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Early Child Development in Social Context: A Chartbook

CHILD TRENDS, IN PARTNERSHIP WITH
THE AAP CENTER FOR CHILD HEALTH RESEARCH



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Early Child Development in Social Context: A Chartbook

***Child Trends** is a nonprofit, nonpartisan research organization dedicated to improving the lives of children by conducting research and providing science-based information to improve the decisions, programs, and policies that affect children. In advancing this mission, Child Trends collects and analyzes data; conducts, synthesizes, and disseminates research; designs and evaluates programs; and develops and tests promising approaches to research in the field.*

***The Center for Child Health Research** is an independent operating branch of the American Academy of Pediatrics (AAP) with its own Board of distinguished child health researchers which reports to the Board of the AAP. Its mission is to improve the health and functioning of the nation's children by catalyzing, conducting, and utilizing research that deals with the social determinants and consequences of children's health and disease, and health promotion and disease prevention. Created in 1999, it is envisioned as a virtual center with investigators from multiple disciplines and communities working together on themes of great public health importance. The administrative core of the Center for Child Health Research is housed at the University of Rochester School of Medicine and Dentistry.*

***The Commonwealth Fund** is a private foundation that supports independent research on health and social issues and makes grants to improve health care practice and policy. The Fund's two national program areas are: improving health insurance coverage and access to care, and improving the quality of health care services. An international program in health policy is designed to stimulate innovative policies and practices in the United States and other industrialized countries. In its own community, New York City, the Fund also makes grants to improve health care.*

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Contents

Introduction and Overview

- Choosing Indicators for the Chartbook 4
- What Will You Find in the Chartbook? 5
- What Do the Data Show? Selected Findings 5
- What are the Implications for Policy, Practice, and Data Collection? 9
- A Note on the Production and Reporting of Estimates 10

INDICATORS

1 Socioemotional Development

- Social Competence 12
- Behavioral Self-Control 14
- Attention Deficit Hyperactivity Disorder (ADHD) 16

2 Intellectual Development

- Reading Proficiency 20
- Mathematical Proficiency 22
- Expressive Language Development 24
- Fine and Gross Motor Skills 26

3 Child Health

- Blood Lead Levels 30
- Low and Very-Low Birthweight 32
- Iron Deficiency 34
- Children with Chronic Health Conditions 36
- Breastfeeding 38

4 Family Functioning

- Reading to Young Children and Available Reading Materials in the Home 42
- Parental Warmth and Affection 44
- Child Maltreatment 46
- Aggravated Parenting 48
- Parental Domestic Violence During Pregnancy 50
- Regular Bedtime and Mealtime 52
- TV and Video Time 54

5 Parental Health

- Parental Depression 58
- Parental Smoking and Drinking 60

6 Health Care Receipt

- Developmental Screening and Well-Child Visits 64
- Health Insurance Coverage 66
- Child Immunization 68
- Screening for Hearing and Vision Problems 70
- Dental Visits and Unmet Dental Needs 72

7 Community/Neighborhood Factors

- Community/Neighborhood Poverty Status 76
- Perceived Neighborhood Safety 78

8 Child Care

- Type of Child Care 82

9 Demographic Factors

- Parental Educational Attainment 86
- Family Poverty Status 88
- Linguistic Isolation 90
- Births to Teen Mothers 92

Technical Appendix 95

Endnotes 101

Introduction

Early childhood is a time of tremendous growth and development for children in every way: physical, social, emotional, and intellectual. Good quality early life experiences, including helping families meet children's needs, can enhance children's resiliency and promote optimal child development. When recognized early, problems in any of these areas can often be addressed effectively and their long-term negative consequences can often be minimized and sometimes eliminated altogether.¹ Risks in the physical and social environment that may retard development can also be prevented or ameliorated when early identification and intervention occur.

Health practitioners are among the only professionals who see children on a regular basis in the first three years of life. This familiarity places them in a unique position to advise and support parents and to recognize potential threats to healthy early development. Child health care professionals provide screening and assessment, parent education and counseling, referral to other professionals and sources of family support, and ongoing coordination of care. Child health care providers have unique opportunities and relationships to partner with parents to promote children's health and well-being. Evidence indicates that when physicians prescribe activities to parents such as breastfeeding or reading to their children, parents are more likely to comply than when similar advice comes from other sources.²

The value of both the opportunity and relationship between parents and physicians has been widely acknowledged by leading professional organizations, including the American Academy of Pediatrics (AAP)

and the Maternal and Child Health Bureau (MCHB), and by individual practitioners and researchers in the field.³ This has resulted in innovative strategies that include improving the quality of well child care (e.g., *Bright Futures*), promoting reading to young children by parents (e.g., *Reach out and Read*), incorporating early child development specialists into pediatric practices (e.g., Commonwealth's *Healthy Steps* initiative), and promoting greater coordination and system integration across state health, education, and other agencies with responsibility for early child well-being (e.g., MCHB's *State Early Childhood Comprehensive Systems* initiative).

The Commonwealth Fund has worked for more than a decade to promote better and more effective developmental services for young children as a part of their regular pediatric care.

Two outstanding examples of the Fund's initiatives are *Healthy Steps* and *Assuring Better Child Health and Development* (ABCD). These projects seek to improve the information pediatric service providers give to parents about the development of their children and to improve the health care system's capacity to provide parents, especially low-income parents, with the knowledge and skills needed to bring about better outcomes for their children.⁴

In 2002, the Commonwealth Fund saw another opportunity to pursue its goal of promoting early child development by tapping into the wealth of recently collected descriptive data on the subject. The Fund approached Child Trends, a national leader in children's research and the analysis of trends, to develop the project.

Child Trends partnered with the American Academy of Pediatrics' Center for Child Health Research (CCHR), a national leader in early child health research. The result is this chartbook containing more than thirty key indicators of development and health for children ages zero to six along with social factors in the family and neighborhood that affect these outcomes.

This is the second chartbook focusing on children commissioned by the Commonwealth Fund. The first, *Quality of Health Care for Children and Adolescents: A Chartbook*, by Sheila Leatherman and Douglas McCarthy, was released in the spring of 2004.⁵

CHOOSING INDICATORS FOR THE CHARTBOOK

The Theoretical Framework

In choosing indicators for the chartbook, we were guided initially by a model of early child development used by the early school readiness field. The model is *comprehensive* in that it covers major areas of well-being including intellectual development, social development, and health. It is *contextual* in that it incorporates the social influences of family, community, and local institutions affecting early development. Finally, it is *developmental* in that it recognizes that growth takes place in sequential stages, that each stage has its own goals, and that measures reflecting development should be appropriate to each stage within early childhood (e.g., infancy, toddlerhood, pre-school age). The basic model, developed by Tamara Halle and Martha Zaslow and colleagues, is

thoroughly grounded in the existing early development research literature.⁶ This model was augmented with research on child health care receipt and development. (See Figure 1 “*Model of Early Childhood Development*” for the resulting model)

The Experts Panel

Project staff developed a starting set of key constructs belonging to each segment of the model based on the supporting research literature. A panel of national experts then met to discuss the project and to review the list. The panel included leaders in the fields of health policy, public health, and early child health and development as well as pediatric practitioners. The panel added some additional measures, and panel members then prioritized the measures individually using criteria such as a measure’s overall importance for well-being and whether it could be affected through the health care system.

Available Data

We then took the top 40 measures and looked for sources of nationally representative estimates and, where available, state-level estimates. Data availability reduced the final number of indicators to 33. Some of the estimates come from published sources, though many required original analyses by Child Trends and CCHR staff. Sources are carefully cited, and a more detailed description of raw data sources is provided in the Technical Appendix.

WHAT WILL YOU FIND IN THE CHARTBOOK?

You will see that indicators are grouped into topic areas primarily reflecting the domains in the model presented above. For each indicator, we present a single page of text accompanied by one or two illustrative charts on the opposite page. Each write-up begins with a brief explanation of why the indicator is important for early development, based on the latest available research. We then follow with bulleted findings from existing data sources featuring differences across social groups (e.g., reading proficiency levels for children of different races/ethnicities) and, when available, trends over time. Finally, we present practical implications for action by policymakers and practitioners and for parents. For these sections, we draw on a combination of existing research and the recommendations of professional bodies such as the American Academy of Pediatrics and the National Council of Teachers of Mathematics, and federally sponsored initiatives such as *Bright Futures*.

WHAT DO THE DATA SHOW? SELECTED FINDINGS

In this section, we provide a brief overview of the domains covered in the chartbook and provide examples of findings for selected indicators.

Socioemotional Development

Social development refers to the ability of young children to interact and sustain relationships with others, including parents, siblings, peers, teachers, and other

adults. Emotional development, on the other hand, refers not to relationships but to children’s feelings about themselves and others. It includes such characteristics as self-control, self-efficacy (i.e., the sense of being able to affect events), and the ability to properly interpret the emotions of others.

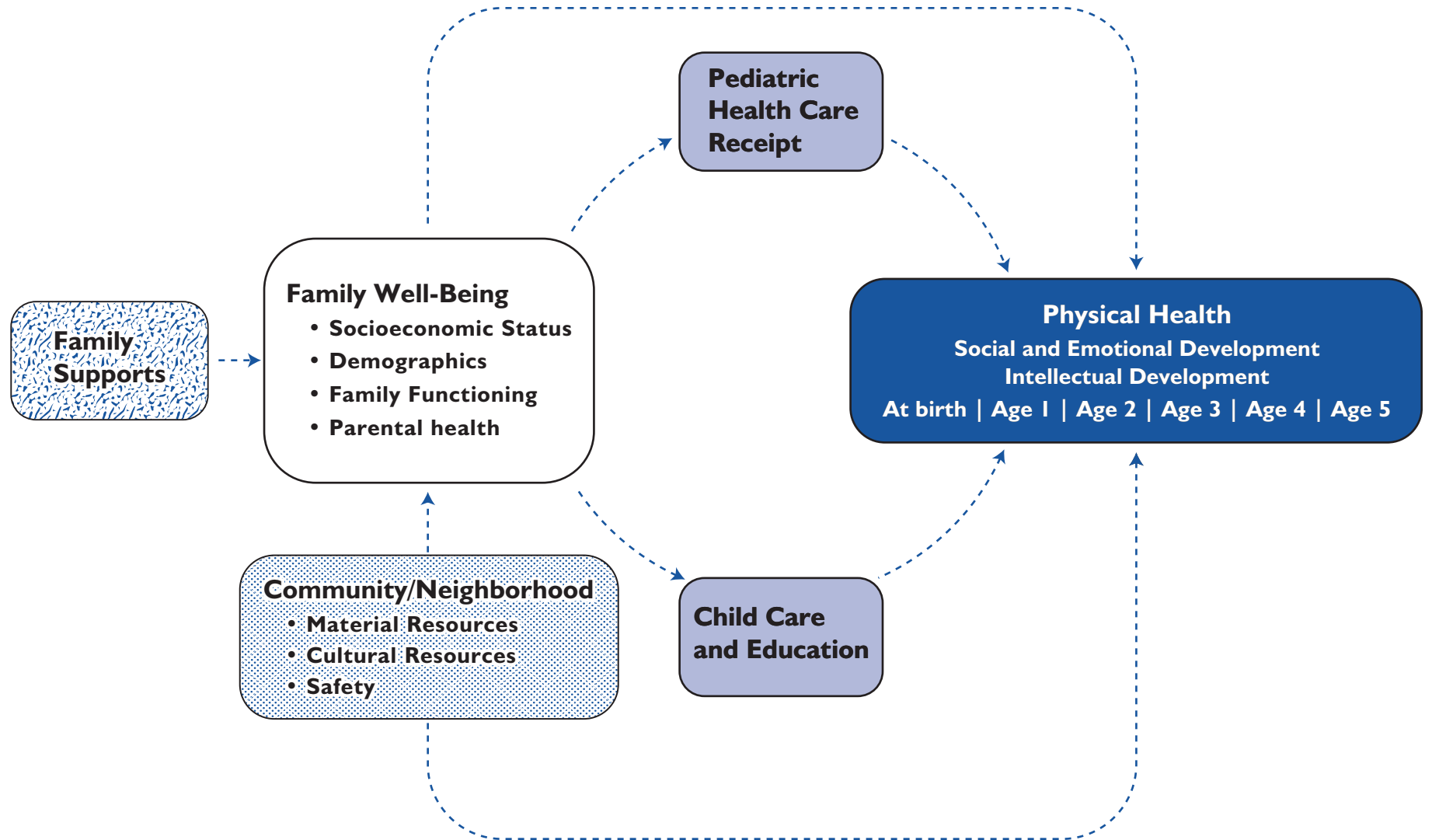
Which behaviors constitute healthy social and emotional development vary greatly by the age and developmental stage of the child. For example, at age two, markers of good social development focus heavily on relationships with parents and caregivers, whereas during kindergarten they would include working cooperatively and playing well with fellow students and being able to make friends. In addition, it should be understood that young children mature at different rates and that the range of behaviors that fall in the normal range (though not always optimal) can be quite wide.

Good social skills and positive emotional characteristics are important outcomes in and of themselves. Also, they can have strong influences on intellectual development and early school performance.^{7,8}

Findings:

- Behavioral Self-Control: Kindergartners living with two biological or adoptive parents are, according to their teachers, more likely than those in stepparent and single parent families to exhibit self-control regularly or most of the time: 72 percent compared with 59 and 58 percent, respectively. Those from families with no

FIGURE 1
Model of Early Childhood Development



Source: Child Trends, Inc.

biological parent present were the least likely to exhibit self-control (46 percent).

- **Social Competence:** Young children from low-income families have, on average, fewer well-developed positive social skills than those from other income levels.
- **Attention Deficit Hyperactivity Disorder (ADHD):** One in 20 six-year-old boys has already been diagnosed with ADHD by a physician or other health care professional. ADHD is a disorder that involves inattention and/or hyperactivity at levels that interfere with everyday functioning.⁹

Intellectual Development

Early intellectual development includes the ability to acquire specific knowledge in areas such as reading, calculation, and language, and the ability to employ that knowledge. It also includes the capacity to develop such knowledge through learning. For this report, we have also included fine and gross motor skills in the intellectual development category, in part because of the ways in which fine and gross motor deficits can impede intellectual development. Fine motor skills involve control over small, precise movements, while gross motor skills reflect the degree of control over larger body movements.

As in social and emotional development, appropriate measures of intellectual development are specific to different ages and developmental stages. We underscore that children mature intellectually at different rates, and that many who may be experiencing difficulties one year are often functioning at average or higher levels the next year.¹⁰

Findings:

- **Reading Proficiency:** Young children of poorly educated parents are at a profound disadvantage when it comes to reading. Kindergarten children whose mothers lack a high school degree are less than half as likely as those whose mothers have graduated from college to be proficient at recognizing letters, a basic reading skill (38 percent compared with 86 percent).
- **Expressive Language:** Among first-time kindergartners, minority children are, on average, much less likely than non-Hispanic white children to use complex sentence structures at an intermediate or proficient level: 21 percent for non-Hispanic blacks and 20 percent for Hispanics compared with 41 percent for non-Hispanic whites.
- **Other measures covered include:**
 - Mathematical proficiency
 - Fine and gross motor skills

Child Health and Health Care Receipt

Many of the health conditions and health care services that form the traditional concerns of pediatric health care and policy have strong relationships to the social, emotional, and intellectual development of young children. Immunization, for example, vastly enhances child survival, and the rubella vaccine has virtually eliminated congenital rubella in the U.S., formerly a leading cause of mental retardation. Low birthweight, particularly very low birthweight (below 3.3 pounds), is a strong predictor of negative physical, social, and intellectual developmental outcomes, often causing problems that persist into adulthood. Breastfeeding, on

the other hand, has been found to predict to significantly higher I.Q. in adulthood. Other medical concerns tied to developmental outcomes potentially lasting into adulthood include iron deficiency and elevated levels of lead in the blood.

Findings:

- **Breastfeeding:** The percentage of mothers still breastfeeding their infants at six months rose substantially between 1992 and 2002, from 19 percent to 33 percent.
- **Elevated Blood Lead Levels:** The percentage of children ages one to five with blood levels above 10 micrograms per deciliter, the current level of concern, has dropped dramatically from 88 percent in the late 1970s to 2 percent in 1999-2000. Growing concern exists, however, that amounts below 10 micrograms per deciliter may also have negative effects on intellectual development.
- **Iron Deficiency:** More than 5 percent of children between the ages of one and five were iron deficient in 1999-2000.
- **Developmental Screening and Well-Child Visits:** Uninsured children under age six are less likely than their counterparts who are insured to have received a well-child visit in the previous year (71 percent versus 86 percent in 2002).
- **Dental Visits:** Young children without health insurance are much less likely than other children to have seen a dentist in the previous year: 73 percent versus 48 percent in 2002 among children ages two through five.
- **Other measures covered include:**
 - Immunization
 - Low and very-low birthweight
 - Children with chronic health conditions

- Screening for hearing and vision problems
- Health insurance coverage

Family Functioning and Parental Health

The family is the primary context shaping how young children grow and develop. For example, parenting style, daily activities and routines together, and levels of parental warmth and affection all shape young children's social, emotional, and intellectual development.¹¹

Research suggests that programs focusing on improving these aspects of family life can be effective in bringing about positive change,¹² including programs in the context of health care delivery such as *Healthy Steps*.¹³

Parental health-related characteristics and behaviors such as depression, smoking, and drinking can also affect early development through their impacts on family functioning and through the hazards they can cause in the physical environment.

Findings:

- **Reading to Young Children:** While more than half of all children under age three (4 months to 35 months) are read to every day by their parents, one in five were read to fewer than three times per week. Among Hispanic children in Spanish-speaking households, only 15 percent were read to every day.
- **Regular Bedtime and Mealtime:** More than half of all young children (ages 4 to 35 months) have a regular bedtime and mealtime. Children of mothers with more than a high school education were much more likely to have a regular bedtime and mealtime than those

whose mothers lacked a high school degree (65 percent compared with 42 percent).

- **TV and Video Time:** Thirty percent of children ages three and under, and 43 percent of children between the ages of four and six have a TV in their bedroom. More than one-quarter of all children six and under have a VCR or DVD player in their own bedroom.
- **Parental depression:** More than a quarter of all poor kindergartners live with a parent who is at an elevated risk for depression.
- **Other measures covered include:**
 - Parental warmth and affection
 - Child maltreatment
 - Aggravated parenting
 - Domestic violence during pregnancy
 - Parental drinking and smoking

Communities and Neighborhoods

Neighborhood financial and social resources and neighborhood safety can all influence early child development, both directly and indirectly through their effects on the family.¹⁴ Neighborhood poverty is associated with lower levels of early school readiness and with poorer long-term academic attainment.¹⁵ Concerns over neighborhood safety may isolate mothers and young children in their homes, restricting children's opportunities to interact with other children and adults, and potentially limiting access to local parks, libraries, and children's programs.¹⁶

Findings:

- **Neighborhood safety:** More than 40 percent of kindergartners living in urban areas live in neighborhoods their parents consider unsafe, compared with 26 percent for those in the suburbs and 18 percent for those living in rural areas.
- **Neighborhood poverty:** The percent of children living in extremely poor neighborhoods (40+ percent poor) varies tremendously from state to state. More than 8 percent of children under age five live in such neighborhoods in Louisiana and New York, compared with less than one percent in Vermont, Oregon, Nevada, and Iowa.

Child Care

Nonparental child care has become an increasingly important influence shaping the development of young children, particularly as more and more mothers remain active in the workforce. Research shows that high quality child care bears a modest but important association with better cognitive, language, and social development outcomes, particularly among at-risk children. Child care providers and health care providers are the primary frontline professionals who work with young children prior to kindergarten entry. As such, it is important that they work in a coordinated fashion to maximize the quality of supports for young children as they develop. Initiatives such as the Maternal and Child Health Bureau's recently launched *State Early Childhood Comprehensive Systems* (SECCS) project work to promote this coordination within and across state agencies.

Findings:

- Child Care: Among all children under age six, 61 percent spend time in nonparental child care. This percentage increases to 85 percent for children whose mothers are employed full-time. Among all children, 34 percent are cared for in center-based programs, 23 percent by a relative other than a parent and 16 percent by a nonrelative in a private residence.

Demographic Factors

Many family factors that have large overall associations with early child development are unlikely to be substantially affected by health policy and practice. These characteristics include such basics as family income, parent's education, and family structure. Linguistic isolation, where children grow up in households where no person age 15 or older speaks English very well, is an increasingly important background factor because of the growing number of immigrant families in the United States. Such factors are nevertheless important for those in the health field to understand, as they can help practitioners to identify families whose children are at greatest risk, and whose children are most likely to need the support services that can make a difference in their development.

Findings:

- Linguistic Isolation: The percent of children living in linguistically isolated households (in which no person age 15 or older speaks English very well) varies substantially by state. This is particularly a challenge in California, where over 18 percent of children under age six live in

such households, and in Texas, Nevada, and Arizona, where rates are 12 percent or more.

- Births to Teen Mothers: The teen birth rate has fallen by more than half since 1960, from 89 per 1,000 females ages 15 to 19 to 43 per 1,000 in 2002. Among black teens, rates have plummeted over the last decade from 115 per 1,000 in 1991 to 67 per 1,000 in 2002.
- Other measures include:
 - Family poverty
 - Parental educational attainment

WHAT ARE THE IMPLICATIONS FOR POLICY, PRACTICE, AND DATA COLLECTION?

In this report, we identify many specific activities that can be undertaken to improve particular developmental outcomes for children, and to improve families' and communities' capacity to promote positive outcomes. These include implications for policymakers and practitioners, particularly in the health services field, and for parents as well. For example, for the indicator on reading to young children, we highlight the successes of the *Reach Out and Read* program, in which health practitioners throughout the country are encouraging parents to read regularly to their young children, and are even providing reading materials. Such examples are included in the write-up for each indicator in the chartbook.

At a more general level, there are important strategies with the potential to transform practice in ways that make the health care system more effective as stewards of early child health and development, broadly defined.

Bright Futures

This initiative is working to reshape the vision of the pediatric health services community by expanding its focus and practices to a broad set of developmental outcomes for children of all ages, and by promoting partnership with parents and the community in pursuit of those goals. *Bright Futures* has developed a number of practical tools and guidelines that allow practitioners to screen for developmental problems, and to encourage family practices that will promote healthy physical, social, and intellectual development from infancy through adolescence.

This initiative has been in existence since 1990, and is currently undergoing a thorough updating by the American Academy of Pediatrics. Within the next two years, new guidelines and evidence-based suggestions about the best ways to provide health promotion and disease prevention services to children will be published by the AAP.

Healthy Steps for Young Children

This program, funded by the Commonwealth Fund since 1994, has taken an innovative approach to enhancing the capacities of health service providers to work in partnership with parents of children ages zero to three to promote their physical, emotional, and intellectual development. Specialists trained in early child development work within pediatric and family practices to provide parents with the information and the supports they need to improve developmental outcomes for their children. The program has been evaluated and participants were found to experience a substantial increase in the quality of pediatric care received. It was

also found to promote improved parenting practices and a better understanding on the part of parents of their children's behavior and development.¹⁷

State Early Child Comprehensive Systems (SECCS)

This new initiative of the Maternal and Child Health Bureau (MCHB) is working with states to promote the physical, socioemotional, and intellectual development of young children by encouraging a more comprehensive and integrated system of services at the state and local levels. The initiative is particularly interested in coordinating health services with early care and education, as well as with support services for the families of young children. Its strategies are wide-ranging and include creating a common vision, building partnerships, filling gaps in the infrastructure, facilitating accountability, and promoting promising practices for integrated systems design.¹⁸ The initiative, launched in 2003, is providing grants to states to promote these goals and strategies. It is also providing technical assistance and supporting materials through the National Center for Infant and Early Childhood Health.¹⁹

Future Data Collection

In the process of producing this chartbook, it became clear that a number of substantial data gaps limit our capacity to identify needs, plan effective responses, and track progress in the promotion of early child development. Some of these gaps are, happily, in the process of being filled. For example, the Early Child Longitudinal Study – Birth Cohort will shortly begin providing important and currently unavailable national estimates of intellectual

and socioemotional development among pre-kindergarten children. The National Survey of Child Health promises to provide *state-level* estimates of early child health and development beginning in late 2004. Further down the road, the National Children's Study, a longitudinal study that intends to follow 100,000 children from before birth to age 21, promises to revolutionize our understanding of early child development processes and the role of the physical and social environment, including health care, in shaping early development. Such data and research activities are needed to inform and support programs and policies intended to enhance the development of our young children.

THE ROLE OF THIS CHARTBOOK

The purpose of this chartbook is to take the best available descriptive data on early child development and related social factors and make them available to those in the health community and elsewhere in a form they can use in their daily work to enhance the well-being of young children. For example, it might be used by child care specialists within *Healthy Steps* in their work with parents of young children. State policymakers working within SECCS may wish to use it as a guide for prioritizing state data collection plans to support better and more comprehensive state early child services. Medical schools will find it a useful reference to assist in the training of physicians and nurses specializing in pediatric care. It has grown out of the spirit exemplified by the programs described above, and we hope that it can be used by those programs and by others as a tool to further their goals.

A NOTE ON THE PRODUCTION AND REPORTING OF ESTIMATES

Data Sources

About half of the indicators in the chartbook include estimates based on original analyses of survey data by research staff from Child Trends and the Center for Child Health Research. Descriptions of these original data sources, and details regarding the construction of measures used, are presented for each indicator in Appendix A. All other estimates were taken from existing publications, including federal reports and papers in refereed journals. These sources are cited in the charts and in the endnotes section of the report.

Statistical Significance

For all original analyses generated for this report, comparisons across time or among groups are identified as different (higher, lower, etc.) only when they reached the .05 level of statistical significance or greater. This threshold indicates that there is a 95 percent or greater chance that the differences are real and not due to chance. Estimates taken from published reports adopted the significance level used in those reports.

Estimates presented in this chartbook are typically rounded to the nearest whole percent, the exception being when large sample sizes make it likely that differences of less than a percent are meaningful.

CHAPTER I

Socioemotional Development

- **SOCIAL COMPETENCE**
- **BEHAVIORAL SELF-CONTROL**
- **ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD)**

Social Competence

Why is this important?

Social competence is the ability to get along with others in a constructive manner, attaining personal goals while maintaining positive relationships with others.²⁰ Young children who demonstrate this ability are more likely to have positive developmental outcomes, including higher IQ, positive self-worth, and better mental health.^{21, 22, 23} An inability to develop some of the basic components of social competence, such as paying attention and doing what is expected, has been linked to later antisocial behavior, peer-rejection, and academic problems.^{24, 25}

Social competence is related to a child's ability to regulate attention, emotion and behavior, and the child's overall self-control, as well as a child's compliance and positive social behavior.^{26, 27} Though direct causal relationships are difficult to establish, aspects of social competence have been found to be related to both individual temperament and cognitive ability as well as environmental influences such as warm, consistent parenting.^{28, 29}

What do the data show?

- The percentage of kindergartners perceived by their parents as exhibiting social competence, as measured by the ability to make and keep friends, the ease with which they join in play, and positive interactions with peers,³⁰ increases as maternal education levels increase. In 1998, 70 percent of first-time kindergartners whose mothers had not graduated from high school demonstrated social competence often or very often, compared with between 81

and 84 percent of first-time kindergartners whose mothers had attained higher levels of education.³¹ (See Chart 1-1)

- Non-Hispanic white kindergartners are the most likely to demonstrate social competence (as perceived by their parents). In 1998, 85 percent of non-Hispanic white first-time kindergartners exhibited social competence often or very often, compared with 73 percent of Hispanic* first-time kindergartners. Non-Hispanic black first-time kindergartners fell in between at 81 percent.
- Children from families with the lowest income levels are the least likely to exhibit social competence (as perceived by their parents). In 1998, 71 percent of first-time kindergartners in the bottom fifth of the income distribution exhibited social competence, compared with between 81 and 86 percent for first-time kindergartners in families with higher income levels.

Implications for policymakers and practitioners

The National Research Council and the Institute of Medicine,³² the Child Mental Health Foundations and Agencies Network (FAN),³³ and the National Education Goals Panel³⁴ all assert that socioemotional development is a crucial element of school readiness and healthy child development. Each group suggests that the time and economic investments made in encouraging socioemotional development should be on par with that spent developing literacy and math skills.

The PROS Child Behavior Study of the American Academy of Pediatrics' Center for Child Health Research found that primary care clinicians identified 54 percent of children who may have psychosocial problems, and

suggested that clinicians consider various mechanisms to facilitate greater contact between individual clinicians and families. The contact that practitioners have with children and their families may provide a unique opportunity to identify children who may be in need of further socioemotional screening.³⁵

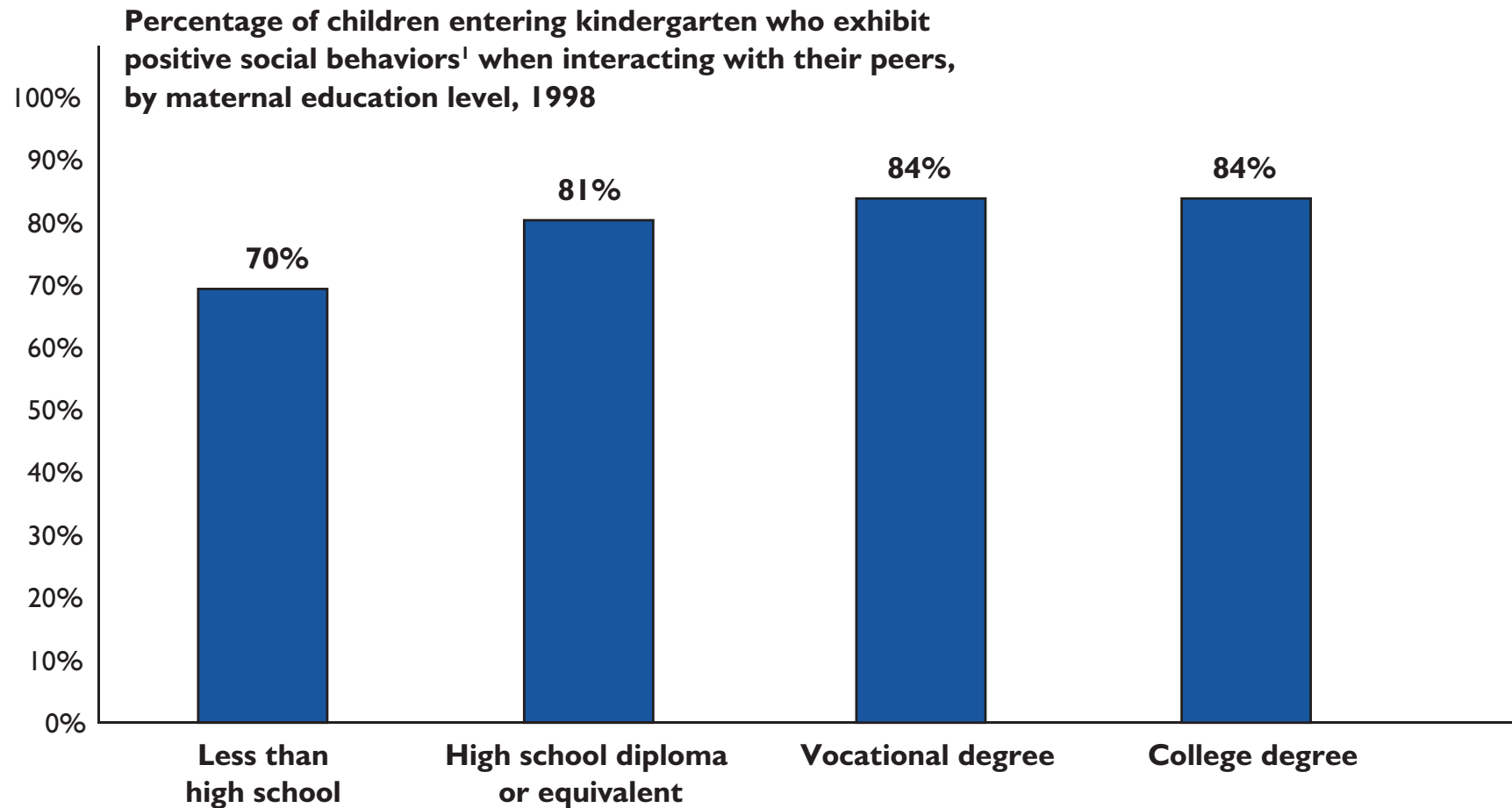
Implications for parents

Warm but firm and sensitive parenting is related positively to the development of social competence in young children.³⁶ Parents can help their children develop socially competent behavior by arranging opportunities for them to play with peers and by teaching their children what behavior is appropriate during play.³⁷ It is also important that parents avoid power-assertive and inconsistent discipline, indulgence, and a lack of supervision, which have all been linked to highly aggressive behavior with peers³⁸ and to less internalization of and compliance with social rules.³⁹ Children whose parents are responsive when playing with and talking to them are also more likely to demonstrate social competency at young ages.⁴⁰

* Persons of Hispanic origin may be of any race.

CHART 1-1

Social Competence



¹ These children exhibit positive behavior often or very often with their peers. Source: Child Trends, *Child Trends DataBank Indicator: Kindergartners' Social Interaction Skills*. Retrieved December 14, 2003 from URL: www.childtrendsdatabank.org/indicators/47KindergartnersSocialInteractionSkills.cfm.

Original data from the Early Childhood Longitudinal Study, Kindergarten Cohort (1998-1999).



Behavioral Self-Control

Why is this important?

Children show greater behavioral self-control outwardly when they have mastered greater self-regulation internally.^{41, 42, 43, 44} Self-regulation involves the ability to actively and flexibly direct one's own behavior, emotions, and attention through effortful internal control. Self-regulation also involves the ability to inhibit the expression of a behavior, emotion, or focus of attention when this is required.^{45, 46}

An example of effortful control would be a child holding back his or her initial response to a situation (like not peeking at a gift) according to requirements of the situation (being asked not to peek yet) and actively shifting to a different strategy in the situation (waiting until it is OK to look at the gift).

The growing ability to self-regulate has been linked to the development of conscience in children,⁴⁷ while the inability to do so has been linked to the likelihood of showing behavior problems⁴⁸ (although there may be a point at which there is too much self-regulation, and children's behavioral outcomes no longer improve with more).⁴⁹

Sensitive and detailed observational procedures usually are used to detect and measure the internal processes involved in self-regulation. Here we focus on the outward appearance of behavioral self-control, and the lack of it, that are more readily apparent to health practitioners.

What do the data show?

- In 1998, about two-thirds of all first-time kindergartners exhibited self-control in school settings regularly or most of the time,⁵⁰ as reported by teachers in a national survey. In the survey, self-control was assessed in terms of the ability to control one's temper with peers in conflict situations, to respond appropriately to peer pressure, and to accept peers' ideas for group activities.
- Girls were significantly more likely than boys in kindergarten to exhibit self-control regularly or most of the time (73 percent versus 60 percent) in 1998. (See Chart 1-2)
- Family structure is strongly related to self-control for first-time kindergartners. Those with two biological or adoptive parents at home were the most likely to exhibit good self-control regularly or most of the time in school settings in 1998, while those with no biological parents at home were the least likely (72 percent versus 46 percent). Children with either one biological parent or a biological and stepparent at home were in between, and about equally likely to exhibit self-control (58 percent and 59 percent, respectively, in 1998). (See Chart 1-2)

Implications for policymakers and practitioners

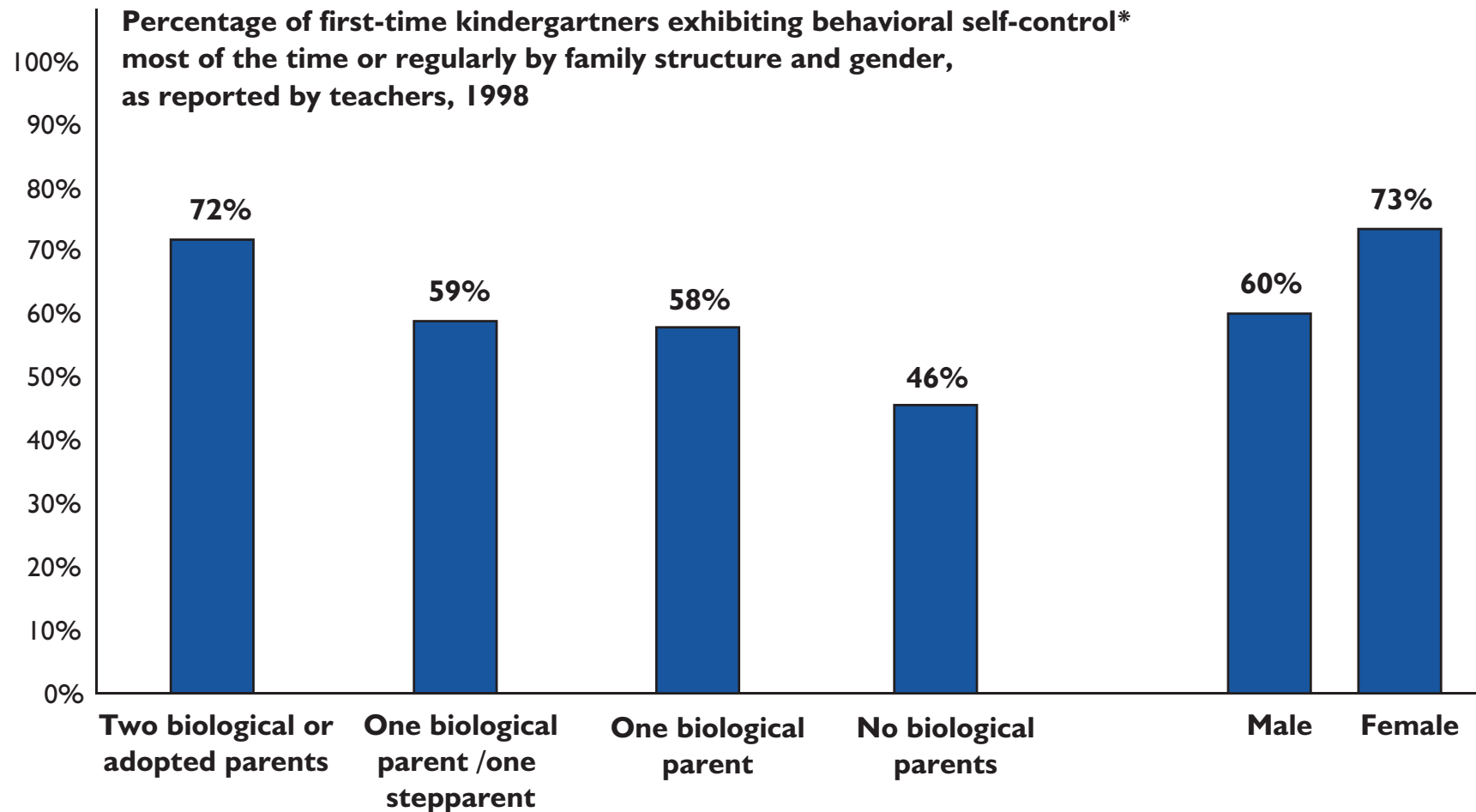
The National Research Council and Institute of Medicine,⁵¹ and the *Bright Futures* initiative from the Maternal and Child Health Bureau, U.S. Department of Health and Human Services,⁵² agree that the development of self-regulation is a critical aspect of child development. Health practitioners can discuss with parents how to help their children express anger and other feelings in acceptable ways.⁵³

Implications for parents

Children with parents who are responsive, emotionally available, supportive, and sensitive have been shown to have children who exhibit greater self-control.⁵⁴ The *Bright Futures* initiative advises parents to set constructive limits and intervene to help children achieve self-discipline.⁵⁵ It is important that parents teach their young children to avoid hitting, biting, and other aggressive behaviors, and that parents encourage their children to play with other children to learn appropriate social behaviors.

