 has been administered. Once this basal has been established, the interviewer continues administering complete pages until the 6 highest-numbered items administered are failed or until the page with the last test item has been administered.

The test is scored by summing all items that are passed, and then adding the number of items that were not administered below the basal. These raw scores then can be placed in a lookup chart to determine W-ability scores, grade equivalents, and standard scores. These latter scores are useful because they indicate how well the individual has done relative to the larger population after adjusting for age.

This test would be administered only once, at the 9-month home visit. As discussed above, it is incorporated into the parent interview, as section Y.

Early Childhood Longitudinal Study

Birth Cohort 2000

9-Month Parent Instrument

**9-MONTH PARENT INTERVIEW
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Sources for Items in the 9-Month Parent Interview

CENSUS – Census 2000
CESD – Center for Epidemiologic Studies–Depression Scale
CPS – Current Population Survey
CTS – Combat Tactics Scale from National Surveys of Family Violence
DADS – Developing A Daddy Survey
DAS – Dyadic Adjustment Scale
ECLS-K – Early Childhood Longitudinal Study-Kindergarten Cohort
EHS – Early Head Start Study
FACES – Family and Child Experiences Study (Head Start study)
FF – Fragile Families Survey
HOME – Home Observation for Measurement of the Environment
JOBS – JOBS Study (Job Opportunity & Basic Skills training program)
JORDAN – Authoritarian Family Ideology
KIDI – Knowledge of Infant Development Inventory
MN-CDI – Minnesota Child Development Inventories
NCCS – National Child Care Survey
NCHS – National Center for Health Statistics
NEILS – National Early Intervention Longitudinal Study
NHES – National Household Education Survey
NHIS – National Health Interview Survey
NLSY – National Longitudinal Survey of Youth
NMES – National Medical Expenditure Survey
NMIHS – National Maternal and Infant Health Survey
NSC – National Survey of Children
NSFG – National Survey of Family Growth
NSFH – National Survey of Families and Households
OSEP – Office of Special Education Programs
PRAMS – Pregnancy Risk Assessment Monitoring System
PSID – Panel Survey of Income Dynamics
PSID-CDS – Panel Survey of Income Dynamics-Child Development Survey
SNOW – Catherine Snow
SSSII – Social Support Scale II
USDA – US Department of Agriculture, Food & Consumer Service
W-J – Woodcock- Johnson

9-MONTH PARENT INTERVIEW

SECTION A – INTRODUCTION

You and (CHILD) (and (TWIN)) have been selected to take part in the Early Childhood Longitudinal Study. The National Center for Education Statistics and other U.S. government agencies with responsibility for the health, education, and well-being of the nation's children are the sponsors of this study. I have some questions for you that ask about (CHILD)'s (and (TWIN)'s) early experiences. The information I collect in this interview will be extremely valuable in understanding how the early experiences of babies affect their learning and development. The information you provide will be kept completely confidential and private as required by law.

[For this interview, I will first ask questions that collect information specifically about (CHILD) and general questions about you and your household. Once those questions are finished, I will need to ask some questions that collect information specifically about (TWIN). There will not be as many questions for (TWIN), since I will not need to ask the questions about you or your household./As I mentioned earlier, now I need to ask some questions specifically about (TWIN). These questions will not take as long as the first round of questions, since I have already asked the general questions about you and your household.]

Before we begin the interview, I would like to verify some information about (CHILD).

A1. I have recorded (CHILD's FIRST, MIDDLE, and LAST NAME) as (CHILD)'s full name. Is this
ECLS-K correct?

ALSO VERIFY SPELLING.
MAKE CORRECTIONS TO NAME BELOW.
IF NO MIDDLE NAME, ENTER 'NMN.'

