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# **Children Born in 2001**

## **First Results From the Base Year of the Early Childhood Longitudinal Study, Birth Cohort (ECLS-B)**

**E.D. TAB**

**November 2004**

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# Foreword

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This E.D.TAB briefly profiles children born in the year 2001. It is the first publication based on the Early Childhood Longitudinal Study, Birth Cohort (ECLS–B).

In the base year collection of the ECLS–B, when the children were about 9 months of age, the study interviewed parents (typically the biological mother), assessed children, and gathered information directly from the children’s father figure. This report highlights some of these features of the ECLS–B by providing basic demographic information on the children, information on some of their specific mental and physical skills, a brief profile of their experiences in child care, and, since the ECLS–B is one of the first national studies to collect information specifically from fathers, some descriptive information on the percentage of children with fathers in their lives.

The data analyzed in this report are now available to researchers for their own use in Electronic Codebook (ECB) format on CD-ROM (NCES 2004–093).

We hope that the information provided in this report will be useful to a wide range of interested readers, including both researchers and policymakers. We further hope that the results reported here will encourage others to use the ECLS–B data, both now and in the future, as additional waves build upon this baseline.

**Robert Lerner**, Commissioner  
National Center for Education Statistics



# Acknowledgments

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Over the past 5 years, many individuals and organizations have contributed to the design and conduct of the Early Childhood Longitudinal Study, Birth Cohort (ECLS–B). While it is not possible to name all the individuals who have made significant contributions to this study, we would like to recognize some of those who played a critical role during the development and implementation phases of the ECLS–B.

First, we would like to thank the 10,688 children and their parents who participated during the first wave of the study. The parents of these children invited us into their homes and allowed us to work with their children.

A number of people contributed to the production of the E.D.TAB, and to the development of the ECLS–B more generally. In particular, we wish to thank the ECLS–B project team (presented alphabetically, by organization):

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We gratefully acknowledge Marian MacDorman of the National Center for Health Statistics for all her efforts to make the ECLS–B a success. We wish to thank Natasha Cabrera of the University of Maryland at College Park (and formerly with the National Institute of Child Health and Human Development) for all her work in support of the health, special population, and father components of the study. And we wish to thank Jonaki Bose, formerly of the National Center for Education Statistics, and Lizabeth Malone, formerly of the Education Statistics Services Institute.

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Special recognition also goes to our reviewers: Marilyn Seastrom, Kashka Kubdzela, Val Plisko, Barbara Holton, and Bill Hussar of the National Center for Education Statistics, Dan McGrath and Lawrence Lanahan of the Education Statistics Services Institute, Rachel Chazen Cohen of the Administration on Children, Youth and Families, and Victor Oliveira of the Economic Research Service, for the quality of their input into this document.

A special thank you to Kendra Chandler Webb for designing the ECLS logo.



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# Introduction

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The National Center for Education Statistics (NCES) within the Institute of Education Sciences (IES) in collaboration with several health, education and human services agencies is conducting a new study, the Early Childhood Longitudinal Study, Birth Cohort (ECLS–B). The ECLS–B selected a national sample of children, born in the year 2001, to follow from birth through first grade.

The National Center for Health Statistics, the National Institutes of Health (NIH), the U.S. Department of Agriculture Economic Research Service, the Administration on Children, Youth and Families, the Maternal and Child Health Bureau, the Office of the Assistant Secretary for Planning and Evaluation, the Centers for Disease Control and Prevention and the Office of Minority Health, the Office of Special Education Programs, and the Office of Indian Education are working collaboratively with NCES on the design and implementation of this study. Sponsoring institutes from NIH are the National Institute of Child Health and Human Development, the National Institute of Mental Health, the National Institute of Nursing Research, the National Institute on Aging, the National Institute on Deafness and Other Communication Disorders, the National Center on Minority Health and Health Disparities and the Office of Behavioral and Social Sciences Research.

The ECLS–B is part of a longitudinal studies program comprised of two cohorts—a birth cohort and a kindergarten cohort. Together, these cohorts provide the depth and breadth of data required to describe children’s health, early learning, development, and education experiences. The kindergarten cohort study (ECLS-K) measures aspects of children’s development and their environments (home and school) as they enter school for the first time and examines how these aspects relate to their academic achievement and experiences through the fifth grade.<sup>1</sup> The birth cohort study (ECLS–B) focuses on those characteristics of children and their families, as well as children’s early health care and in-home and out-of-home experiences, that relate to children’s first experiences with the demands of formal school (i.e., kindergarten and first grade). It provides important information about the way America raises, nurtures, and prepares its children for school.

This study was designed to inform an array of issues and research questions pertaining to children’s early education, development, and care. Issues that can be addressed over the life of the study include:

- What are children’s skills and abilities at different ages during the first six years of life? What are most children in the United States able to do in the domains of physical, cognitive, socioemotional, and language development at key points during these first years of life? Do the knowledge, skills, and behaviors children demonstrate differ by race/ethnicity, socioeconomic status, family structure, and other child and family characteristics?
- How do children’s early health care and health status, including characteristics of children at birth (e.g., low birth weight, multiple birth, and premature birth), relate to their preparedness for formal school? Which groups of children seem to have more developmental difficulties and to what extent are involvement in early intervention, early childhood education programs, and health promotion and prevention programs associated with positive growth and development for the most vulnerable children?

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<sup>1</sup>This paper is focused on the ECLS birth cohort study. More information on the ECLS kindergarten cohort study is available from NCES at the ECLS website (<http://nces.ed.gov/ecls>). For the ECLS-K, base-year data were collected from a nationally representative sample of kindergartners attending public and private schools and early childhood programs in the fall of 1998. Follow-up waves 2, 3, and 4 were conducted in the spring of 1999, the fall of 1999, and the spring of 2000, respectively. Wave 5 was conducted in spring 2002, and wave 6 was conducted in spring 2004, when most of the children were in fifth grade.

- When do children first receive regular care from someone other than their parents? What are the characteristics of this care? How do parents make choices in determining both the timing of this care and the nature of the child care arrangements? At what point do parents decide to place their preschool-age child in an early childhood program? What are the characteristics of the programs that children attend? What factors do parents consider in making this decision and in evaluating alternative programs?
- What role do fathers play in early child care and child-rearing and how does their involvement with their children and the family relate to children's school readiness? What role do resident and nonresident fathers play? Are there characteristics of fathers that are associated with individual differences in children's preparedness for school, independent of mother characteristics?

## The Current Study

The ECLS–B is a nationally representative sample of the nearly 4 million children born in the United States in the year 2001.<sup>2</sup> During the first wave of the study, 10,688 parents provided information and 10,221 children were directly assessed. The parent weight (WIR0) is the weight used to produce all estimates in this report. Only those cases with completed parent interviews are included in this weight.<sup>3</sup> Since the sampled children were born between January and December 2001, baseline data were collected on a rolling basis between the fall of 2001 and the fall of 2002.

The ECLS–B was designed to collect information from children and their families for the first time when the children were about 9 months of age (i.e., 8 to 10 months). However, information was collected from a few children as young as 6 months and as old as 22 months. The term “9 months” is used throughout this document to refer to the data collection that took place between fall 2001 and fall 2002, at which time most of the sampled children were about 9 months of age (72 percent of the population was 8 to 10 months of age) (table 1). For ease of reporting, this E.D. TAB uses the term “about 9 months of age” to refer to the entire population of children in the study. Four additional waves of data collection are planned for when the children are 2-year-olds, preschool-aged (e.g., age 4), and then when they are in kindergarten and first grade.

Overall, 74.1 percent of the children in the sample participated in the study. For more information on response rates, data reliability, and test procedures, please refer to appendix A.

Comparisons made in the text were tested for statistical significance to ensure that the differences were larger than might be expected due to sampling variation. All differences reported are significant at the  $p < .05$  level.<sup>4</sup>

<sup>2</sup>Sampling was based on occurrence of birth as listed on the birth certificate. Sampled children subsequently identified by the state registrars as having died or who had been adopted near or at the time of birth were excluded. However, data were collected when the children were 9 months of age, so there are some cases with adoptive parents.

<sup>3</sup>More parents were assessed than children due to a variety of reasons, such as parents refused child assessment, child's availability at time of assessment (e.g., napping).

<sup>4</sup>Other publications prepared by the National Center for Education Statistics based on the Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (a sister study to the ECLS–B) have employed the use of effect sizes to aid in the interpretation of statistically significant differences. These tabulations are meant to be a preliminary summative examination of the data and do not use effect size differences as a guide.

**Table 1. Population percentages by age of assessment**

Child and family characteristics	Population (in thousands)	Population percentage
Total	3,997	100
Child's age at assessment		
8, 9 or 10 months	2,756	72
8 months	613	16
9 months	1,328	35
10 months	814	21
11, 12 or 13 months	798	21
11 months	405	11
12 months	238	6
13 months	155	4
14 to 22 months	248	7

NOTE: Detail may not sum to totals because of rounding or missing data. Estimates weighted by W1R0. Children who were assessed at less than 8 months of age (about .4 percent of the sample) are not reflected in this table; however, unless otherwise noted, these children are included in the estimates produced in the remainder of the report.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Birth Cohort, Restricted-Use File (NCES 2004-093).

## Focus of This E.D. TAB

This E.D. TAB provides descriptive information about children born in the United States in 2001. It presents information on certain child and family characteristics, on children's mental and physical skills, on children's first experiences in child care, and on the fathers of these children. The report profiles data from a nationally representative sample of children at about 9 months of age both overall, and for various subgroups (i.e., male and female, children from different racial/ethnic groups, and children living in different types of families).

The information in this report is presented in four sections: (1) characteristics of the children and their families; (2) children's early mental and physical skills; (3) children's first experiences in child care; and (4) the fathers of these children. The topics selected for this initial release of baseline information are only a small sampling of the types of questions that can be addressed.