CHART 1-2

Behavioral Self-Control



* Self-control was assessed in terms of the ability to control one's temper with peers in conflict situations, to respond appropriately to peer pressure, and to accept peers' ideas for group activities.

Source: Child Trends original analyses of the Early Childhood Longitudinal Study (ECLS-K) Kindergarten Cohort, Teacher Report.



Attention Deficit Hyperactivity Disorder (ADHD)

Why is this important?

ADHD is one of the most common chronic disorders in children.⁵⁶ Three types exist: predominantly inattentive, predominantly hyperactive-impulsive, and combined.⁵⁷ Symptoms begin before age seven,⁵⁸ and these can have adverse effects on behavior, academic performance, and emotional and social functioning.⁵⁹ Symptoms continue during adulthood in up to 65 percent of cases.⁶⁰ The majority of children diagnosed with ADHD have a comorbid disorder such as depression, anxiety, learning disability, conduct disorder, or oppositional defiant disorder.⁶¹ Families of children with ADHD have higher rates of stress and marital discord and disruption.⁶² Finding the causes of ADHD is an active area of research, with studies pointing to the involvement of both genetic and environmental factors, such as elevated blood lead levels and prenatal tobacco exposure.^{63, 64, 65, 66}

What do the data show?

- Data from the National Health Interview Survey, based on parent reports from 2001 and 2002, show that 3 percent of six-year old children have been diagnosed with ADHD.⁶⁷
- Significantly more boys than girls have been diagnosed with ADHD, with a larger male predominance for the hyperactive type than the inattentive type.⁶⁸ In 2001 and 2002, 5 percent of six-year-old boys and 2 percent of six-year-old girls had been diagnosed with ADHD. (See Chart 1-3)
- In 1995, between one-half of a percent and 1.2 percent of children ages two to four received prescriptions for stimulants.*⁶⁹

Implications for policymakers and practitioners

Many professional medical groups recommend that children with suspected symptoms of ADHD receive medical, developmental, educational, and psychosocial evaluations.^{70, 71, 72} Diagnostic criteria require the presence of symptoms inconsistent with the child's developmental level for at least six months. Among the challenges of accurately diagnosing ADHD in preschool-aged children is that many symptoms of ADHD are developmentally normal or appear only transiently in preschool children,⁷³ and that symptoms of ADHD may not appear in structured settings, such as an office visit.⁷⁴

Treatment guidelines also exist: all of these recommend pharmacotherapy (i.e., using prescribed medication) for school-aged children.^{75, 76, 77} The few guidelines for younger children tend to reserve stimulants for when non-pharmacologic therapies are ineffective.⁷⁸ A recent review concludes that stimulants are safe and helpful for children ages three and older,⁷⁹ but more studies of preschoolers are needed.

Many organizations support the enactment of Mental Health Parity legislation, requiring group health insurance plans to cover treatment of mental health disorders equally with treatment of physical health disorders.^{80, 81, 82} Some states have mental health parity laws, but the scope of these laws varies widely.⁸³

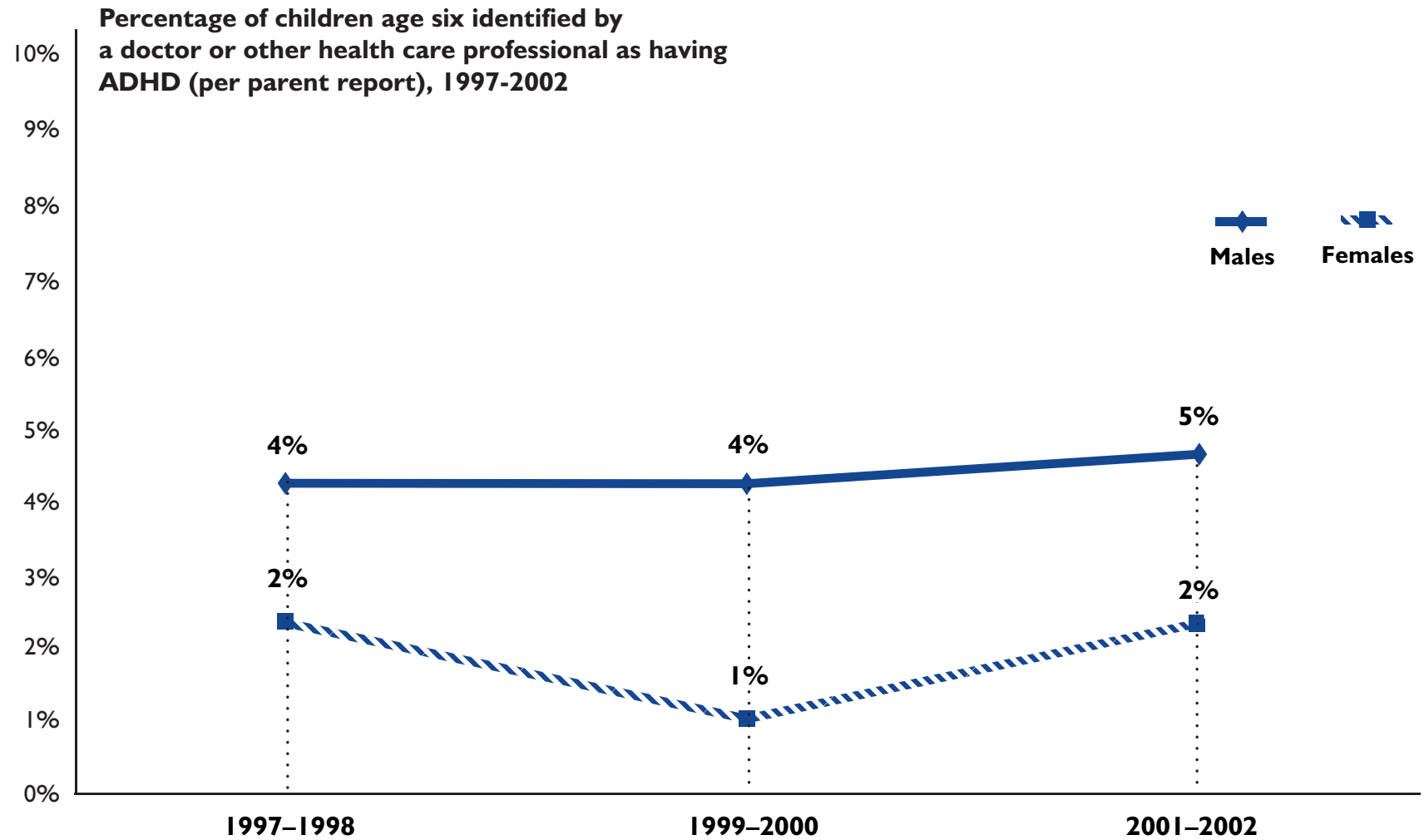
Implications for parents

Children with ADHD may qualify for special education and other supportive services under the Individuals with Disabilities Education Act (PL 101-476) or for special accommodations in a regular classroom setting under Section 504 of the Rehabilitation Act of 1973.⁸⁴

* Data are based on pharmacy records and Medicaid prescription claims from one Midwestern state Medicaid program, one mid-Atlantic state Medicaid program, and one HMO setting in the Northwest.

CHART 1-3

Attention Deficit Hyperactivity Disorder (ADHD)



Source: Original Child Trends' analyses of National Health Interview Survey data.



Early Child Development in Social Context
Child Trends and Center for Child Health Research, 2004

CHAPTER 2

Intellectual Development

- **READING PROFICIENCY**
- **MATHEMATICAL PROFICIENCY**
- **EXPRESSIVE LANGUAGE DEVELOPMENT**
- **FINE AND GROSS MOTOR SKILLS**

Reading Proficiency

Why is this important?

Early reading proficiency is strongly related to future reading ability and achievement.⁸⁵ Reading deficits at an early age have been found to widen over the elementary years,⁸⁶ and these deficits persist throughout school and into adulthood.^{87, 88} Conversely, children who begin school with strong emergent literacy skills are more likely to show academic success throughout their lives.^{89, 90} Aspects of the social environment such as low maternal education and family poverty are consistently associated with lower levels of literacy readiness. The precursors of reading and writing in children (recognizing letters, understanding letter and sound relationships, and reading simple books independently), behaviors that predict later literacy skills, are strongly associated with varied and rich verbal interactions with parents, teachers, and peers^{91, 92} as well as with strong patterns of using books in the home.⁹³

What do the data show?

- In 1998, 66 percent of first-time kindergartners could recognize letters (reading proficiency level one); 29 percent had knowledge of letter and sound relationships at the beginning of words (level two); and 17 percent also had knowledge of letter and sound relationships at the end of words (level three). In addition, 4 percent could read simple books independently.*⁹⁴
- Children whose mothers had lower education levels were much less likely than other children to demonstrate reading proficiency. For example, in 1998, only 38 percent of first-time kindergartners whose mothers had less than a high school education could recognize letters (proficiency level one), compared with 86 percent of first-time kindergartners whose mothers had a bachelor's degree or higher. (See Chart 2-1)
- Asian and non-Hispanic white first-time kindergartners are more likely than non-Hispanic black and Hispanic first-time kindergartners to demonstrate reading proficiency. In 1998, 79 percent of Asian first-time kindergartners and 73 percent of non-Hispanic white first-time kindergartners could recognize letters (reading proficiency level one), compared with 55 percent of non-Hispanic black first-time kindergartners, and 49 percent of Hispanic first-time kindergartners.†

Implications for policymakers and practitioners

Early child care centers and Head Start programs that are rich in language and literacy activities can help children who are at risk for reading difficulties to build reading and early literacy skills. Programs and policies can be designed to support the development of quality criteria and guidelines for emergent literacy and language activities and the development of a system of accountability to make sure that such centers are meeting standards of learning in early literacy, language, and numeracy.⁹⁵

The American Academy of Pediatrics uses the Community Access to Child Health (CATCH) network of pediatricians to address and disseminate information about early literacy.⁹⁶ The *Bright Futures* initiative from the Maternal and Child Health Bureau of the U.S. Department of Health and Human Services recommends that providers encourage parents to begin reading to their children by two months of age.⁹⁷

Implications for parents

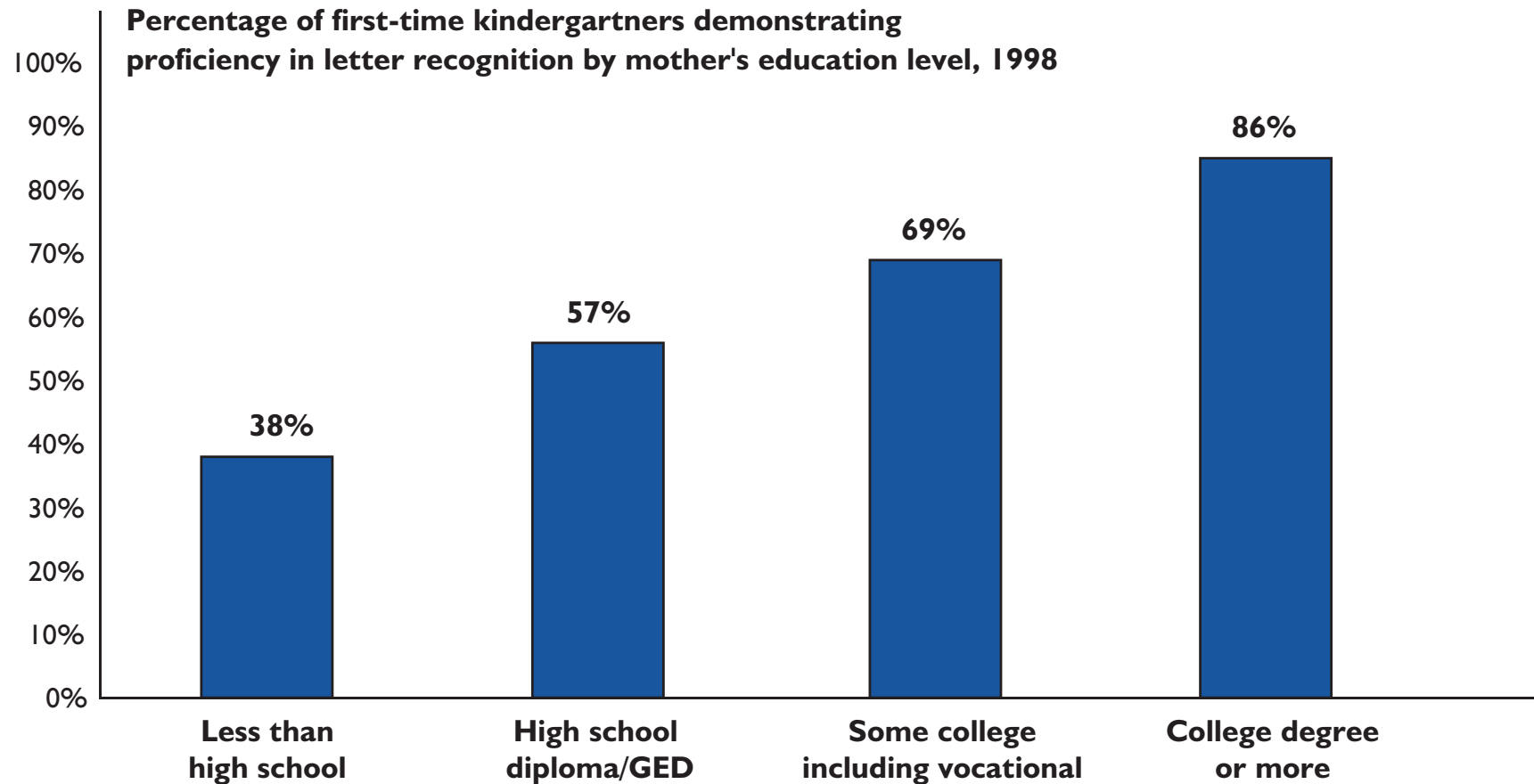
Research indicates that regular reading to young children, providing a book-rich home environment, and parents' modeling behavior by reading are all associated with better child reading outcomes.^{98, 99}

* Estimates for the first three proficiency levels are based on cognitive assessments administered to the kindergartners. Estimates for reading simple books independently are based on teacher ratings of kindergartners.

† Persons of Hispanic origin may be of any race.

CHART 2-1

Reading Proficiency



Source: K. Denton, E. Germino-Hausken, and J. West (project officer) *America's Kindergartners*, NCES 2000-070, (Washington, DC: US Department of Education, National Center for Education Statistics, 2000), based on cognitive tests administered to the kindergartners.



Mathematical Proficiency

Why is this important?

Basic numerical abilities are present very early on in children's development.¹⁰⁰ Based on their daily interaction with the world, many young children begin developing basic mathematical concepts such as counting,¹⁰¹ assessing spatial relations, and creating and extending patterns and symmetries spontaneously.^{102, 103, 104} These early math skills serve as a starting point from which most children become ready for more formal mathematical instruction in preschool.^{105, 106, 107} Because mathematical skills build on each other, children lacking basic skills (such as understanding that numbers are used to count and counting to 10 forwards and backwards), will have difficulty with first-grade math, as well as with math in later years.^{108, 109}

What do the data show?

- In 1998, 94 percent of first-time kindergartners could read numbers, recognize shapes, and count to 10 (mathematics proficiency level one within ELCS-K* scoring); 58 percent could count beyond 10, sequence patterns, and use nonstandard units of length to compare numbers (level two); 20 percent could read two digit numbers, identify the ordinal position of an object, and solve a word problem (level three); and 4 percent were at the highest level, meaning they could add and subtract (level four).¹¹⁰

- Asian and non-Hispanic white kindergartners demonstrate higher levels of mathematical proficiency than non-Hispanic black and Hispanic kindergartners. For example, in 1998, 70 percent of Asian kindergartners and 66 percent of non-Hispanic white kindergartners could count beyond 10, sequence patterns, and use nonstandard units of length to compare numbers (mathematics proficiency level two), compared with 42 percent of non-Hispanic black kindergartners and 44 percent of Hispanic kindergartners.[†]
- Kindergartners' mathematics proficiency increases with maternal education level. In 1998, 32 percent of kindergartners whose mothers had less than a high school education could perform at math proficiency level two (count beyond 10, sequence patterns, and use nonstandard units of length to compare numbers), compared with 79 percent of kindergartners whose mothers had a bachelor's degree or higher. (See Chart 2-2)

Implications for policymakers and practitioners

The National Association for the Education of Young Children's and the National Council of Teachers of Mathematics' joint position statement holds that early math is a vital part of the education of preschool children. The two organizations recommend that preschool curricula introduce mathematical concepts, methods, and language actively through developmentally appropriate practices. They also recommend that the education of teachers include proper training in early childhood mathematics pedagogy.¹¹¹

The *Bright Futures* initiative from the Maternal and Child Health Bureau, the U.S. Department of Health and Human Services, provides health practitioners with a checklist of parent questions to help assess five-year olds' math achievement, among other markers. The program sees the involvement of the primary-care provider as an important first step in the early intervention process.¹¹²

Implications for parents

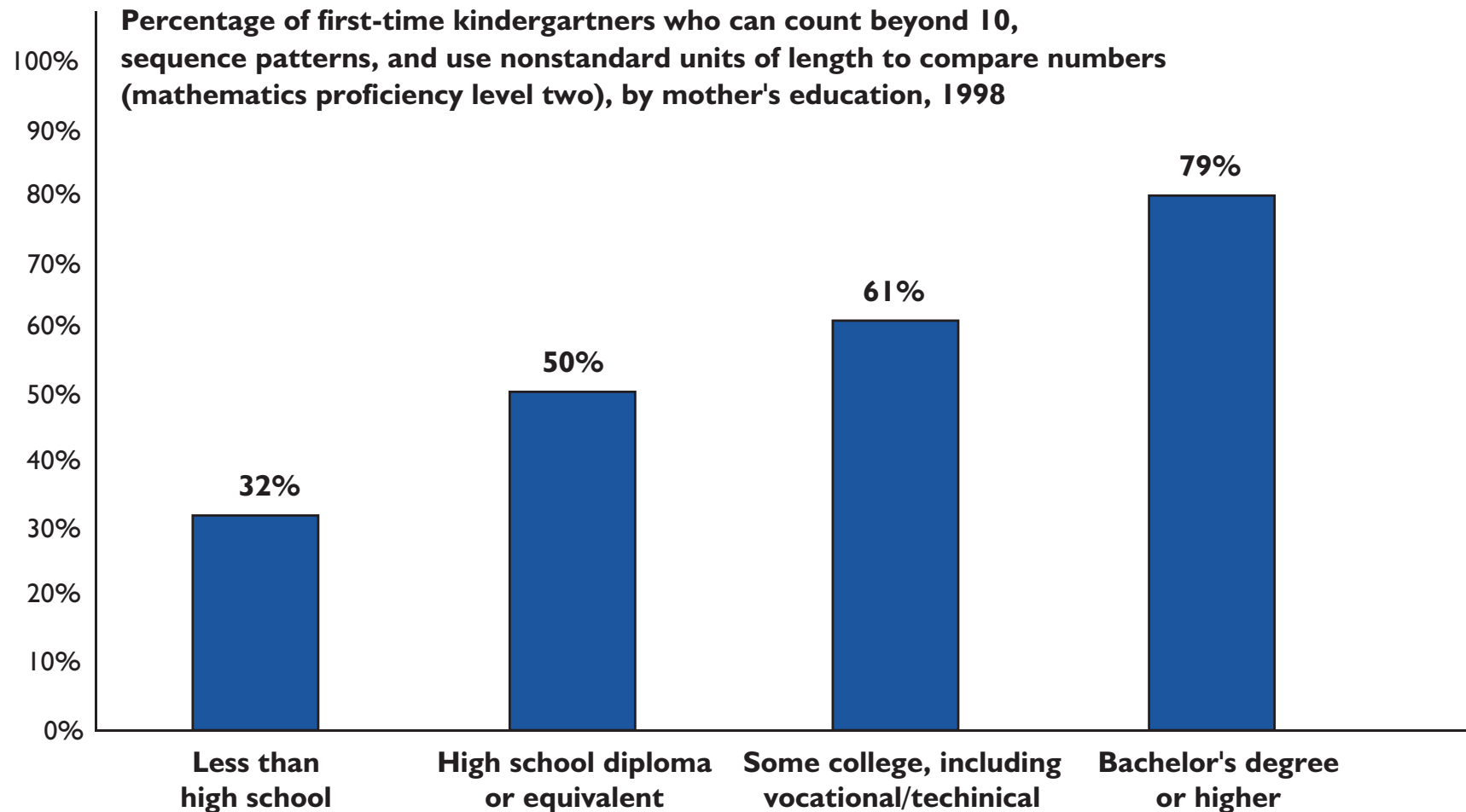
Children benefit from having many opportunities to experiment with numerical concepts and to engage in play that involves the notion of quantity.¹¹³

Expensive toys and computers are not necessary for young children's development. Involving toddlers and preschoolers in daily activities that involve counting, sorting, and identifying shapes and measuring may help them to learn basic math concepts.¹¹⁴

* Early Childhood Longitudinal Study-Kindergarten Cohort
† Persons of Hispanic origin may be of any race.

CHART 2-2

Mathematical Proficiency



Source: K. Denton, E. Germino-Hausken, and J. West (project officer), *America's Kindergartners*, NCES 2000-070, (Washington, DC: US Department of Education, National Center for Education Statistics, 2000): Table 7.



Expressive Language Development

Why is this important?

Expressive language is the ability to communicate verbally with others. Developmentally, this ability ranges from cooing in early infancy to later use of a range of words and structurally-complex sentences.¹¹⁵ Children with persistent trouble expressing themselves verbally are at greater risk for severe language problems and later social and academic problems.¹¹⁶

Expressive language milestones occur within general time frames (for example, first words between 10-15 months), but a great deal of variation exists in the ages at which children develop language skills.^{117, 118} This variation has made it difficult to establish whether children have expressive language impairments or whether they are simply “late-bloomers.” In addition, much of this variation may fall within the normal range. Therefore, concerns about children’s expressive language abilities based on brief periods of observation (for example, in a doctor’s office), are best followed up on with more in-depth screening.

What do the data show?

- In 1998, 27 percent of first-time kindergartners could not produce rhyming words; 50 percent were beginning to be able to produce rhyming words; and 23 percent were able to produce rhyming words at either an intermediate or proficient level. In the same year, 19 percent of first-time kindergartners did not yet use complex sentence structures; 47 percent were just beginning to use complex

sentence structures; and 33 percent used complex sentence structures at either an intermediate or proficient level.¹¹⁹ (See Chart 2-3)

- Kindergartners’ expressive language abilities vary substantially by their parents’ education levels. In 1998, for example, 39 percent of first-time kindergartners whose parents had a college degree or more were able to produce rhyming words at an intermediate or proficient level, compared with 21 percent among those whose parents had some college, 19 percent among those whose parents had vocational degrees, 13 percent among those whose parents had high school diplomas or GEDs, and only 5 percent among kindergartners whose parents had less than a high school degree. (See Chart 2-4)
- Non-Hispanic white first-time kindergartners are more likely than those of other races to possess intermediate or proficient expressive language skills. In 1998, for example, 41 percent of non-Hispanic white kindergartners used complex sentence structures at an intermediate or proficient level, compared with 21 percent of non-Hispanic black kindergartners, 20 percent of Hispanic* kindergartners, and 27 percent of kindergartners of other races.

Implications for policymakers and practitioners

The National Education Goals Panel¹²⁰ has recommended that policymakers consider increasing the availability and intensity of early language interventions, especially for children seen as being at increased risk (e.g., poverty or because of special learning needs). Language

intervention approaches vary considerably. They range from the systematic and adult-directed approach often used by speech pathologists to approaches that focus more broadly on improving the quality of children’s care environments, including the verbal interactions in these environments.¹²¹ Early language interventions have been shown to improve vocabulary, word-use, and social development.¹²²

The *Bright Futures* initiative from the Maternal and Child Health Bureau, U.S. Department of Human and Health Services, provides detailed information about children’s language milestones and what health professionals should observe during child health care visits. The program also provides practitioners with a checklist for parents to help assess whether their child might need follow-up with a speech and language specialist. A visit to the primary-care provider serves as an important first step in the early intervention process.¹²³

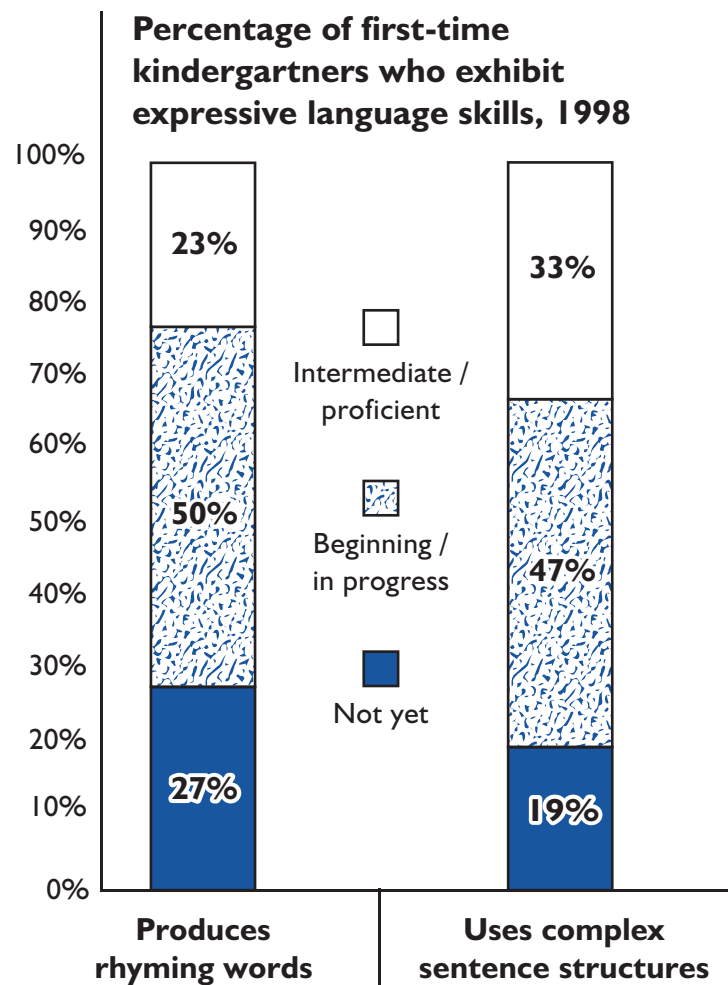
Implications for parents

Evidence shows that the amount of time that mothers spend speaking directly to their children is related positively to children’s vocabulary growth.^{124, 125} Talking to children during common daily interactions such as dressing and eating may be of particular importance.¹²⁶

* Persons of Hispanic origin may be of any race.

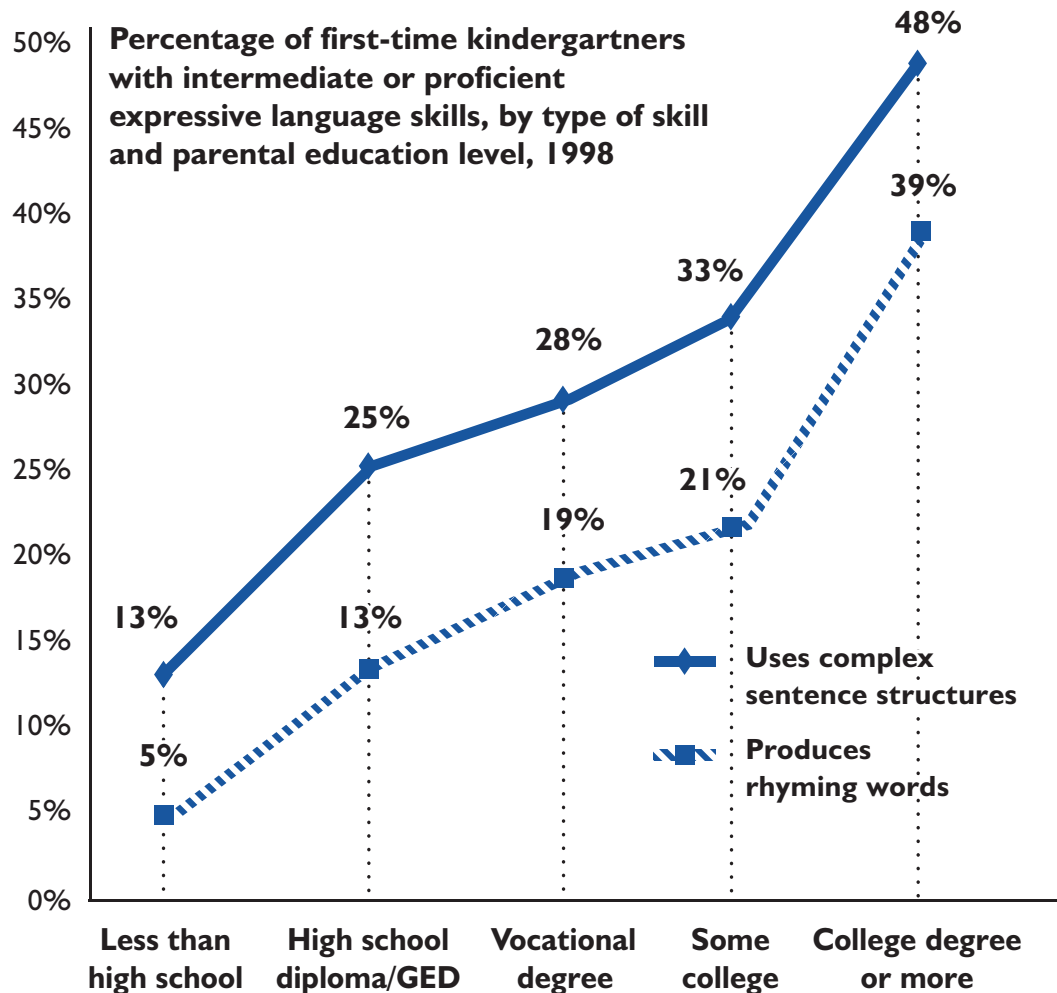
Expressive Language Development

CHART 2-3



Source: Child Trends original analyses of the Early Childhood Longitudinal Study (ECLS-K) Kindergarten Cohort

CHART 2-4



Source: Child Trends original analyses of the Early Childhood Longitudinal Study (ECLS-K) Kindergarten Cohort



Fine and Gross Motor Skills

Why is this important?

Children's motor control and coordination can have an important influence on their cognitive and socioemotional development, as well as their academic achievement. Visual motor skills, such as visual scanning, discrimination, and memorization, are especially important in acquiring reading skills.¹²⁷ Delays in motor development can affect a child's performance in school, and have been linked to lack of concentration, behavior problems, low self-esteem, and poor social confidence.¹²⁸ Problems in motor coordination have been associated with loneliness and poor peer interactions, especially among young boys.¹²⁹ Young children with low scores on fine and gross motor skills assessments are also at risk for later developmental difficulties.¹³⁰ Assessments of fine motor skills are based on how well children perform tasks such as constructing forms with wooden blocks, copying basic figures, and drawing a person. Assessments of gross motor skills are based on how well children perform actions such as balancing on each foot, hopping on each foot, skipping, and walking backwards in a line.

What do the data show?*

- Young boys are more likely than girls to demonstrate low levels of fine and gross motor skills. In 1998, for example, 31 percent of male kindergartners received low scores on assessments of gross motor skills, compared with 22 percent of female kindergartners.¹³¹ (See Chart 2-5)
- Native American, non-Hispanic white, and Asian kindergartners are more likely than non-Hispanic black kindergartners to demonstrate low proficiency on

assessments of gross motor skills. In 1998, 31 percent of Native American kindergartners and 28 percent of non-Hispanic white and Asian kindergartners received low scores on assessments of gross motor skills, compared with only 21 percent of non-Hispanic black kindergartners.

- Children whose mothers have lower education levels tend to have less advanced fine and gross motor skills. In 1998, for example, 42 percent of kindergartners whose mothers had not finished high school received low scores on assessments of fine motor skills, compared with only 18 percent of kindergartners whose mothers had a bachelor's degree. (See Chart 2-6)

Implications for policymakers and practitioners

Early, accurate identification of fine and gross motor skill deficiencies is important, because early treatment can lead to better developmental outcomes.¹³² Health practitioners can become familiar with local childcare options in order to make better recommendations for programs to stimulate the development of fine and gross motor skills.¹³³ In addition, practitioners can educate parents on appropriate developmental expectations for their children. Clinicians can also work with the children themselves, as well as with parents, teachers, therapists, and other physicians, to identify appropriate developmental goals and treatments for children with motor disabilities.¹³⁴

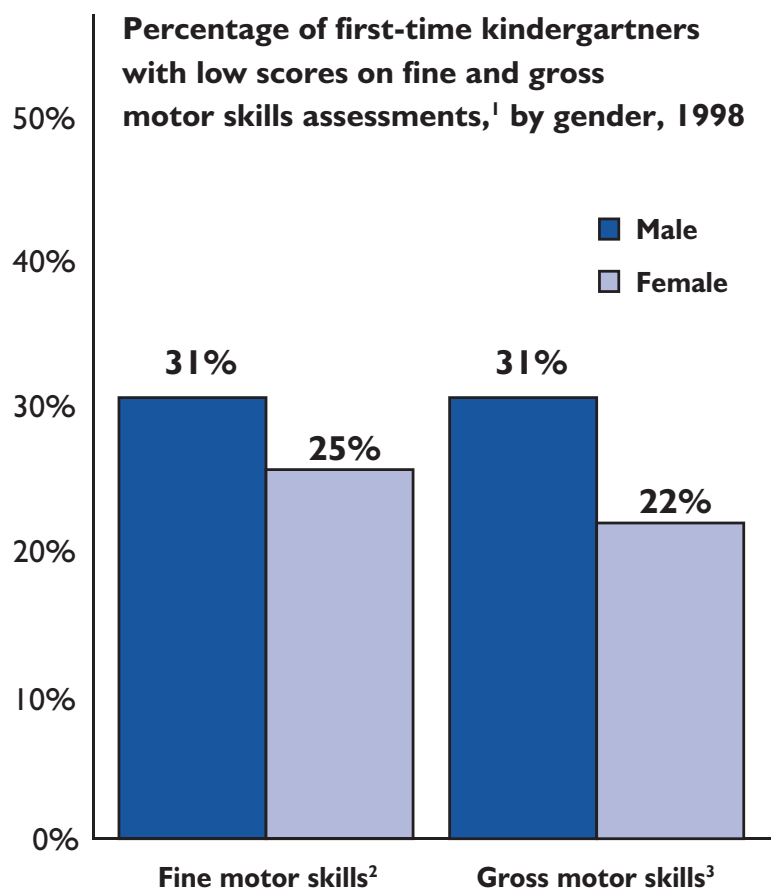
Implications for parents

Practice is critical for children to improve their fine and gross motor skills.¹³⁵ At appropriate ages, parents can give their young children toys such as crayons, blocks, and puzzles that increase their opportunities to develop their fine motor skills. Parents can minimize TV viewing and encourage activities that involve running, dancing, and jumping, which allow children to develop gross motor skills.¹³⁶ It is also important that parents praise and encourage their children's efforts.¹³⁷ For children with disabilities, physical therapy alone is not enough. Parents need to provide opportunities for young children with motor impairments to acquire developmentally appropriate play and learning skills.¹³⁸

* Fine motor skills were assessed using a 9-point scale by measuring a child's ability to construct forms with wooden blocks, copy basic figures, and draw a person. Gross motor skills were assessed using an 8-point scale by measuring a child's ability to balance on each foot, hop on each foot, skip, and walk backwards in a line. Both of the scales were divided into approximate thirds, with scores in the middle third representing age-appropriate skill levels. Children scoring in the lowest third performed below the age-expected skill level, and are possibly at risk for later developmental problems.