Current information: [CHILD'S FIRST NAME]
[CHILD'S MIDDLE NAME]
[CHILD'S LAST NAME]

FIRST NAME: [_____]
MIDDLE NAME: [_____]
LAST NAME: [_____]

YES	1	(GO TO A2)
NO	2	(MAKE CORRECTIONS)
DON'T KNOW	98	(GO TO A2)
REFUSED	99	(GO TO A2)

A2. I have recorded (CHILD)'s birth date as (MONTH, DAY, YEAR). Is this correct?
ECLS-K

YES	1	(GO TO A4)
NO	2	(GO TO A3)
DON'T KNOW	98	(GO TO A4)
REFUSED	99	(GO TO A4)

A3. What is (CHILD)'s birth date?
ECLS-K

|_|_|_| |_|_|_| |_|_|_|_|_|_|_|
MONTH DAY YEAR

DON'T KNOW 9998 (GO TO A4)
REFUSED 9999 (GO TO A4)

A4. ASK IF NOT OBVIOUS: I have (CHILD) recorded as (male/female). Is that correct?
ECLS-K MAKE CORRECTIONS TO GENDER BELOW OR PRESS ENTER TO ACCEPT CURRENT GENDER.

MALE 1
FEMALE 2
DON'T KNOW 98
REFUSED 99

9-MONTH PARENT INTERVIEW

SECTION B – FEEDING AND DEVELOPMENTAL MILESTONES

IF RESPONDENT IS BIOLOGICAL MOTHER, ASK B1. ELSE, GO TO B5.

B1. Now I have some questions about feeding your child. Did you ever breast-feed (CHILD)?

USDA

YES 1 (GO TO B2)
NO 2 (GO TO B6)
DON'T KNOW 98 (GO TO B6)
REFUSED 99 (GO TO B6)

B2. How soon after birth did you begin to breast-feed (him/her)?

USDA

PROBE: If you pumped your breasts because (CHILD) was not able to nurse, count from the day you began pumping.

DAYS

SAME DAY OF CHILD'S BIRTH 00
DON'T KNOW 98
REFUSED 99

B3. Are you still breast-feeding (CHILD) now?

USDA

YES 1 (GO TO B5)
NO 2 (GO TO B4)
DON'T KNOW 98 (GO TO B4)
REFUSED 99 (GO TO B4)

B4. For how long did you breast-feed (him/her)?

USDA

NUMBER

UNITS

DAYS 1 (GO TO B6)
WEEKS 2 (GO TO B6)
MONTHS 3 (GO TO B6)
DON'T KNOW 98 (GO TO B6)
REFUSED 99 (GO TO B6)

B5. During the past 7 days, was (CHILD) breast-fed, formula-fed, or fed regular cow's milk?
 USDA CODE ALL THAT APPLY.

BREAST-FED.....	1
FORMULA FED.....	2
COW'S MILK.....	3
DON'T KNOW.....	98
REFUSED.....	99

IF B5 = 2 (FORMULA-FED), ASK B6. ELSE, GO TO B8.
--

B6. How old was (CHILD) when you began feeding (him/her) formula?
 USDA

	 NUMBER	 UNITS	
DAYS.....			1
WEEKS.....			2
MONTHS.....			3
DON'T KNOW.....			98
REFUSED.....			99

B7. Do you use powder, concentrate, or ready-to-feed formula in the baby's bottle?
 USDA CODE ALL THAT APPLY.

POWDER.....	1
CONCENTRATE.....	2
READY TO FEED.....	3
DON'T KNOW.....	98
REFUSED.....	99

B8. How old was (CHILD) when you began feeding (him/her) cow's milk?
 USDA

	 NUMBER	 UNITS	
NOT YET.....			0
WEEKS.....			1
MONTHS.....			2
DON'T KNOW.....			98
REFUSED.....			99

B9. How old was (CHILD) when solid food was first introduced?
 USDA

<table border="1"> <tr><td> </td><td> </td><td> </td></tr> </table>				<table border="1"> <tr><td> </td><td> </td></tr> </table>		
NUMBER	UNITS					

NOT YET 0
 DAYS 1
 WEEKS 2
 MONTHS 3
 DON'T KNOW 998
 REFUSED 999

B10. Was this first solid food given in a bottle, infant feeder, or with a spoon?
 USDA

BOTTLE 1
 INFANT FEEDER 2
 SPOON 3
 DON'T KNOW 98
 REFUSED 99

B11. How old was (CHILD) when (he/she) was first given finger foods, such as Cheerios, teething biscuits, crackers, bread, noodles, rice, grits, tortillas, or potatoes?
 USDA