Appendixes A and B provide technical documentation for the findings presented here, as well as information about how to obtain these data.





# Selected Findings

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## Demographic Characteristics of Children and Their Families

Information on the demographic characteristics of the children and their families was largely provided by the parents as part of the parent interview and also drawn from information presented on the child's birth certificate.

In 2001, of babies born in the United States (table 2)

- 51 percent were boys and 49 percent were girls;
- 54 percent were White, non-Hispanic; 14 percent were Black, non-Hispanic; 26 percent were Hispanic, 3 percent were Asian/Pacific Islanders, non-Hispanic; 1 percent were American Indian, non-Hispanic; and 4 percent were multiracial, non-Hispanic (figure 1);
- 3 percent of babies born were twins, less than 1 percent were part of other multiple births (e.g., triplets, quadruplets), and 97 percent were single births;
- 12 percent of babies were born premature, 6 percent were low birth weight (i.e., more than 3.3 pounds to 5.5 pounds), and 1 percent were very low birth weight (i.e., 3.3 pounds or less); and
- 11 percent of babies were born to teenage mothers<sup>5</sup> (i.e., 15 to 19 years of age) (figure 2).

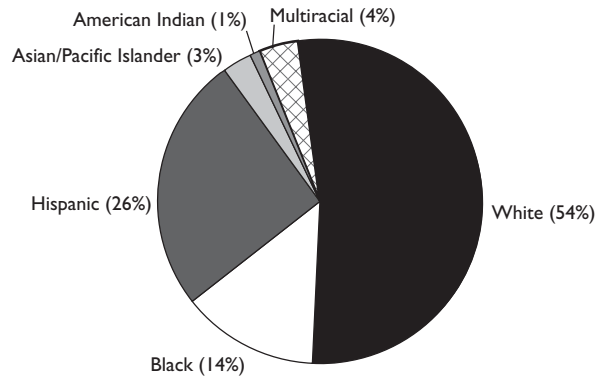
When these children were about 9 months of age (table 3)

- 23 percent were living in families whose household income was below the poverty threshold;
- 64 percent were living with both of their married biological parents, 14 percent were living with unmarried biological parents, and 20 percent were living with one parent (figure 3);
- 27 percent were living with mothers who had less than a high school education, and 17 percent were living with fathers who had less than a high school education; and
- 24 percent were living with mothers who had a bachelor's degree or higher, and 24 percent were living with fathers who had a bachelor's degree or higher.

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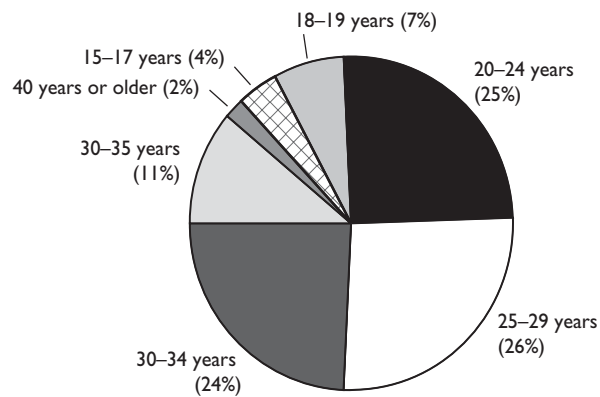
<sup>5</sup>Children with mothers less than 15 years of age were excluded from the study.

**Figure 1. Percentage of children born in 2001, by race/ethnicity: 2001**



NOTE: Detail may not sum to totals because of rounding. White, Black, Multiracial, American Indian, and Asian/Pacific Islander all are based on non-Hispanic children in these categories. If a child was identified as Hispanic, then he/she was reported as part of the Hispanic estimate. SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Birth Cohort, Restricted-Use File (NCES 2004–093).

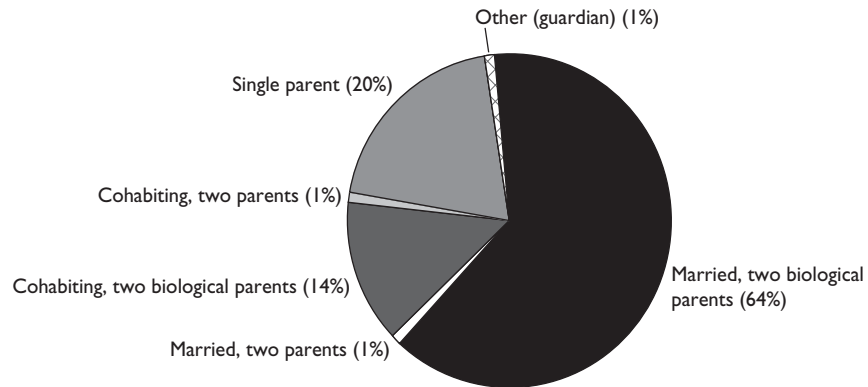
**Figure 2. Percentage of children born in 2001, by mother's age at child's birth: 2001**



NOTE: Detail may not sum to totals because of rounding. Children with mothers less than 15 years of age were excluded from the study. SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Birth Cohort, Restricted-Use File (NCES 2004–093).

**Figure 3. Percentage of children born in 2001, by family type at about 9 months of age: 2001**

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NOTE: Detail may not sum to totals because of rounding. *Married, two parents* and *cohabiting, two parents* could be one biological parent and one nonbiological parent or two nonbiological parents (such as adoptive parents).

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Birth Cohort, Restricted-Use File (NCES 2004-093).

**Table 2. Percentage distribution of children born in 2001, by child and family characteristics at time of birth: 2001**

Child and family characteristics	Population (in thousands)	Population percentage
Total	3,997	100
Child's sex		
Male	2,041	51
Female	1,956	49
Child's race/ethnicity		
White, non-Hispanic	2,133	54
Black, non-Hispanic	547	14
Hispanic	1,018	26
Asian, non-Hispanic	111	3
Native Hawaiian or Other Pacific Islander, non-Hispanic	7	#
American Indian, non-Hispanic	20	1
Multiracial, non-Hispanic	151	4
Birth status		
Single	3,864	97
Twin	119	3
Higher order (e.g., triplet)	7	#
Prematurity (less than 37 weeks gestation)		
No	3,529	88
Yes	462	12
Birth weight		
Normal birth weight (more than 5.5 pounds)	3,696	93
Moderately low birth weight (more than 3.3 to 5.5 pounds)	248	6
Very low birth weight (3.3 pounds or less)	51	1
Child's mother's age at child's birth <sup>1</sup>		
15-17 years	144	4
18-19 years	296	7
20-24 years	1,011	25
25-29 years	1,054	26
30-34 years	938	24
35-39 years	451	11
40 years or older	97	2

# Rounds to zero.

<sup>1</sup>Children with mothers less than 15 years of age were excluded from the study.

NOTE: Detail may not sum to totals because of rounding or missing data. Estimates weighted by W1R0.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Birth Cohort, Restricted-Use File (NCES 2004-093).

**Table 3. Percentage distribution of children born in 2001, by family characteristics at about 9 months of age: 2001**

Child and family characteristics	Population percentage	Population (in thousands)
Total	3,997	100
Poverty status		
Below poverty threshold	914	23
At or above poverty threshold	3,083	77
Family type		
Married, two biological parents	2,574	64
Married, two parents	19	1
Cohabiting, two biological parents	541	14
Cohabiting, two parents	29	1
Single parent live alone	812	20
Other (guardian)	21	1
Child's mother's education <sup>1</sup>		
Less than high school	1,091	27
High school diploma/GED	865	22
Some college/votech certificate	1,047	26
Bachelor's degree or higher	974	24
Child's father's education <sup>2</sup>		
Less than high school	691	17
High school diploma/GED	732	18
Some college/votech certificate	834	21
Bachelor's degree or higher	941	24

<sup>1</sup>Mother's education reflects the population of children living with their mother; therefore, estimates may not sum to totals for mother's education due to the omitted category "no mother in household."

<sup>2</sup>Father's education reflects the population of children living with their father. Therefore estimates may not sum to totals for father's education due to the omitted category "no father in household."

NOTE: Detail may not sum to totals because of rounding or missing data. *Married, two parents* and *cohabiting, two parents* could be one biological parent and one nonbiological parent or two nonbiological parents (such as adoptive parents). Estimates weighted by WIRO.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Birth Cohort, Restricted-Use File (NCES 2004-093).

## Children’s Early Mental and Physical Skills

The ECLS–B assessment of young children’s mental and motor development relies on a direct measure of children—the Bayley Short Form–Research Edition (BSF–R), which was developed for use in the ECLS–B. The BSF–R is a shortened version of the Bayley Scales of Infant Development–Second Edition (BSID–II) (Bayley 1993)<sup>6</sup>, a standardized assessment of mental and motor developmental status for children from birth to 42 months of age.

This E.D. TAB presents information on young children’s specific mental and physical skills (i.e., proficiencies). Proficiency scores provide a means of distinguishing status in specific skills within a content area. Clusters of two to five test questions having similar content and difficulty were included at several points along the score scale of the BSF–R mental and physical assessments. Clusters of items provide a more reliable test of proficiency than do single items.<sup>7</sup>

Below are the five proficiencies for early mental skills.

- **Exploring Objects.** The child is reaching for and holding objects, he/she may have no specific purpose or goal except to play or discover.
- **Exploring Objects With a Purpose.** The child is manipulating objects with a purpose (e.g., to see what makes the ringing sound in a bell).
- **Babbling.** The child is making simple sounds and gestures (e.g., babbling or jabbering).
- **Early Problem Solving.** The child is using reasoning to interact with objects (e.g., if a toy is out of reach, using another object, like another toy, to bring the desired toy within reach).
- **Communicating With Words.** The child understands and uses words, both receptively (pointing to named objects) and expressively (saying words).