Fine and Gross Motor Skills

CHART 2-5



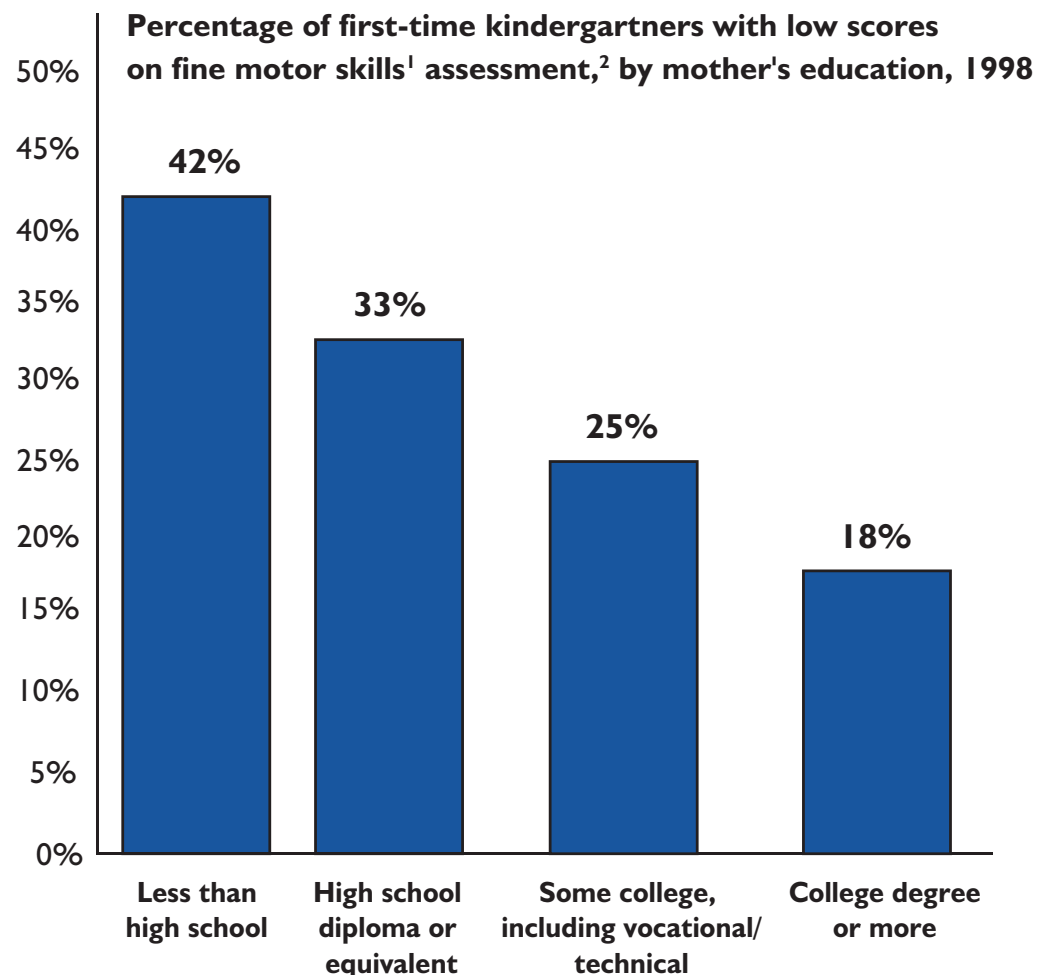
¹ Assessments were based on children's scores on two scales (an 8-point scale for fine motor skills and a 9-point scale for gross motor skills). Each of these scales was divided into approximate thirds, and children scoring in the lowest level are considered to have low scores on these assessments.

² Fine motor skills include constructing forms with wooden blocks, copying basic figures, and drawing a person.

³ Gross motor skills include balancing on each foot, hopping on each foot, skipping, and walking backwards in a line.

Source: K. Denton, E. Germino-Hausken and J. West, (project officer), *America's Kindergartners*, NCES 2000-070, (Washington, DC: US Department of Education, National Center for Education Statistics, 2000).

CHART 2-6



¹ Fine motor skills include constructing forms with wooden blocks, copying basic figures, and drawing a person.

² Assessments were based on children's scores on two scales (an 8-point scale for fine motor skills and a 9-point scale for gross motor skills). Each of these scales was divided into approximate thirds, and children scoring in the lowest level are considered to have low scores on these assessments.

Source: K. Denton, E. Germino-Hausken and J. West, (project officer), *America's Kindergartners*, NCES 2000-070, (Washington, DC: US Department of Education, National Center for Education Statistics, 2000).



Early Child Development in Social Context
Child Trends and Center for Child Health Research, 2004

CHAPTER 3

Child Health

- **BLOOD LEAD LEVELS**
- **LOW AND VERY LOW BIRTHWEIGHT**
- **IRON DEFICIENCY**
- **CHILDREN WITH CHRONIC HEALTH CONDITIONS**
- **BREASTFEEDING**

Blood Lead Levels

Why is this important?

There has been a remarkable decrease in blood lead levels among children in the United States in the past three decades, but lead exposure remains a significant problem, especially in poor and urban populations.¹³⁹ Children may be exposed to lead through materials such as soil, water, ceramics, and toys, although the most common and concentrated source of exposure is lead based paint, primarily in homes built before 1970.¹⁴⁰ Young children are at increased risk of lead exposure due to crawling and much hand-to-mouth activity, and to adverse effects of lead toxicity due to the developing brain's sensitivity to lead.¹⁴¹

Children with elevated blood lead levels often have subtle but serious deficits in neurocognitive ability, including decreases in IQ and increased rates of Attention Deficit Hyperactivity Disorder (ADHD) and learning disabilities, as well as emotional and behavioral difficulties.^{142, 143, 144, 145, 146, 147, 148, 149} Although average blood lead levels and the percentage of children with amounts above the current level of concern (10 micrograms per deciliter) have decreased, there is growing concern that amounts below that level also may have negative effects on IQ.¹⁵⁰

What do the data show?

- According to the 1999–2000 National Health and Nutrition Examination Survey, 2.2 percent of children ages one to five had elevated blood lead levels, representing a large decrease from 88 percent between 1976 and 1980.¹⁵¹ (See Chart 3-1)
- State surveillance data indicate that among children under six years of age, non-Hispanic black children and Hispanic children are more likely than non-Hispanic white children to have elevated blood lead levels (8.7 percent and 5.6 percent among blacks and Hispanics,* respectively, compared with 2.0 percent among non-Hispanic whites in 2001).¹⁵²
- An estimated 434,000 children ages one to five had elevated blood lead levels in 2000.¹⁵³

Implications for policymakers and practitioners

Subtle damage occurs at low levels of exposure to lead. This damage to developing brains is most likely not reversible.¹⁵⁴ Therefore, while screening of at-risk children remains essential, prudent public policy would increase attention to the primary prevention of lead poisoning by increasing abatement of lead-contaminated housing before children become poisoned, rather than after they are exposed. Public policy has been very successful over the last several decades in reducing lead exposure, but more can be done.

Nevertheless, it is important that policymakers continue to encourage mandated screening of high-risk children and increase efforts to include housing rehabilitation as part of the treatment of affected children. Due to the concern that no blood lead level may be “safe,” practitioners should continue to screen their patients vigilantly and to educate parents about how to limit lead exposure.

Implications for parents

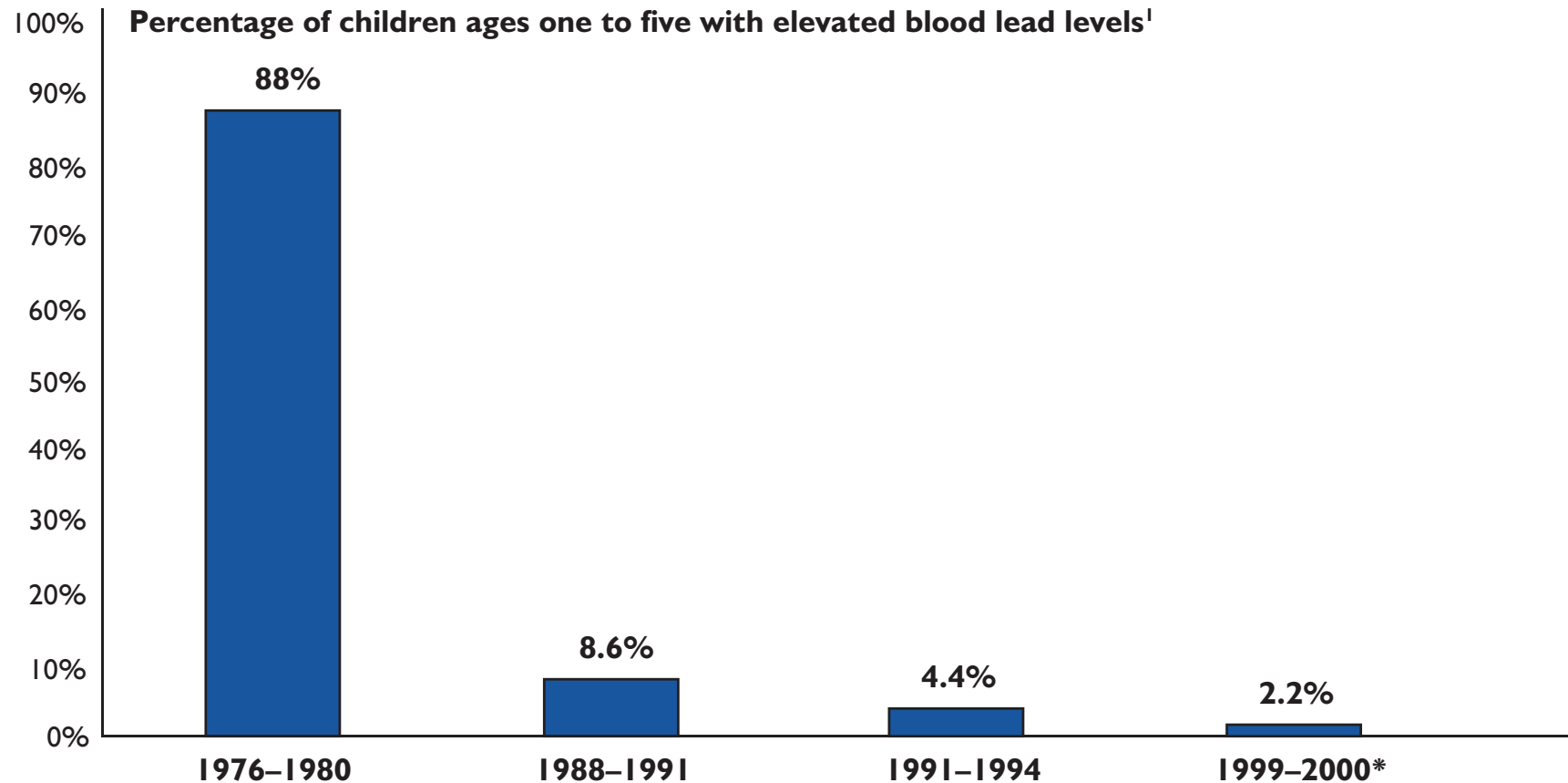
The Environmental Protection Agency's recommendations for parents who think that their homes have high levels of lead include: getting their young children tested, even if they seem healthy; regularly cleaning floors, window sills, and other surfaces; keeping children from chewing window sills or other painted surfaces; and talking to landlords about fixing surfaces with peeling or chipped paint, which may contain lead.**

* Persons of Hispanic origin may be of any race.

** For more information, please visit <http://www.epa.gov/opptintr/lead/leadpdf.pdf> or <http://www.hud.gov/offices/lead/disclosure/index.cfm>.

CHART 3-1

Blood Lead Levels



¹ Includes children with blood lead levels of at least 10 micrograms per deciliter.

* Data for 1999-2000 are highly variable (relative standard error greater than 30 percent).

Source: P. Meyer, T. Pivetz, T. Dignam, D. Homa, J. Schoonover, and D. Brody, "Surveillance for Elevated Blood Lead levels Among Children-United States 1997-2001," *Morbidity and Mortality Weekly Report* 52 (September 12, 2003): 1-24. Available at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/ss5210a1.htm>.



Low and Very-Low Birthweight

Why is this important?

Babies born at a low birthweight (under 2,500 grams, or 5.5 pounds) are more likely than normal-birthweight babies to experience a host of physical and developmental problems such as delayed motor and social development.¹⁵⁵ Children who started out as low-birthweight babies are more likely to show lower intelligence scores and poorer school achievement.¹⁵⁶ As early as kindergarten and first grade, low-birthweight children show heightened risks for problems in school.¹⁵⁷ At older ages (four to 17), those born at a low birthweight are more likely to be enrolled in special education classes or to repeat a grade.¹⁵⁸ Low-birthweight infants are also at greater risk for iron deficiency during infancy and early childhood.¹⁵⁹

Moreover, babies who are born at a *very low* birthweight (under 1,500 grams, or 3.3 pounds) are at greater risk of dying before their first birthday.¹⁶⁰ They are also at increased risk of long-term disability and impaired development.¹⁶¹ They are less likely to graduate from high school or to be enrolled in a four-year college, and more likely to have lower IQ scores.¹⁶²

What do the data show?

- Almost eight (7.8) percent of all children were born at a low birthweight in 2002, representing a modest yet steady increase from 6.8 percent during the early 1980s.¹⁶³ This upward trend is partly attributed to the increase in multiple births during that time.¹⁶⁴ One and one-half percent of all newborns were born at a very low birthweight in 2002, representing a slight increase from 1.2 percent in 1970. (See Chart 3-2)

- Black babies are almost twice as likely as non-Hispanic white and Hispanic* babies to be born at a low birthweight, and around three times as likely to be born at a very low birthweight.¹⁶⁵
- A study of middle-school children in Ohio found that those who were born at a very low birthweight were more likely than those born at a normal birthweight to have lower scores on tests of cognitive ability. For example, middle-school children who weighed under 750 grams (1.65 pounds) at birth received an average score of 83 on the Estimated Mental Processing Composite,** compared with a score of 97 for those weighing under 1,500 grams (3.3 pounds) at birth and a score of 106 for those born at normal birthweight.¹⁶⁶ (See Chart 3-3)
- Babies born to smokers are more likely to be born at a low birthweight. In 2002, 12.2 percent of babies born to mothers who smoked were of low birthweight, compared with 7.5 percent of babies born to non-smokers.¹⁶⁷

Implications for policymakers and practitioners

Adequate prenatal and perinatal services are essential for optimizing birth outcomes. Intended pregnancies and pregnancies to married mothers are less likely to be low birthweight.¹⁶⁸ Pregnancies that are complicated by certain maternal medical conditions or previous poor pregnancy outcomes may require specialized services, and may benefit by plans for the delivery occurring in hospitals with neonatal intensive units.¹⁶⁹ Participation in the Women, Infant, and Children's (WIC) Program has been shown to also contribute to better pregnancy outcomes.¹⁷⁰

Early intervention programs such as the Infant Health and Development Program (the program provides early pediatric follow-up and educational and family support services) show improved cognitive scores and reduced behavior problem scores among low birthweight infants.¹⁷¹

Implications for parents

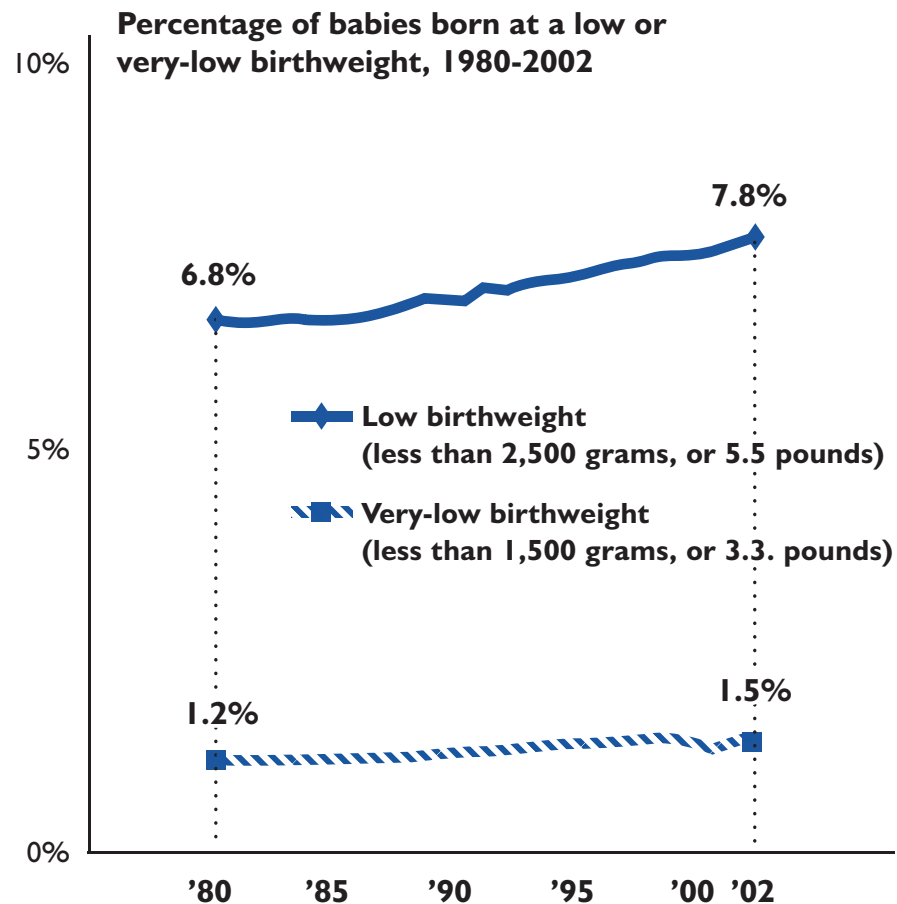
Although low-birthweight children are at higher risk for negative developmental and behavioral outcomes, it is important for parents to realize that most children born at a low birthweight develop normally. For those parents whose children are experiencing delays, services, such as those provided by the Infant Health and Development Program, are available and can help.¹⁷²

* Persons of Hispanic origin may be of any race.

** The Estimated Mental Composite Score is a full-scaled IQ score based on the short form of the Kaufman Assessment Battery for Children, which tests children's knowledge of hand movements, triangles, word order, and matrix analogies.

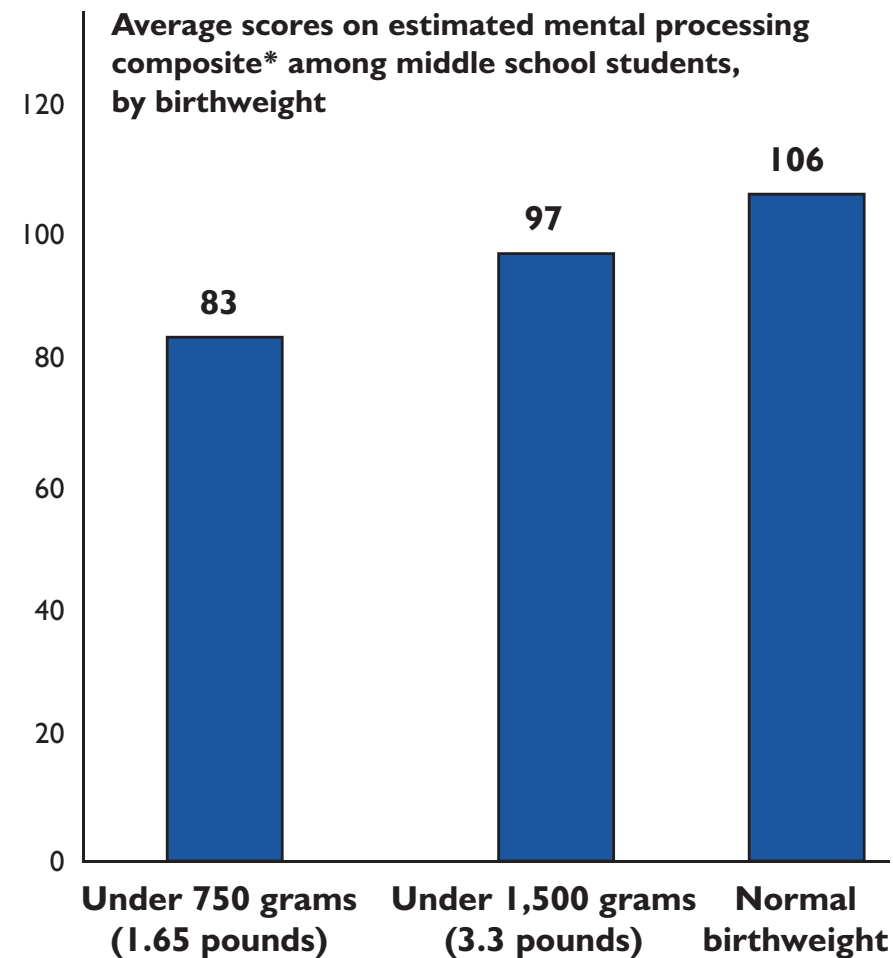
Low- and Very-Low-Birthweight Babies

CHART 3-2



Source: Reproduced from Child Trends, *Child Trends DataBank Indicator: Low and Very Low Birthweight Infants*. Retrieved on December 2, 2003 from URL: <http://www.childtrendsdatabank.org/indicators/57LowBirthweight.cfm>. Original data from the National Vital Statistics Reports, collected by the National Center for Health Statistics.

CHART 3-3



* The Estimated Mental Composite Score is a full-scale IQ scaled score based on the short form of the Kaufman Assessment Battery for Children, which tests children's knowledge of hand movements, triangles, word order, and matrix analogies. Source: H.G. Taylor, N. Klein, N.M. Minich, and M. Hack, "Middle-school-age Outcomes in Children with Very Low Birthweight," *Child Development* 71 (November/December 2000): 1495-1511.



Iron Deficiency

Why is this important?

Iron deficiency continues to be a common problem, with poor and minority children at highest risk.¹⁷³ Iron-deficiency is associated with lower toddler scores on mental and motor functioning,¹⁷⁴ lower school performance, and higher rates of developmental and behavioral problems.¹⁷⁵ The effects of iron deficiency may not be reversible, so prevention and screening for early diagnosis and treatment are critical.¹⁷⁶ Research also suggests that iron deficiency, through damage to neurotransmission, can affect attention span, memory, and behavior in young children.¹⁷⁷

In addition, iron deficiency increases the absorption of lead from children's gastrointestinal tracts, thereby increasing their risk for elevated blood lead levels, which is also associated with developmental problems.¹⁷⁸

What do the data show?

- Seven percent of children ages one to two and 5 percent of children ages three to five had iron deficiency between 1999 and 2000.¹⁷⁹ (See Chart 3-4)
- Between 1994 and 1996, only about half of children ages one to five met the minimal required daily dietary intake of iron.¹⁸⁰
- Recent analyses indicate that at all ages, overweight or obese children are more likely than children who are not overweight or obese to be iron deficient.¹⁸¹ Results of a national sample of children ages two to 16 showed overweight children are 2.5 times more likely than normal-weight children to be at risk for iron deficiency between 1988 and 1994.¹⁸²

Implications for policymakers and practitioners

The Centers for Disease Control and Prevention (CDC) recommend breastfeeding as best for infants. If breastfeeding is not used, only iron-fortified formula should be used.¹⁸³ Because women often decide on infant feeding practices before their babies are born, it is important that the obstetrician-gynecologist community be educated to encourage these practices.

The American Academy of Pediatrics recommends that infants who are not breastfed or who are breastfed only part of the time receive an iron-fortified formula from birth to age one. Beginning at nine months of age, children should also be screened for anemia, which, in young children, is most often caused by iron deficiency.^{184, 185} Practitioners can also provide nutritional advice and counseling to parents.

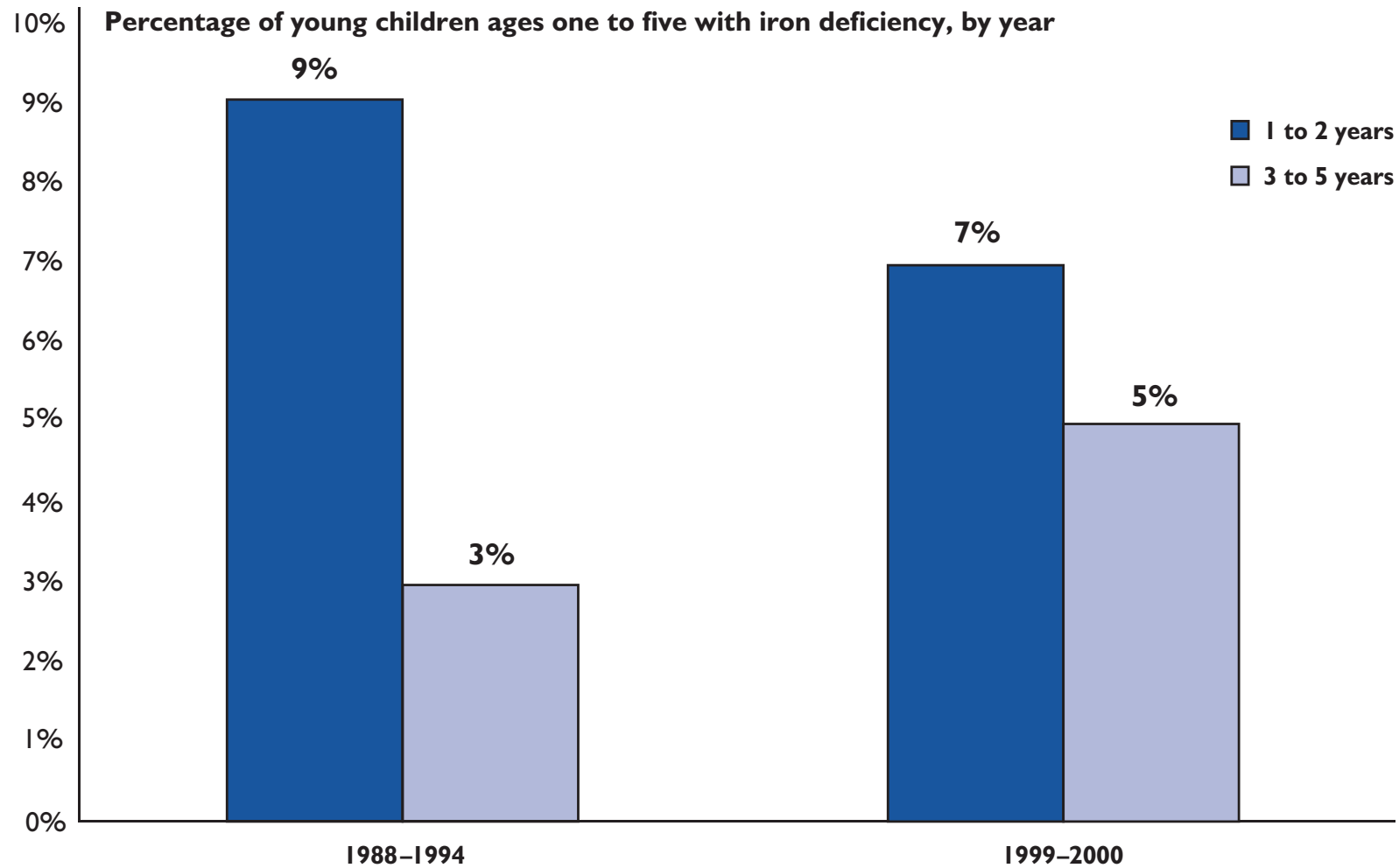
The Women, Infants, and Children program (WIC) has had a positive effect on the health of young children by reducing iron deficiency in those from low-income families, and because children enrolled in both WIC and Medicaid receive more preventive health services, and receive more diagnosis and treatment of common childhood conditions.^{186, 187} For additional information on WIC visit www.fns.usda.gov/wic/.

Implications for parents

It is important that parents make sure that there is a source of iron in their children's diets. The United States Department of Agriculture, Food and Nutrition Service recommends such natural foods as lean meat, iron-enriched and whole grain breads and cereals, cooked dried beans, and greens (spinach, collard greens, turnip greens, and kale) as good sources of iron. Chicken, egg yolks, and dried fruits also provide iron, although not as much.¹⁸⁸ To prevent iron deficiency in their children, parents can use foods and formula fortified with iron.¹⁸⁹

CHART 3-4

Iron Deficiency



Source: Center for Child Health Research, American Academy of Pediatrics original analyses of the National Health and Nutrition Examination Survey.



Children with Chronic Health Conditions

Why is this important?

As the capacity to treat children with conditions such as congenital heart disease, cystic fibrosis, cancer, sickle cell disease, and spina bifida has improved, so has their survival.¹⁹⁰ While most children experiencing such conditions have minimal or no limitations in activity or disabilities, and move into adulthood quite successfully,¹⁹¹ as a group they are at a somewhat higher risk for special education placement and school underachievement.¹⁹² Children with special health care needs have three times as many days spent ill in bed and absent from school than do other children.¹⁹³ Their siblings have increased rates of emotional difficulties and problems with peer relationships.¹⁹⁴

What do the data show?

- In 2002, two percent of all children ages two to four were reported by a parent to have physical, mental, or emotional problems that limited their play.¹⁹⁵
- Four percent of poor children ages two to four had limitations in play in 2002, compared with 2 percent of children in families at or above 200 percent of the poverty line. (See Chart 3-5)
- Non-Hispanic black children in 2002 were about twice as likely as non-Hispanic white and Hispanic children ages two to four to have a chronic condition limiting play.* (See Chart 3-6)

Implications for policymakers and practitioners

Practitioners can help parents plan for and address emotional and educational problems that may arise due to a child's chronic health condition. Policymakers and practitioners can work together to create integrated health, play, and school services for such children and to address the social, developmental, and financial implications of many such conditions.

Successful public health interventions such as fortifying food with folic acid to prevent neural tube defects and reducing lead in the environment, demonstrate the significant public health impact that effective interventions can have in preventing chronic health conditions.^{196, 197}

Implications for parents

It is important for parents be aware that a child's chronic health condition has potential psychological and educational, as well as physical, effects for their child. Further, caring for a child with chronic health conditions can affect the well-being of parents and other family members.

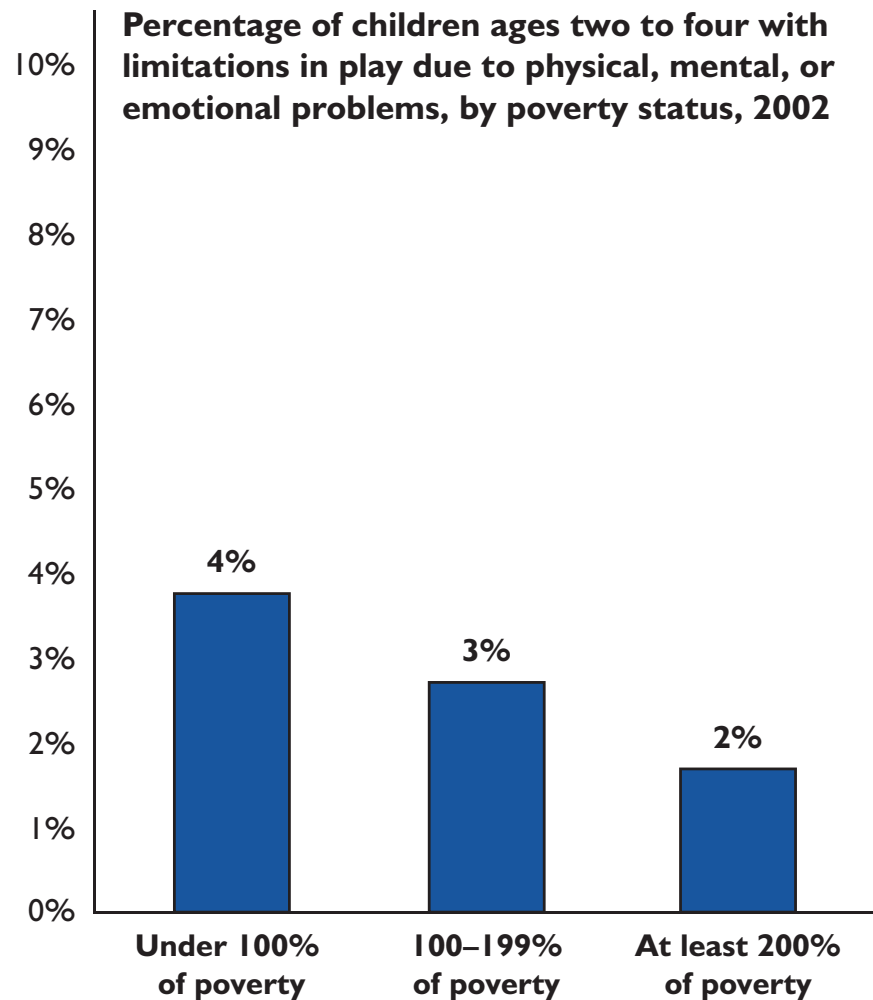
It is also important for parents to realize that many children with chronic health conditions may qualify for special educational services from the federal government. Young children with chronic health conditions may be covered by SECTION 504 of the Rehabilitation Act of 1973, which provides federal funding for the general education of children with disabilities, or by the Individuals with Disabilities Education Act (IDEA), which provides

federal funding for special education for children with disabilities. Additional information about Section 504 can be found at www.ed.gov/about/offices/list/ocr/504faq.html?exp=0#protected. More information about IDEA is available at www.ideapractices.org/law/index.php.

* Estimates for specific race groups reflect the new Office of Management and Budget (OMB) race definitions, and include only those who are identified with a single race. Persons of Hispanic origin may be of any race.

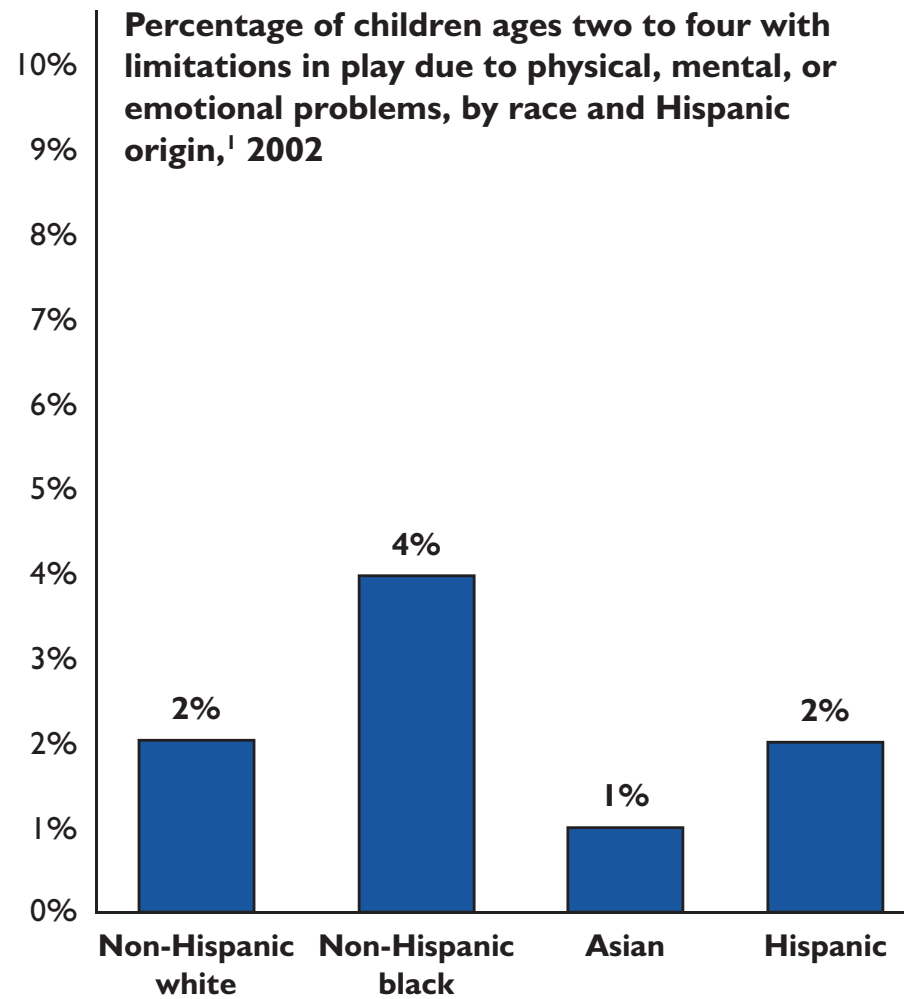
Children with Chronic Health Conditions

CHART 3-5



Source: Original analyses by Child Trends of National Health Interview Survey data.

CHART 3-6



¹ Estimates for specific race groups reflect the new Office of Management and Budget (OMB) race definitions, and include only those who are identified with a single race. Estimates for Asian children do not include those of Hispanic origin. Persons of Hispanic origin may be of any race.
Source: Original analyses by Child Trends of National Health Interview Survey data.



Breastfeeding

Why is this important?

Breastfeeding provides advantages for infants and young children in terms of health, growth, and development, while reducing the likelihood of acute and chronic diseases.¹⁹⁸

Breastfeeding is positively associated with cognitive ability and better school performance in children and adolescents.¹⁹⁹ Children who are breastfed for a longer time are more likely to show higher intelligence scores as adults. Those adults who were breastfed for seven to nine months scored nearly seven IQ points higher than adults who had been breastfed for less than one month.²⁰⁰

Children who are breastfed are less likely to have ear infections, allergies, diarrhea, respiratory problems, meningitis, Sudden Infant Death Syndrome, and chronic digestive diseases.²⁰¹ They also are hospitalized less and have fewer medical office visits.²⁰² In addition, breastfeeding enhances children's long-term immunological responses.²⁰³

What do the data show?

- The percentage of mothers breastfeeding their infants in the hospital has increased significantly in the last decade, from 54 percent in 1992 to 70 percent in 2002. The percentage of mothers still breastfeeding their babies at six months has also increased, from 19 percent in 1992 to 33 percent in 2002.²⁰⁴ (See Chart 3-7)

- In 2002, 27 percent of mothers who were employed full-time reported breastfeeding their six-month olds, compared with 35 percent of mothers who were not employed and 37 percent of mothers who were employed part time. (See Chart 3-8)
- In 2002, black mothers had the lowest recorded rates of breastfeeding in the early postpartum period, with 54 percent reporting breastfeeding their babies in the hospital, compared with 71 percent of Hispanic* mothers, 73 percent of white mothers, and 80 percent of Asian mothers.