<table border="1"> <tr><td> </td><td> </td><td> </td></tr> </table>				<table border="1"> <tr><td> </td><td> </td></tr> </table>		
NUMBER	UNITS					

NOT YET 0
 MONTHS 1
 DON'T KNOW 998
 REFUSED 999

B12. Is (CHILD) able to drink from a self-held cup?
 MN-CDI

YES 1 (GO TO B13)
 NO 2 (GO TO B14)
 DON'T KNOW 98 (GO TO B14)
 REFUSED 99 (GO TO B14)

B13. How old was (CHILD) when (he/she) began drinking from a self-held cup?
 USDA

<table border="1"> <tr><td> </td><td> </td><td> </td></tr> </table>				<table border="1"> <tr><td> </td><td> </td></tr> </table>		
NUMBER	UNITS					

NOT YET 0
 MONTHS 3
 NOT YET 4
 DON'T KNOW 98
 REFUSED 99

B14. Is (CHILD) able to feed (him/her)self?

MN-CDI

YES..... 1 (GO TO B15)
NO..... 2 (GO TO B16)
DON'T KNOW 98 (GO TO B16)
REFUSED 99 (GO TO B16)

B15. How old was (CHILD) when (he/she) started feeding (him/her)self?

MN-CDI

MONTHS

DON'T KNOW 98
REFUSED 99

B16. How old was (CHILD) when (he/she) started sitting up by (him/her)self?

MN-CDI

MONTHS

NOT YET 00
DON'T KNOW 98
REFUSED 99

B17. Is (CHILD) able to crawl on hands and knees?

MN-CDI

YES..... 1 (GO TO B18)
NO..... 2 (GO TO B19)
DON'T KNOW 98 (GO TO B19)
REFUSED 99 (GO TO B19)

B18. How old was (CHILD) when (he/she) started to crawl on hands and knees?

MN-CDI

MONTHS

DON'T KNOW 98
REFUSED 99

B19. Is (CHILD) able to pull (him/her)self to a standing position?

MN-CDI

YES..... 1 (GO TO B20)
NO..... 2 (GO TO B21)
DON'T KNOW 98 (GO TO B21)
REFUSED 99 (GO TO B21)

B20. How old was (CHILD) when (he/she) started to pull (him/her)self to a standing position?
MN-CDI

MONTHS

DON'T KNOW 98
REFUSED 99

B21. Is (CHILD) able to walk while holding on to something, such as furniture?
MN-CDI

YES 1 (GO TO B22)
NO 2 (GO TO SECTION C)
DON'T KNOW 98 (GO TO SECTION C)
REFUSED 99 (GO TO SECTION C)

B22. How old was (CHILD) when (he/she) was first able to walk while holding on to something,
MN-CDI such as furniture?

MONTHS

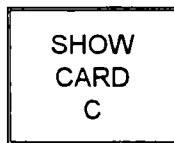
DON'T KNOW 98
REFUSED 99

9-MONTH PARENT INTERVIEW

SECTION C – CHILD TEMPERAMENT

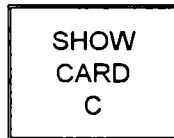
Let's talk about (CHILD) and how (he/she) usually acts during an average day. Please think about (him/her) during the last two weeks. If (CHILD) was not generally healthy during the last two weeks, think back to the last two-week time period when (CHILD) was (his/her) usual self. The following questions ask about how often (CHILD) acted in a certain way.

- C1. When (CHILD) sees a stranger or an unfamiliar animal, how often does (he/she) turn away or
NLSY cry as if afraid? Would you say...



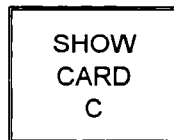
Almost never, ... 1
Less than half the time, ... 2
Half the time, ... 3
More than half the time, or 4
Almost always? 5
DON'T KNOW 98
REFUSED 99

- C2. When you leave the room and leave (CHILD) alone, how often does (he/she) become upset?
NLSY Would you say...