Below are the five proficiencies for early physical skills.

- **Eye-hand Coordination.** The child demonstrates eye-hand coordination as he/she reaches for objects.
- **Sitting.** The child can sit alone, without leaning against something or other assistance.
- **Prewalking.** The child is taking steps and supporting his/her weight while standing, with assistance (moving along furniture or holding onto someone’s hand).
- **Independent Walking.** The child is walking alone, without assistance (without holding onto something or someone).
- **Balance.** The child can balance in various positions (e.g., squatting, standing on one foot).

The ECLS–B was designed to collect information from children and their families for the first time when the children were about 9 months of age (i.e., 8 to 10 months). However, information was collected from a few children as young as 6 months and as old as 22 months. Young children’s mental and physical skills develop rapidly. Therefore, this E.D. TAB presents information on young children’s skills by their age at assessment, in several

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<sup>6</sup>Bayley, N. (1993). *Bayley Scales of Infant Development, Second Edition Manual*. San Antonio, TX: The Psychological Corporation.

<sup>7</sup>For more information on the content, administration, and properties of the direct child assessment, please refer to appendix A of the E.D. TAB.

ways. First, this E.D. TAB presents information on the children in the sample 8 to 10 months of age at the time of assessment. Next, the E.D. TAB presents information on the children in the sample who were 11 to 13 months of age at the time of assessment. Tables 4 and 5 present a breakdown by age (i.e., age at assessment, month by month).<sup>8</sup>

When children were 8 to 10 months old , in terms of their mental skills (table 4, figure 4)

- 99 percent were exploring objects in play;
- 88 percent were exploring objects with a purpose;
- 47 percent were babbling;
- 3 percent were demonstrating early problem solving; and
- less than 1 percent were using words.

When children were 8 to 10 months old, in terms of their physical skills (table 5, figure 5)

- 91 percent demonstrated eye-hand coordination;
- 93 percent were sitting;
- 73 percent were showing prewalking skills;
- 19 percent were walking; and
- 1 percent could balance.

When children were 11 to 13 months old, in terms of their mental skills (table 4, figure 4)

- 100 percent were exploring objects in play;
- 97 percent were exploring objects with a purpose;
- 72 percent were babbling;
- 17 percent were demonstrating early problem solving; and
- 5 percent were using words.

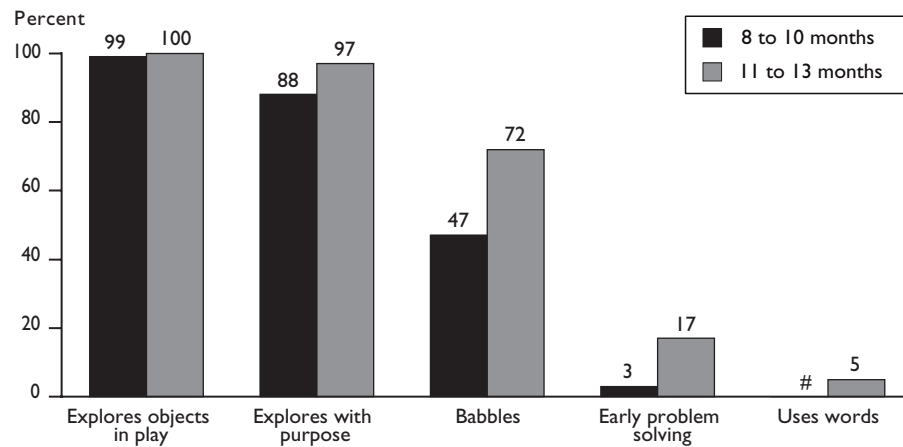
When children were 11 to 13 months old, in terms of their physical skills (table 5, figure 5)

- 96 percent demonstrated good eye-hand coordination;
- 98 percent were sitting;
- 91 percent were showing prewalking skills;
- 55 percent were walking; and
- 10 percent could balance.

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<sup>8</sup>This E.D. TAB does not present information on children's mental and physical skills by characteristics such as children's sex, race/ethnicity, and poverty status. Preliminary analyses revealed that, for the most part at this age the mental and physical skills discussed in this report do not significantly differ by children's sex, race/ethnicity, and poverty status. A future NCES report will examine group differences in children's mental and physical skills in more detail, presenting information from the 9-month collection and the 2-year collection of the ECLS-B.

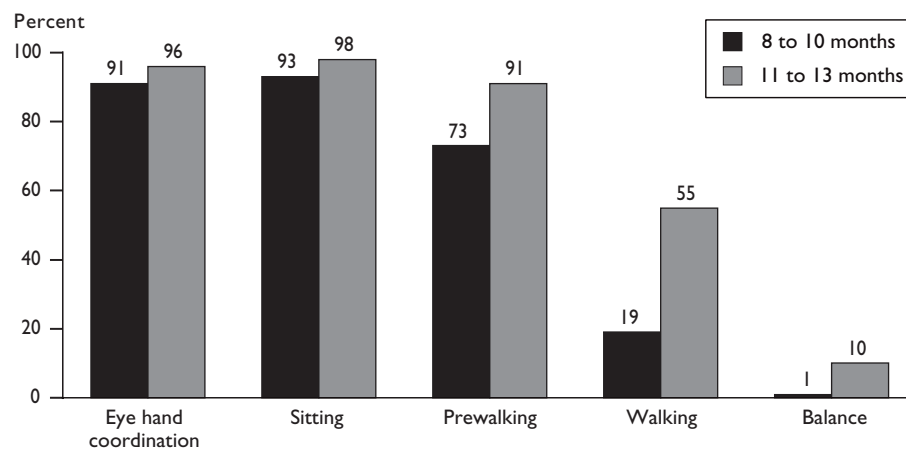
**Figure 4. Percentage of children demonstrating certain mental skills at 8 to 10 months of age and at 11 to 13 months of age: 2001**



# Less than .5 percent.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Birth Cohort, Restricted-Use File (NCES 2004-093).

**Figure 5. Percentage of children demonstrating certain physical skills at 8 to 10 months of age and at 11 to 13 months of age: 2001**



SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Birth Cohort, Restricted-Use File (NCES 2004-093).



**Table 4. Percentage of children demonstrating specific cognitive skills, by child's age at assessment: 2001**

Child characteristics	Population percentage	Percentage of children demonstrating specific cognitive abilities				
		Explores objects in play	Explores with purpose	Babbles	Early problem solving	Uses words
Child's age at assessment						
8, 9 or 10 months	72	99	88	47	3	#
8 months	16	99	80	38	1	#
9 months	35	99	88	45	3	#
10 months	21	99	94	56	6	1
11, 12 or 13 months	21	100	97	72	17	5
11 months	11	100	96	65	11	3
12 months	6	100	99	77	20	6
13 months	4	100	99	84	28	10
14 to 22 months	7	100	99	89	46	27

# Rounds to zero.

NOTE: Children who were assessed at less than 8 months of age (about .4 percent of the sample) are not reflected in this table; however, unless otherwise noted, are included in the estimates produced in the remainder of the report. Estimates weighted by W1R0.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Birth Cohort, Restricted-Use File (NCES 2004–093).

**Table 5. Percentage of children demonstrating specific motor skills, by child's age at assessment: 2001**

Child characteristics	Population percentage	Percentage of children demonstrating specific motor abilities				
		Eye-hand coordination	Sitting	Prewalking	Independent walking	Balance
Child's age at assessment						
8, 9 or 10 months	72	91	93	73	19	1
8 months	16	88	90	63	10	#
9 months	35	91	93	73	17	1
10 months	21	93	96	81	27	2
11, 12 or 13 months	21	96	98	91	55	10
11 months	11	95	97	88	43	5
12 months	6	97	99	94	62	13
13 months	4	98	99	96	76	20
14 to 22 months	7	99	100	98	89	43

# Rounds to zero.

NOTE: Children who were assessed at less than 8 months of age (about .4 percent of the sample) are not reflected in this table; however, unless otherwise noted are included in the estimates produced in the remainder of the report. Estimates weighted by W1R0.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Birth Cohort, Restricted-Use File (NCES 2004–093).

## Children’s First Experiences in Child Care

As part of the parent interview, information was collected on children’s first experiences in child care. Parents provided information on whether their child was in care, the type of care, the number of hours in care, and the age at which the child first entered care. The ECLS–B seeks to provide information on the care that young children receive on a regular basis from persons other than their parents.<sup>9</sup>

- When children were about 9 months of age, approximately one-half (50 percent) were in some kind of regular child care arrangement, such as a center-based care arrangement or care provided by a nonrelative or relative in a private home (figure 6, table 6).
- Black children (63 percent) were more likely to be in some kind of child care arrangement, compared to White (49 percent), Hispanic (46 percent), and Asian children (47 percent). Children whose mothers work (full time or part time) are more likely to be in child care than children whose mothers do not work or who are looking for work. Children in families who were not poor (at or above the poverty threshold) (52 percent) were more likely to be in child care than children from poor families (43 percent) (table 6).
- Among children about 9 months of age (figure 6, table 6)
  - 26 percent were in relative care as their primary arrangement,<sup>10</sup> where they received care from someone related to them other than the parent, such as a grandparent, aunt, uncle, sibling, or some other relative. Relative care could be in the child’s home or in the home of the caregiver.
  - 15 percent were in nonrelative care as their primary arrangement, care provided by someone who is not related to them, such as a nanny, home-based care provider, regular sitter, or neighbor. This does not include day care centers or preschools. The care could be in the child’s home or in the home of the caregiver.
  - 9 percent were in center-based care as their primary arrangement, such as early learning centers, nursery schools, and preschools (including Early Head Start).
  - 1 percent had a primary arrangement that was actually multiple arrangements, where they spent equal numbers of hours across different care arrangement types (such as 20 hours a week with a relative and 20 hours a week in a center-based program).