Implications for policymakers and practitioners

Practitioners can improve long-term health and developmental outcomes for infants by emphasizing the importance of breastfeeding.²⁰⁵ The American Academy of Pediatrics (AAP) Breastfeeding Promotion in Physician's Office Practices program helps pediatricians and obstetricians to promote breastfeeding in a culturally appropriate manner and to implement the latest scientific information and technology about breastfeeding into their practices. The program also provides support for doctors with particularly difficult questions relating to breastfeeding.²⁰⁶

The American Academy of Pediatrics supports legislation to end discrimination against breastfeeding mothers in the workplace by providing appropriate facilities and adequate time on the job for women to breastfeed or to pump their breast milk for later use.^{207, 208}

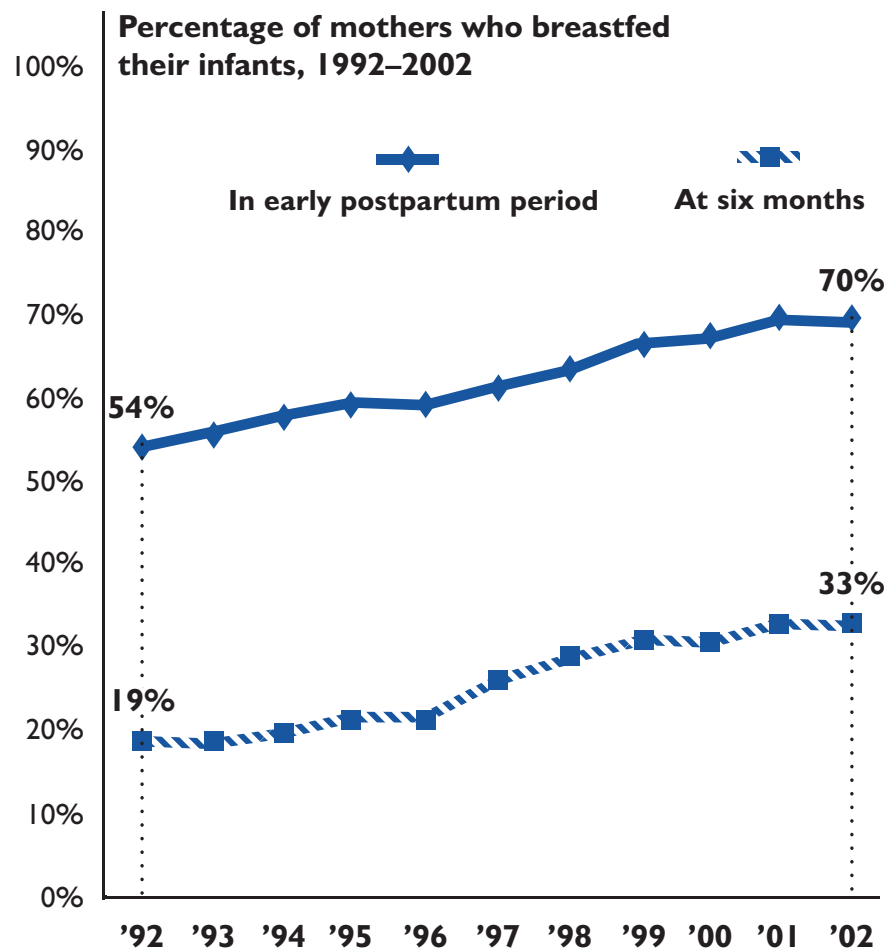
Implications for parents

Breastfeeding creates a context that supports the development of a close bond between mothers and their children by providing physical closeness and warmth, and thus benefiting both infants and mothers.²⁰⁹ The AAP recommends that before a baby's birth, parents learn as much as possible about breastfeeding.²¹⁰ Women who need help or who are having trouble breastfeeding can contact their child's pediatrician, a lactation consultant, or a breastfeeding support group, as well as nurses when they are still in the hospital.²¹¹ Parents can find additional information in the American Academy of Pediatrics' breastfeeding newsletter, *Breastfeeding: Best for Baby and Mother*, available at www.aap.org/advocacy/bf/bfnewsletter.htm.

* Persons of Hispanic origin may be of any race.

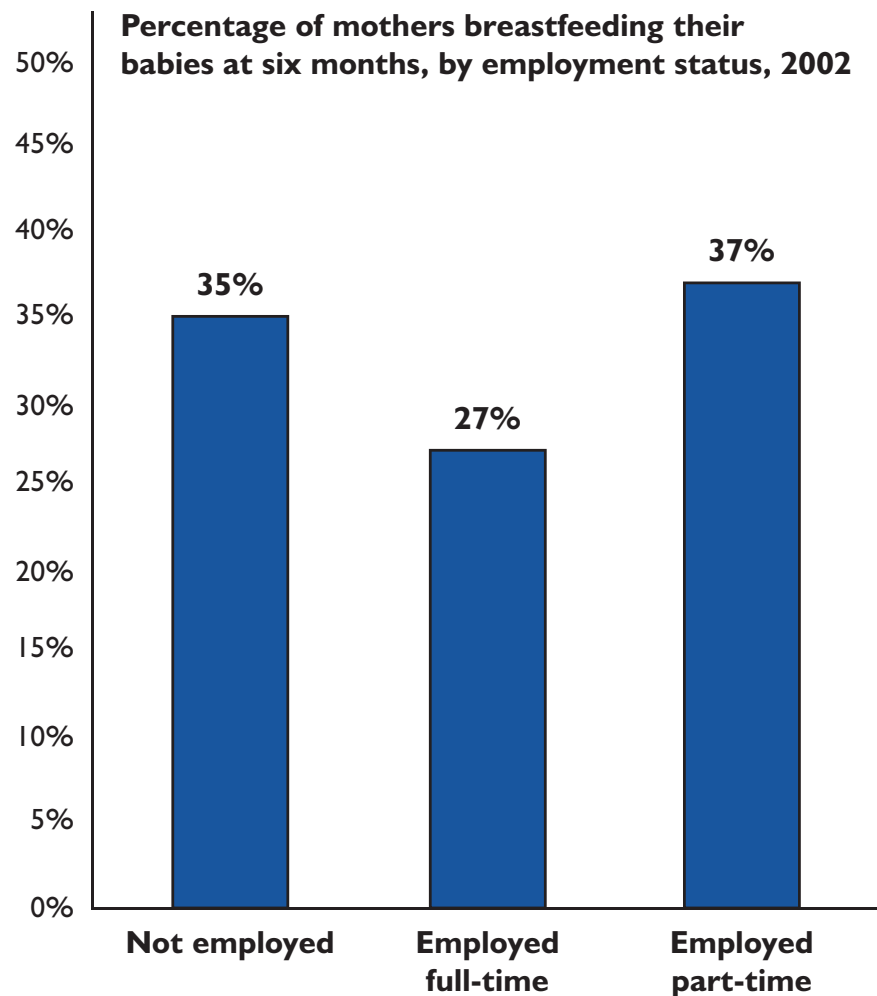
Breastfeeding

CHART 3-7



Source: *Breastfeeding Trends-2002*, (Mothers Survey, Ross' Product Division and Abbott Laboratories, 2003): Appendix 3.

CHART 3-8



Source: *Breastfeeding Trends-2002*, (Mothers Survey, Ross' Product Division and Abbott Laboratories, 2003): Appendix 4.



CHAPTER 4

Family Functioning

- **READING TO YOUNG CHILDREN AND AVAILABLE READING MATERIALS IN THE HOME**
- **PARENTAL WARMTH AND AFFECTION**
- **CHILD MALTREATMENT**
- **AGGRAVATED PARENTING**
- **PARENTAL DOMESTIC VIOLENCE DURING PREGNANCY**
- **REGULAR BEDTIME AND MEALTIME**
- **TV AND VIDEO TIME**

Reading to Young Children and Available Reading Materials in the Home

Why is this important?

Young children who are read to regularly by their parents develop better early literacy skills and are better readers when they reach elementary school.^{212, 213} Children who do not read well within the first few years of school are at greater risk of poor academic performance later on.^{214, 215} Reading to young children also encourages children to enjoy books and to read on their own.²¹⁶

Research demonstrates that discussing the importance of reading to young children is particularly beneficial for low-income parents, who are less likely than others to read to their young children every day.²¹⁷ Living in a strong literacy environment (as indicated by such characteristics as the number of children's books in the home) contributes to children's language and literacy development, which, in turn, are related to later success in school.²¹⁸

What do the data show?

- In 2000, more than half of all children under age three* were read to every day by their parents,²¹⁹ with similar levels for children ages three to five.²²⁰ Twenty-one percent of children under age three were read to only twice a week or less.²²¹
- Children with better-educated parents are much more likely to be read to every day.²²² (See Chart 4-1)
- Hispanic children** in Spanish-speaking households were by far the least likely to be read to regularly in 2000. Among Hispanic children under age three in Spanish-speaking households, only 15 percent were read to every day, and 25 percent were never read to at all.²²³ (See Chart 4-2)

- Children with health care providers who discuss with parents the importance of reading to their young children are more likely to be read to every day: 55 percent versus 47 percent for children under age three in 2000.²²⁴
- In 1998, approximately three quarters (74 percent) of all first-time kindergartners had 26 or more children's books in their homes. Kindergartners in non-English-speaking families and those with mothers lacking a high school degree were substantially less likely than others to have many children's books in their homes (35 percent and 38 percent, respectively).²²⁵

Implications for policymakers and practitioners

The *Bright Futures* initiative from the Maternal and Child Health Bureau of the U.S. Department of Health and Human Services recommends that clinicians encourage parents to begin reading to their children by two months of age.²²⁶

Since 1987, the *Reach Out and Read* initiative has encouraged pediatricians and nurses to help parents promote early literacy in their children through distributing books to parents during office visits and discussing how to read aloud to children. It has been shown to be effective both in increasing the amount of time that parents spend reading to their children and in improving language development among the children the program serves.^{227, 228, 229, 230, 231, 232, 233, 234} To learn more, visit the *Reach Out and Read* Web site at www.reachoutandread.org/index.html.

Implications for parents

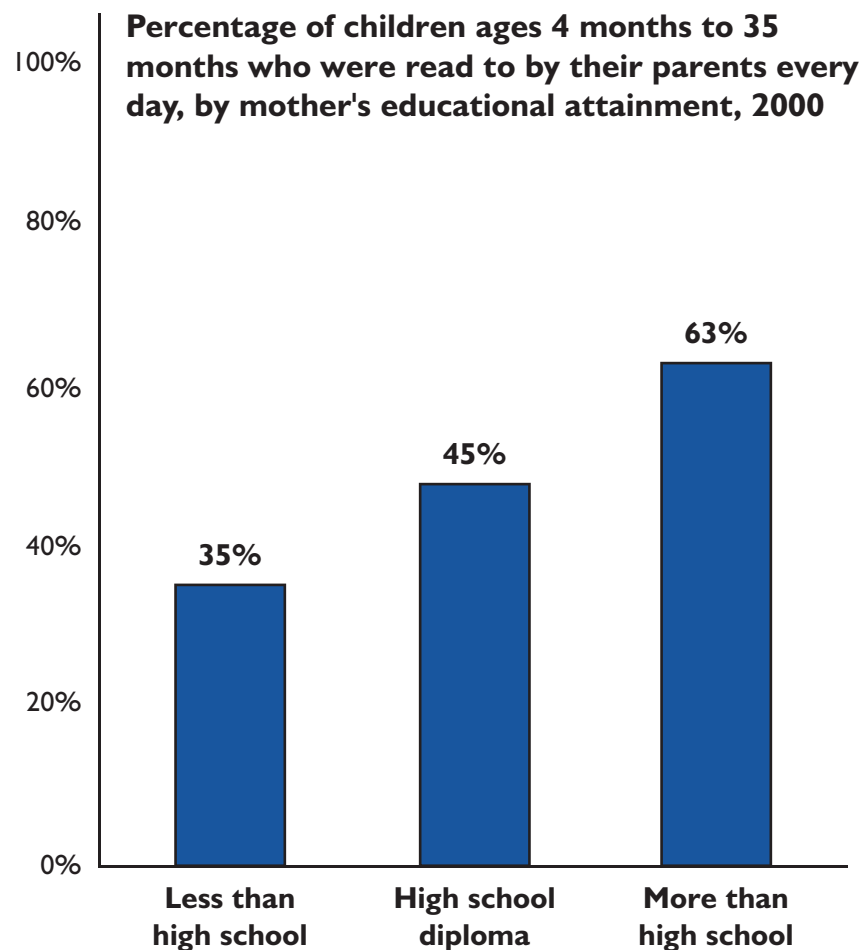
Parents should take time to expose their children to reading every day. Parents with lower literacy levels can seek assistance from programs that help parents learn how to read to and with their children.²³⁵ Parents with limited financial resources can receive assistance in accessing reading materials through book distribution programs such as *Reach Out and Read*.²³⁶ They can also use public libraries and make sure their children have their own library cards.²³⁷

* Very young children (under age three) in these estimates were ages 4 to 35 months. Children ages three to five included only those who had not yet entered kindergarten.

** Persons of Hispanic origin may be of any race.

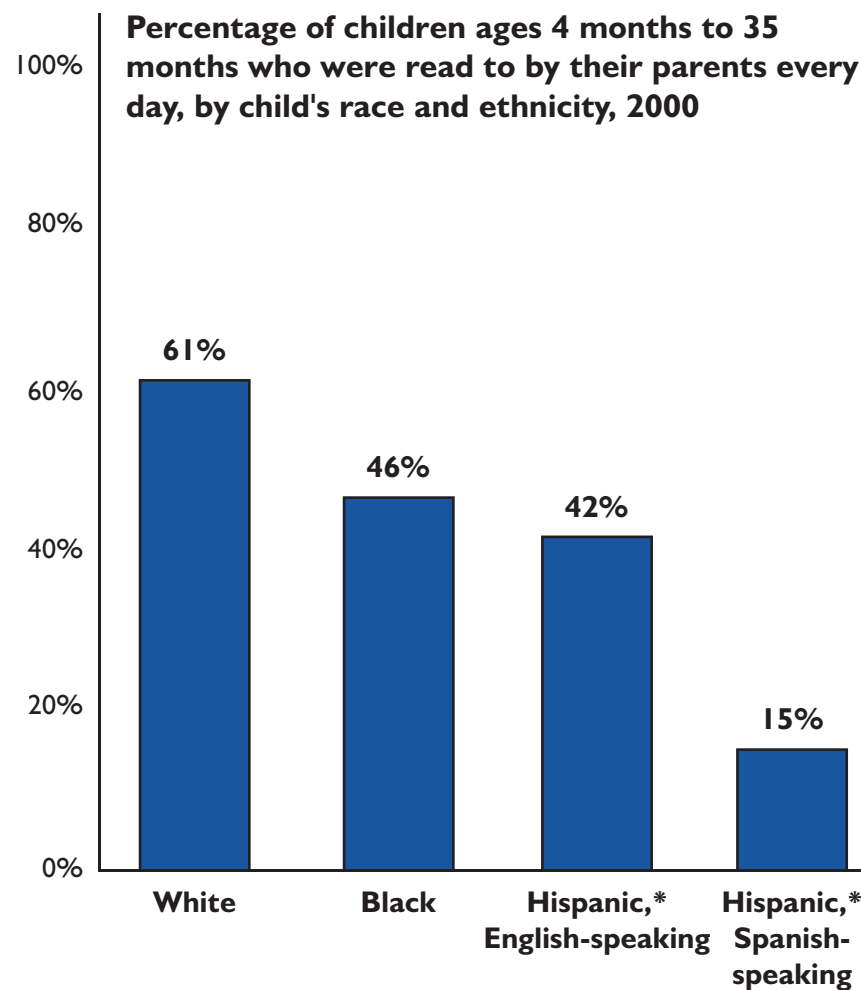
Reading to Young Children and Available Reading Materials in the Home

CHART 4-1



Source: A. Kuo, T. Franke, M. Regalado, and N. Halfon, "Parent Report of Reading to Young Children," in N. Halfon and L. Olson, (eds.), Content and Quality of Health Care for Young Children: Results from the 2000 National Survey of Early Childhood Health. Special Supplement to *Pediatrics*, 113 (6, 2004): 1944-1951: Table 2.

CHART 4-2



* Persons of Hispanic origin may be of any race.

Source: A. Kuo, T. Franke, M. Regalado, and N. Halfon, "Parent Report of Reading to Young Children," in N. Halfon and L. Olson, (eds.), Content and Quality of Health Care for Young Children: Results from the 2000 National Survey of Early Childhood Health. Special Supplement to *Pediatrics*, 113 (6, 2004): 1944-1951: Table 2.



Parental Warmth and Affection

Why is this important?

The quality of early interactions with parents influences development and growth throughout life.²³⁸ A positive relationship exists between parental warmth and children's positive social development, their ability to sympathize and empathize with others, and, if used as a reinforcer for appropriate behavior, their honesty.²³⁹ A lack of parental warmth and affection in early childhood has been linked to behavior problems in later years.²⁴⁰ Failing to express parental affection can lead to low self-esteem, antisocial behaviors, low academic achievement, and impaired physical health among children.²⁴¹ Young children model the behaviors they see. Children of parents who showed warmth and affection report feeling a greater sense of security as adults.²⁴²

What do the data show?

- The vast majority of parents hug or show other forms of physical affection to their young children on a daily basis.²⁴³ Most parents also tell their preschooler that they love them every day. (See Chart 4-3)
- Mothers are more likely than fathers to provide daily warmth and affection to children. For example, in 1997, 91 percent of mothers told their young children ages three to five that they loved them, compared with 69 percent of fathers. (See Chart 4-3)

- Parents are somewhat more likely to show warmth and affection to younger children than they are to older children. In 1997, 90 percent of fathers hugged their newborn to two-year-old children daily, compared with 84 percent of fathers who hugged their three- to five-year-olds and 70 percent of fathers who hugged their six- to nine-year-olds.

Implications for policymakers and practitioners

Bright Futures, a project of the Maternal Child Health Bureau of the Department of Health and Human Services, encourages health professionals to promote healthy parent/child relationships by stressing the importance of parents showing regular affection towards their children, showing interest in their children's activities, and praising their efforts.²⁴⁴ Pediatricians can also identify parents whose parenting approaches might interfere with successful child development, counsel them, and guide them towards parenting classes and other beneficial programs.²⁴⁵

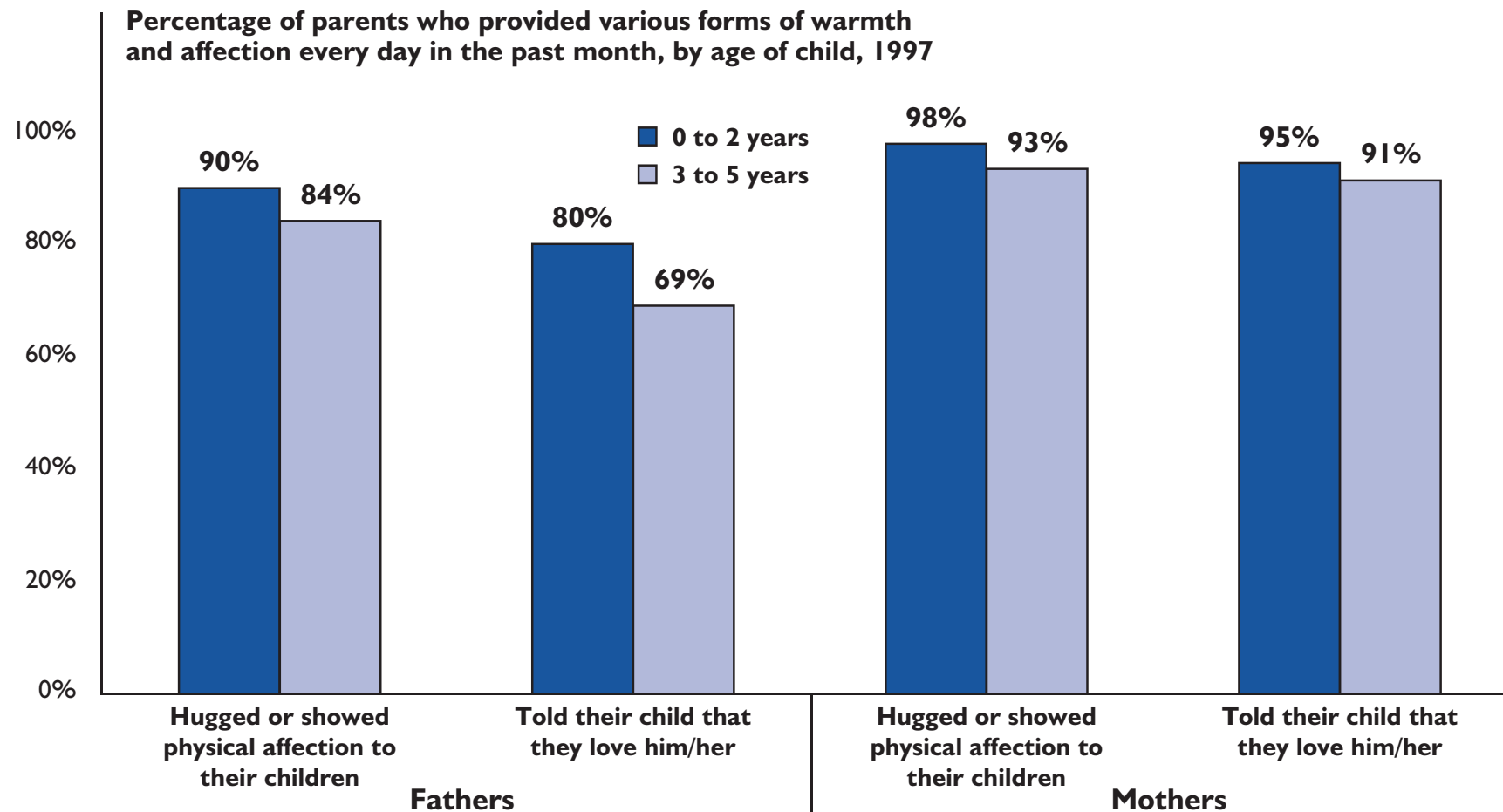
According to the American Academy of Pediatrics, television programs can model positive behaviors by showing parents hugging and holding infants and toddlers.²⁴⁶

Implications for parents

Infants need to be cuddled, talked to, sung to, and smiled at by their caregivers. Children who do not experience these early one-on-one exchanges may develop emotional problems later in life.²⁴⁷ According to the American Academy of Pediatrics, parents should praise their children, use positive words, and show interest in what their children are saying. Positive reinforcements such as praise and warmth when children do things that parents desire work better in discipline than do negative reinforcements such as punishment.²⁴⁸ Parents can hug or hold their children regularly, and say, "I love you," which can be particularly effective when children are in angry, argumentative, or bad moods.²⁴⁹ Because caregivers' warmth is also related to children's socioemotional development,²⁵⁰ it is important that parents choose a child care provider who shows warmth and affection toward the child.

CHART 4-3

Parental Warmth and Affection



Source: Child Trends, *Child Trends DataBank Indicator: Parental Warmth and Affection*. Retrieved December 30, 2003 from URL: <http://www.childtrendsdatabank.org/indicators/52ParentalWarmthAffection.cfm>.

Original data from Child Trends' analyses of the Panel Study of Income Dynamics-Child Development Supplement.



Child Maltreatment

Why is this important?

Maltreatment, defined as abuse or neglect, has both immediate and long-term negative psychological, physical, and behavioral effects on children.²⁵¹ Children who experience abuse or neglect are more likely to have problems with attachment, low self-esteem, increased dependency, and anger.²⁵² Maltreatment of young children may impede brain development in ways that can have long-lasting consequences for children's development.²⁵³ For example, babies who are abused may develop a limited ability to respond to kindness and nurturing.²⁵⁴ Children who were abused at a young age also may have problems handling stress, paying attention, and controlling their impulses. These children may experience problems with their fine motor control, as well, and be prone to hyper-activity, anxiety, and sleep disorders.²⁵⁵

Children who experience neglect at a young age receive lower ratings from their teachers on cognitive, social, and emotional functioning. These children are more likely to have delays in expressive and receptive language and to have lower IQ scores.²⁵⁶ Moreover, children who suffer from maltreatment are at a greater risk of experiencing violence later in life,²⁵⁷ are more likely to be arrested as juveniles,²⁵⁸ and are more likely to continue the cycle of child abuse by maltreating their own children.²⁵⁹

What do the data show?

- Young children are more likely than older children to be abused or neglected. In 2002, children three and under had a maltreatment rate of 16.0 per 1,000 compared with 6.0 per 1,000 for youth ages 16 to 17.²⁶⁰
- Young children are more likely to experience neglect than other types of abuse. In 2000 (the latest year for which these data are available), boys age three and under had a neglect rate of 11.5 per 1,000, compared with rates ranging from 2.2 per 1,000 for physical abuse to 0.2 per 1,000 for sexual abuse. Similarly, girls age three and under had a neglect rate of 11.0 per 1,000, compared with rates ranging from 1.8 per 1,000 for physical abuse to 0.5 per 1,000 for sexual abuse.²⁶¹ (See Chart 4-4)
- Among children who died of abuse and neglect in 2002, children under age one accounted for 41.2 percent of these cases, and children under age four accounted for 76.1 percent.²⁶²

Implications for policymakers and practitioners

Policymakers can continue to raise awareness about child abuse and neglect by expanding the dissemination of information about how and where to report child maltreatment, the extent of child maltreatment, and the problems associated with it.²⁶³ Policymakers also can focus on identifying factors that can reduce risks, build family capacity and foster resilience, and offer family strengthening and support programs.²⁶⁴

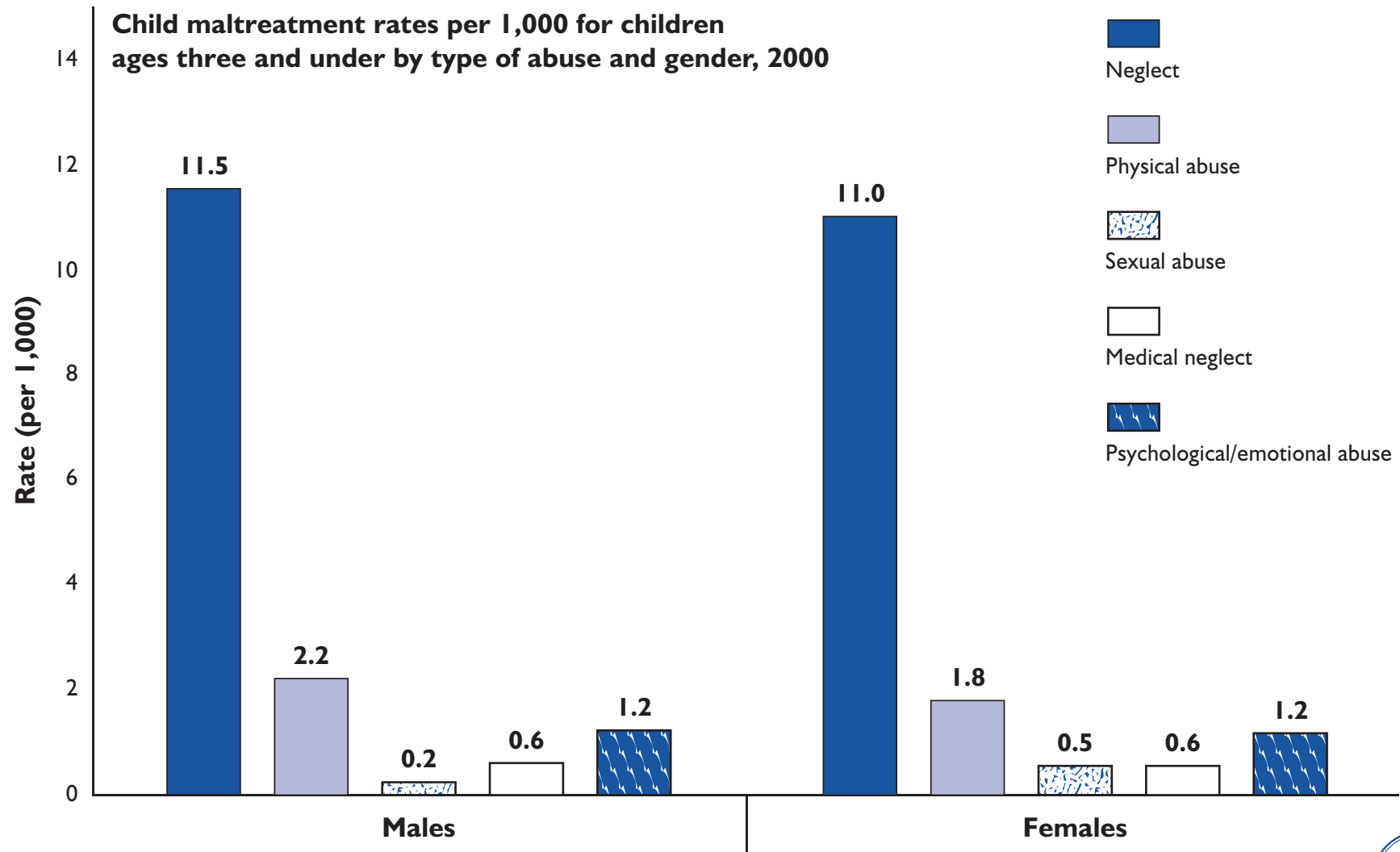
Practitioners need to screen all parents and children for abuse and neglect repeatedly.²⁶⁵ According to the American Academy of Pediatrics, it is important that physicians be aware of risk factors in children and families that may predispose them towards maltreatment, that they intervene and report suspected maltreatment to proper authorities, and that they provide services that may prevent or reduce the effects of maltreatment.^{266, 267} Practitioners can also offer parental education classes on developmentally appropriate expectations for young children and the role and responsibilities of parenting.²⁶⁸

Implications for parents

Children whose parents have problems with substance abuse are much more likely to be victims of child maltreatment. Domestic violence, chronic poverty, unemployment, homelessness, and parental mental health disorders also increase the risk of maltreatment.^{269, 270} Home visitation programs that provide home-based support services have been shown to reduce child maltreatment rates.²⁷¹ In addition, all parents can provide support for school-based programs that seek to raise awareness about sexual abuse. Such programs have been shown to increase children's protective strategies and behaviors when threatened or victimized.²⁷²

CHART 4-4

Child Maltreatment



Source: U.S. Department of Health and Human Services Administration on Children, Youth and Families, *Child Maltreatment 2000*, (Washington, DC: US Government Printing Office, 2002): Table 3.10



Aggravated Parenting

Why is this important?

Children who are exposed to high levels of aggravated parenting are more likely to experience poor cognitive, social, and emotional development.²⁷³ Some research indicates that they are also more likely to demonstrate externalizing behavior problems such as fighting, arguing, or hitting.²⁷⁴ Children of parents with high levels of aggravation are more likely to have low scores on measures of cognitive school readiness, verbal ability, and socioemotional maturity.²⁷⁵ Older children of parents with high levels of aggravation are more likely than others to have severe emotional and behavioral problems.²⁷⁶ Examples of aggravated parenting would include parents feeling that their children are harder to care for than most or feeling angry with their children a great deal of the time. Research on children in Head Start programs finds that increased parental aggravation is linked with children's distractibility and hostility in the classroom and lower associative vocabulary.^{277, 278}

It is possible that in some families, the higher levels of aggravated parenting result from difficult behavior in the child to start with, rather than parents' attitudes causing the difficult behavior. But there is research showing that aggravated parenting earlier in children's development predicts problematic outcomes in some children later on.²⁷⁹

What do the data show?*

- In 2002, 9 percent of children under age six had parents with a high level of parental aggravation, representing a small increase from 7 percent in 1997.²⁸⁰
- In 2002, 14 percent of children living with single parents had parents with high levels of aggravation, compared with 8 percent of children with living with two parents. (See Chart 4-5)
- Children living below the poverty line are more likely than other children to have parents who report high levels of aggravation. In 2002, 12 percent of children living below the poverty line had parents with high levels of aggravation, compared with 8 percent of parents living above the poverty line.
- In 2002, 16 percent of non-Hispanic black children had parents who reported high levels of aggravated parenting, compared with 6 percent of Native American children's,^{**} 7 percent of non-Hispanic white children's, and 9 percent of Hispanic children's parents.[†]

Implications for policymakers and practitioners

It is important for practitioners to recognize parents with high levels of aggravated parenting and refer them to the proper counseling services.²⁸¹ It is also important that health insurance cover family counseling so that parents of all income levels can receive necessary mental health services.²⁸² Because paternal alcoholism is associated with higher paternal aggravation with infants,²⁸³ programs targeting alcohol abuse may also be helpful in reducing aggravation levels.

Implications for parents

Parents sometimes may need to take space and time away from their kids. There are many ways to help cope with the many stresses of parenting, including regular exercise, meditation, and socializing.²⁸⁴

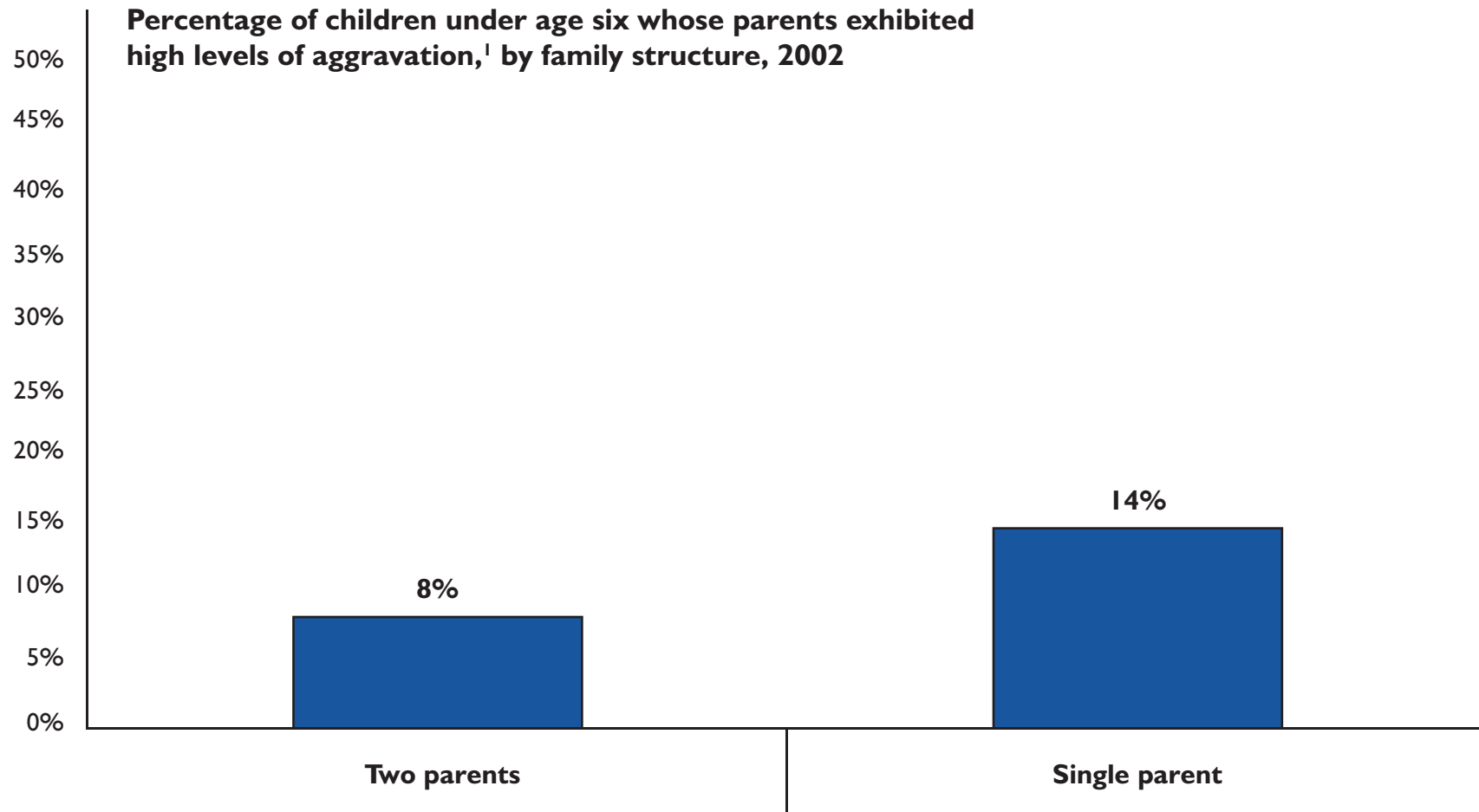
* Parental aggravation is based on the questions: How much of the time during the past month have you: Felt your child/children are much harder to care for than most? Felt your child/children do things that really bother you a lot? Felt you are giving up more of your life to meet your child/children's needs than you ever expected? Felt angry with your child/children?

** Estimates include American Indian, Native American, Aleutian, or Eskimo children of non-Hispanic origin.

† Persons of Hispanic origin may be of any race.

CHART 4-5

Aggravated Parenting



¹ Parental aggravation is based on the questions: How much of the time during the past month have you: Felt your child/children are much harder to care for than most? Felt your child/children do things that really bother you a lot? Felt you are giving up more of your life to meet your child/children's needs than you ever expected? Felt angry with your child/children?

Source: Child Trends original analyses of the National Survey of America's Families.



Parental Domestic Violence During Pregnancy

Why is this important?

Women who are abused during pregnancy are more likely to have children of low birthweight and less likely to have access to prenatal care.²⁸⁵ Physical abuse during pregnancy can lead to loss of the baby, early onset of labor resulting in a premature birth, fetal bone fractures, rupture of the mother's uterus, or antepartum (pre-childbirth) hemorrhaging.²⁸⁶

Women are slightly more likely to be abused after pregnancy than they are during the prenatal period.²⁸⁷ Young children from violent homes are more likely than other children to demonstrate aggressive, delinquent, withdrawn, and anxious behaviors.²⁸⁸ Such children more often exhibit unhealthy behaviors, such as bedwetting, sleep disturbances, separation anxiety, and failure to thrive.²⁸⁹ They are also more likely to have phobias, depression, and low self-esteem.²⁹⁰

Fathers who abuse their spouses often participate less in childrearing and are less affectionate with their children.²⁹¹ Parents who are victims of domestic violence may neglect their children or overdiscipline them in an effort to avoid angering an abusive spouse.²⁹² Mothers who are abused are also often less emotionally available to their children.²⁹³ Witnessing violence as a child is also a risk factor for abusive relationships as an adult.²⁹⁴

What do the data show?

- In 1999, between 2 and 6 percent of women in 17 states reported being physically abused *during* their most recent pregnancy, with the highest rates of abuse in New Mexico, and the lowest rates in Maine and Utah. (See Chart 4-6) Physical abuse includes being pushed, hit, slapped, kicked, choked, or physically hurt in any other way.²⁹⁵
- In 1999, between 20 percent (in Utah) and 45 percent (in Alaska) of women who had had recent live births reported that they discussed domestic violence with their physicians during prenatal care. Between 1997 and 1999, 10 of the 12 states reporting information showed significant increases in percentages of women who discussed violence with their physicians.
- Women receiving Medicaid, also a marker for low income and other associated disadvantages, were significantly more likely than other women to report being abused during pregnancy.* For example, in 1999, 11 percent of women receiving Medicaid in New York (excluding New York City) reported abuse during their most recent pregnancy, compared with 2 percent not receiving Medicaid. Maine reported the smallest significant difference, with 4 percent of women receiving Medicaid reporting abuse, compared with 1 percent of other women.