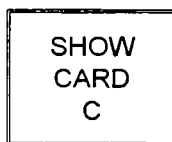
Almost never, ... 1
Less than half the time, ... 2
Half the time, ... 3
More than half the time, or 4
Almost always? 5
DON'T KNOW 98
REFUSED 99

- C3. When (CHILD) hears an unexpected loud sound, how often does (he/she) cry or become
NLSY upset? Would you say...



Almost never, ... 1
Less than half the time, ... 2
Half the time, ... 3
More than half the time, or 4
Almost always? 5
DON'T KNOW 98
REFUSED 99

C4. How often do you have trouble soothing or calming (CHILD) when (he/she) is crying or upset?
NLSY [Would you say...]



Almost never, ... 1
Less than half the time, ... 2
Half the time, ... 3
More than half the time, or 4
Almost always? 5
DON'T KNOW 98
REFUSED 99

C5. How often does (CHILD) wave (his/her) arms and/or legs during feeding? [Would you say...]
NLSY



Almost never, ... 1
Less than half the time, ... 2
Half the time, ... 3
More than half the time, or 4
Almost always? 5
DON'T KNOW 98
REFUSED 99

C6. How often does (CHILD) get hungry at about the same time each day? [Would you say...]
NLSY



Almost never, ... 1
Less than half the time, ... 2
Half the time, ... 3
More than half the time, or 4
Almost always? 5
DON'T KNOW 98
REFUSED 99

C7. How often does (CHILD) get sleepy at about the same time each day? [Would you say...]
NLSY



Almost never, ... 1
Less than half the time, ... 2
Half the time, ... 3
More than half the time, or 4
Almost always? 5
DON'T KNOW 98
REFUSED 99

C8. Please rate the overall degree of difficulty your child would present for the average parent to raise. Would you say...

NLSY

NOTE: THE ANSWER CATEGORIES ARE DIFFERENT FROM PREVIOUS QUESTIONS.



- Not at all difficult, ... 1
- Not very difficult, ... 2
- About average, ... 3
- Somewhat difficult, or 4
- Very difficult? 5
- DON'T KNOW 98
- REFUSED 99

9-MONTH PARENT INTERVIEW

SECTION D – PREGNANCY, BREAST-FEEDING, AND EARLY CHILD FEEDING

IF RESPONDENT IS BIOLOGICAL MOTHER, ASK D1. ELSE, GO TO D31.

D1. Now I have some questions about your pregnancy with (CHILD). First, I'd like you to think
NSFG back to just before you became pregnant. Before you became pregnant with (CHILD), had
you or (CHILD)'s father stopped using all methods of birth control? (Birth control means the
pill, condoms, diaphragm, foam, rhythm, Norplant, shots (Depo-Provera), or any other way to
keep from getting pregnant.)

YES	1 (GO TO D2)
NO	2 (GO TO D3)
NEVER USED BIRTH CONTROL	3 (GO TO D2)
DON'T KNOW	98 (GO TO D3)
REFUSED	99 (GO TO D3)

D2. Why were you or (CHILD)'s father not using any birth control?
NSFG CODE ALL THAT APPLY.

WANTED TO GET PREGNANT	1 (GO TO D5)
DIDN'T THINK I COULD GET PREGNANT	2 (GO TO D3)
HAD BEEN HAVING SIDE EFFECTS	
FROM BIRTH CONTROL I USED	3 (GO TO D3)
DIDN'T WANT TO USE BIRTH CONTROL	4 (GO TO D3)
DIDN'T THINK I WAS GOING	
TO HAVE SEX	5 (GO TO D3)
HUSBAND/PARTNER DIDN'T WANT	
TO USE BIRTH CONTROL	6 (GO TO D3)
COULDN'T AFFORD TO USE BIRTH	
CONTROL	7 (GO TO D3)
DIDN'T KNOW ABOUT BIRTH	
CONTROL	8 (GO TO D3)
OTHER	91 (GO TO D3)
SPECIFY _____	
DON'T KNOW	98 (GO TO D3)
REFUSED	99 (GO TO D3)

D3. At the time you became pregnant with (CHILD), did you yourself actually want to have
NSFG a(nother) baby at some time?