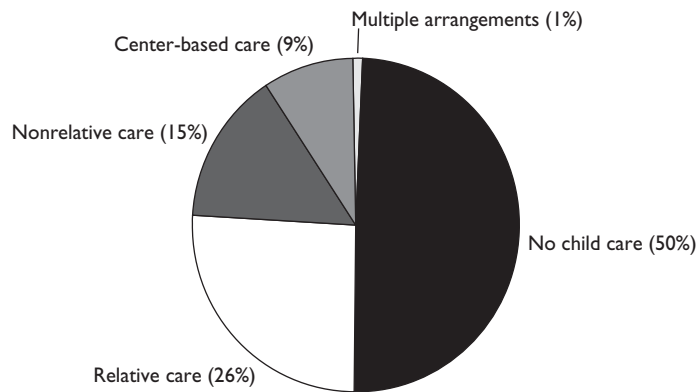
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<sup>9</sup>Parents include biological and adoptive parents as well as stepparents and guardians.

<sup>10</sup>Primary care arrangement is where the child spends the most hours. If the child spent equal time across two or more arrangements, primary care was classified as multiple arrangements.

- The type of child care children receive varied by their race/ethnicity. Black children were more likely than White, Hispanic, or Asian children to be in center-based care. White children were less likely than Black, Hispanic, or Asian children to be cared for by a relative (table 6).
- Of children in child care, 39 percent began when they were younger than 3 months, 47 percent were three to six months old, and 14 percent started care when they were older than 6 months (figure 7, table 7). In terms of hours per week in child care, 19 percent of children about 9 months of age were in an arrangement 10 hours or fewer, 27 percent were in an arrangement 11 to 30 hours, 31 percent were in an arrangement 31 to 40 hours, and 24 percent were in an arrangement more than 40 hours (table 7).
- The age at which children entered child care and the number of hours they spent in the arrangement varied by their race/ethnicity. Asian children were more likely than White, Black, or Hispanic children to enter a child care arrangement when they were younger than 3 months of age. Asian children were more likely than White, Black, or Hispanic children to spend more than 40 hours a week in care, and Black children were more likely than White or Hispanic children to spend more than 40 hours a week in care.
- Children in relative care were more likely to be in care for 10 hours or fewer a week than children in nonrelative care or a center-based program. Children in multiple care arrangements were more likely to be in care more than 40 hours a week than children in a single care arrangement.

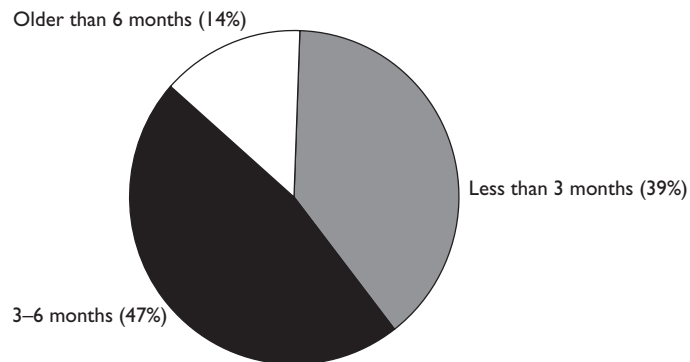
**Figure 6. Percentage of children, by primary child care arrangement at about 9 months of age: 2001**



NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Birth Cohort, Restricted-Use File (NCES 2004-093).

**Figure 7. Percentage of children in child care, by age child first started in a regular arrangement: 2001**



NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Birth Cohort, Restricted-Use File (NCES 2004-093).

**Table 6. Percentage of children participating in child care at about 9 months of age, by primary type of arrangement, and by child and family characteristics: 2001**

Child and family characteristics	Care arrangement				
	Relative care	Nonrelative care	Center-based care	Multiple arrangements	No regular arrangement
Total	26	15	9	1	50
Child's sex					
Male	26	15	9	1	50
Female	26	16	8	1	50
Child's race/ethnicity					
White, non-Hispanic	21	17	9	1	51
Black, non-Hispanic	33	15	14	1	37
Hispanic	30	11	5	#	54
Asian, non-Hispanic	33	10	4	#	53
Other, non-Hispanic <sup>1</sup>	28	14	10	1	46
Mother's employment status					
Full time (35 hours or more)	39	29	17	1	15
Part time	38	21	8	2	33
Looking for work	22	6	7	#	65
Not in work force	9	4	3	#	84
No mother in household	37	2	17	#	45
Poverty status					
Below poverty threshold	28	8	7	1	57
At or above poverty threshold	25	17	9	1	48

# Rounds to zero.

<sup>1</sup>Other includes Native Hawaiian, other Pacific Islanders, American Indian, Alaska Native, and Multiracial children.

NOTE: Detail may not sum to totals because of rounding. Estimates weighted by WIR0.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Birth Cohort, Restricted-Use File (NCES 2004-093).

**Table 7. Of children in child care, percentage of children by age in months when infants first began arrangement and current weekly hours in all arrangements, by child and family characteristics: 2001**

Child and family characteristics	Age first began care			Total hours in child care arrangement(s)			
	Younger than 3 months	3 to 6 months	More than 6 months	10 hours or fewer	11 to 30 hours	31 to 40 hours	More than 40 hours
Total	39	47	14	19	27	31	24
Child's sex							
Male	39	47	14	19	28	31	22
Female	39	46	14	18	27	31	25
Child's race/ethnicity							
White, non-Hispanic	39	47	14	21	29	30	21
Black, non-Hispanic	40	45	15	12	23	36	29
Hispanic	39	47	14	20	26	31	23
Asian, non-Hispanic	50	37	13	17	20	27	36
Other, non-Hispanic <sup>1</sup>	38	49	13	12	31	33	24
Poverty status							
Below poverty threshold	41	41	18	18	31	31	20
At or above poverty threshold	39	48	13	18	26	31	24
Mother's employment status							
Full time (35 hours or more)	44	46	11	10	15	42	33
Part time	30	52	18	26	49	15	9
Looking for work	42	41	17	20	33	28	19
Not in work force	37	44	19	39	29	17	15
No mother in household	49	16	35	11	20	37	32
Primary care arrangement							
Relative care	42	44	14	22	31	27	21
Nonrelative care	37	50	14	17	27	34	23
Center care	38	46	16	12	17	41	31
Multiple arrangements	40	43	17	13	22	5	58

<sup>1</sup>Other includes Native Hawaiian, other Pacific Islanders, American Indian, Alaska Native, and Multiracial children.

NOTE: Detail may not sum to totals because of rounding. Estimates weighted by WIR0.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Birth Cohort, Restricted-Use File (NCES 2004-093).

## Fathers in Children's Lives

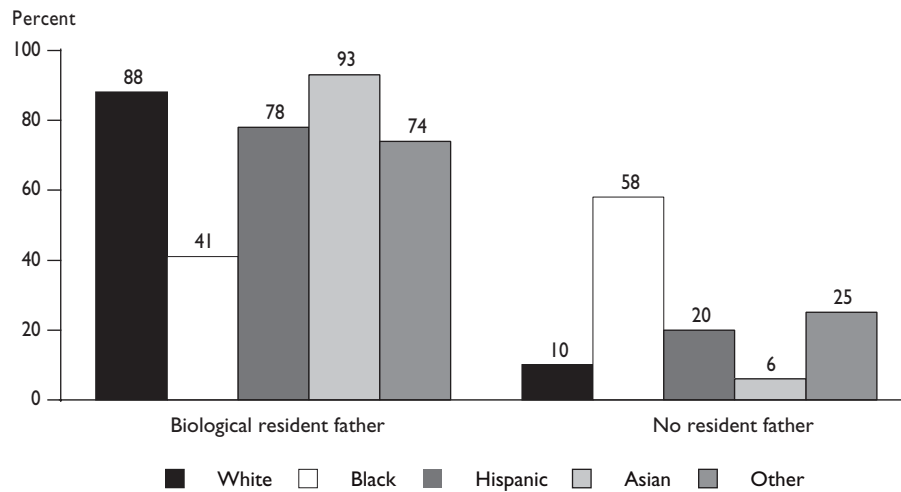
As part of the parent interview, information was collected on whether or not there was a father in the household (e.g., biological, nonbiological, no resident father) and if there was no resident biological father in the household, then information was collected on the amount of contact the biological father had with the child.

- When children were about 9 months of age, 1 in 5 (20 percent) lived in households with no father (table 8).
- Black children (58 percent) were more likely than White children (10 percent), Hispanic children (20 percent), or Asian children (6 percent) to live in a household with no father present (figure 8, table 8). Forty-five percent of children living below the poverty threshold lived in households with no father present, while 12 percent of children living at or above the poverty threshold lived in households without a father.
- In the ECLS–B, in about 99 percent of the interviews, the biological mother was the respondent.<sup>11</sup> According to the child's mother, when there was no resident biological father in the household (table 9)
  - 40 percent of young children had contact with their father the same day as the home visit (when the parent interview was conducted);
  - 38 percent of children had contact with their father within 2 to 7 days of the home visit;
  - 7 percent of children had contact with their father within the last 8 to 14 days of the home visit;
  - 2 percent of children had not seen their father in more than 2 weeks; and
  - 13 percent of children had never seen their father.
- Of children with no resident father, 6 percent of Black children had nonresident fathers who had never had contact with them, compared to 18 percent of White children, 21 percent of Hispanic children, and 25 percent of Asian children (figure 9, table 9).

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<sup>11</sup>In the ECLS–B, this was by design. When the home visit was conducted, the interviewer specifically asked for the biological mother to be the respondent. Data not shown in table.