Implications for policymakers and practitioners

Physicians involved in prenatal care have an especially important opportunity to screen for domestic violence.²⁹⁶ It is important that doctors consider how previous or current abuse may be affecting their patients.²⁹⁷ The American College of Obstetricians and Gynecologists recommends routine screening for domestic violence for all women and has developed guidelines for practitioners.²⁹⁸

Some of the more innovative shelters for victims of domestic violence offer programs specifically focused on children exposed to domestic violence, helping them access the services they need, and providing training to program staff on child development and the effects of exposure to domestic violence.²⁹⁹

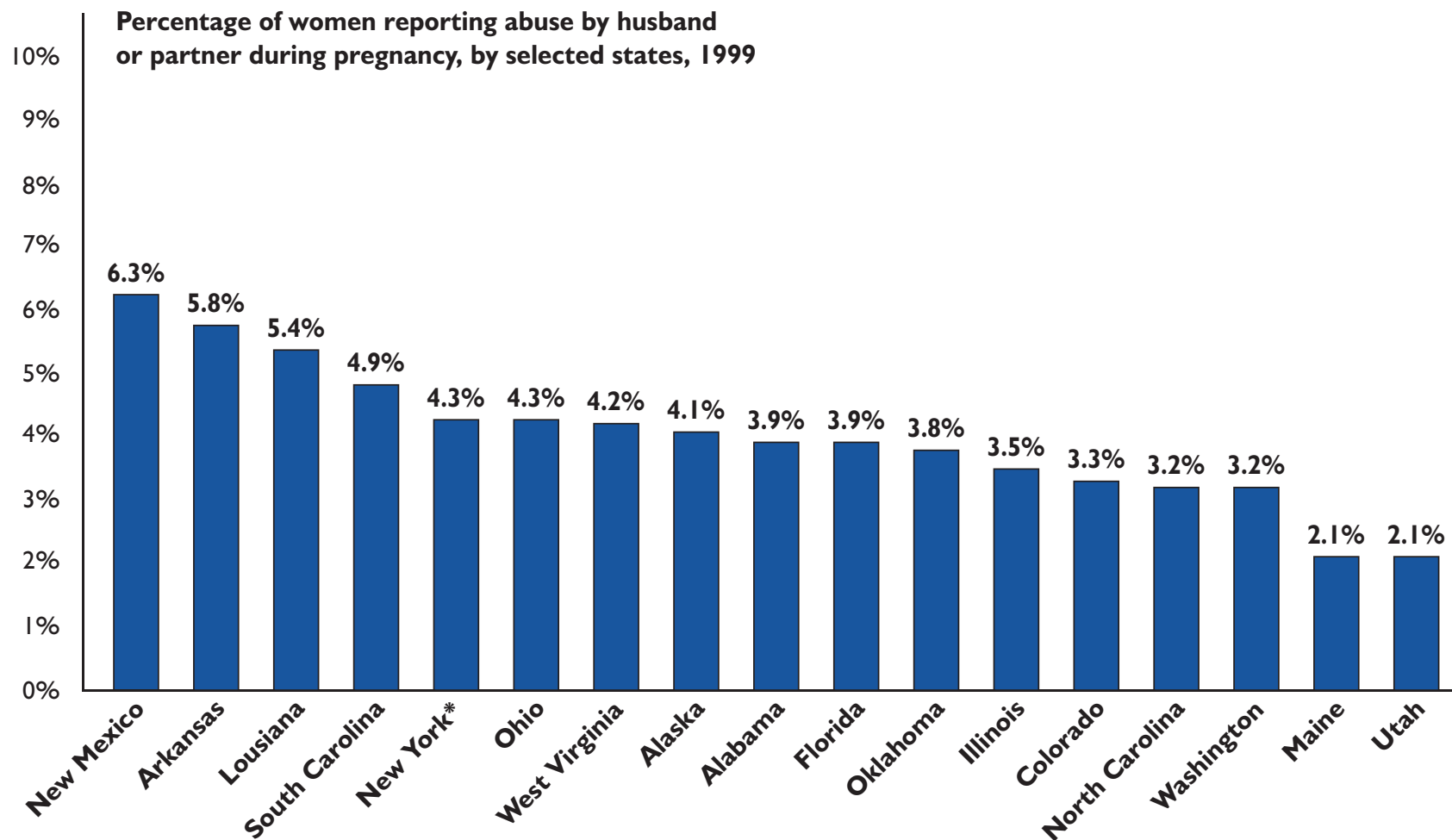
Implications for parents

Mothers who may be reluctant to seek help for domestic violence on their own behalf may be more open to seeking help if they are concerned about the well-being of the child they are carrying. To find out information about available programs for victims of domestic violence, see www.silcom.com/~paladin/madv/dvagencies.html.

* Differences are significant in 16 of the 17 states reporting information. Data for Oklahoma did not vary significantly by Medicaid receipt.

CHART 4-6

Parental Domestic Violence During Pregnancy



* Data for New York exclude New York City.

Source: L.F. Beck, C.H. Johnson, B. Morrow, L.E. Lipscomb, M.E. Gaffield, B. Colley Gilbert, M. Rogers, and N. Whitehead, *PRAMS 1999 Surveillance Report*, (Atlanta, GA: Division of Reproductive Health, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention, 2003).



Regular Bedtime and Mealtime

Why is this important?

Regular routines are beneficial to the healthy behavioral and social development of children.³⁰⁰ Routines help children feel more secure and develop self-control, independence, and decision-making skills. Routines foster social and problem-solving skills, as well as greater self-confidence.^{301, 302} Bedtime and mealtime routines may also influence school readiness.³⁰³ Routines help children learn sequences of activities and anticipate what will happen next.³⁰⁴ Children on a mealtime schedule become hungry at regular times,³⁰⁵ and regular bedtimes help ensure that children receive proper rest.³⁰⁶ Research shows that regular bedtimes also reduce sleep problems,³⁰⁷ and children without sleep problems have been shown to perform better in early elementary school when compared with children with sleep problems.³⁰⁸ Lack of a regular bedtime also is associated with increased mental health risks.³⁰⁹

What do the data show?

- In 2000, 58 percent of children between the ages of four months and 35 months had both a regular mealtime and a regular bedtime. Seventy-five percent had the same mealtime every day, and 73 percent had the same bedtime every day.³¹⁰
- Non-Hispanic white young children are more likely than non-Hispanic black and Hispanic children* to have a regular bedtime and mealtime. In 2000, 63 percent of non-Hispanic white children between the ages of four months and 35 months had both the same mealtime and bedtime every day, compared with 47 percent of non-Hispanic black children and 53 percent of Hispanic children of the same age.
- Children of mothers with less education are less likely than other children to have a regular bedtime and mealtime. In 2000, 42 percent of children between the ages of four months and 35 months whose mothers had less than a high school education had both a regular mealtime and bedtime, compared with 65 percent of children whose mothers had more than a high school education. (See Chart 4-7)
- Children whose parents discuss bedtime routines with their child's doctor are more likely than other children to have a regular bedtime. In 2000, 72 percent of children whose parents had discussed bedtime routines with their child's doctor had the same bedtime every day, compared with 63 percent of those children whose parents did not discuss bedtime routines with their doctors. (See Chart 4-8)

Implications for policymakers and practitioners

Policymakers can help reduce the risk of children's sleep problems by supporting efforts to educate parents about children's sleeping patterns.³¹¹ Practitioners can advise parents on the importance of regular bedtimes and mealtimes, and counsel them if they are having difficulties establishing routines. Practitioners also can respond to parental interest in learning more about regular sleep routines,³¹² and can stress the importance of family mealtimes.³¹³

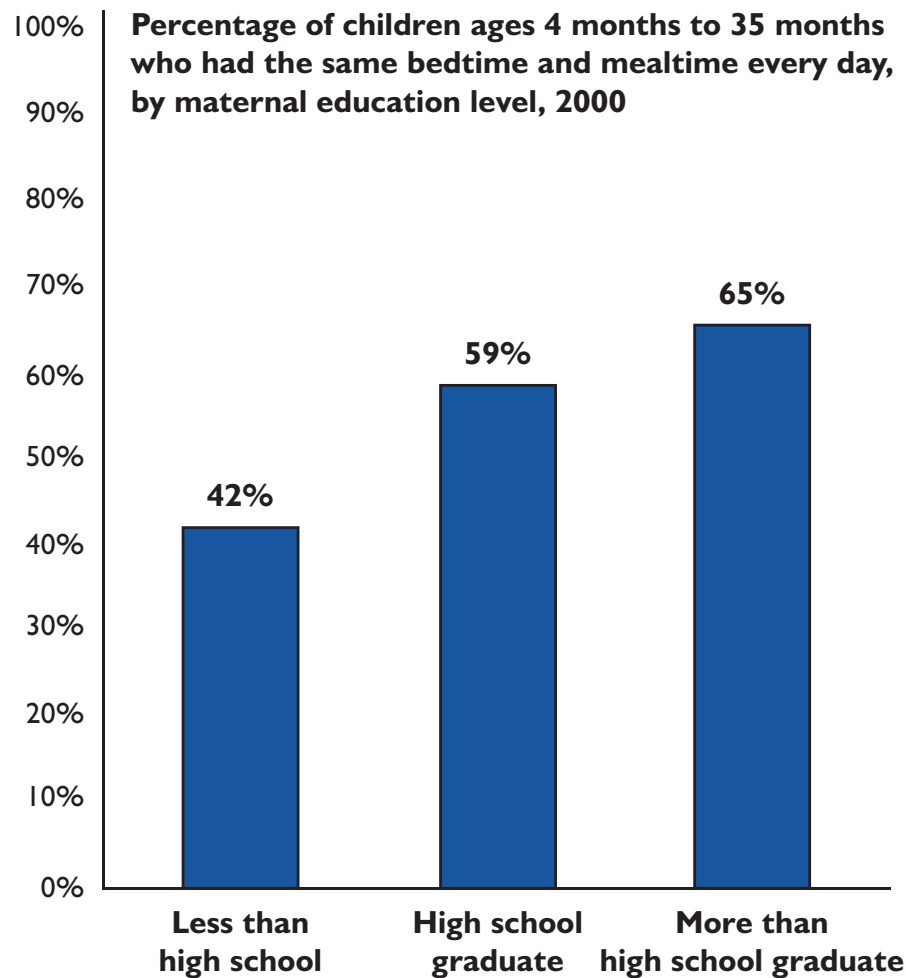
Implications for parents

According to the American Academy of Pediatrics, it is important that parents enforce bedtimes and establish regular mealtimes.³¹⁴ Regular mealtimes with children provide an opportunity for parents and children to interact, and for parents to model healthy eating habits.³¹⁵ Parents also can consistently provide their child with the same stuffed animal or blanket or read a story at bedtime to ease transitions and insecurities.³¹⁶

* Persons of Hispanic origin may be of any race.

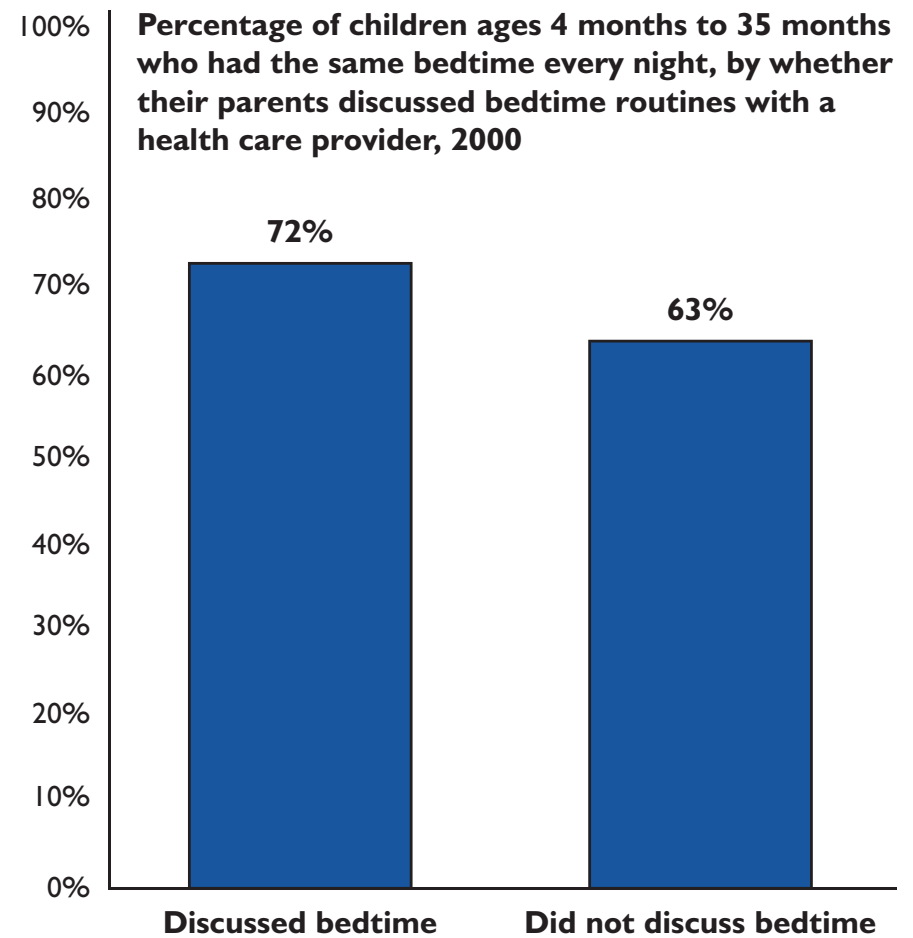
Regular Bedtime and Mealtime

CHART 4-7



Source: Child Trends' original analyses of National Survey of Early Childhood Health data.

CHART 4-8



Source: Child Trends' original analyses of National Survey of Early Childhood Health data.



TV and Video Time

Why is this important?

Preschool children are exposed to extensive amounts of TV and videos.³¹⁷ While some of what they watch has positive and educational content, much does not.³¹⁸ Because young children experience rapid social and intellectual development,³¹⁹ TV and video watching at a young age can have a significant impact on their development. In particular, children who live in households where the TV is on most of the time are less likely to spend time reading and are less likely to know how to read than are other children.³²⁰ Among young children, early exposure to television (at ages one and three) has been associated with decreased attention spans at age seven.³²¹ TV also influences values and behavior.³²² Research finds that some children who are exposed to violence on TV are more likely to exhibit aggressive behavior and attitudes.³²³ TV watching is also associated with decreased physical activity levels and obesity.³²⁴

What do the data show?

- Seventy-three percent of children age six and younger watch TV on a typical day, and two thirds of them live in a home where TV is on at least half of the day. Nearly half of all children six and under watch videos or DVDs on a typical day.³²⁵ (See Chart 4-9)
- Thirty percent of children ages zero to three and 43 percent of children between the ages of four and six have a TV in their bedroom. (See Chart 4-10) Twenty-seven percent of all children six and under have a VCR or DVD player in their bedroom.
- Young children who watch a lot of TV spend less time playing outdoors. Among children ages four to six, heavy TV watchers (defined as those watching two or more hours a day) spend an average of 1 hour 52 minutes outdoors a day, compared with 2 hours 24 minutes for those who are not heavy TV watchers.

Implications for policymakers and practitioners

The American Academy of Pediatrics has recently released a set of recommendations for practitioners about television and media. These include: using the Academy's Media History form to measure children's media consumption; educating parents on the effects that too much television viewing can have on children's health and development; and working to ensure appropriate entertainment options for hospitalized children.³²⁶ Research indicates that certain programs are better for children than others. Pediatricians can inform parents that programs such as *Sesame Street* and *Mister Rogers* may contribute to children's school readiness and positive social behavior, while cartoons and adult programs do not.^{327, 328}

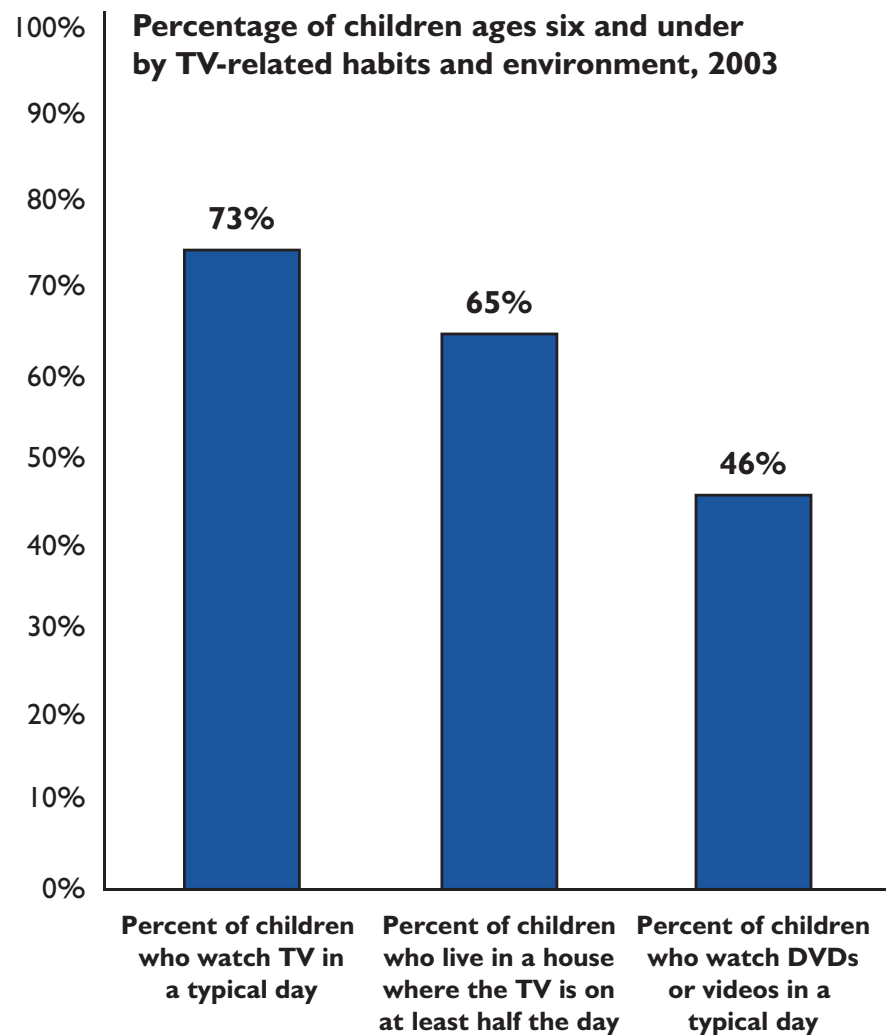
Policymakers can provide ongoing funding for research on the effects of television on young children and can encourage collaboration among public health advocates, pediatricians, and TV producers and writers on ways to make media more effective for children.^{329, 330}

Implications for parents

The American Academy of Pediatrics recommends that children under two not watch television at all, and that older children be limited to one or two hours of educational on-screen media a day. The American Academy of Child and Adolescent Psychiatry recommends that parents only permit programs that are developmentally appropriate for their children, and not allow children to watch TV for long periods of time.³³¹ By viewing and discussing programs and the behavior of characters with their children, parents can also mitigate some of the negative effects of television on children's behavior.³³²

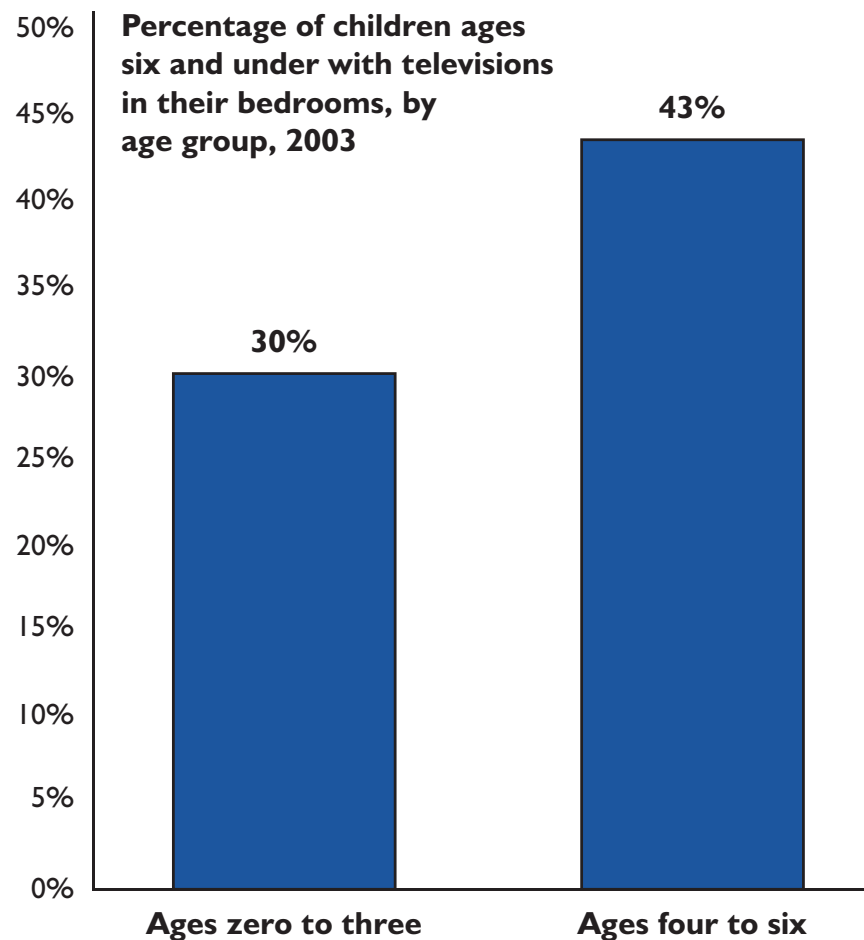
TV and Video Time

CHART 4-9



Source: V. J. Rideout, E. A. Vandewater, and E. A. Wartella, *Zero to Six: Electronic Media in the Lives of Infants, Toddlers and Preschoolers*, (Kaiser Family Foundation, 2003).

CHART 4-10



Source: V. J. Rideout, E. A. Vandewater, and E. A. Wartella, *Zero to Six: Electronic Media in the Lives of Infants, Toddlers and Preschooler*, (Kaiser Family Foundation, 2003).



Early Child Development in Social Context
Child Trends and Center for Child Health Research, 2004

CHAPTER 5

Parental Health

- **PARENTAL DEPRESSION**
- **PARENTAL SMOKING AND DRINKING**

Parental Depression

Why is this important?

Young children with depressed mothers are more likely than other children to demonstrate socioemotional and behavior problems, difficulties in school, trouble with self-control, poor peer relationships, and aggression.³³³ Parental depression is also associated with lower IQ scores, increased impulsivity, and developmental delays among children.³³⁴ Children of depressed parents are at greater risk for childhood depression or depression later in life.³³⁵ Such children may also feel they are the cause of their parent's depression.^{336, 337} Children of depressed parents have more medical office and emergency room visits, and are at greater risk of having sleep problems.³³⁸ Infants and toddlers of depressed parents are more likely to be fussy and to be less attentive and less active.³³⁹

Research shows that depressed mothers are less likely than other parents to read to their children.³⁴⁰ Depressed mothers are also less likely to use appropriate practices to prevent injury and harm to their children (such as car seat use and covering electrical plugs).³⁴¹

What do the data show?

- In 1998, 16 percent of kindergartners' parents were considered at risk for depression.³⁴²
- Kindergartners living in families below the poverty threshold are much more likely than other kindergartners to have depressed parents. In 1998, 27 percent of kindergartners living in households below the poverty threshold had parents who were considered at risk for depression, compared with 13 percent of other kindergartners. (See Chart 5-1)
- Non-Hispanic black kindergartners are more likely than other kindergartners to have parents at risk for depression. In 1998, 24 percent of non-Hispanic black kindergartners had parents who were considered at risk for depression, compared with 16 percent of Hispanic* kindergartners and 13 percent of non-Hispanic white kindergartners.
- Kindergartners whose parents are depressed are more likely than other kindergartners to exhibit socioemotional problems. For example, in 1998, 50 percent of first-time kindergartners whose parents were not at risk for depression exhibited self-control often or very often, compared with only 35 percent of first-time kindergartners whose parents were at risk for depression.** (See Chart 5-2)

Implications for policymakers and practitioners

Parental depression often goes unnoticed or untreated. It is important that pediatricians learn to identify mothers who are depressed, listen to their concerns, provide them with information and, if necessary, help them seek additional assistance. Pediatricians can ask parents about feelings of sadness, stress, inability to sleep, and other typical symptoms of depression. Pediatricians should also help children understand that they are not to blame for their parents' depression.³⁴³

Implications for parents

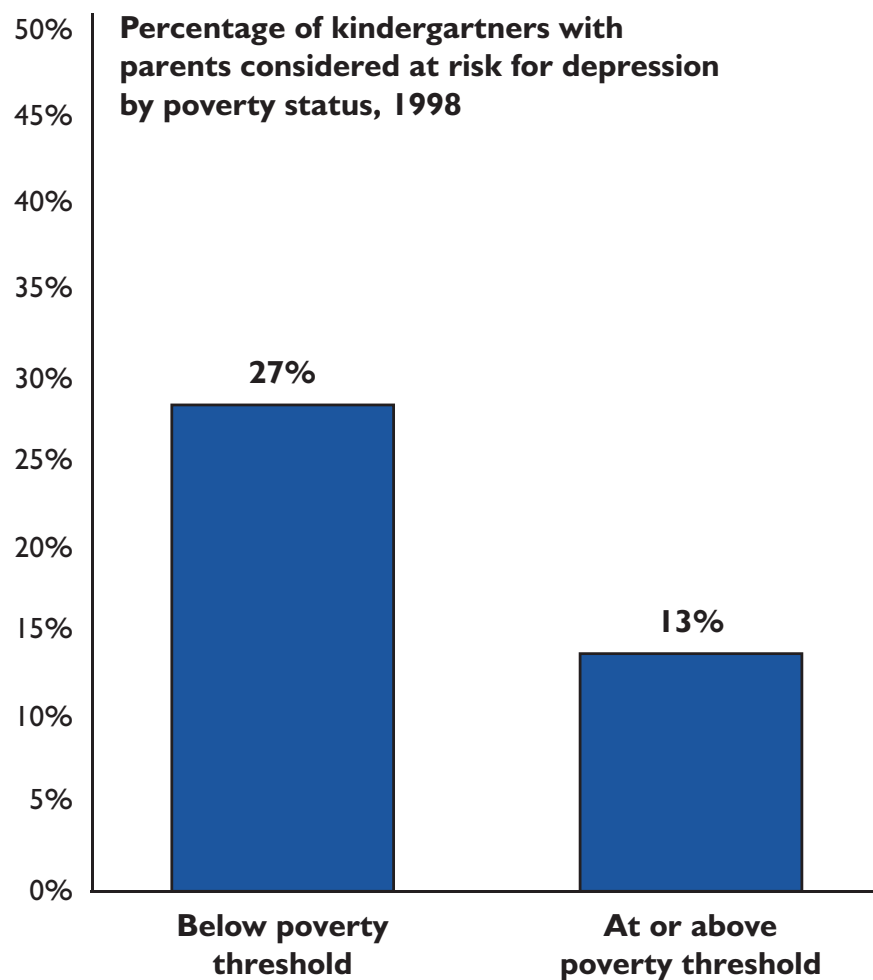
Depression is common among parents with young children³⁴⁴ and can be treated.³⁴⁵ The National Mental Health Association recommends that mothers seek help for their depression and follow through to recovery, engage in age-appropriate discussions about maternal depression with their children, take time to play with their children, and stay connected as a family. Depressed mothers also can allow friends and family to help them with such tasks as child care and housework in order to free up more time to seek treatment and to interact with their children in positive ways.³⁴⁶

* Persons of Hispanic origin may be of any race.

** Estimates of kindergartners' self-control are based on parent reports from the ECLS-K. Parents reported how often their children fought with others, argued with others, had temper tantrums, got angry easily, and controlled their temper when arguing with other children.

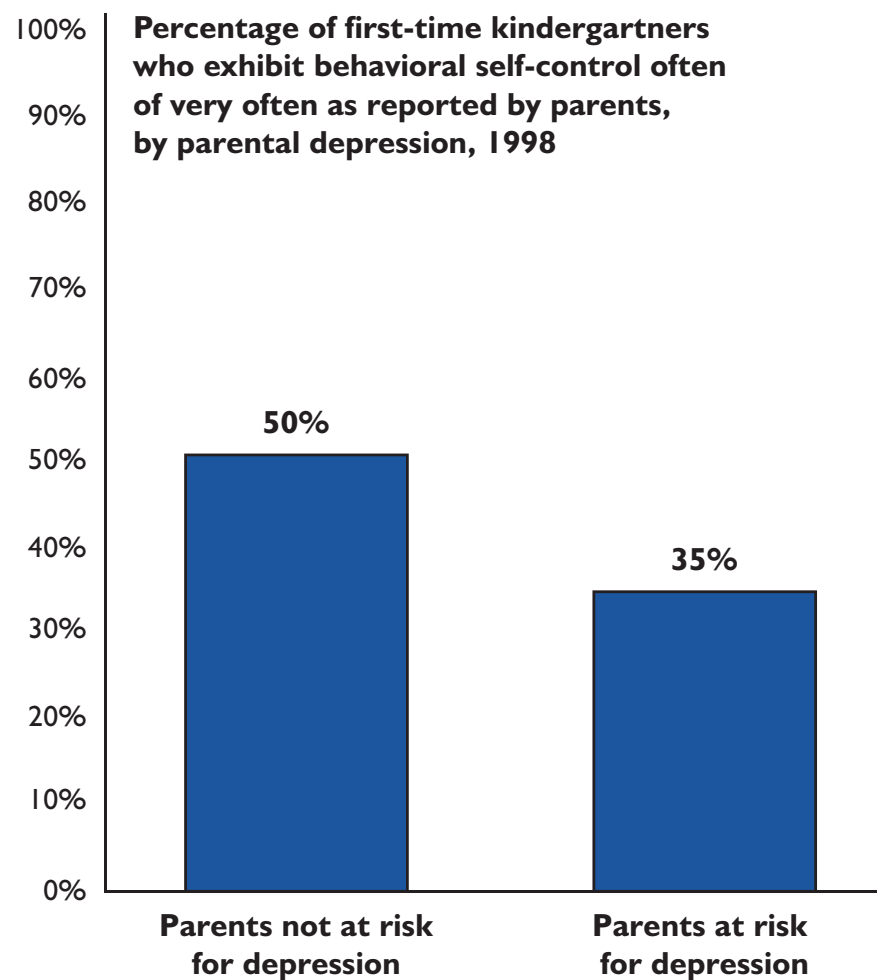
Parental Depression

CHART 5-1



Source: Child Trends' original analyses of the Early Childhood Longitudinal Study (ECLS-K) Kindergarten Cohort.

CHART 5-2



Source: Child Trends' original analyses of the Early Childhood Longitudinal Study (ECLS-K) Kindergarten Cohort, Parent Report.



Parental Smoking and Drinking

Why is this important?

Exposure to parental smoking is associated with many adverse effects on children, including lower IQ, early school failure, behavior problems, and increased rates of Attention Deficit Hyperactivity Disorder (ADHD).³⁴⁷ Prenatal maternal smoking and exposure to environmental tobacco smoke in the home have been linked to Sudden Infant Death Syndrome and to negative effects on behavior and neurocognitive functioning.³⁴⁸ Home exposure to environmental tobacco smoke has also been shown to make children more susceptible to middle ear disease, asthma, coughing, bronchitis, pneumonia, impaired pulmonary function, and tonsillitis.³⁴⁹ In developed countries, prenatal smoking is the most common preventable cause of low birthweight,³⁵⁰ which is a potent risk factor for cognitive deficits and academic difficulties.^{351, 352}

Prenatal alcohol exposure ranks among the leading known non-genetic cause of mental retardation and neurodevelopmental disorders,³⁵³ and may also lead to long-term cognitive, behavioral, and psychosocial difficulties.^{354, 355} Children of alcoholic parents are at increased risk of both physical and mental health problems.³⁵⁶

What do the data show?

- From 1990 to 2002, the percent of newborns whose mothers smoked during pregnancy dropped from 18 percent to 11 percent.^{357, 358} (See Chart 5-3)
- Among children under age six in 2002, 22 percent of parents were current smokers and 9 percent of parents engaged in binge drinking at least once per month.³⁵⁹
- Parents who have graduated from college are far less likely than other parents to smoke and binge drink.³⁶⁰ (See Chart 5-4)
- The percentage of homes with children under age seven in which someone smokes on a regular basis decreased from 29 percent in 1994 to 19 percent in 1999.³⁶¹
- At least 9.1 per 1,000 newborns are estimated to have fetal alcohol syndrome (FAS) or alcohol-related neurodevelopmental disorders.³⁶²
- In 2002, 9 percent of pregnant women ages 15 to 44 used alcohol and 3 percent reported binge drinking in the previous month. Less than one percent of pregnant women reported heavy alcohol use (five or more drinks in one occasion during five or more of the past 30 days).³⁶³

Implications for policymakers and practitioners

The American Academy of Pediatrics (AAP), American Academy of Family Physicians, and the U.S. Preventive Services Task Force recommend that clinicians screen for parental smoking, advise about the harmful effects of smoking, encourage quitting, and provide cessation assistance or an appropriate referral to parents wanting to quit.^{364, 365, 366, 367} The AAP urges pediatricians to provide services aimed at relapse prevention for women who stop smoking during pregnancy, since up to 67 percent who do so relapse in the child's first year.^{368, 369}

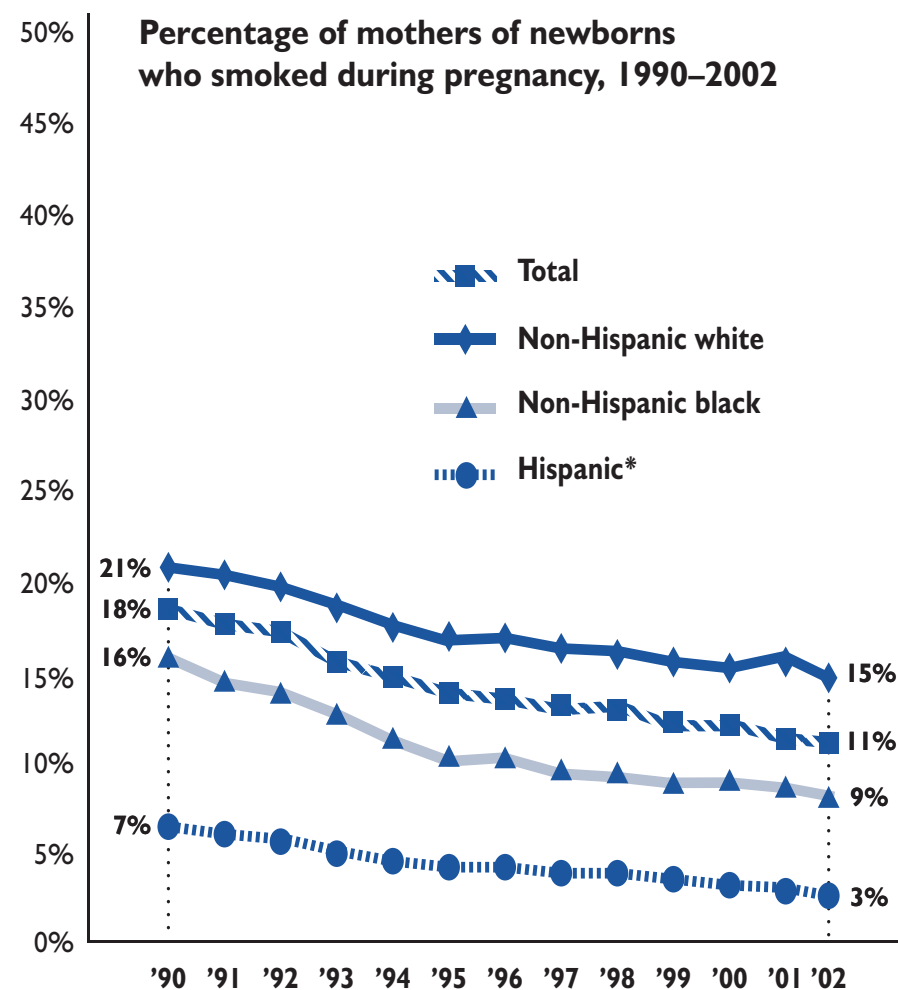
To decrease smoking rates, the Surgeon General and others encourage increasing the price of tobacco products and taxes on these products. They also encourage mass media anti-smoking campaigns and anti-smoking local community educational programs for parents and community and business leaders, as well as initiatives that aim to restrict access to tobacco products.^{370, 371, 372}

Implications for parents

Drinking alcohol and smoking while pregnant both pose developmental dangers for newborns. It is prudent for women who are pregnant or planning a pregnancy to abstain from both drinking alcohol and smoking.^{373, 374} There is no known safe level of alcohol consumption during pregnancy.³⁷⁵ Exposure to secondhand smoke also has adverse effects on children. No one should smoke around children. Quitting smoking is best for adults and for children.