YES	1 (GO TO D5)
NO	2 (GO TO D6)
DON'T KNOW	98 (GO TO D4)
REFUSED	99 (GO TO D4)

D4. It is sometimes difficult to recall these things but, just before that pregnancy began, would you say you probably wanted a(nother) baby at some time or probably not?
NSFG

PROBABLY YES 1 (GO TO D5)
PROBABLY NO 2 (GO TO D6)
DIDN'T CARE 3 (GO TO D6)
DON'T KNOW 98 (GO TO D6)
REFUSED 99 (GO TO D6)

D5. Did you become pregnant sooner than you wanted, later than you wanted, or at about the right time?
NSFG

SOONER 1
LATER 2
RIGHT TIME 3
DON'T KNOW 98
REFUSED 99

D6. And what about your partner at the time you became pregnant with (CHILD), did he want you to have a(nother) baby at some time?
NSFG

YES 1 (GO TO D7)
NO 2 (GO TO BOX BEFORE D8)
DON'T KNOW 98 (GO TO BOX BEFORE D8)
REFUSED 99 (GO TO BOX BEFORE D8)

D7. Did you become pregnant sooner than he wanted, later than he wanted, or at about the right time?
NSFG

SOONER 1
LATER 2
RIGHT TIME 3
DON'T KNOW 98
REFUSED 99

ASK D8 IF CHILD IS A TWIN. ELSE, GO TO D10.

D8. Did you or (CHILD)'s father ever go to a doctor or other medical care provider to talk about ways to help you become pregnant with (CHILD)?
NSFG

YES 1 (GO TO D9)
NO 2 (GO TO D10)
DON'T KNOW 98 (GO TO D10)
REFUSED 99 (GO TO D10)

D9. Which of the following services did you or (CHILD)'s father have to help you become pregnant? How about...
 NSFG CODE ALL THAT APPLY

- Advice, ... 1
- Infertility testing, ... 2
- Drugs to improve your ovulation, ... 3
- Surgery to correct blocked tubes, ... 4
- Artificial insemination, or 5
- Other types of medical help? 91
- SPECIFY _____
- DON'T KNOW 98
- REFUSED 99

D10. How many weeks pregnant were you when you first found out that you were pregnant with (CHILD)?
 NMIHS

____|____|
 WEEKS

- DON'T KNOW 98
- REFUSED 99

D11. How soon after you found out that you were pregnant did you tell (CHILD)'s father?
 EHS

- WITHIN ONE DAY 1
- WITHIN 2-3 DAYS 2
- WITHIN ONE WEEK 3
- WITHIN ONE MONTH 4
- MORE THAN A MONTH LATER 5
- AFTER THE BABY WAS BORN 6
- NEVER TOLD 7
- DON'T KNOW 98
- REFUSED 99

D12. What was your weight just before you became pregnant with (CHILD)?
 NMIHS PROBE: Your best estimate will be fine.

____|____|____| OR ____|____|____|
 POUNDS KILOGRAMS

- DON'T KNOW 998
- REFUSED 999

D13. Have you ever attended childbirth or Lamaze classes?
NEW

YES	1
NO	2
DON'T KNOW	98
REFUSED	99

D14. During each month of your pregnancy, about how many visits for prenatal care did you have?
PRAMS If you don't know exactly how many, please give your best guess. Don't count visits for WIC.
It may help to use a calendar.
PROMPTS WILL BE PROVIDED.

Month of pregnancy	How many visits?	
a. First trimester (1-3 months)	_____	
b. Second trimester (4-6 months)	_____	
c. Third trimester (7-9 months)	_____	
d. I DID NOT GO FOR PRENATAL CARE	00	(GO TO D19)
DON'T KNOW	98	(GO TO D19)
REFUSED	99	(GO TO D19)

D15. Where did you go most of the time for your prenatal visits? Don't include visits for WIC.
PRAMS

CLINIC OR HEALTH CENTER	1
DOCTOR'S OFFICE OR HMO	2
HOSPITAL EMERGENCY ROOM	3
HOSPITAL OUTPATIENT DEPARTMENT	4
SOME OTHER PLACE	5
DOESN'T GO TO ONE PLACE MOST OFTEN	6
DON'T KNOW	98
REFUSED	99