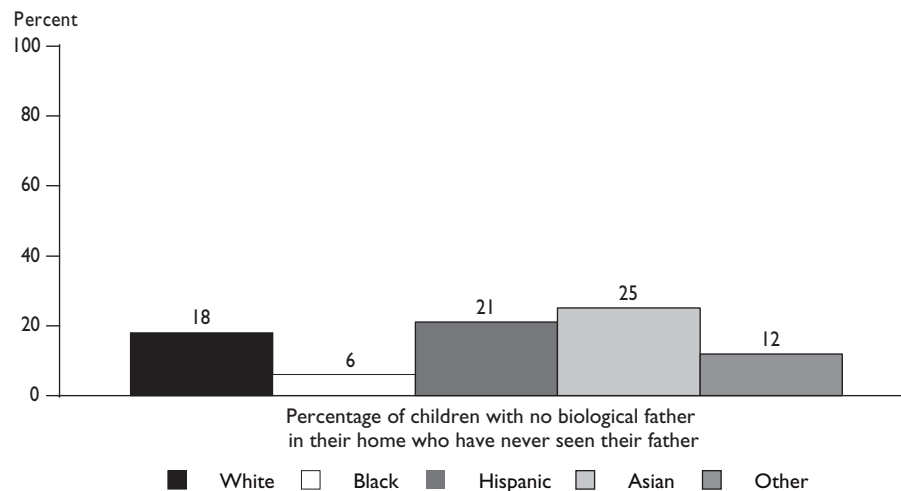
**Figure 8. Percentage of children at about 9 months of age, by presence of a father in the household, by race/ethnicity: 2001**



NOTE: Details may not sum to totals because of omitted category *nonbiological father in household*.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Birth Cohort, Restricted-Use File (NCES 2004–093).

**Figure 9. Percentage of children with no biological father in their home who have never seen their father, by race/ethnicity: 2001**



SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Birth Cohort, Restricted-Use File (NCES 2004–093).



**Table 8. Percentage of children with or without fathers in the household around 9 months of age, by child and family characteristics: 2001**

Child and family characteristics	All children	Father in household		
		Biological	Non-biological	No father in household
Total	100	79	1	20
Child's sex				
Male	51	79	1	19
Female	49	78	1	20
Child's race/ethnicity				
White, non-Hispanic	54	88	2	10
Black, non-Hispanic	14	41	1	58
Hispanic	25	78	1	20
Asian, non-Hispanic	3	93	#	6
Other, non-Hispanic <sup>1</sup>	4	74	1	25
Poverty status				
Below poverty threshold	23	53	1	45
At or above poverty threshold	77	86	1	12

<sup>1</sup>Other includes Native Hawaiian, other Pacific Islanders, American Indian, Alaska Native, and Multiracial children.

NOTE: Detail may not sum to totals because of rounding. In the absence of a biological parent, the father designation (i.e., nonbiological) was assigned to the adoptive, step, foster/guardian, partner (including household members defined as spouses/partners of the parent respondent but were not identified by the respondent as mothers/female guardians or fathers/male guardians), or "unknown-type" parent. Estimates weighted by WIR0.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Birth Cohort, Restricted-Use File (NCES 2004–093).

**Table 9. Of children in households where there is no resident biological father, percentage of children with contact with their nonresident biological father, by child and family characteristics: 2001**

Child and family characteristics	Nonresident biological father's contact with child				
	Visited child the same day as parent interview	Visited child in the past 2 to 7 days	Visited child in the past 8 to 14 days	More than 2 weeks since last visited child	Never seen child
Total	40	38	7	2	13
Child's sex					
Male	39	37	7	3	13
Female	40	38	6	2	14
Child's race/ethnicity					
White, non-Hispanic	33	41	7	1	18
Black, non-Hispanic	49	37	6	3	6
Hispanic	34	35	7	3	21
Asian, non-Hispanic	23	37	14	2	25
Other, non-Hispanic <sup>1</sup>	40	42	5	2	12
Poverty status					
Below poverty threshold	42	37	6	3	12
At or above poverty threshold	37	39	7	2	15

<sup>1</sup>Other includes Native Hawaiian, other Pacific Islanders, American Indian, Alaska Native, and Multiracial children.

NOTE: Detail may not sum to totals because of rounding. Estimates weighted by WIR0.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Birth Cohort, Restricted-Use File (NCES 2004–093).



# Appendix A

## Technical Notes and Glossary

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### Survey Methodology

The Early Childhood Longitudinal Study, Birth Cohort (ECLS–B) is sponsored by the U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics (NCES). The ECLS–B is designed to provide detailed information on children’s development, health, and in- and out-of-home experiences in the years leading up to school. The children participating in the ECLS–B are being followed longitudinally for 6 years (through first grade). Estimates in this report are based on data collected from and about children during the first wave of data collection when they were approximately 9 months old. Westat, Incorporated conducted the first wave of the study.

A nationally representative sample of 10,688 children born in the United States in 2001 and/or their parents participated in the ECLS–B. The sample includes children from different racial/ethnic and socioeconomic backgrounds, and includes oversamples of Chinese and other Asian and Pacific Islander children, American Indian children, twins, and children with moderately low and very low birth weight.

The sample of infants was selected using a clustered, list frame sampling design. The list frame was registered births in the National Center for Health Statistics’ (NCHS) vital statistics system (from lists provided by state registrars). Births were sampled from 96 core primary sampling units (PSU) representing all infants born in the United States in the year 2001. The PSUs were counties and county groups. To support the American Indian oversample, 18 additional PSUs were selected from a supplemental frame consisting of areas where the population has a higher proportion of American Indian births (for more information see section 4.1.3 in the *ECLS–B 9-month Data File User’s Manual*<sup>12</sup>). Sampling was based on occurrence of the birth as listed on the birth certificate. Sampled children subsequently identified by the state registrars as having died or who had been adopted after the issuance of the birth certificate were excluded from the sample.<sup>13</sup> Also, infants whose birth mothers were younger than 15 years at the time of the child’s birth were excluded.

The 9-month data were obtained from October 2001 through December 2002, during a visit in the child’s home. This E.D. TAB presents information from the child assessments, parent interviews, and father questionnaires. Each of these are described below.

- **Child Assessments.** Children participated in a variety of activities, with the parent’s permission, to assess their early cognitive (e.g., mental status), physical, and socioemotional development. This report uses information from the mental and motor assessment. Children’s mental and physical skills were measured through an untimed one-on-one assessment of the child in his/her home. A trained staff member assessed each child. Information was gathered using hard copy materials. Information about the child was recorded in a Child Activities Booklet that also contained administration and scoring instructions. The assessment—the Bayley Short Form—Research Edition (BSF–R)—measured children’s mental and physical skills. For families whose primary language was not English, the assessment was still administered. A Spanish version of the Child Activities Booklet was developed. If the family spoke a language other than English or Spanish, interviewers used an interpreter.

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<sup>12</sup>National Center for Education Statistics (2004). *Early Childhood Longitudinal Study, Birth Cohort: 9-month Restricted-Use Data Files User’s Manual* (NCES 2004–093). Washington, DC: National Center for Education Statistics.

<sup>13</sup>Children adopted near or at the time of birth were excluded. However, data was collected when the children were 9 months of age, so there are some cases with adoptive parents.

- Parent Interviews.** Parents/guardians were asked to provide key information about their children and themselves on such topics as family demographics (e.g., age, relation to child, race/ethnicity), family structure (household members and composition), parent attitudes, home educational activities, child care experience, child development and health, and parental education and employment status. In 99 percent of the cases, the biological mother was the parent respondent completing the interview. The parent interview included two instruments: the parent interview instrument and the parent self-administered questionnaire (PSAQ). The first was conducted in person by trained field interviewers using computer-assisted personal interviewing (CAPI) as part of the home visit. The PSAQ was a paper-and-pencil instrument, presented during the parent CAPI instrument for the respondent to complete and return in a provided envelope, and contained 23 questions on topics some people might prefer to answer privately. The parent interviews were conducted primarily in English, but provisions were made to interview parents who spoke other languages. Bilingual interviewers were trained to conduct the parent interview in either English or Spanish. A Spanish CAPI instrument was used when needed as the parent CAPI instrument was programmed in both English and Spanish. An interpreter, either a community or household member, was used for families who spoke languages other than English or Spanish. Fewer than 0.1 percent of the cases were not completed due to language difficulties.
- Father Questionnaires.** Although the information in this E.D. TAB comes largely from the child assessment and the parent interview, the ECLS–B also collected data from fathers directly through two separate father questionnaires: the resident father questionnaire and the nonresident father questionnaire. Both father questionnaires were self-administered with telephone follow up. The father questionnaires were available in English and Spanish.

For more information on any of the components of the ECLS–B, please refer to the *ECLS–B 9-month Data File User’s Manual*.<sup>14</sup>

## Response Rates

The ECLS–B is a nationally representative sample of the nearly 4 million children born in the United States in the year 2001. The response rate for the 9-month data collection was 74.1 percent, based on weighted data (i.e., using the base weights). The response rate is the number of completed parent interviews divided by the total eligible sample. To be considered complete, the first three sections of the parent interview had to be completed.

## Data Reliability

With the exception of key variables the ECLS–B does not impute. The item response rate for all variables used in this report exceeded 90 percent.

Estimates produced using data from the ECLS–B are subject to two types of error, sampling and nonsampling errors. Nonsampling errors are errors made in the collection and processing of data. Sampling errors occur because the data are collected from a sample rather than a census of the population.

**Nonsampling Errors.** Nonsampling error is the term used to describe variations in the estimates that may be caused by population coverage limitations, as well as data collection, processing, and reporting procedures.

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<sup>14</sup>National Center for Education Statistics (2004). *Early Childhood Longitudinal Study, Birth Cohort: 9-month Restricted-Use Data Files User’s Manual* (NCES 2004–093). Washington, DC: National Center for Education Statistics.