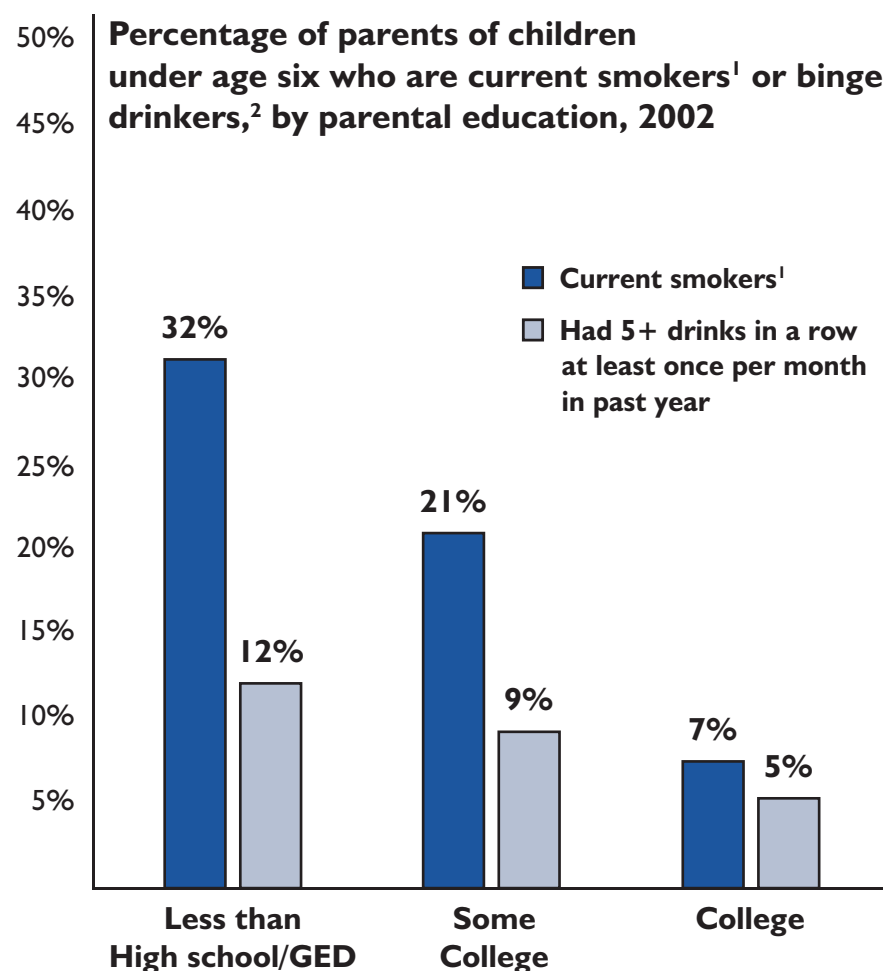
Parental Smoking and Drinking

CHART 5-3



* Persons of Hispanic origin may be of any race.
 Sources: Data for 2002: J.A. Martin, B.E. Hamilton, P.D. Sutton, S.J. Ventura, F. Menacker, and M.L. Munson, "Births: Final Data for 2002," *National Vital Statistics Reports* 52 (10, 2003). Data for 2001: J.A. Martin, B.E. Hamilton, P.D. Sutton, S.J. Ventura, F. Menacker, and M.M. Park, "Births: Final Data for 2001," *National Vital Statistics Reports* 51 (2, 2003). Data for 2000: J.A. Martin, B.E. Hamilton, S.J. Ventura, F. Menacker, and M.M. Park, "Births: Final Data for 2000," *National Vital Statistics Reports* 50 (5, 2002). Data for 1990-1999: T.J. Mathews, "Smoking During Pregnancy in the 1990's," *National Vital Statistics Reports* 49 (7, 2001).

CHART 5-4



¹ Current smokers are defined as those who have ever smoked 100 cigarettes and currently smoke every day or some days.
² Had 5+ drinks in a row at least once per month in past year.
 Source: Original analysis by Child Trends of 2002 National Health Interview Survey data.



CHAPTER 6

Health Care Receipt

- **DEVELOPMENTAL SCREENING AND WELL-CHILD VISITS**
- **HEALTH INSURANCE COVERAGE**
- **CHILD IMMUNIZATION**
- **SCREENING FOR HEARING AND VISION PROBLEMS**
- **DENTAL VISITS AND UNMET DENTAL NEEDS**

Developmental Screening and Well-Child Visits

Why is this important?

Childhood morbidity and mortality have become increasingly preventable.^{376,377} Well-child visits provide an opportunity for health professionals to promote healthy lifestyle choices, provide age appropriate counseling and anticipatory guidance, and monitor children for physical and behavioral pathology.³⁷⁸ Parents of children who receive this guidance are more knowledgeable about infant sleep habits³⁷⁹ and injury prevention.³⁸⁰ These parents also have better interactions with their children³⁸¹ and are more likely to use milder methods of discipline and, in particular, “time outs.”³⁸²

What do the data show?

- In 2002, 84 percent of children under age six had received a well-child visit with a health professional in the past year. Uninsured children were significantly less likely than were insured children to have had such a visit (71 percent versus 86 percent).³⁸³ (See Chart 6-1)
- In 2000, almost one half of parents had concerns about their young child’s speech, social development, or behavior.³⁸⁴
- In 2000, 45 percent of parents of young children recalled their child’s clinician performing a developmental assessment and 35 percent recalled the clinician having had the child pick up a small object or perform selected other development tasks.³⁸⁵ However, these findings should be interpreted with caution because no one method of screening for developmental problems is currently recommended.³⁸⁶ In addition, parents may not be able to report accurately on whether a formal developmental assessment had been carried out.

Implications for policymakers and practitioners

More detailed information is needed regarding what and when services are provided at well-child visits, but research shows that parents value well-child care and parent-clinician communication, desire more information about development, and rate clinicians higher when they provide more anticipatory guidance and discuss developmental topics.^{387,388,389,390} No single standard exists, but many guidelines for providing services at well-child visits have been published.^{391,392}

Diagnosis of developmental disabilities can be difficult, as many are subtle and the affected children may appear to be developing normally at younger ages.³⁹³ A recent Commonwealth Fund analysis concludes that improvement of developmental assessment of children will require, in part: enhanced training of physicians; accountability systems to track quality of care; and alterations in health plans to include screening and assessment, developmental health promotion, general developmental interventions, and care coordination.³⁹⁴

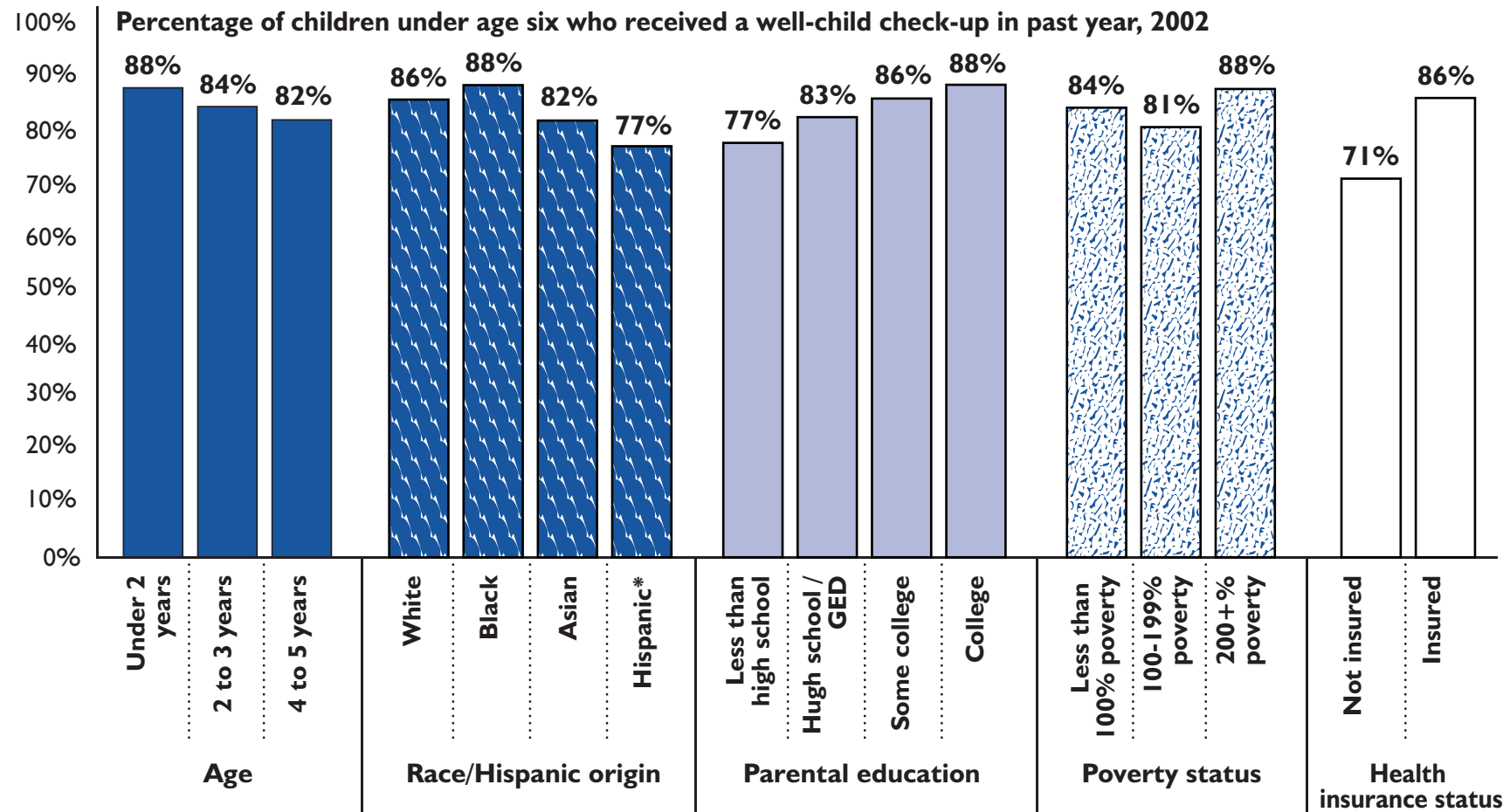
Research is needed on the effects of developmental health services in a wide range of settings, but a report from the Commonwealth Fund recommends that physicians work with other community services to improve children’s primary care, help identify problems, and facilitate interventions on behalf of children’s development.³⁹⁵

Implications for parents

It is vital to take children to regular well-child visits, even if parents believe their children are healthy. At these visits, parents can bring any and all questions or concerns about a child’s development to the attention of the child’s health care clinician.

CHART 6-1

Developmental Screening and Well-Child Visits



* Persons of Hispanic origin may be of any race. Estimates for whites, blacks and Asians do not include persons of Hispanic origin. These estimates reflect the new Office of Management and Budget (OMB) race definitions, and include only those who are identified with a single race.

Source: Original analyses by Child Trends of 2002 National Health Interview Survey data.



Health Insurance Coverage

Why is this important?

Children not covered by health insurance are less likely than those who are covered to have a regular source of health care.³⁹⁶ They are more likely than those with insurance to receive late or no care for health problems and are at a greater risk for hospitalization.³⁹⁷ They are also less likely than those with private health insurance to have used prescription medicines.³⁹⁸ Lack of health insurance can affect a child's school attendance and ability to participate in school activities because health problems are more likely to be treated late or to go untreated.³⁹⁹ If children's health problems are not treated, it can negatively affect their cognitive, emotional, behavioral, and physical development.⁴⁰⁰

What do the data show?

- In 2003, 10 percent of all children under age six had no health insurance at some time during the year. Since 1987, this percentage has fluctuated between 10 and 16 percent.⁴⁰¹ (See Chart 6-2)
- In 2003, 15 percent of poor children under age six were not covered by health insurance at any time during the year,⁴⁰² compared with 10 percent of all children.⁴⁰³
- Overall, children are more likely to have private insurance than other types of insurance. In 2003, 62 percent of children under age six had private insurance; and 34 percent had government insurance.* Thirty-one percent of children under age six received Medicaid.⁴⁰⁴

- Poor children, however, are much more likely to have Medicaid coverage. In 2003, 72 percent of poor children under six were covered by Medicaid, and only 18 percent in this age group were covered by private insurance.⁴⁰⁵ (See Chart 6-3)

Implications for policymakers and practitioners

Public health insurance programs such as Medicaid and the State Children's Health Insurance Program (S-CHIP) have shown success in increasing health insurance and health care access for young children. Policymakers can reach a large number of uninsured children by building on these existing programs;⁴⁰⁶ by focusing on enrollment, retention, and outreach of all eligible uninsured children; and by expanding coverage to low-income eligible children.⁴⁰⁷ Because immigrant children, in particular, are often not insured, culturally appropriate outreach and attention to language barriers are important.⁴⁰⁸ According to a report by the Commonwealth Fund, health care programs could be redesigned to allow families to retain their coverage temporarily when conditions change until they obtain another source of health insurance.⁴⁰⁹ Eligibility and administrative changes in public health coverage would allow families to stay insured longer.⁴¹⁰ It would also be helpful if public health insurance programs simplified enrollment.⁴¹¹

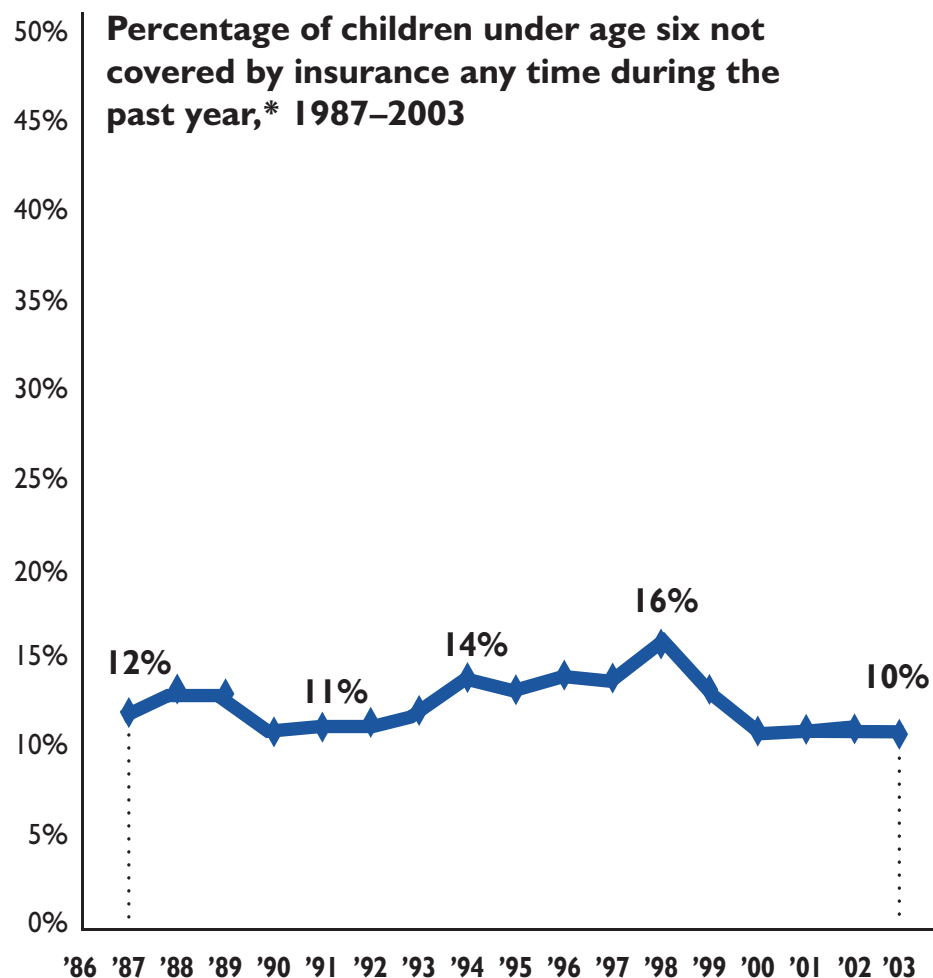
Implications for parents

Children often do not have health insurance because parents do not know they are eligible for public coverage.^{412, 413} Parents can check to see if they are eligible for public insurance programs and then enroll their children in them.

* Government health insurance for children consists mostly of Medicaid, but also includes Medicare, the State Children's Health Insurance Programs (S-CHIP), and CHAMPUS/Tricare, the health care program for members of the armed services and their families.

Health Insurance Coverage

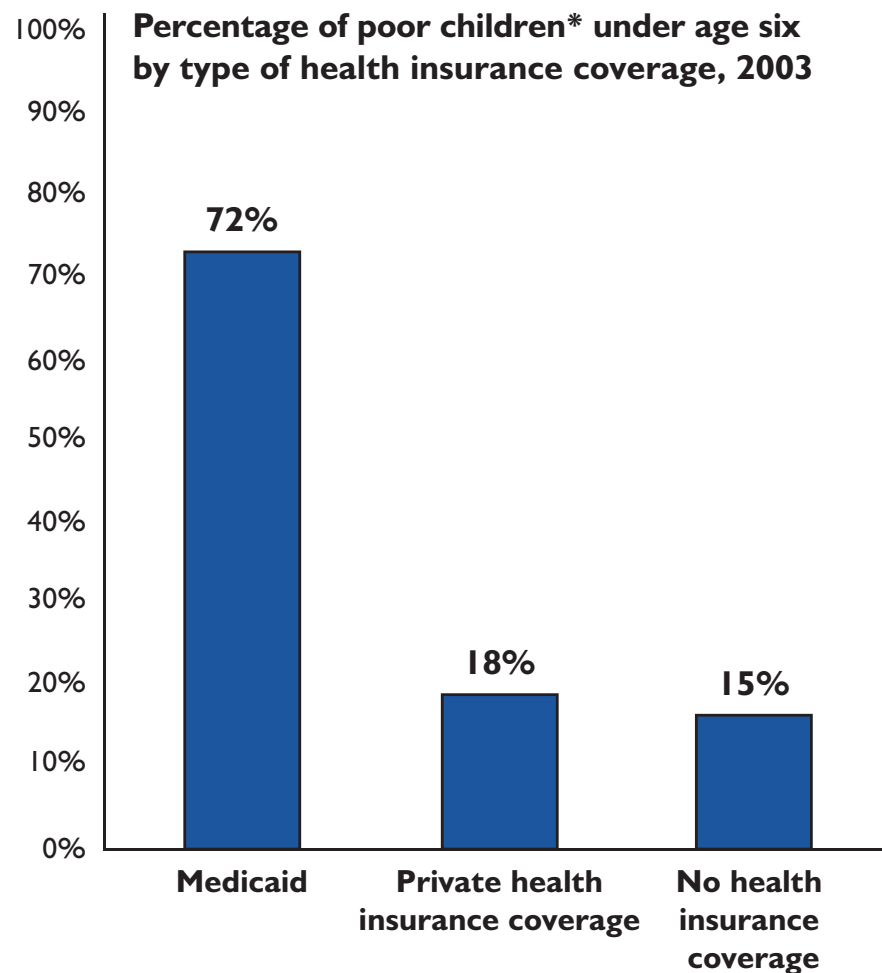
CHART 6-2



* Children are considered to be covered by health insurance if they had government or private coverage at any time during the year.

Sources: Data for 2003 from: C. DeNavas-Walt, B.D. Proctor, and R.J. Mills, "Income, Poverty, and Health Insurance Coverage in the United States: 2003," *Current Population Reports*, P60-226 (Washington, DC: US Census Bureau, 2004): Table 5. Data for 1995-2002 from: Child Trends, *Child Trends DataBank Indicator: Health Care Coverage*. Retrieved January 21, 2004 from URL: www.childtrendsdatabank.org/indicators/26HealthCareCoverage.cfm. Original data from the Current Population Survey, March Supplement. Data for 1987-1994 from: Federal Interagency on Child and Family Statistics, *America's Children, Key National Indicators of Well-Being, 2002* (Washington, DC: Federal Interagency on Child and Family Statistics, US Government Printing Office, 2002): Appendix A.

CHART 6-3



* Unrelated individuals under age six, such as foster children, are excluded. Percentages may add up to more than 100 percent due to some children with both Medicaid and private health insurance coverage.

Source: CPS Annual Social and Economic Supplement: Table HI03. Available at: ferret.bls.census.gov/macro/032004/health/toc.htm.



Child Immunization

Why is this important?

Immunization reduces the risk of disease and illness-related death.⁴¹⁴ It also helps prevent outbreaks and the rapid spread of diseases.⁴¹⁵ Diseases that are less prevalent as a result of immunization still exist, making it vital to continue to protect children from them.⁴¹⁶ Childhood immunization is one of the only defenses against many childhood diseases,⁴¹⁷ such as chicken pox, polio, and measles.

The rubella vaccine (part of the MMR or measles-mumps-rubella vaccine) has virtually eliminated congenital rubella, which was a leading cause of mental retardation before the vaccine.⁴¹⁸ Similarly, the HiB and Pneumococcal vaccines have vastly decreased the incidence of bacterial meningitis, which was a major contributing factor to children's deafness and developmental disabilities.^{419, 420} There is no evidence that Thimerosal or other preservatives added to vaccines increases rates of autism or other developmental disabilities.^{421, 422}

What do the data show?

- The percentage of very young children (19 to 35 months old) who were fully immunized (i.e., they received a combined series vaccination) increased rapidly between 1994 and 1996, from 69 to 76 percent. In 2003, it reached a new high of 81 percent, up from 78 percent the year before.⁴²³ (See Chart 6-4)
- The percentage of young children immunized against varicella (chicken pox) has increased dramatically since 1997, from 26 percent in 1997 to 85 percent in 2003.
- Non-Hispanic black children are less likely than other children to be fully immunized. In 2003, 75 percent of non-Hispanic black children had received the combined series of immunizations, compared with 84 percent of non-Hispanic white children, 81 percent of Asian children, 79 percent of Hispanic children, and 77 percent of Native American children.* (See Chart 6-5)
- Children in families with incomes below the poverty level are less likely to be fully immunized than are children in families with incomes at or above the poverty level. In 2003, 76 percent of children in families below the poverty line were fully immunized, compared with 83 percent of other children.

Implications for Policymakers and Practitioners

The National Immunization Program (NIP) of the Centers for Disease Control and Prevention provides leadership on immunization activities nationwide. In carrying out its mission, NIP focuses on making immunizations easily available and coordinated with other health care services, reducing the cost of immunizations for patients, and identifying and eliminating barriers to vaccinations.⁴²⁴ The program also emphasizes the importance of educating parents and patients in a culturally appropriate manner and in language that is effective and easy to understand. It encourages practitioners to develop systems to remind parents or guardians when children's immunizations are due.⁴²⁵

Research shows that programs that have childhood developmental specialists on staff, such as the *Healthy Steps* program, can lead to more timely preventive care, including immunizations.⁴²⁶ Community Health Centers, which serve low-income children with Medicaid, S-CHIP (State Children's Health Insurance), or no insurance, also have led to increases in child immunization rates.⁴²⁷ These findings underscore the value of supporting such programs.

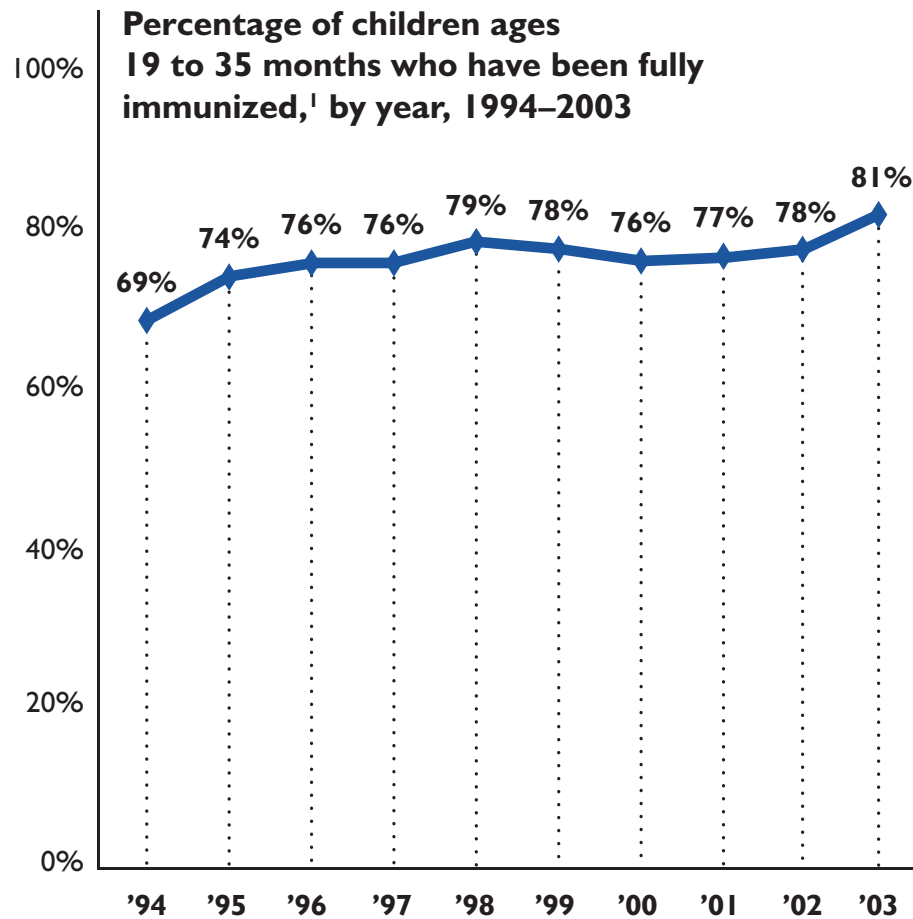
Implications for Parents

Immunizations are extremely important in preventing children from contracting diseases that can kill them, as well as diseases that can leave them deaf, blind, or developmentally delayed. Parents should follow the recommended timeline for child immunizations, many of which take place during the first two years of life.⁴²⁸

* Estimates for specific race groups reflect the new Office of Management and Budget (OMB) race definitions, and include only those who are identified with a single race. Estimates for Asian and Native American children do not include those of Hispanic origin. Persons of Hispanic origin may be of any race.

Child Immunization

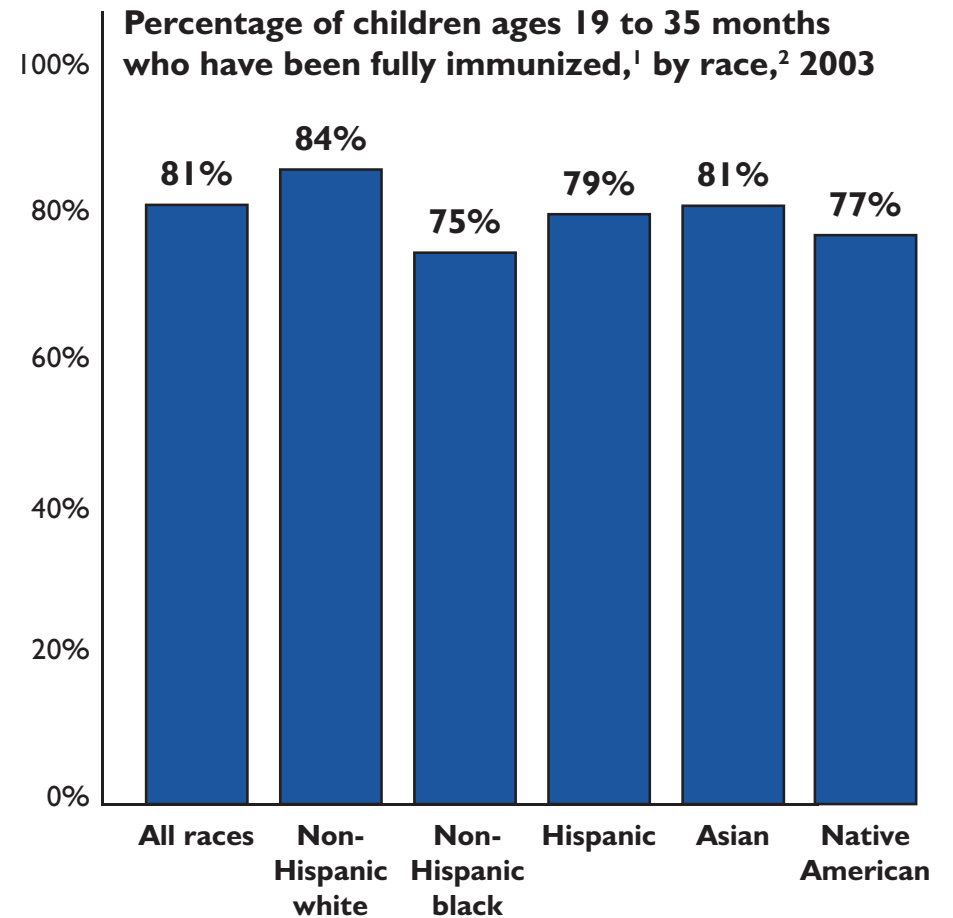
CHART 6-4



¹ Fully immunized is defined as those who have received the combined series vaccination 4:3:1:3.

Source: Child Trends, *Child Trends DataBank Indicator: Immunizations*. Retrieved August 13, 2004 from URL: www.childtrendsdatabank.org/indicators/17Immunization.cfm. Original data from the National Immunization Survey collected by the National Center for Health Statistics, Centers for Disease Control and Prevention.

CHART 6-5



¹ Fully immunized is defined as those who have received the combined series vaccination 4:3:1:3.

² Estimates for specific race groups reflect the new OMB race definitions, and include only those who are identified with a single race. Estimates for Asian and Native American children do not include those of Hispanic origin. Hispanics may be of any race.

Source: Child Trends, *Child Trends DataBank Indicator: Immunizations*. Retrieved August 13, 2004 from URL: www.childtrendsdatabank.org/indicators/17Immunization.cfm. Original data from the National Immunization Survey collected by the National Center for Health Statistics, Centers for Disease Control and Prevention.



Screening for Hearing and Vision Problems

Why is this important?

Hearing and seeing are important to children's development. Children with hearing deficits have more communication, social, emotional, and academic difficulties than other children.⁴²⁹ Identifying hearing and vision deficits early results in better outcomes for affected children.⁴³⁰ Hearing loss that remains undiagnosed can impede language development and social interaction.⁴³¹ About 50 percent of all hearing loss is attributable to a genetic cause.⁴³² When untreated, ear infections may lead to hearing impairments and problems with speech and language development in children.⁴³³ Vision problems that remain undiagnosed can impede aspects of emergent literacy such as letter recognition,⁴³⁴ and have also been shown to limit social understanding and perspective-taking in young children.⁴³⁵

What do the data show?

- In 1998, by kindergarten entry, 73 percent of children had ever had a hearing evaluation and 74 percent had ever had a vision evaluation.⁴³⁶
- Children with health insurance were more likely to have ever had hearing and vision screenings than uninsured children (74 percent versus 64 percent, and 75 percent versus 67 percent, respectively) in 1998. (See Charts 6-6 and 6-7)
- In 1998, only 69 percent of children living in poverty had ever had their hearing screened by kindergarten entry, compared with 73 percent of those living above the poverty level; comparable rates for vision screening were 71 percent and 75 percent, respectively. (See Charts 6-6 and 6-7)

- In 2001, 50 states/areas (includes Guam, Puerto Rico, and the U.S. Virgin Islands) reported data collected from their Early Hearing Detection Programs, an increase from 22 states/areas in 1999.⁴³⁷

Implications for policymakers and practitioners

The American Academy of Pediatrics (AAP) endorses universal newborn hearing screening.⁴³⁸ Early Hearing Detection and Prevention (EHDP) programs help identify newborns with hearing loss and have made progress in implementing universal newborn screening. In order for the EHDP to be a success, coordination of health care providers with diagnostic and intervention services needs to be strengthened to ensure follow-up of infants.⁴³⁹

In order to minimize the number of children with undiagnosed hearing problems, it is important that practitioners screen hearing subjectively until age three and then objectively at ages three, four, five, six, eight, 10, 12, 15, and 18. Even if a newborn is screened, follow-up screening should occur, since some hearing loss is progressive or of late-onset.⁴⁴⁰ Practitioners also can become familiar with the many options for children with hearing loss: cochlear implants, sign versus lip reading, and hearing aids. Cochlear implants are extremely effective in many cases in which hearing loss is severe; the optimal time for implantation is by 24 months.⁴⁴¹

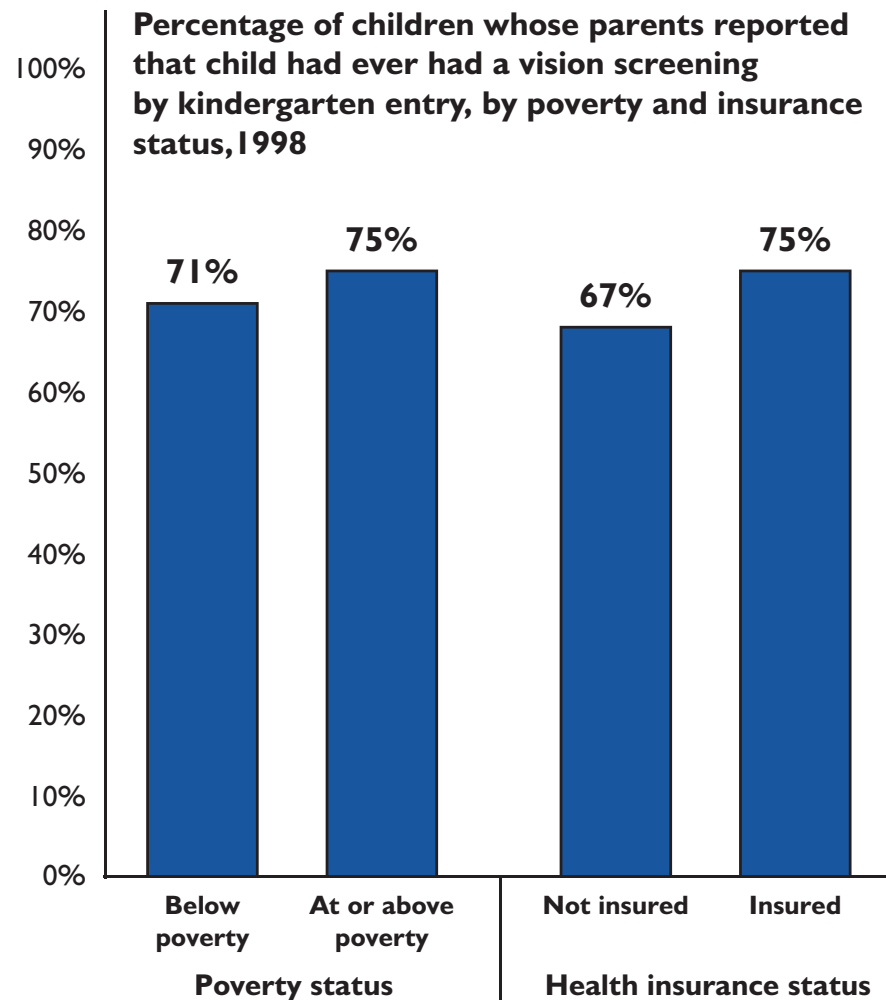
The AAP recommends that children have vision assessments until age three and vision screening by objective tests at ages three, four, five, six, eight, 10, 12, 15, and 18. Practitioners can inquire about vision concerns at other visits.^{442, 443}

Implications for parents

Parents need to trust their instincts when they think children might have hearing or vision problems and tell their doctor about their concerns. Many options are available if a child is diagnosed with severe hearing loss. Children with vision problems also can be treated at very young ages. For example, children with strabismus (lazy eye) can receive eye patches, eye drops, or prism glasses.⁴⁴⁴

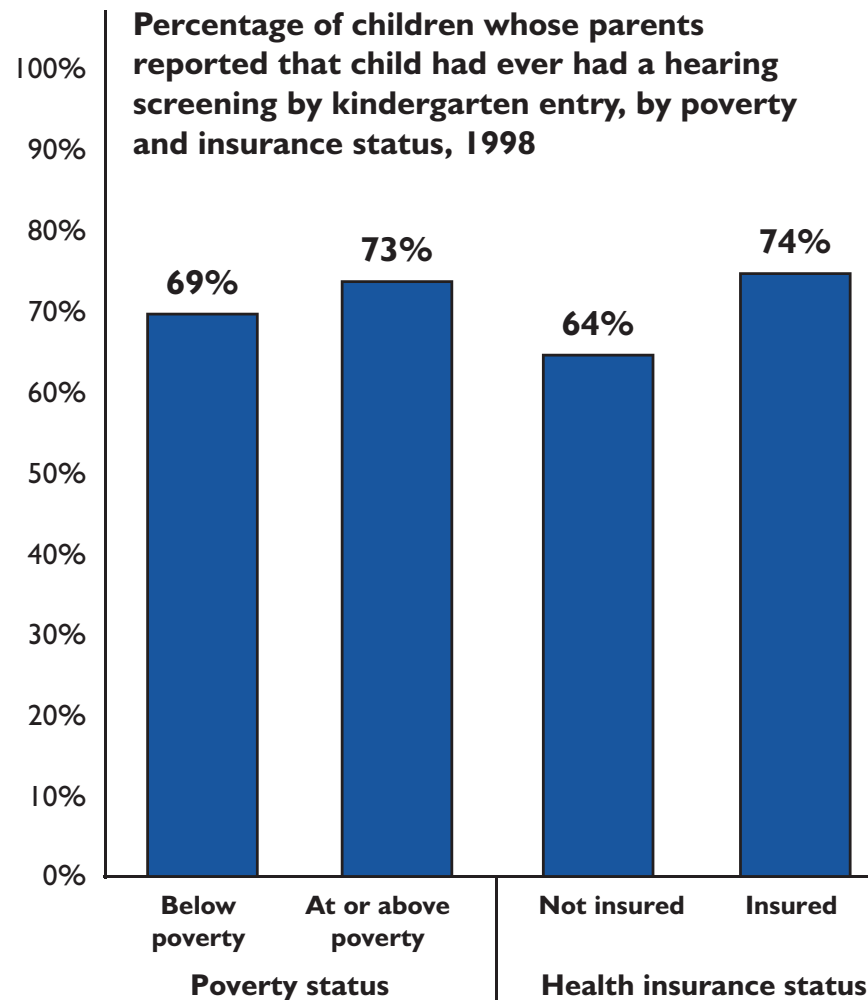
Screening for Hearing and Vision Problems

CHART 6-6



Source: Original analyses by Child Trends of the Early Childhood Longitudinal Study (ECLS-K) Kindergarten Cohort (Parent Interview)

CHART 6-7



Source: Original analyses by Child Trends of the Early Childhood Longitudinal Study (ECLS-K) Kindergarten Cohort (Parent Interview)



Dental Visits and Unmet Dental Needs

Why is this important?