D16. How was your prenatal care paid for? CODE ALL THAT APPLY.
PRAMS

MEDICAID	1
PERSONAL INCOME (CASH, CHECK OR CREDIT CARD)	2
HEALTH INSURANCE	3
INDIAN HEALTH SERVICE (PHS)	4
CITY OR COUNTY INDIGENT FUND	5
OTHER (SPECIFY) _____	91
DON'T KNOW	98
REFUSED	99

D17. During any of your prenatal care visits, did a doctor, nurse, or other health care worker talk with you about any of the following? How about ...

PRAMS

	<u>YES</u>	<u>NO</u>	<u>DK</u>	<u>R</u>
a. What you should eat during your pregnancy	1	2	98	99
b. How smoking during your pregnancy could affect your baby	1	2	98	99
c. Breast-feeding your baby	1	2	98	99
d. How drinking alcohol during pregnancy could affect your baby	1	2	98	99
e. Birth control methods to use after your pregnancy	1	2	98	99
f. The kinds of medicines that were safe to take during your pregnancy.....	1	2	98	99
g. How your baby grows and develops during your pregnancy	1	2	98	99
h. What to do if your labor starts early	1	2	98	99
i. Getting your blood tested for HIV (the virus that causes AIDS)	1	2	98	99

D18. Did you have an ultrasound or sonogram during the first half of your pregnancy (that is, before 20 weeks)?

NEW

YES 1
 NO 2
 DON'T KNOW 98
 REFUSED 99

D19. How much weight did you gain during your pregnancy with (CHILD)?
 PROBE: Your best estimate will be fine.

NEW

 OR
 POUNDS KILOGRAMS

DON'T KNOW 998
 REFUSED 999

D20. How tall are you?

NEW

 OR
 FEET INCHES METERS CENTIMETERS

DON'T KNOW 98
 REFUSED 99

D21. Have you smoked at least 100 cigarettes in your entire life?

PRAMS

YES 1 (GO TO D22)
 NO 2 (GO TO D24)
 DON'T KNOW 98 (GO TO D24)
 REFUSED 99 (GO TO D24)

D22. In the **3 months before** you got pregnant, how many cigarettes or packs did you smoke on an average day? (A pack has 20 cigarettes)

PRAMS

|_|_| CIGARETTES OR |_|_| PACKS

LESS THAN 1 CIGARETTE A DAY 95
 DIDN'T SMOKE 00
 DON'T KNOW 98
 REFUSED 99

D23. In the **last 3 months** of your pregnancy, how many cigarettes or packs did you smoke on an average day? (A pack has 20 cigarettes)

PRAMS

|_|_| CIGARETTES OR |_|_| PACKS

LESS THAN 1 CIGARETTE A DAY 95
 DIDN'T SMOKE 96
 DON'T KNOW 98
 REFUSED 99

D24. In the **3 months before** you got pregnant, how many alcoholic drinks did you have in an average week? (A drink is: One glass of wine, one wine cooler, one can or bottle of beer, one shot of liquor, or one mixed drink.)

PRAMS

I DIDN'T DRINK THEN 0
 LESS THAN 1 DRINK 1
 1 TO 3 DRINKS 2
 4 TO 6 DRINKS 3
 7 TO 13 DRINKS 4
 14 TO 19 DRINKS 5
 20 OR MORE DRINKS 6
 DON'T KNOW 98
 REFUSED 99

D25. During the **last 3 months** of your pregnancy, how many alcoholic drinks did you have in an average week?

PRAMS

I DIDN'T DRINK THEN 0
 LESS THAN 1 DRINK 1
 1 TO 3 DRINKS 2
 4 TO 6 DRINKS 3
 7 TO 13 DRINKS 4
 14 TO 19 DRINKS 5
 20 OR MORE DRINKS 6
 DON'T KNOW 98
 REFUSED 99

D26. Did you take vitamin and/or mineral supplements at least 3 days a week during the 3 months
NHIS before you found out that you were pregnant?