The sources of nonsampling errors are typically problems like unit and item nonresponse, the differences in respondents' interpretations of the meaning of the questions, response differences related to the particular time the survey was conducted, and mistakes in data preparation.

In general, it is difficult to identify and estimate either the amount of nonsampling error or the bias caused by this error. In the ECLS–B, efforts were made to prevent such errors from occurring and to compensate for them where possible. The design phase entailed a pilot test of the Bayley Short Form–Research Edition (BSF-R) and a field test that evaluated the implementation of the study. In the main study administration of the BSF-R, there was rigorous training, certification, and monitoring of the assessors administering the instrument.

Another potential source of nonsampling error is respondent bias that occurs when respondents systematically misreport (intentionally or unintentionally) information in a study. One potential source of respondent bias in this survey is social desirability bias. If there are no systematic differences among specific groups under study in their tendency to give socially desirable responses, then comparisons of the different groups will accurately reflect differences among the groups. An associated error occurs when respondents give unduly positive assessments about those close to them. For example, parents may give higher assessments of their children's motor accomplishments (like feeding themselves) than might be obtained from direct assessment.

Readers should be aware that respondent bias may be present in this survey as in any survey. It is not possible to state precisely how such bias may affect the results. NCES has tried to minimize some of these biases by conducting one-on-one, untimed assessments, and by asking some of the same questions about the sampled child of both the mother and father (e.g., activities the father engages in with the child).

A nonresponse bias analysis was conducted (Early Childhood Longitudinal Study, Birth Cohort [ECLS-B], Sampling Report for the Nine-Month Data Collection, U.S. Department of Education, National Center for Education Statistics, forthcoming.) The evaluation consisted of the following elements:

- evaluation of response rates;
- comparison of frame data between respondents and nonrespondents;
- comparison of survey data between respondents and “proxy” nonrespondents;
- sensitivity analysis of potential for nonresponse;
- comparison of ECLS-B data with other surveys; and
- analysis of factors that influence likelihood of survey response; and
- evaluation of the impact of substitution on nonresponse bias.

The analysis benefited from the unusually rich information available on the frame. The birth record contains a number of important variables on the mother and the child that support many comparisons between respondents and nonrespondents. Findings from these analyses suggest that there is not a bias due to nonresponse.

**Sampling Errors and Weighting.** The sample of children born in the United States during 2001 was just one of many possible samples of 2001 births that could have been selected. Therefore, estimates produced from the ECLS–B sample may differ from estimates that would have been produced from other samples. This type of variability is called sampling error because it arises from using a sample of children, rather than all children born in 2001.

The standard error is a measure of variability due to sampling when estimating a statistic. Standard errors for estimates presented in this report were computed using a jackknife replication method. Standard errors can be used as a measure for the precision expected from a particular sample. The probability that a complete census count would differ from the sample estimate by less than 1 standard error is 68 percent. The chance that the difference would be less than 1.65 standard errors is about 90 percent, and that the difference would be less than 1.96 standard errors, about 95 percent.

In order to produce national estimates from the ECLS–B data collected during the 9-month data collection, the sample data were weighted. Weighting the data adjusts for unequal selection probabilities at the child level and the weights are adjusted for unit nonresponse. The parent weight (WIR0), which is the weight used to produce all estimates found in this report, is the weight that accounts for the probability of selection in the sample as well as nonresponse to the parent interview. Only those cases with completed parent interviews in the 9-month data collection are included in this weight. A parent interview is considered complete if the first three sections were finished (IN, FS, CD). The parent weight sums to the population of all parents of children born in the United States in 2001. The approach used to develop weights for the ECLS–B is described in Chapter 4 of the *ECLS–B 9-month Data File User’s Manual*.<sup>15</sup>

In addition to properly weighting the responses, special procedures for estimating the statistical significance of the estimates were employed because the data were collected using a complex sample design. Complex sample designs, like that used in the ECLS–B, result in data that violate the assumptions that are normally required to assess the statistical significance of the results. Frequently, the standard errors of the estimates are larger than would be expected if the sample was a simple random sample and the observations were independent and identically distributed random variables.

Replication methods of variance estimation were used to reflect the actual sample design used in the ECLS–B. A form of the jackknife replication method (JK2) using 84 replicate weights was used to compute approximately unbiased estimates of the standard errors of the estimates in the report, using WesVar version 4.0. Jackknife methods were used to estimate the precision of the estimates of the reported national percentages and means. The standard errors of the estimates are presented in appendix B of this E.D.TAB.

## Statistical Procedures

Comparisons made in the text were tested for statistical significance to ensure that the differences were larger than might be expected due to sampling variation. When comparing estimates between categorical groups (e.g., sex, race/ethnicity), *t* statistics were calculated. The formula used to compute the *t* statistic was:

$$t = \text{Est1} - \text{Est2} / \text{SQRT}[(\text{se1})^2 + (\text{se2})^2]$$

Where Est1 and Est2 are the estimates being compared and se1 and se2 are their corresponding standard errors. All differences reported are significant at the  $p < .05$  level.

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<sup>15</sup>National Center for Education Statistics (2004). *Early Childhood Longitudinal Study, Birth Cohort: 9-month Restricted-Use Data Files User’s Manual* (NCES 2004–093). Washington, DC: National Center for Education Statistics.

## Glossary: Constructs and Variables Used in Analysis

### Child and Family Characteristics

Several of the variables used in this report were derived by combining information from one or more questions in the ECLS–B parent CAPI instrument or from other study sources. The name of the source variable as presented on the ECLS–B Restricted-Use Data File is shown after the description in all capital letters within brackets. More information on the derivation of key variables is described in chapter 7 of the *ECLS–B 9-month Data File User’s Manual*.<sup>16</sup>

- **Children’s sex [XICHSEX]** This composite is mainly taken from the birth certificate information used for sampling and the information was confirmed in the parent interview. If the parent interview indicated a sex different from the birth certificate, then the parent interview information took priority.
- **Children’s race/ethnicity [XICHRACE]** Parent respondents were allowed to indicate that the child belonged to one or more of 14 race categories. These categories include (1) White, (2) Black or African American, (3) American Indian or Alaska Native, (4) Asian Indian, (5) Chinese, (6) Filipino, (7) Japanese, (8) Korean, (9) Vietnamese, (10) Other Asian, (11) Native Hawaiian, (12) Guamanian or Chamorro, (13) Samoan, and (14) Other Pacific Islander. From these responses, a series of six dichotomous race variables were created that indicated separately whether the child belonged to each of five main specified race groups, including White, Black, Asian (including Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, and Other Asian), American Indian, and Native Hawaiian or other Pacific Islander (including Native Hawaiian, Guamanian or Chamorro, Samoan, and Other Pacific Islander). In addition, one more dichotomous variable was created for parent respondents who had simply indicated that the child was multiracial without specifying a race (e.g., biracial). Data were collected on ethnicity as well. Specifically, respondents were asked whether the child was of Hispanic or Latino origin. Using the six race dichotomous variables and the Hispanic ethnicity variable, the race/ethnicity composite variable (XICHRACE) was created. The categories were White, non-Hispanic; Black or African American, non-Hispanic; Hispanic, race specified; Hispanic, no race specified; Asian, non-Hispanic; Native Hawaiian or other Pacific Islander, non-Hispanic; American Indian or Alaska Native, non-Hispanic; and more than one race specified, non-Hispanic. A child was classified as Hispanic if a parent respondent indicated the child’s ethnicity was Hispanic regardless of whether a race was identified and what that race was.
- **Children’s birth status [XIMBRTST]** This composite is derived from information on the birth certificate that states whether the child was part of a single birth, twin birth, or other multiple births (e.g., triplets, quadruplets).
- **Children’s prematurity [BCGESTWK]** This is variable from the birth certificate that presents information on gestational age in weeks—36 weeks or less is considered premature.
- **Children’s birth weight [XIBTHWGT]** Child’s birth weight is derived from information on the birth certificate and then categorized into “normal” (greater than 5.5 pounds), “low” (more than 3.3 pounds to 5.5 pounds), and “very low” (less than 3.3 pounds).

<sup>16</sup>National Center for Education Statistics (2004). *Early Childhood Longitudinal Study, Birth Cohort: 9-month Restricted-Use Data Files User’s Manual* (NCES 2004–093). Washington, DC: National Center for Education Statistics.