Poor oral health among children has been tied to poorer school performance, limited ability to concentrate, and higher absentee rates from school.⁴⁴⁵ Young children with untreated dental caries may develop poor eating and sleeping patterns, and have problems related to low self-esteem.⁴⁴⁶ Dental caries also can cause significant pain and even life-threatening swelling in young children.^{447, 448} In toddlers, poor oral health is associated with failure to thrive and with poor nutrition.⁴⁴⁹ Preschoolers with unmet oral health needs are more likely to have speech problems and problems socializing with peers.⁴⁵⁰ In addition, children with early dental problems often weigh less than do other children.⁴⁵¹

As soon as children's first teeth appear, usually around the age of six months, these teeth are susceptible to decay.⁴⁵² Successful prevention of dental problems is more likely the earlier children first visit the dentist.⁴⁵³

What do the data show?

- Health insurance coverage is related strongly to dental visits for young children. In 2002, 73 percent of children between the ages of two and five who lacked health insurance coverage had not seen a dentist within the past year, compared with 48 percent of children covered by insurance. The same year, 8 percent of children with no insurance had unmet dental needs due to cost,* compared with 2 percent of children with insurance.⁴⁵⁴ (See Chart 6-8)

- Failure to see a dentist in the previous year is also related to parental education, occurring less often among children of college educated parents. In 2002, 44 percent of children whose parents had a college education had not been to the dentist within the past year, compared with between 50 and 57 percent of children whose parents had less education.
- In 2002, around one-half (51 percent) of all children between the ages of two and five had not seen a dentist in the past year, representing a slight increase from 47 percent in 1997. The same year, 3 percent of children between the ages of two and five had unmet dental needs due to cost, decreasing from 5 percent in 1999.

Implications for policymakers and practitioners

According to the American Academy of Pediatric Dentistry, every child should begin to visit the dentist within six months of the eruption of the first primary tooth and no later than the age of one.⁴⁵⁵ Practitioners can remind parents to brush their children's teeth as soon as the teeth begin growing in, refer parents to dentists, and distribute educational materials in a variety of languages and at a variety of reading levels. Practitioners also can recommend foods that promote good oral health.⁴⁵⁶

According to the US Department of Health and Human Services, all persons in the United States should have access to both preventive and restorative dental care. In addition to cost and insurance factors, barriers to dental care include a lack of public programs and a shortage of professionals in underserved populations.⁴⁵⁷

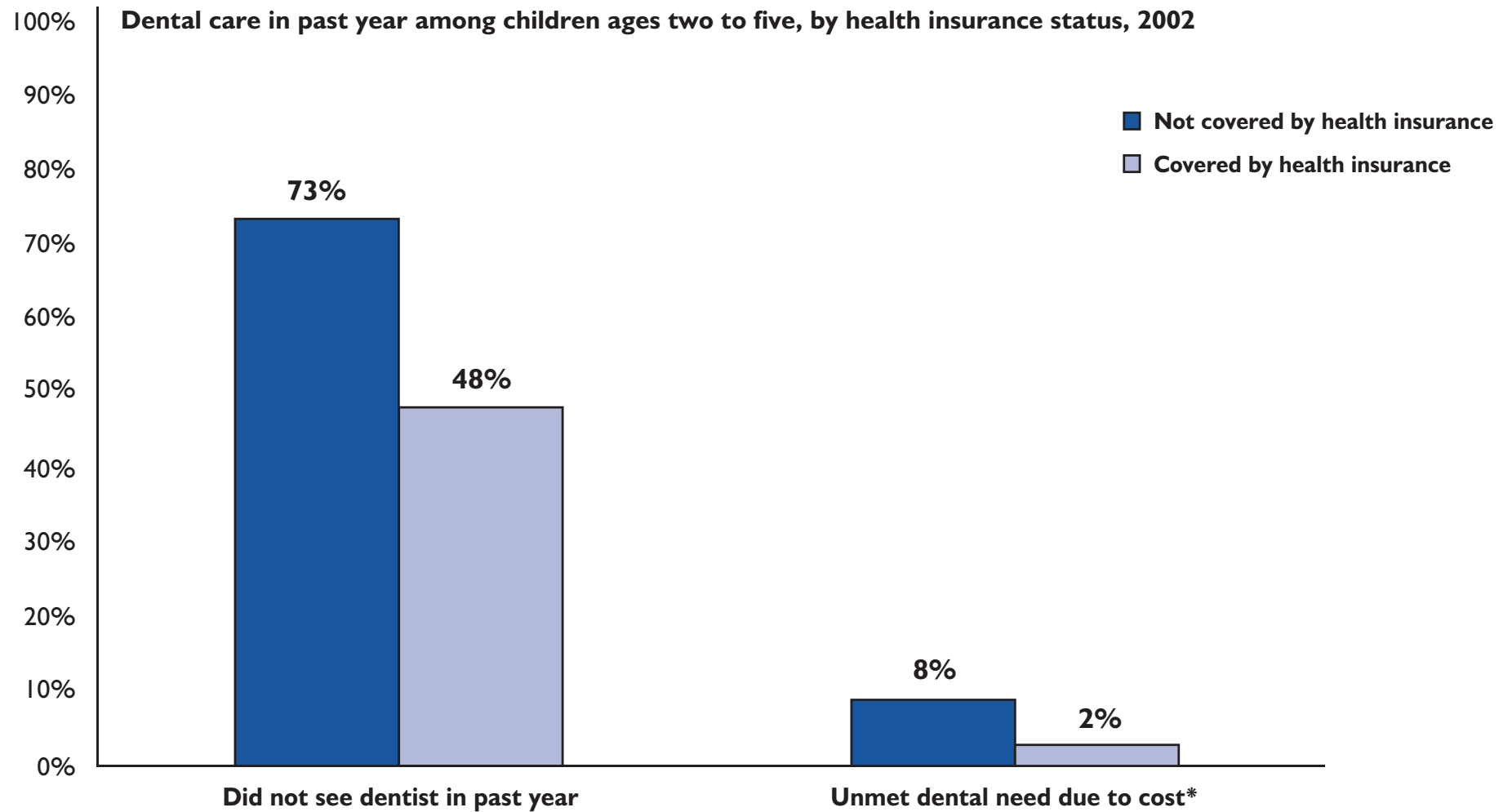
Implications for parents

Parents and other caregivers can reduce the risk of early childhood cavities among their young children by following such practices as never putting a child to bed with a bottle, encouraging children to move from a bottle to a cup of some type by 12 months of age, limiting their children's sugary treats, cleaning young children's teeth daily, and checking young children's teeth monthly for signs of decay on the outside and inside of the four upper teeth.⁴⁵⁸ Making sure that children see a dentist regularly is also important.

* Children were classified as having unmet dental needs if at any time during the past 12 months, they needed dental care (including check-ups) but did not receive it because their families could not afford it.

CHART 6-8

Dental Visits and Unmet Dental Needs



* Children were classified as having unmet dental needs if at any time during the past 12 months, they needed dental care (including check-ups) but did not receive it because their families could not afford it.

Source: Child Trends original analyses of National Health Interview Survey data.



CHAPTER 7

Community/Neighborhood Factors

- **COMMUNITY/NEIGHBORHOOD POVERTY STATUS**
- **PERCEIVED NEIGHBORHOOD SAFETY**

Community/Neighborhood Poverty Status

Why is this important?

Neighborhood poverty has been found to be related to poorer early childhood development.⁴⁵⁹ An absence of affluent neighbors is negatively related to verbal ability, reading recognition, and achievement scores among young children.^{460, 461} Young children in poor neighborhoods are more likely to have poor nutrition and greater exposure to lead.⁴⁶² They are also more likely to exhibit problem behaviors.⁴⁶³ Poor neighborhoods often have fewer opportunities and positive role models for children. They also are more likely to have underfunded public schools⁴⁶⁴ and to have fewer playgrounds and child and health care facilities.⁴⁶⁵ Such neighborhoods can lead to social isolation, as families may limit social contact for children in order to reduce exposure to negative influences.⁴⁶⁶ Growing up in a poor neighborhood is also associated with reduced chances of escaping poverty in adulthood.⁴⁶⁷

What do the data show?

- In 1999, 21.5 percent of children under age five lived in neighborhoods in which at least 20 percent of the population lived below the poverty line, and 3.5 percent lived in neighborhoods in which at least 40 percent of the population lived in poverty.⁴⁶⁸ (See Chart 7-1)
- The percentage of children under age five living in neighborhoods in which at least 20 percent of the population lived below the poverty line varied significantly by state in 1999, with a high of 44.1 percent in Louisiana and a low of 1.5 percent in New Hampshire. (See Chart 7-2) The District of Columbia showed the highest percentage of children living in such neighborhoods: 52.8 percent.

- In 1999, 8.9 percent of children under age five in Louisiana and 8.6 percent of children under age five in New York lived in neighborhoods with very high poverty rates (40 percent or more). In contrast, two-tenths of a percent of children under age five in Vermont, Oregon, Nevada, and Iowa lived in such neighborhoods.

Implications for policymakers and practitioners

In order to counteract the effects of neighborhood poverty, it is important to increase resources, stability, and safety in poorer neighborhoods.⁴⁶⁹ Alternatively, some families may move. Families participating in the “Moving to Opportunity” program, which provided them with vouchers to move out of public housing in high poverty neighborhoods to lower poverty neighborhoods, experienced increased perceptions of safety, reduced likelihood of witnessing violence, and reduced parental stress and depression.⁴⁷⁰ Older girls who moved were also much less likely to have psychological distress, depression, or anxiety disorders.⁴⁷¹ Boys who moved, however, showed no significant mental health improvements.⁴⁷²

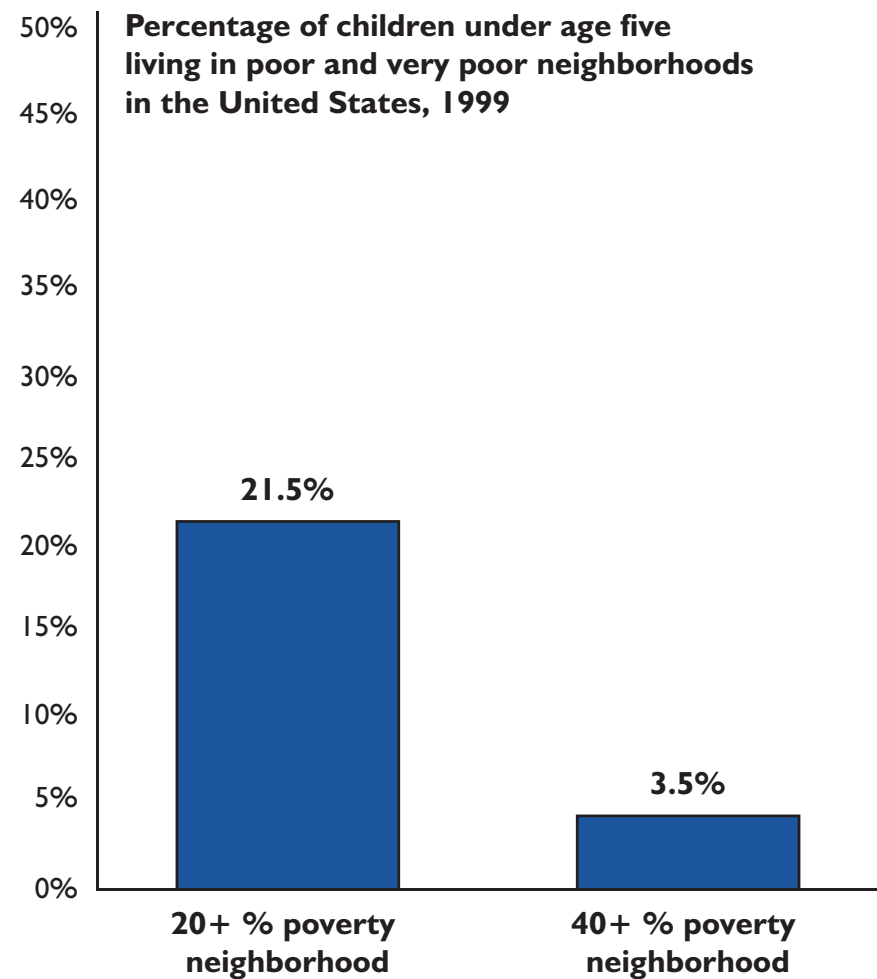
To counter the effects of impoverished neighborhoods and other negative influences, the American Academy of Pediatrics recommends that pediatricians familiarize themselves with high-quality family support services that can provide helpful recommendations to parents.⁴⁷³

Implications for parents

Parental involvement and parenting styles have a substantial influence on child development and influence the way in which neighborhood conditions affect child well-being.⁴⁷⁴ For example, it is important that parents actively seek resources for their children, such as child care and Head Start programs in which they can participate, and parks and libraries they can visit, either within their own communities or in other communities. It is also important for parents to monitor their children’s activities and friendships,⁴⁷⁵ and to provide in-home learning opportunities to stimulate their children’s academic development.⁴⁷⁶

Community/Neighborhood Poverty Status

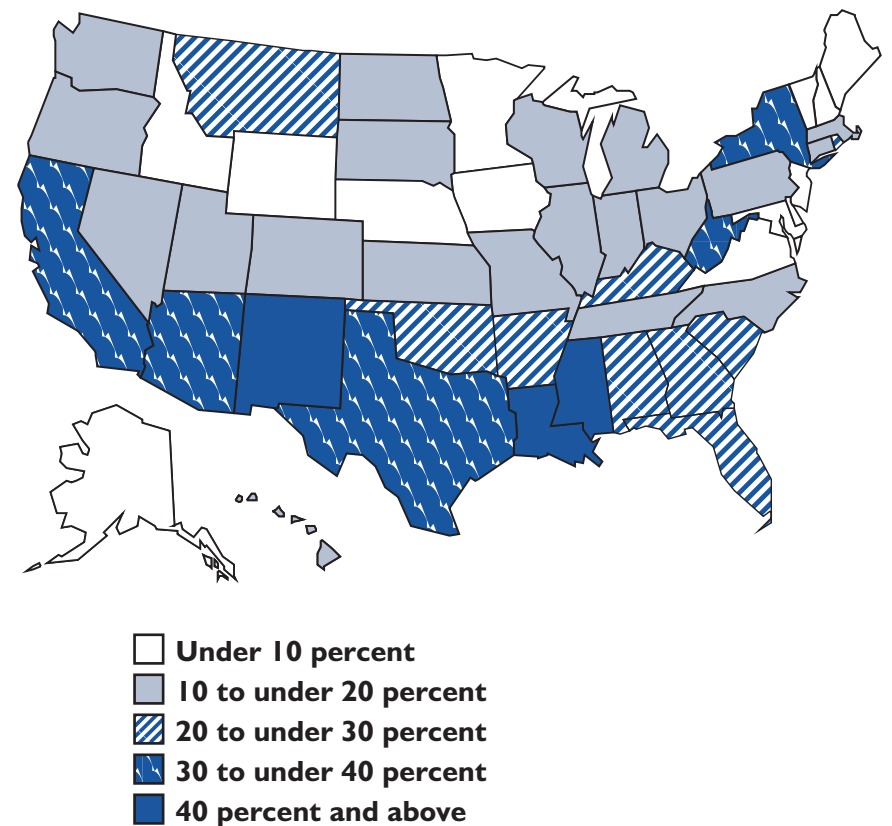
CHART 7-1



Source: Original analyses by the Population Reference Bureau of 2000 Decennial Census Data.

CHART 7-2

Percentage of children under age five living in neighborhoods in which at least 20 percent of the population lived in poverty, 1999



Source: Original analyses by Population Reference Bureau of Decennial Census 2000 data.



Perceived Neighborhood Safety

Why is this important?

Parents' perceptions of neighborhood safety may influence their willingness to take advantage of existing neighborhood resources such as parks, libraries, and children's programs.⁴⁷⁷ Dangerous neighborhoods may isolate mothers in their homes, thus restricting young children's opportunities to interact with peers and adults⁴⁷⁸ and limiting children's opportunities to build gross motor skills because they are confined to their homes.⁴⁷⁹ Parents who regard their neighborhood as more dangerous tend to be stricter with their children. Fear from living in a violent neighborhood may cause children to have emotional and behavior problems, may negatively affect their mental health,⁴⁸⁰ and may hinder young children's abilities to learn and succeed in school.⁴⁸¹

Exposure to community violence may limit children's abilities to develop autonomy, self-esteem, and security, may hinder their ability to trust adults, and may lead to aggressive, self-protective behaviors.⁴⁸² Young children who witness chronic community violence may also have trouble controlling their own violent behavior later in life⁴⁸³ and may show symptoms of post-traumatic stress disorder, including an inability to concentrate, sleep disturbances, nightmares, and emotional numbing.⁴⁸⁴

What do the data show?

- Children living in urban areas are more likely than other children to live in neighborhoods perceived by a parent as unsafe. In 1998, 41 percent of kindergartners in urban areas lived in neighborhoods that were perceived by their parent as not safe, compared with 26 percent of kindergartners in suburban areas, 21 percent

of kindergartners in small towns, and 18 percent of kindergartners in rural areas.⁴⁸⁵ (See Chart 7-3)

- In 1998, 48 percent of Hispanic* kindergartners and 47 percent of non-Hispanic black kindergartners lived in neighborhoods perceived as not safe by their parents, compared with 20 percent of non-Hispanic white kindergartners. (See Chart 7-4)
- Children living in families with incomes below the poverty threshold are more likely than other children to live in neighborhoods perceived as unsafe by their parents. In 1998, 51 percent of kindergartners living below the poverty threshold lived in neighborhoods perceived as not safe, compared with 25 percent of kindergartners living at or above the poverty threshold.

Implications for policymakers and practitioners

In addition to efforts to improve public safety, housing subsidy programs and rental vouchers allow poor families some choice in where they want to live.⁴⁸⁶ Parents in families that move from high-poverty public housing projects after receiving housing vouchers report higher perceptions of safety, lower exposure to violence, and reduced victimization rates.⁴⁸⁷

Health practitioners can encourage parents to support their children to counteract the effects of dangerous neighborhoods. According to the American Academy of Pediatrics, to promote nonviolent environments and reduce the likelihood of violent behavior later in life, it is especially important that pediatricians encourage parents to spend time with their young children, read to them, and teach them appropriate social skills.⁴⁸⁸

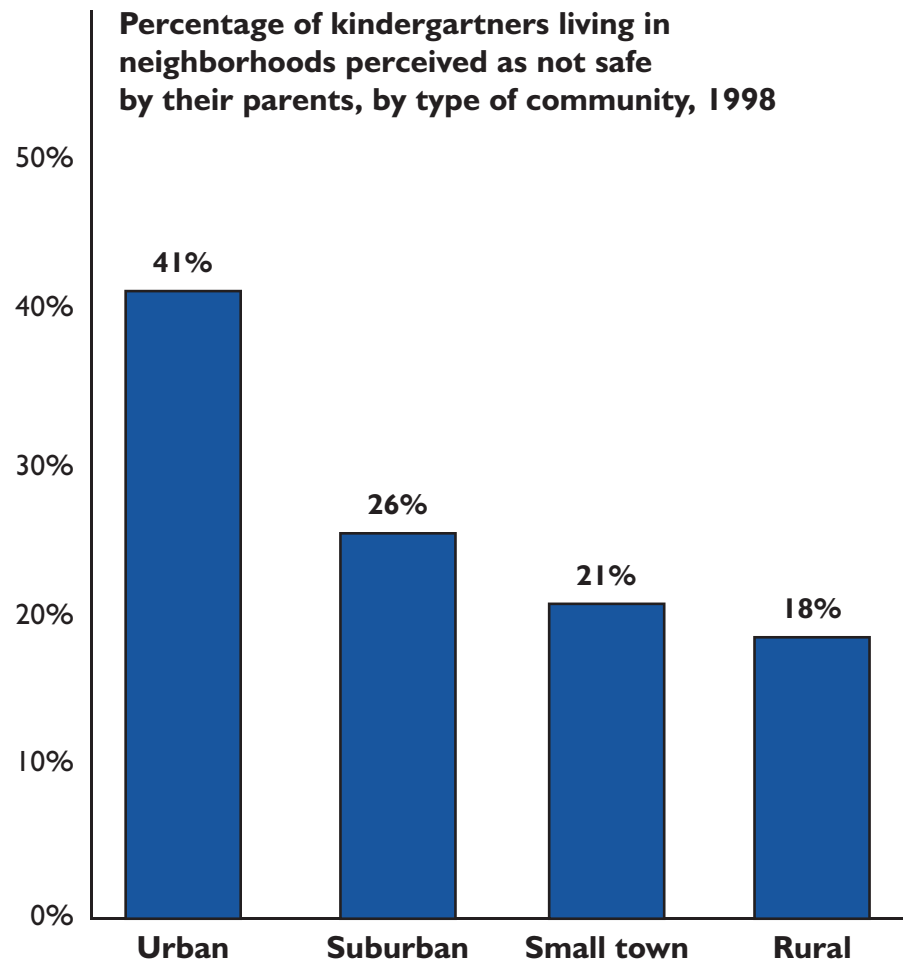
Implications for parents

By avoiding more dangerous sections of neighborhoods, identifying safe spots, and requiring older siblings or adults to accompany younger children when they walk around the neighborhood, parents can attempt to provide a safe environment within more dangerous neighborhoods.⁴⁸⁹ Parents who are nurturing, sensitive, and responsive, maintain family structure and routines, and establish loving and caring relationships early in life can provide a sense of security for their children and increase their children's ability to cope with dangerous neighborhoods.^{490, 491}

* Persons of Hispanic origin may be of any race.

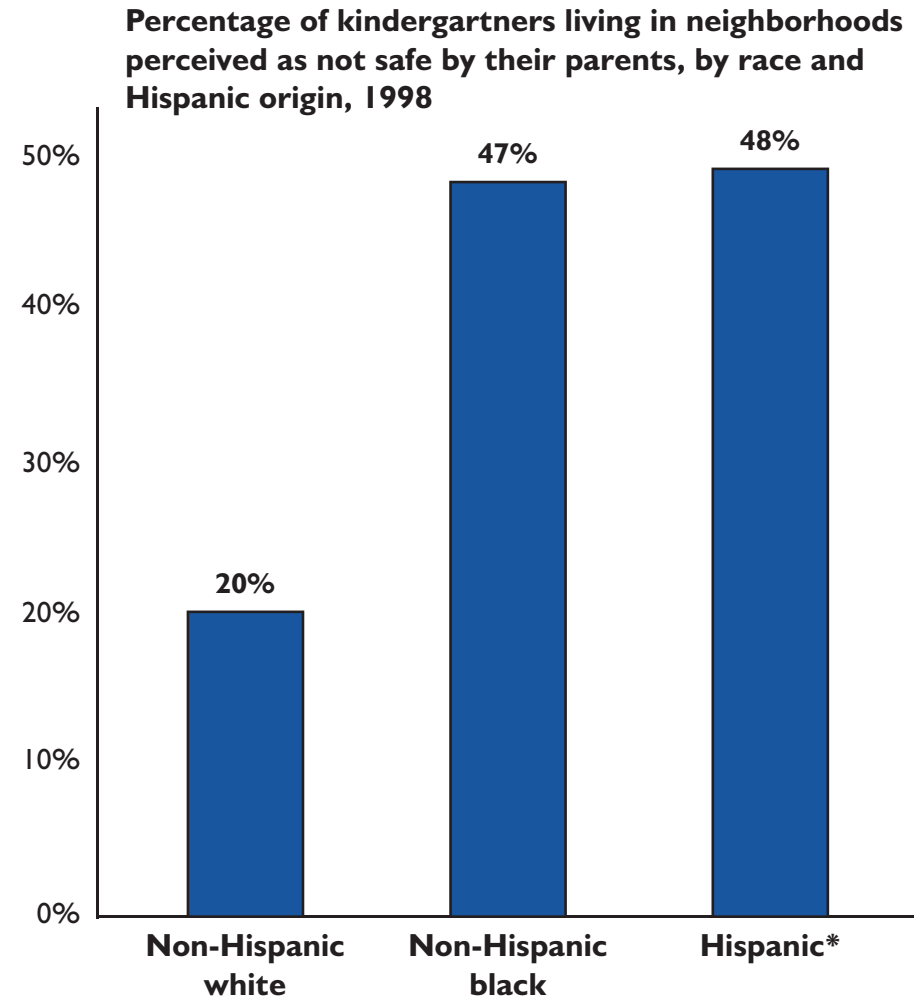
Perceived Neighborhood Safety

CHART 7-3



Source: Child Trends original analyses of the Early Childhood Longitudinal Study (ECLS-K), Kindergarten Cohort Parent Interview.

CHART 7-4



* Persons of Hispanic origin may be of any race.

Source: Child Trends original analyses of the Early Childhood Longitudinal Study (ECLS-K), Kindergarten Cohort Parent Interview.



Early Child Development in Social Context
Child Trends and Center for Child Health Research, 2004

CHAPTER 8
Child Care

• **TYPE OF CHILD CARE**

Type of Child Care

Why is this important?

The need for families to make regular child care arrangements has grown as mothers with young children are increasingly returning to work.⁴⁹² Higher quality child care predicts better cognitive, language, and social development outcomes for children, especially at-risk children. Higher quality care is characterized by a warm and stimulating relationship between the caregiver and the child, which is facilitated by such features as a smaller number of children per caregiver and caregiver education and training (especially as these factors relate to young children's development).^{493, 494, 495}

Parents weigh many different factors in choosing which types of child care to use for their children. Center-based care tends to have staff who have more education and training and who hold more child-centered and non-authoritarian beliefs.^{496, 497} Children in center-based care spend more time in structured activities and have access to more child-oriented toys and activities.⁴⁹⁸ Yet home-based child care tends to have smaller group sizes and better ratios of caregivers to children.^{499, 500, 501} Overall, center-based care has been found to be related to better cognitive and language outcomes at ages two and three and better language and memory scores at age four-and-a-half than other types of care,^{502, 503} even taking into account child care quality.

What do the data show*?

- In 2001, 61 percent of children ages six and under spent time in nonparental child care. Thirty-four percent were cared for in a center-based program (which includes day care centers, pre-kindergarten programs, nursery schools, Head Start programs, and other early childhood education programs); 23 percent were cared for by a relative; and 16 percent were cared for by a nonrelative in a home (either the child's or another home).⁵⁰⁴ (See Chart 8-1)
- In 2001, 85 percent of children whose mothers were employed 35 hours or more a week spent time in nonparental child care, compared with 32 percent of those whose mothers were not in the labor force.
- In 2001, 47 percent of Hispanic children six and under spent time in nonparental child care, compared with 75 percent of non-Hispanic black children and 62 percent of non-Hispanic white children. Only 20 percent of Hispanic** children spent time in center-based care, compared with 41 percent of non-Hispanic black children and 35 percent of non-Hispanic white children. The same year, 34 percent of non-Hispanic black children were cared for by a relative in a home, compared with 23 percent of Hispanic children and 20 percent of non-Hispanic white children. (See Chart 8-2)

Implications for policymakers and practitioners

The *Bright Futures* initiative from the Maternal and Child Health Bureau of the U.S. Department of Health and Human Services, as well as the American Academy of Pediatrics' *Healthy Child Care America* program emphasize that health care professionals have a unique opportunity to work with parents as they make decisions about child care for their children. Practitioners can also work with caregivers to assure that caregivers are following good health practices, and that children's physical and emotional needs are met in child care.^{505, 506}

Implications for parents

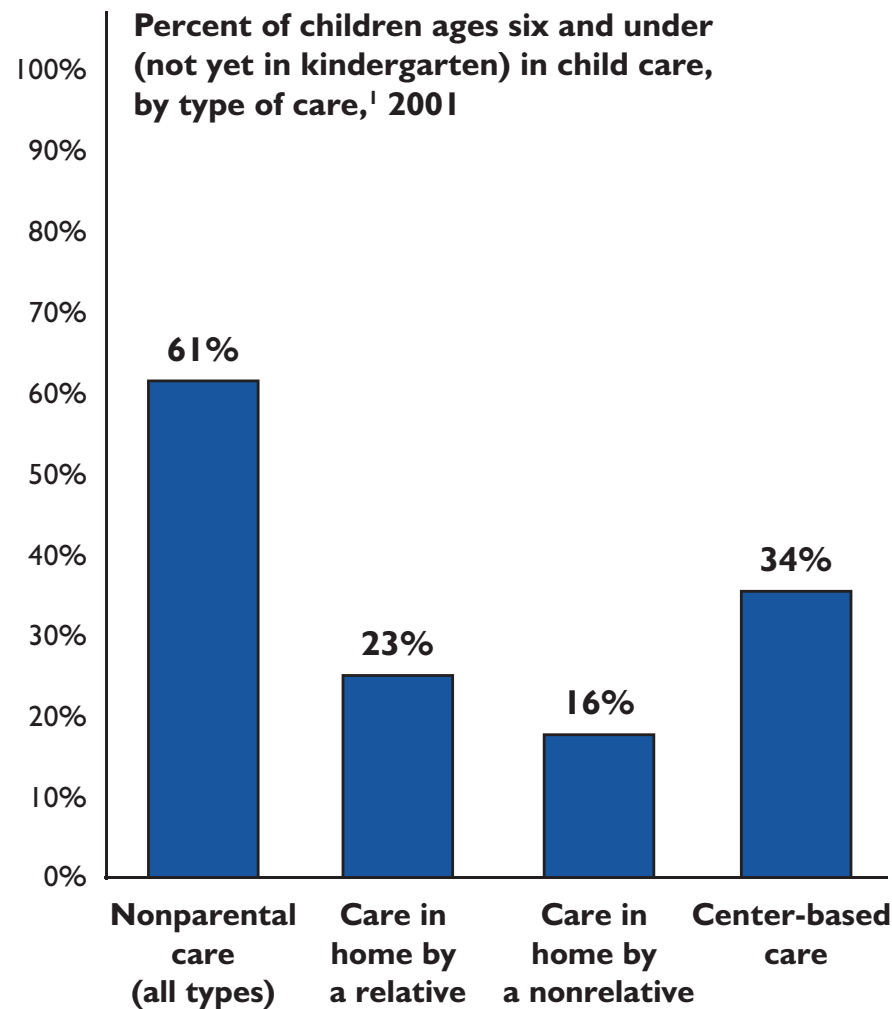
Whether looking for child care in a center or a home, parents should look for indicators of quality, such as frequent caregiver conversations with children and warm caregiver-child interactions; hand washing by caregivers and specific policies for sick children; low child-to-caregiver ratios; and better educated and trained caregivers. For further information, please review the recommendations for selecting care advanced by the Administration for Children and Families, (www.acf.dhhs.gov/programs/cdb/faq1/4steps.htm), and the National Center for Health and Safety in Child Care (nrc.uchsc.edu/RESOURCES/ParentsGuide.pdf).

* Data do not include children already in kindergarten.

** Persons of Hispanic origin may be of any race.

Type of Child Care

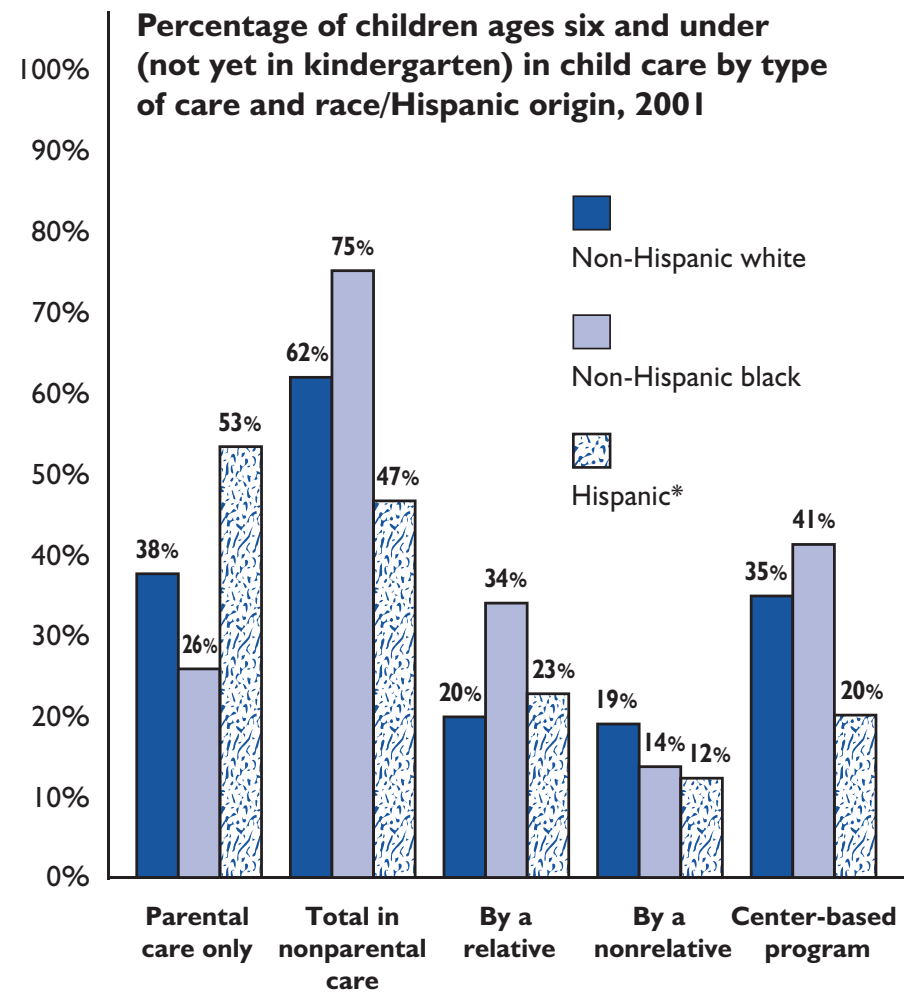
CHART 8-1



¹ Subcategories do not sum to the total percentage of children in nonparental care because some children participate in more than one type of nonparental care arrangement.

Source: Reproduced from Child Trends, *Child Trends DataBank Indicator: Child Care*. Retrieved January 9, 2004 from URL: www.childtrendsdatabank.org/indicators/21ChildCare.cfm. Original data from National Household Education Survey.

CHART 8-2



* Persons of Hispanic origin may be of any race.

Source: Reproduced from Child Trends, *Child Trends DataBank Indicator: Child Care*. Retrieved January 9, 2004 from URL: www.childtrendsdatabank.org/indicators/21ChildCare.cfm. Original data from National Household Education Survey .



CHAPTER 9

Demographic Factors

- **PARENTAL EDUCATIONAL ATTAINMENT**
- **FAMILY POVERTY STATUS**
- **LINGUISTIC ISOLATION**
- **BIRTHS TO TEEN MOTHERS**

Parental Educational Attainment

Why is this important?

The level of education attained by parents strongly affects their children's social, emotional, and intellectual development, economic well-being, and physical health.⁵⁰⁷ Higher levels of parental education are associated with better school readiness among young children.⁵⁰⁸ Parents with higher education levels tend to be more involved in their children's home and school lives.⁵⁰⁹ These parents also tend to spend more time reading to their children and more time taking them on educational outings.^{510, 511} Children of parents with higher educational levels are more likely to receive adequate medical care and live in safe and supportive surroundings.⁵¹² Children of parents with less than a high school degree are more likely to have experienced poverty before their sixth birthday.⁵¹³

What do the data show?

- Young children whose parents have completed higher levels of education demonstrate, on average, higher levels on various measures of school readiness. For example, in 1998, first-time kindergartners with more highly educated mothers were more likely to receive high scores on measures of mathematical and reading proficiency and in fine motor skills than first-time kindergartners whose mothers had lower levels of education.⁵¹⁴ (See Chart 9-1)
- In 2003, 36 percent of children under six had a parent with a bachelor's degree or more; 27 percent had a parent with some college but no bachelor's or associates degree; 24 percent had a parent with a high school diploma or the equivalent; and 13 percent had a parent with less than a high school diploma.⁵¹⁵* (See Chart 9-2)
- Hispanic, Native American, and non-Hispanic black children are more likely than other children to have parents with low education levels. For example, in 2003, 36 percent of Hispanic children under age six, 17 percent of non-Hispanic black children, and 14 percent of Native American children had parents with less than a high school diploma, compared with 5 percent of non-Hispanic white children and 6 percent of Asian children.**
- In 2003, nearly twice as many children living in two-parent households had a parent with more than a high school degree compared with children living in single-parent households (73 percent versus 37 percent).

Implications for policymakers and practitioners

By supporting adult education programs, policymakers can improve the resources available to young children.⁵¹⁶ Because of the different educational level of parents, it is important that practitioners provide brochures geared towards all reading levels. Instructional videotapes, specific verbal suggestions, and role-playing can also be effective tools for practitioners to use in educating parents.⁵¹⁷

Implications for parents

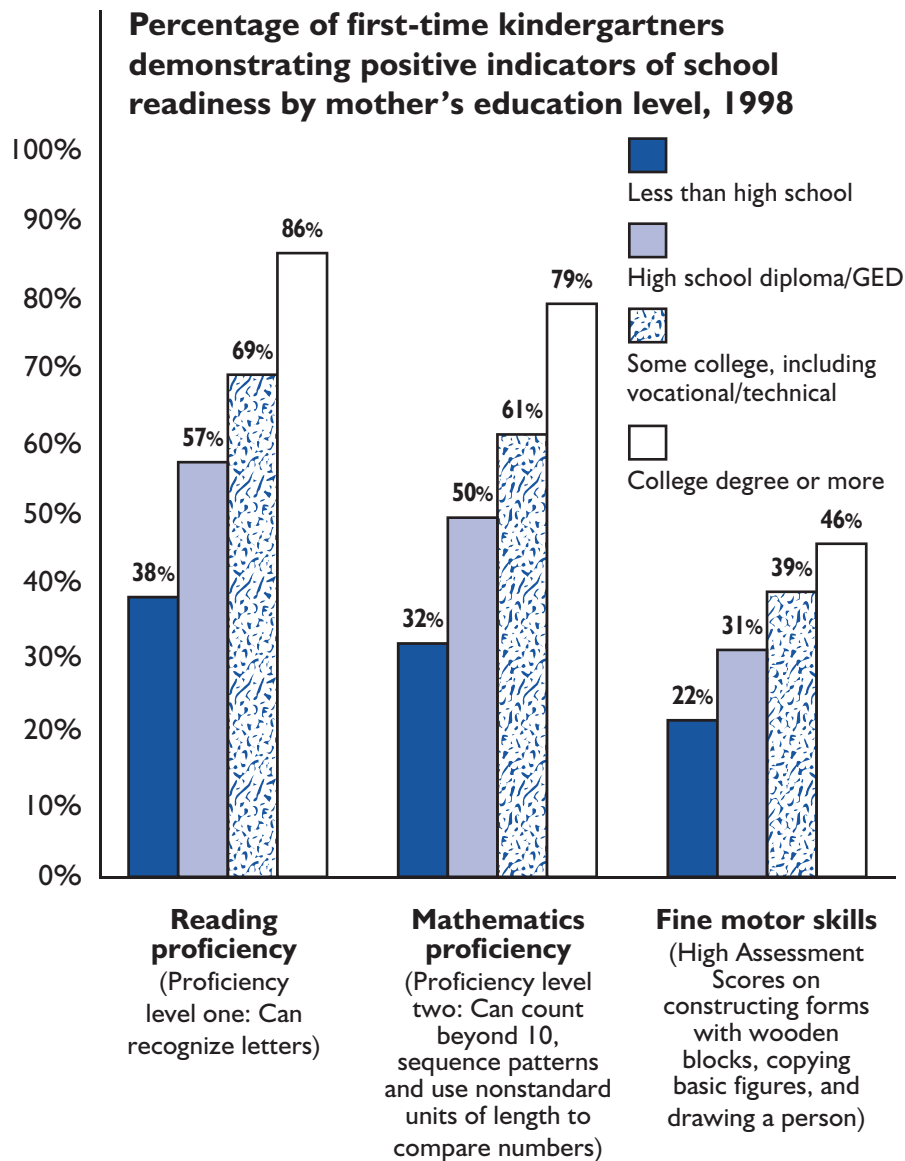
To broaden both their own and their children's opportunities, parents with low levels of education can return to school by enrolling in continuing education programs and by taking night classes.