YES 1
NO 2
DON'T KNOW 98
REFUSED 99

D27. Did you take vitamin and/or mineral supplements at least 3 days a week during the 3 months
NHIS after you found out that you were pregnant?

YES 1
NO 2
DON'T KNOW 98
REFUSED 99

D28. Did the doctor tell you to stay in bed for one or more weeks during your pregnancy with
NMIHS (CHILD)?

YES 1
NO 2
DON'T KNOW 98
REFUSED 99

D29. If you could choose exactly the number of children to have in your whole life, how many would
NSFG you choose now?

NUMBER

DON'T KNOW 98
REFUSED 99

D30. How old were you when you gave birth for the first time?
NHES

YEARS

DON'T KNOW 98
REFUSED 99

ASK D31 IF CHILD IS A TWIN. ELSE, GO TO D32.
--

D31. Are (CHILD) and (TWIN) identical twins or fraternal (non-identical) twins?

ECLS-K

IDENTICAL.....	1
FRATERNAL.....	2
DON'T KNOW	98
REFUSED	99

D32. How do you know (CHILD) and (TWIN) are (identical/fraternal) twins?

NEW

CODE ALL THAT APPLY

CHEEK SWAB DNA TEST	1
BLOOD DNA TEST	2
PLACENTAL MEMBRANE DNA TEST	3
BLOOD TYPING TEST	4
OBSERVATION OF PLACENTA	5
DOCTOR/MIDWIFE TOLD ME	6
COMPLETED A QUESTIONNAIRE	7
SOMEONE ELSE NOT PRESENT AT DELIVERY TOLD ME	8
OTHER	91
SPECIFY _____	
DON'T KNOW	98
REFUSED	99

D33. Now I have some questions about medical problems (CHILD) may have had. As a newborn, did (CHILD) have to stay longer in the hospital because of medical problems?

EHS

PROBE: Please include only the days (he/she) stayed in the hospital because of medical problems. Do not include the time spent in the hospital at birth.

YES	1	(GO TO D34)
NO	2	(GO TO D39)
DON'T KNOW	98	(GO TO D39)
REFUSED	99	(GO TO D39)

D34. How many days did (CHILD) stay in the hospital because of medical problems?

EHS

NUMBER OF DAYS

DON'T KNOW	998
REFUSED	999

D35. Were any of these days in the Neonatal Intensive Care Unit (NICU), or were they all in the regular nursery?

EHS

ALL IN NICU	1	(GO TO D36)
SOME IN NICU	2	(GO TO D36)
ALL IN REGULAR NURSERY	3	(GO TO D37)
DON'T KNOW	98	(GO TO D37)
REFUSED	99	(GO TO D37)

D36. How many days did (CHILD) stay in the NICU after birth?

EHS

|_|_|_|
NUMBER OF DAYS

DON'T KNOW 998
REFUSED 999

D37. Did (CHILD) require assisted ventilation for more than 30 minutes?

EHS

YES 1 (GO TO D38)
NO 2 (GO TO D39)
DON'T KNOW 98 (GO TO D39)
REFUSED 99 (GO TO D39)

D38. How many days did (CHILD) require ventilation?

EHS

|_|_|_|
NUMBER OF DAYS

DON'T KNOW 998
REFUSED 999

IF RESPONDENT IS BIOLOGICAL MOTHER, ASK D39. ELSE, GO TO SECTION E.
--

D39. Since (CHILD) came home after birth, have there ever been periods of one week or more when you and (CHILD) did not live together, either because you were away from home or (CHILD) was away from home?

EHS

YES 1 (GO TO D40)
NO 2 (GO TO E1)
DON'T KNOW 98 (GO TO E1)
REFUSED 99 (GO TO E1)

D40. Since (CHILD) was born, how many times have you and (CHILD) been separated for one week or more?

EHS

|_|_|
NUMBER OF TIMES

DON'T KNOW 98
REFUSED 99

D41. And altogether, how many weeks have you been separated from (CHILD) since (he/she) was
EHS born?

|_|_|

NUMBER OF WEEKS

DON'T KNOW 98

REFUSED 99