- **Maternal age at child's birth [BCMOMAGE]** This is a single variable that is drawn from the birth certificate that presents the child's mother's age in years at the time of the child's birth.
- **Poverty status [XIPOVRTY]** Total household income was compared to Census poverty thresholds for 2001, which vary by household size. For example, if the household income was lower than \$11,920, then the household was considered to be below 100 percent of the poverty threshold. Or for a household of four, a household income of \$18,104 was considered to be below 100 percent of the poverty threshold.
- **Family type [derived from: XIMARSTA; PIPARTNR; PINFTHHH]** In order to construct this family type variable, information from XIMARSTA (marital status of parent—married, separated, divorced, widowed), PIPARTNR (spouse or partner living in the household), and PINFTHHH (confirmation of biological father not living in household) was used. *Married, two biological parents* includes biological mothers and biological fathers who are married. *Married, two parents* includes biological mother and other father, biological father and other mother, two adoptive parents, or two same sex parents. *Cohabiting, two biological parents* includes unmarried biological mother and father. *Cohabiting, two parents* includes unmarried biological mother and other father, biological father and other mother, or two same sex parents. *Single parent live alone* includes a single biological mother, a single biological father or a single adoptive parent. Other (guardian) includes related guardians or unrelated guardians, and/or foster parents.
- **Mother's education [XIMOMED]** This composite presents the highest level of education the mother completed. This variable includes only birth, adoptive, step-, or foster mothers residing in the household. For example, if the child did not have birth, adoptive, step-, or foster parents but was living with another relative (such as an aunt) who served as the parent respondent, the education of the relative and his or her spouse was not used in the creation of the composites. At 9 months of age, less than one percent of the children did not have at least one parent in the household.
- **Father's education [XIFTHED]** This composite presents the highest level of education the father completed. Information on father education was collected directly from fathers. If the father was the respondent to the parent interview, the information from the parent interview was used. If the father was not the respondent to the parent interview, information from the father questionnaires was used. If the father was not the respondent to the parent interview and father education was missing on the father questionnaires, information on father education provided by the respondent to the parent interview was used. This variable includes only birth, adoptive, step-, or foster fathers residing in the household. For example, if the child did not have birth, adoptive, step-, or foster parents but was living with another relative (such as an aunt) who served as the parent respondent, the education of the relative and his or her spouse was not used in the creation of the composites. At 9 months of age, less than one percent of the children did not have at least one parent in the household.
- **Children's age at assessment [XIASAGE]** The composite variable XIASAGE defines child's age at assessment in terms of the child's chronological age in decimal months. If the child's date of birth on the birth record was determined to be correct by the parent respondent, then the child's age was calculated by determining the number of days between the date when the child completed the ECLS-B direct child assessments and the child's date of birth indicated on the birth record. If the child's date of birth on the birth record was determined to be incorrect by the parent respondent, then the



child's age was calculated by determining the number of days between the date when the child completed the direct child assessment and the child's date of birth reported in the parent CAPI instrument. The total number of days was then divided by 30 to calculate the age in months.

- **Primary care arrangement [XIPRIMNW]** This composite presents information on the type of care in which the child spent the most hours. To create the composite, the hours for relative care, nonrelative care, and center-based care were compared to select the primary care arrangement with the most number of hours. If the number of hours of care was equal for two or more types of care, XIPRIMNW was coded as “multiple care arrangements.” If the indicator variables for regular receipt of relative, nonrelative, and center-based care all equal to “no care,” then XIPRIMNW was coded as “no child care.” Note, the term “regular” is not specifically defined to the respondent; therefore, the respondent interprets “regular” as whatever it means to them.
- **Age first began care [XIAGCARE]** This composite indicates the earliest age in months the child first began any type of child care on a regular basis. The composite is coded as follows: If all the indicator variables for regular receipt of relative, nonrelative, and center-based care were equal to “no regular receipt” and all the indicator variables for ever receiving regular care from a relative, nonrelative, and center-based program were equal to 2 “no regular receipt ever,” XIAGCARE is coded as “Not applicable.” For the remaining cases, if any of the indicator variables for regular receipt of care of any type was equal to “yes, regular receipt,” or if any of the indicator variables for ever receiving care of any type was equal to “yes, regular receipt ever,” XIAGCARE is coded as the single youngest age in months the child first received care of any type. Otherwise, if any of the indicator variables for regular receipt of care or ever receiving care of any type was equal to “yes,” but the age in months the child first received care of that type was missing, XIAGCARE is coded as “not ascertained.”
- **Total hours in care [XIHRSCAR]** This composite indicates the total number of hours per week the focal child spent in all primary and secondary care arrangements at the time of the 9-month parent CAPI instrument. The variable combines hours in child care arrangements in which the child spent the most time with hours from additional regular child care arrangements.
- **Father in household [XIFHTHTYP]** As part of providing information on who lives in the household, the household respondent could identify one of the people within the household as the child's father; these individuals were located within the household roster, and their relationship to the child (biological, adoptive, foster, step-, partner of parent, or unknown) was established. For households containing more than one father, a hierarchy was used to designate the “current” or residential father. The biological parent, if present, was always the current father. In the absence of a biological parent, the current father designation was assigned to the adoptive, step-, foster/guardian, partner (including household members defined as spouses/partners of the parent respondent but were not identified by the respondent as fathers/male guardians), or “unknown-type” parent. If there were no household members that could be identified as one of the father types outlined above, the composite variables were set to equal 7 (no resident father).
- **When nonresident father last visited child [PIBFLAST]** This is an item from the parent interview that asks the respondent, when there is no biological father in the household, when is the last time the child had contact with their biological father.

## Direct Child Assessment, Cognitive and Physical Development

The Bayley Short Form—Research Edition (BSF-R) was used to assess children’s mental (or cognitive) and motor skills, which is a shortened form of the Bayley Scales of Infant Development—Second Edition (BSID-II).<sup>17</sup> Like the BSID-II, the BSF-R has two scales—a mental scale and a motor (physical development) scale.

- The **mental scale** includes items designed to assess early cognitive and language ability. These included memory, means-end behavior (e.g., ringing a bell to hear a sound), problem solving, concept attainment, exploration of objects, and preverbal communication (both vocalizations and gestures). Children were presented with tasks such as putting blocks in a cup, ringing a bell, and responding to a parent’s request (e.g., peek-a-boo). The main factor assessed by the mental scale is general mental ability. The reliability of the estimate of the 9-month BSF-R mental scale (IRT-based theta) was .79.
- The **motor scale** includes items designed to assess gross and fine motor skills (e.g., picking up objects, crawling, walking), perceptual-motor integration, and problem solving. Children participated in tasks such as picking up small objects, grasping a pencil, rolling over from being on their backs, sitting and standing unsupported, and walking with help. The reliability of the estimate of the 9-month BSF-R motor scale (IRT-based theta) was .92.

**Specific Mental and Motor Skills—Proficiency Level Probability Scores.** Proficiency scores provide a means of distinguishing status in specific skills within a content area from the developmental status measured by the IRT scale scores. Clusters of two to five test items having similar content and difficulty were included at several points along the score scale of the BSF-R mental and motor assessments. Clusters of items provide a more reliable test of proficiency than do single items because of the possibility of children getting the item correct by chance. The nature of the BSF-R (with basal and ceiling supplements) is that not all children receive all items. To calculate proficiency estimates for all children, an IRT model was employed. For the purpose of IRT calibration, the item clusters were treated as single items. The hierarchical nature of the skill sets justified the use of the IRT model in this way.<sup>18</sup>

The ECLS-B offers five proficiency levels based on the BSF-R mental scale: (1) explores objects in play, (2) explores purposefully, (3) babbles, (4) early problem solving, and (5) uses words. *Explores objects in play* measures children’s exploration of objects; for example, reaching for and holding objects, but with no specific purpose or goal except to play or discover. *Explores purposefully* refers to children’s purposeful exploration of objects; that is, the child now touches and works with the objects for a reason, such as to seek out what makes the ringing noise in a bell. *Babbles* refers to children’s communication through sounds and gestures, and babbling or jabbering. *Early problem solving* refers to using reasoning to interact with objects. *Uses words* measures children’s early verbal communication using words, both receptive (pointing to named objects) and expressive (saying words).

The ECLS-B offers five proficiency levels based on the BSF-R motor scale: (1) eye-hand coordination, (2) sitting, (3) prewalking, (4) independent walking, and (5) balance. *Eye-hand coordination* is children’s ability to grasp and obtain objects. *Sitting* refers to children’s mastery at supporting themselves while sitting. *Prewalking* means that children demonstrate skills such as taking steps and supporting their weight while standing. *Independent walking* measures children’s ability to walk without help from people or holding onto furniture. *Balance* refers to children’s ability to balance in various positions (e.g., squatting, standing on one foot).

<sup>17</sup>Bayley, N. (1993). *Bayley Scales of Infant Development, Second Edition Manual*. San Antonio, TX: The Psychological Corporation.

<sup>18</sup>For more information on the BSF-R scale and score formation, see Chapter 3 of the *ECLS-B 9-month data file users’ manual* [National Center for Education Statistics (2004). *Early Childhood Longitudinal Study, Birth Cohort: 9-month Restricted-Use Data Files User’s Manual* (NCES 2004-093). Washington, DC: National Center for Education Statistics].

# Appendix B

## Standard Error Tables

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**Table B-2. Standard errors for the percentage distribution of children born in 2001, by child and family characteristics at time of birth: 2001**

Child and family characteristics	Population percentage
Total	†
Child's sex	
Male	0.09
Female	0.09
Child's race/ethnicity	
White, non-Hispanic	0.52
Black, non-Hispanic	0.23
Hispanic	0.36
Asian, non-Hispanic	0.10
Native Hawaiian or Other Pacific Islander, non-Hispanic	—
American Indian, non-Hispanic	0.06
Multiracial, non-Hispanic	0.27
Birth status	
Single	0.01
Twin	0.01
Higher order (e.g., triplet)	—
Prematurity (less than 37 weeks gestation)	
No	0.42
Yes	0.42
Birth weight	
Normal birth weight (more than 5.5 pounds)	0.02
Moderately low birth weight (more than 3.3 to 5.5 pounds)	0.02
Very low birth weight (3.3 pounds or less)	0.01
Child's mother's age at child's birth <sup>1</sup>	
15–17 years	0.19
18–19 years	0.19
20–24 years	0.04
25–29 years	0.03
30–34 years	0.03
35–39 years	0.01
40 years or older	0.02

—Not available, estimate connected to the standard error rounds to zero.

# Rounds to zero.

† Not applicable.

<sup>1</sup>Children with mother's less than 15 years of age were excluded from the study.

NOTE: Estimates weighted by WIR0.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Birth Cohort, Restricted-Use File (NCES 2004–093).

**Table B-3. Standard errors for the percentage distribution of children born in 2001, by family characteristics at about 9 months of age: 2001**

Child and family characteristics	Population percentage
Total	†
Poverty status	
Below poverty threshold	0.60
At or above poverty threshold	0.60
Family type	
Married, two biological parents	0.57
Married, two parents	0.09
Cohabiting, two biological parents	0.48
Cohabiting, two parents	0.11
Single parent live alone	0.49
Other (guardian)	0.10
Child's mother's education	
Less than high school	0.65
High school diploma/GED	0.64
Some college/votech certificate	0.43
Bachelor's degree or higher	0.30
Child's father's education	
Less than high school	0.61
High school diploma/GED	0.52
Some college/votech certificate	0.57
Bachelor's degree or higher	0.52

† Not applicable.

NOTE: Estimates weighted by W1R0.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Birth Cohort, Restricted-Use File (NCES 2004–093).

**Table B-4. Standard errors for the percentage of children demonstrating specific cognitive skills, by child's age at assessment: 2001**

Child characteristics	Percentage of children demonstrating specific cognitive abilities				
	Explores objects in play	Explores with purpose	Babbles	Early problem solving	Uses words
Child's age at assessment					
8, 9 or 10 months	0.03	0.38	0.41	0.11	—
8 months	0.06	0.75	0.48	0.08	—
9 months	0.02	0.31	0.33	0.07	—
10 months	0.03	0.27	0.53	0.21	0.05
11, 12 or 13 months	0.02	0.14	0.43	0.46	0.25
11 months	0.04	0.26	0.57	0.49	0.23
12 months	0.01	0.08	0.63	0.77	0.42
13 months	#	0.05	0.57	0.98	0.66
14 to 22 months	0.01	0.10	0.62	1.47	1.42

—Not available, estimate connected to the standard error rounds to zero.

# Rounds to zero.

NOTE: Children who were assessed at less than 8 months of age (about .4 percent of the sample) are not reflected in this table; however, unless otherwise noted, are included in the estimates produced in the remainder of the report. Estimates weighted by W1R0.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Birth Cohort, Restricted-Use File (NCES 2004–093).

**Table B-5. Standard errors for the percentage of children demonstrating specific motor skills, by child's age at assessment: 2001**

Child characteristics	Percentage of children demonstrating specific motor abilities				
	Eye-hand coordination	Sitting	prewalking	Independent walking	Balance
Child's age at assessment					
8, 9 or 10 months	0.13	0.13	0.40	0.37	0.04
8 months	0.25	0.28	0.75	0.44	—
9 months	0.16	0.16	0.49	0.41	0.03
10 months	0.13	0.13	0.43	0.63	0.1
11, 12 or 13 months	0.11	0.08	0.33	1.06	0.50
11 months	0.16	0.13	0.52	1.33	0.36
12 months	0.16	0.12	0.47	1.77	0.95
13 months	0.17	0.12	0.53	1.93	1.34
14 to 22 months	0.09	0.06	0.22	1.04	1.86

—Not available, estimate connected to the standard error rounds to zero.

NOTE: Children who were assessed at less than 8 months of age (about .4 percent of the sample) are not reflected in this table; however, unless otherwise noted, are included in the estimates produced in the remainder of the report. Estimates weighted by W1R0.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Birth Cohort, Restricted-Use File (NCES 2004–093).

**Table B-6. Standard errors for the percentage of children participating in child care around 9 months of age, by primary type of arrangement, and by child and family characteristics: 2001**

Child and family characteristics	Care arrangement				
	Relative care	Nonrelative care	Center-based care	Multiple arrangements	No regular arrangement
Total	0.69	0.44	0.46	0.13	0.79
Child's sex					
Male	0.85	0.56	0.57	0.17	0.87
Female	0.95	0.63	0.57	0.19	1.20
Child's race/ethnicity					
White, non-Hispanic	0.78	0.65	0.68	0.19	1.20
Black, non-Hispanic	1.48	1.15	1.23	0.37	1.63
Hispanic 1.18 0.84	0.64	—	1.31	—	—
Asian, non-Hispanic	1.72	1.07	0.59	—	2.00
Other, non-Hispanic <sup>1</sup>	2.05	1.95	1.52	0.56	2.53
Mother's employment status					
Full time (35 hours or more)	1.19	0.96	1.03	0.24	0.94
Part time 1.36	1.45	0.80	0.42	1.46	—
Looking for work	1.89	1.08	1.15	—	1.93
Not in work force	0.62	0.40	0.40	—	0.88
No mother in household	10.26	1.25	8.26	—	8.76
Poverty status					
Below poverty threshold	1.20	0.55	0.73	0.15	1.20
At or above poverty threshold	0.73	0.56	0.54	0.13	0.90

—Not available, estimate connected to the standard error rounds to zero.

<sup>1</sup>Other includes Native Hawaiian, other Pacific Islanders, American Indian, Alaska Native, and Multiracial children.

NOTE: Estimates weighted by WIR0.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Birth Cohort, Restricted-Use File (NCES 2004–093).

**Table B-7. Standard errors for the percentage of children in care, percentage of children by age in months when infants first began child care, and current weekly hours in all care arrangements, by child and family characteristics: 2001**

Child and family characteristics	Age first began care			Total hours in child care arrangement(s)			
	Younger than 3 months	3 to 6 months	More than 6 months	10 hours or fewer	11 to 30 hours	31 to 40 hours	More than 40 hours
Total	1.00	1.20	0.60	0.95	0.86	1.07	0.81
Child's sex							
Male	1.21	1.24	0.85	1.31	1.12	1.27	0.93
Female	1.26	1.33	0.95	0.99	1.25	1.41	1.20
Child's race/ethnicity							
White, non-Hispanic	1.64	1.62	0.92	1.44	1.29	1.50	1.18
Black, non-Hispanic	1.84	1.74	1.10	1.49	1.17	2.03	1.92
Hispanic	2.26	2.06	1.15	1.43	1.69	1.71	1.57
Asian, non-Hispanic	2.35	2.41	1.47	1.54	2.02	2.30	2.22
Other, non-Hispanic <sup>1</sup>	2.38	2.80	1.91	2.05	3.48	3.73	2.48
Poverty status							
Below poverty threshold	1.82	2.00	1.16	1.45	1.78	1.88	1.51
At or above poverty threshold	1.17	1.10	0.69	1.08	1.00	1.22	0.89
Mother's employment status							
Full time (35 hours or more)	1.29	1.13	0.68	0.93	0.89	1.50	1.18
Part time	1.99	2.01	1.52	1.80	2.11	1.34	0.97
Looking for work	2.92	2.62	2.41	2.55	2.81	2.71	2.87
Not in work force	2.00	2.09	1.74	2.78	2.35	1.90	1.80
No mother in household	9.79	6.97	10.88	6.69	10.92	13.39	8.50
Primary care arrangement							
Relative care	1.28	1.26	0.89	1.21	1.42	1.24	1.18
Nonrelative care	1.46	1.59	1.09	1.56	1.50	1.94	1.45
Center care	2.76	2.56	1.73	1.49	1.52	2.27	2.04
Multiple arrangements	7.94	7.46	6.14	6.26	6.47	3.01	8.27

<sup>1</sup>Other includes Native Hawaiian, other Pacific Islanders, American Indian, Alaska Native and Multiracial children.

NOTE: Estimates weighted by WIR0.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Birth Cohort, Restricted-Use File (NCES 2004-093).



**Table B-8. Standard errors for the percentage of children with or without fathers in the household around 9 months of age, by child and family characteristics: 2001**

Child and family characteristics	Father in household		
	No father in household	Biological	Non-biological
Total	0.50	0.10	0.50
Child's sex			
Male	0.73	0.23	0.68
Female	0.75	0.20	0.75
Child's race/ethnicity			
White, non-Hispanic	0.63	0.24	0.61
Black, non-Hispanic	1.67	0.19	1.65
Hispanic	1.37	0.31	1.30
Asian, non-Hispanic	1.10	—	1.10
Other, non-Hispanic <sup>1</sup>	2.40	0.50	2.34
Poverty status			
Below poverty threshold	1.32	0.30	1.34
At or above poverty threshold	0.46	0.17	0.41

<sup>1</sup>Other includes Native Hawaiian, other Pacific Islanders, American Indian, Alaska Native, and Multiracial children.

—Not available, estimate connected to the standard error rounds to zero.

NOTE: In the absence of a biological parent, the father designation (i.e., nonbiological) was assigned to the adoptive, step, foster/guardian, partner (including household members defined as spouses/partners of the parent respondent but were not identified by the respondent as mothers/female guardians or fathers/male guardians), or “unknown-type” parent. Estimates weighted by WIR0.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Birth Cohort, Restricted-Use File (NCES 2004–093).

**Table B-9. Of children in households where there is no resident biological father, standard errors for the percentage of children with contact with their nonresident biological father, by child and family characteristics: 2001**

Child and family characteristics	Nonresident biological father's contact with child				
	Visited child the same day as parent interview	Visited child in the past 2 to 7 days	Visited child in the past 8 to 14 days	More than 2 weeks since last visited child	Never seen child
Total	1.42	1.49	0.72	0.45	1.07
Child's sex					
Male	2.04	2.24	1.16	0.70	1.47
Female	1.76	2.22	0.87	0.49	1.49
Child's race/ethnicity					
White, non-Hispanic	2.72	2.67	1.12	0.70	2.01
Black, non-Hispanic	1.63	1.95	1.11	0.70	0.86
Hispanic	3.80	3.42	1.52	0.91	2.62
Asian, non-Hispanic	6.51	8.49	7.40	1.61	6.67
Other, non-Hispanic <sup>1</sup>	5.66	5.10	2.01	1.03	3.08
Poverty status					
Below poverty threshold	1.91	1.77	0.78	0.61	1.23
At or above poverty threshold	1.99	2.17	1.00	0.56	1.51

<sup>1</sup>Other includes Native Hawaiian, other Pacific Islanders, American Indian, Alaska Native, and Multiracial children.

NOTE: Estimates weighted by WIR0.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Birth Cohort, Restricted-Use File (NCES 2004–093).