* For this bullet and all remaining bullets, education levels reflect the highest education level of resident parent(s).

** Data reflect the new OMB race definitions, and include only those who are identified with a single race. Estimates for Asian and Native American children only include those children of non-Hispanic origin. Persons of Hispanic origin may be of any race.

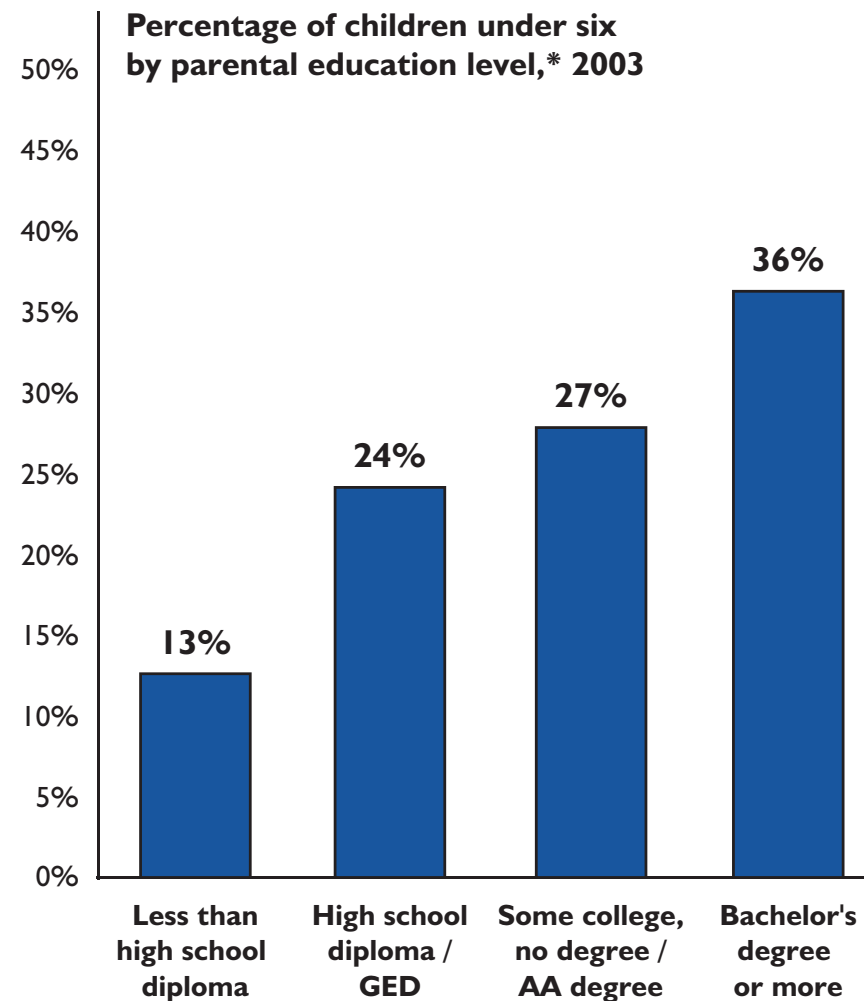
Parental Educational Attainment

CHART 9-1



Source: K. Denton, E. Germino-Hausken, and J. West (project officer), *America's Kindergartners*, NCES 2000-070, (Washington, DC: U.S. Department of Education, National Center for Education Statistics, 2000).

CHART 9-2



* Reflects highest education level of resident parent(s).

Source: Original analyses by Child Trends of March 2003 Current Population Survey data.



Family Poverty Status

Why is this important?

Poverty that occurs during infancy or early childhood can have particularly negative effects on children's health and development.⁵¹⁸ Children born to poor families are more likely to be of low birthweight and are less likely to receive recommended immunizations.⁵¹⁹ They are more likely to be sick and underweight as toddlers,⁵²⁰ may not receive adequate postnatal nutrition to support healthy growth,⁵²¹ and are more likely to suffer from lead poisoning, iron deficiency, and exposure to parental tobacco smoke.^{522, 523, 524, 525} Children in poor families are also less likely to have access to adequate health care.⁵²⁶

Poor children between the ages of two and five, on average, have significantly lower scores on intelligence and verbal tests than other children, and are more likely to have behavior problems.⁵²⁷ Poor children are also less likely to be ready for kindergarten and more likely to fall behind in school.⁵²⁸ Some of the consequences are directly caused by poverty while others reflect the many factors correlated with poverty, such as low parental education.

What do the data show?

- In 2003, 20 percent of children under age six lived below the poverty line, representing a decrease from 24 percent in 1995.⁵²⁹ (See Chart 9-3) In 2003, the poverty threshold for a family of four was \$18,660.
- Children living in female-headed households are more likely than other children to live below the poverty line. In 2003, 53 percent of children under age six living in female-headed households lived below the poverty line, compared with 10 percent of children living in married-couple households, and 29 percent living in male-headed households with no wife present.⁵³⁰ (See Chart 9-4)
- In 2003, 39 percent of black children under age six lived below the poverty line, compared with 9 percent of Asian children under age six, 11 percent of non-Hispanic white children under age six and 32 percent of Hispanic children under age six.*⁵³¹

Implications for policymakers and practitioners

Practitioners can serve as a source of support and knowledge for low-income parents and their children, and can guide these parents to programs that can enhance their children's health and development. Participation in high quality early intervention programs such as Head Start has been shown to be particularly important for addressing the factors that limit the development of poor children.⁵³²

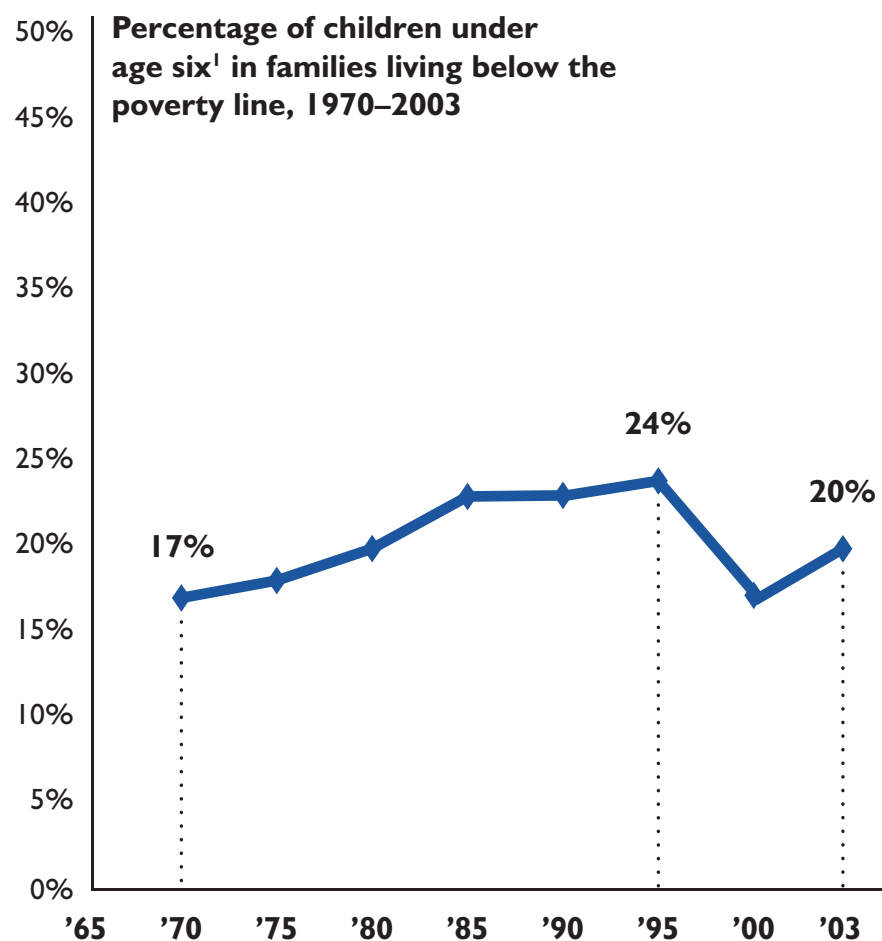
Implications for parents

Many programs and policies seek to raise family incomes, e.g. the Earned Income Tax Credit (EITC).⁵³³ In addition, parents in low-income families can find ways to enhance their children's development that do not require spending a lot of money. For example, parents can read to their young children regularly, and they can seek out high quality child care when available. Parents can also take their young children on free outings, including zoos, libraries, and cultural programs in parks. In order to improve their young children's nutrition, parents can enroll in public nutrition assistance programs such as the Food Stamp and the Women, Infants, and Children (WIC) programs. Parents can also make sure that their children participate in School Breakfast and Lunch Programs. It is also important that mothers breastfeed their infants, unless they are receiving chemotherapy or are HIV positive.⁵³⁴

* Estimates for 2003 by race have been revised to reflect the new OMB race definitions, and include only those who are identified with a single race. Persons of Hispanic origin may be of any race.

Family Poverty Status

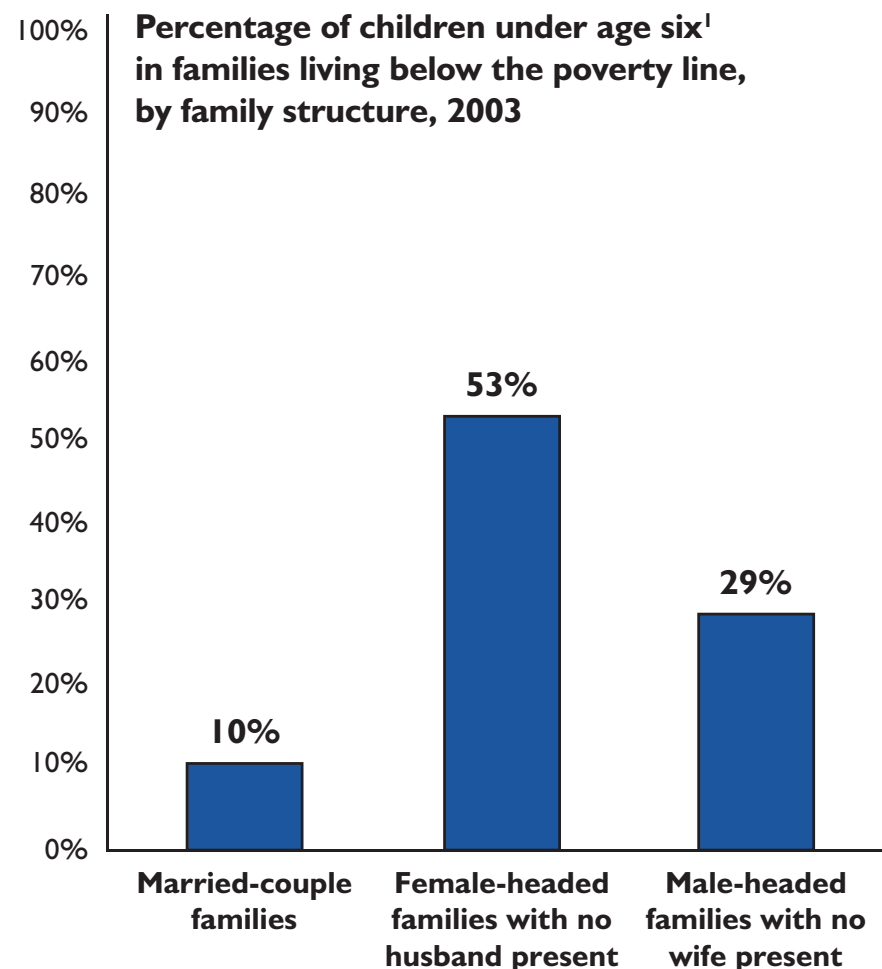
CHART 9-3



¹ Includes children who are related to the householder (or reference person) by blood, marriage or adoption.

Source: Data for 2003 from: C. DeNavas-Walt, B.D. Proctor, and R.J. Mills, "Income, Poverty, and Health Insurance Coverage in the United States: 2003," *Current Population Reports*, P60-226 (Washington, DC: US Census Bureau, 2004); Table 3. All other data from: Child Trends, *Child Trends DataBank Indicator: Child Poverty: Table 2*. Retrieved January 30, 2004 from URL: www.childtrendsdatbank.org/indicators/4Poverty.cfm. Original data from the Current Population Surveys of the U.S. Census Bureau.

CHART 9-4



¹ Includes children who are related to the householder (or reference person) by blood, marriage or adoption.

Source: U.S. Census Bureau, *Current Population Reports*, Series P60-222, Detailed Poverty Tables: Table 5. Available at: [at ferret.bls.census.gov/macro/032004/pov/toc.htm](http://ferret.bls.census.gov/macro/032004/pov/toc.htm).



Linguistic Isolation

Why is this important?

Children learn to speak by listening to their parents and others around them.⁵³⁵ Children in the United States who cannot speak English fluently may not communicate as effectively with others who speak only English, may have problems in school,⁵³⁶ and may feel lonely and vulnerable.⁵³⁷ Children in non-English speaking households may feel isolated from mainstream society.⁵³⁸ Children in linguistically isolated households (defined here as households in which no one over age 14 speaks only English or speaks English very well)⁵³⁹ are more likely to live in poverty due to parents' increased difficulty in finding work.⁵⁴⁰ Because of language barriers, non-English speaking parents may have difficulty enrolling their children in public health insurance programs and are less likely to seek health care for their children.⁵⁴¹

What do the data show?

- In 2000, 7.4 percent of all children under age six lived in linguistically isolated households. Estimates varied by state, with California reporting a high of 18.4 percent and Texas, Nevada, and Arizona reporting between 12.0 percent and 12.7 percent, compared with estimates below 1 percent for such states as New Hampshire, Vermont, Wyoming, West Virginia, North Dakota, Montana, and Maine.⁵⁴² (See Chart 9-5)

- Asian and Hispanic children are more likely than other children to live in linguistically isolated households. For example, in 2000, 29.1 percent of Asian children under age six and 28.4 percent of Hispanic children under age six lived in linguistically isolated households, compared with around 1 percent for non-Hispanic white and non-Hispanic black children under age six.*
- In 2000, 14.2 percent of children under age six in families living in poverty lived in linguistically isolated households, compared with 5.8 percent of families not living in poverty.

Implications for policymakers and practitioners

Inadequate language services and cultural insensitivity in health care may negatively influence children's access to health care and the quality of that health care.^{543, 544} If more states accessed federal reimbursement for language interpretation provided for Medicaid and State- Children's Health Insurance Program (SCHIP) enrollees, practitioners could provide health care services to children living in linguistically isolated households more effectively.⁵⁴⁵ The Office of Civil Rights strongly discourages the use of children as translators. Proposed California legislation would prohibit all children from being used as interpreters in health care situations, reflecting the seriousness of the issue.⁵⁴⁶

Research indicates that having volunteers in waiting rooms read to young children from non-English speaking families is associated with increases in parental reports of bedtime reading and the number of children's books in the home.⁵⁴⁷ Literacy-rich environments and parents reading to young children are positively related to early reading.^{548, 549}

Implications for parents

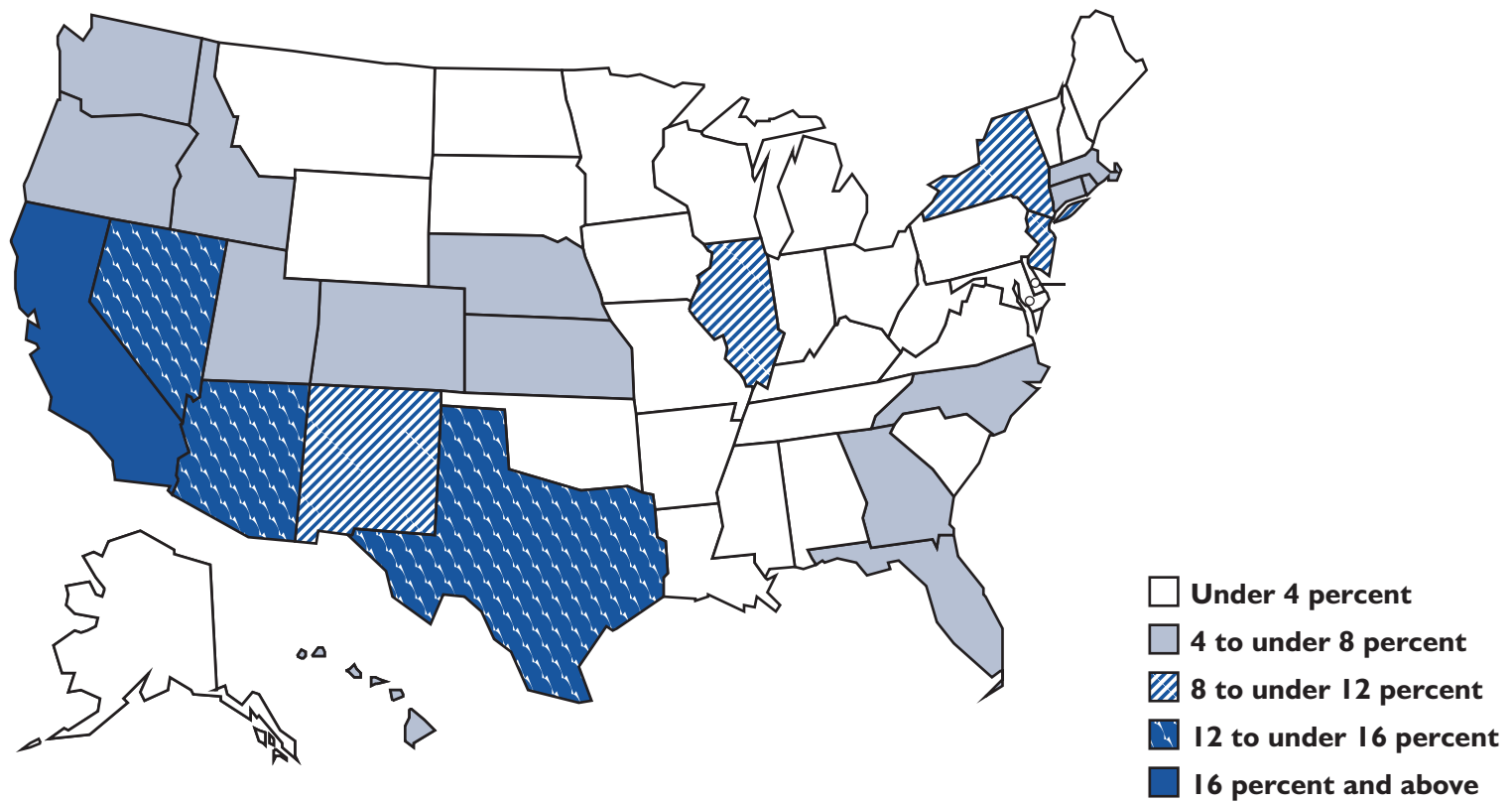
Early childhood bilingual preschool programs have been shown to increase young children's English proficiency, language productivity, and verbal complexity.⁵⁵⁰ Story hour at local libraries also can benefit children by exposing them to simple vocabulary and story lines and by providing music and activities that can be enjoyed by both children and non-English speaking parents. Various programs are available to help parents learn English and to help parents of children in ESL programs. Parents who cannot speak English can also support their children by listening to them read and helping them find a place to do their schoolwork.⁵⁵¹

* Estimates for Asian children only include those children of non-Hispanic origin. Persons of Hispanic origin may be of any race.

CHART 9-5

Linguistic Isolation

Percentage of children under age six living in linguistically isolated households,* by state, 2000



* Linguistically isolated households are defined here as households in which no one over age 14 speaks only English or speaks English very well.

Source: Original analysis by Population Reference Bureau of data from the 2000 Census 5-Percent Public Use Microdata Sample.



Births to Teen Mothers

Why is this important?

Children born to teen mothers are more likely to be born at a low birthweight,* to die as infants, to be born to mothers receiving late or no prenatal care, or to be born to mothers who smoke.^{552, 553, 554} They are more likely than children of mothers who delay child bearing to have lower cognitive development scores, worse school performance, and to exhibit behavior problems at home and in school.⁵⁵⁵ Young children born to teen mothers are also more likely than other children to have difficulty with language comprehension and expressive language⁵⁵⁶ and to live in a less stimulating home environment.⁵⁵⁷

What do the data show?

- In 2002, there were 43 births per 1,000 teen females between the ages of 15 and 19, less than half the rate in 1960 of 89 per 1,000.⁵⁵⁸ (See Chart 9-6)
- The teen birth rate for black females has plummeted in the last decade from 115 per 1,000 in 1991 to 67 per 1,000 in 2002. Hispanics ** now have the highest teen birth rate at 83 per 1,000, and Asian or Pacific Islanders have the lowest at 18 per 1,000. Non-Hispanic white female teens also have a relatively low rate of 29 per 1,000.⁵⁵⁹
- Teen birth rates vary substantially across the states. In 2002, rates varied from a high of 65 per 1,000 in Mississippi to 20 per 1,000 in New Hampshire.⁵⁶⁰ (See Chart 9-7)
- Despite important declines in the teen birth rate, the U.S. rate remains substantially higher than in other industrialized democracies.⁵⁶¹

Implications for policymakers and practitioners

A variety of program approaches have been found to delay adolescent sexual activity and pregnancy. Interestingly, some of the largest gains have been found for high quality early childhood programs that target disadvantaged children, and in youth development programs that involve teens in volunteer and school activities.⁵⁶² Some programs that focus on HIV education and contraceptive use have also had a positive impact on pregnancy prevention.⁵⁶³ For those who are already teen mothers, programs that use nurse home visiting for extended periods have been shown to reduce the likelihood of a subsequent birth.⁵⁶⁴

Nurses and other practitioners can play an essential role in making young mothers aware of the resources available to help them parent more effectively. Child care programs, support and welfare services, and parenting classes may help teen mothers provide for their children more adequately.⁵⁶⁵

Policymakers can also continue to provide support for teen-tot, or comprehensive clinic-based programs, which provide teen mothers with health care, family planning, counseling, social support and encouragement to continue their educations.⁵⁶⁶

Implications for parents

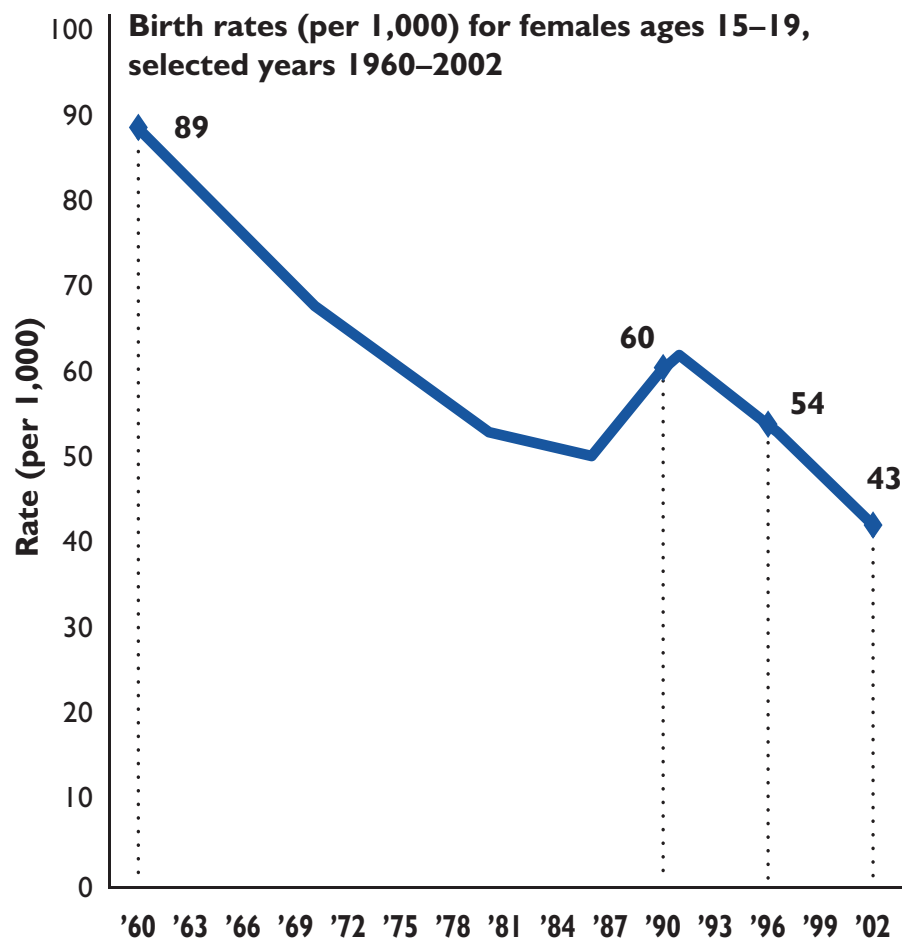
Pregnant teens are less likely than other pregnant women to receive prenatal care.⁵⁶⁷ Such care, especially early prenatal care, is important for a healthy baby and healthy pregnancy.⁵⁶⁸ Teen parents should consider postponing additional births until they are older. Comprehensive clinic-based programs that provide health care, family planning, counseling, social support and encouragement to continue education are available for teen mothers. While research is limited, there is some evidence that such programs lead to better infant health outcomes.⁵⁶⁹

* Among singleton births only. When multiple births are included, women ages 45 and over are the most likely to have infants born at low birthweight, followed by teen mothers.

** Persons of Hispanic origin may be of any race.

Births to Teen Mothers

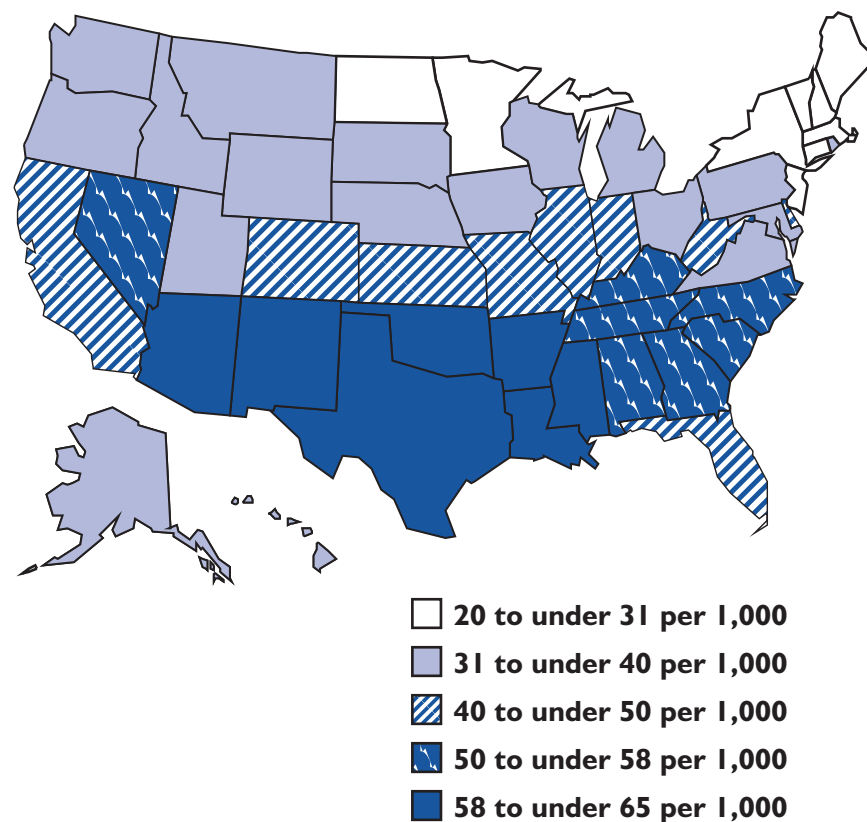
CHART 9-6



Source: Child Trends DataBank. (2003). *Child Trends DataBank Indicator: Teen Births*. Retrieved December 19, 2003 from URL: www.childtrendsdatabank.org/indicators/13TeenBirth.cfm. Original data from the *National Vital Statistics Reports* produced by the National Center for Health Statistics, Centers for Disease Control and Prevention.

CHART 9-7

Birth rates (per 1,000) for females ages 15–19, by state, 2002



Source: J. Martin, B. Hamilton, P. Sutton, S. Ventura, F. Menacker, and M. Munson, "Births: Final data for 2002," *National Vital Statistics Reports*, 52 (10, 2003): Table B. Available at: www.cdc.gov/nchs/data/nvsr/nvsr52/nvsr52_10.pdf.



Technical Appendix

CHAPTER 1: SOCIOEMOTIONAL DEVELOPMENT

Social Competence

The Early Childhood Longitudinal Study (ECLS-K), Kindergarten Cohort is a nationally representative longitudinal study that collects information on children's early school experiences, as well as their schools, teachers, and families, starting in kindergarten and following the same children through fifth grade. Data for this chartbook come from kindergarten assessments only. Kindergartners were assessed in their schools in the fall of 1998 and the spring of 1999. During the same time period, parents were interviewed over the phone, and teachers and school administrators were asked to complete questionnaires. For those children and parents whose primary language was not English, parent interviews and kindergarten math assessments were provided in Spanish and, whenever possible, translators were made available for those who spoke other languages. The survey includes an oversample of Asian children, private kindergartens, and private school kindergartners. Materials and alternative testing methods were also available for those with special disabilities. More information about the ECLS-K is available at: nces.ed.gov/ecls/Kindergarten.asp.

ECLS-K data presented in this indicator are based on parents' assessments of their children's social competence, defined according to the Social Rating Scale response categories, which range from one to four (1=Never exhibits behavior, 2=Sometimes exhibits behavior, 3=Often exhibits behavior, 4=Very often exhibits behavior). The scale includes three items

(ease in joining play, ability to make and keep friends, and positively interacting with peers). All kindergartners with a score of three or more were considered to exhibit socially competent behaviors "often or very often."

Behavioral Self-Control

Data used in this indicator are based on teacher reports of kindergartner's self-control from the Early Childhood Longitudinal Survey, Kindergarten Cohort, described for the Social Competence indicator. Self-control was assessed in terms of the child's ability to control his or her temper with peers in conflict situations, to respond appropriately to peer pressure, and to accept peers' ideas for group activities. Teachers gave each kindergartner scores ranging from one to four (1=Never exhibits behavior, 2=Sometimes exhibits behavior, 3=Often exhibits behavior, 4=Very often exhibits behavior). This indicator only uses data from 1998 for first-time kindergartners.

Attention Deficit Hyperactivity Disorder (ADHD)

The National Health Interview Survey (NHIS) is a nationally representative, cross-sectional survey that annually collects information on health status, health behaviors, and health care services through personal household interviews. Information about children is obtained from a knowledgeable adult (usually a parent or guardian) in the household. Interviews were conducted with 36,161 households in 2002, and information was obtained about 93,386 persons, including 26,191 children under age 18. The most detailed data were collected for 12,524 sample children. The survey includes an oversample of black and Hispanic persons. Data

for this indicator are from 1997 to 2002 and are based on parents or guardians who reported their 6-year-olds' doctor or health professional had identified them as having ADHD. More information is available at: www.cdc.gov/nchs/nhis.htm.

Data for children ages two to four who received prescriptions for ADHD are based on pharmacy records and Medicaid prescription claims from one Midwestern state Medicaid program, one mid-Atlantic state Medicaid program, and one HMO setting in the Northwest. All prescription claims for psychotropic medications (which included stimulants, antidepressants, and neuroleptics) were recorded in cross-sectional datasets for 1991, 1993, and 1995. For more information, please see J.M. Zito, D.J. Safer, S. dosReis, J.F. Gardner, M. Boles, and M. Lynch, "Trends in the Prescribing of Psychotropic Medications to Preschoolers," *JAMA* 283 (8, 2000): 1025-1030.

CHAPTER 2: INTELLECTUAL DEVELOPMENT

Reading Proficiency

Data for this indicator are from the Early Childhood Longitudinal Survey, Kindergarten Cohort (ECLS-K), described for the Social Competence indicator. Data are based on ECLS-K reading assessment reports of children's basic literacy skills. In 1998, each kindergartner was directly assessed using computer-assisted technology. Assessment scores were then converted into five different proficiency levels based on children's ability (reading proficiency level 1 - recognize letters; level 2 - knowledge of letter and sound relationships at the beginning of words; level 3 - knowledge of letter and

sound relationships at the end of words; level 4 - ability to read common words; level 5 - reading comprehension). Those children who did not speak English as their first language were first assessed using the Oral Language Development Scale, which measures receptive and expressive language in English. Children performing above the cut-off point were then given the core reading assessment in English. Children performing below the cut-off point were not given the complete core assessment. Estimates of kindergartners who could read simple books independently were based on teachers' reports of their students, rather than direct assessments.

Data reported in this indicator are for first-time kindergartners and exclude those children who were not assessed in English (approximately 19 percent of Asian children and 30 percent of Hispanic children). More information is available in K. Denton, E. Germino-Hausken, and J. West (project officer) *America's Kindergartners*, NCES 2000-070, (Washington, DC: US Department of Education, National Center for Education Statistics, 2000), available online at: nces.ed.gov/pubs2000/2000070.pdf.

Mathematical Proficiency

Data for this indicator are from the Early Childhood Longitudinal Survey, Kindergarten Cohort (ECLS-K), described for the Social Competence indicator. Data are based on ECLS-K mathematics assessments of children's mathematical knowledge and skills. In 1998, each kindergartner was directly assessed using computer-assisted technology. Assessment scores were then converted into five proficiency levels based on children's ability (mathematics proficiency level 1 - reading numerals, recognizing shapes, and counting to 10; level

2 - count beyond 10, sequencing patterns, and using nonstandard units of length to compare numbers; level 3 - reading two digit numbers, identifying the ordinal position of an object, and solving a word problem; level 4 - adding and subtracting; level 5 - multiplying and dividing).

Data reported in this indicator are for first-time kindergartners and exclude those children not assessed in English (approximately 19 percent of Asian children and 30 percent of Hispanic children). More information is available in K. Denton, E. Germino-Hausken, and J. West (project officer) *America's Kindergartners*, NCES 2000-070, (Washington, DC: US Department of Education, National Center for Education Statistics, 2000), available online at: nces.ed.gov/pubs2000/2000070.pdf.

Expressive Language Development

Data for this indicator are from the Early Childhood Longitudinal Survey, Kindergarten Cohort, described for the Social Competence indicator. In this indicator, expressive language was based on teacher reports of kindergartners' ability to produce rhyming words and use complex sentence structures. Teachers were asked to rate students as proficient, intermediate, in progress, beginning or not yet. Producing rhyming words, for example, would include saying a word that rhymes with 'chip,' 'shop,' 'drink,' or 'light.' Examples of complex sentence structures are, "If she had brought her umbrella, she wouldn't have gotten wet," or "Why can't we go on the field trip at the same time as the first grade?" Data are from 1998, and are for first-time kindergartners.

Fine and Gross Motor Skills

Data for this indicator are from the Early Childhood Longitudinal Survey, Kindergarten Cohort (ECLS-K), described for the Social Competence indicator. Data for this indicator are

based on direct assessment measures of children's motor abilities. Fine motor skills were assessed using a 9-point scale by measuring a child's ability to construct forms with wooden blocks, copy basic figures, and draw a person. Gross motor skills were assessed using an 8-point scale by measuring a child's ability to balance on each foot, hop on each foot, skip, and walk backwards in a line. Numerical scores were divided into approximate thirds, with scores in the middle third representing age-appropriate skill levels. Children scoring in the lowest third performed below the age-expected skill level, and are possibly at risk for later developmental problems.

Data reported in this indicator are only for first-time kindergartners. More information is available in K. Denton, E. Germino-Hausken, and J. West (project officer) *America's Kindergartners*, NCES 2000-070, (Washington, DC: US Department of Education, National Center for Education Statistics, 2000), available online at: nces.ed.gov/pubs2000/2000070.pdf. See tables 13 and 14.

CHAPTER 3: CHILD HEALTH

Blood Lead Levels

Data for percentages and total numbers of children ages one to five with elevated blood lead levels come from the National Health and Nutrition Examination Survey (NHANES). The NHANES is a nationally representative survey designed to collect data about the health status and diet of the U.S. population. Information is gathered through a combination of household interviews and health tests conducted in mobile examination centers. The current NHANES survey began in 1999 and is the fifth to be conducted. This will be a continuing survey that will sample approximately 5,000 persons in 15 U.S. locations each year. The survey includes oversamples of adolescents (12-19 years), older persons (60

years and over), African Americans, Mexican Americans, low-income persons (less than 130 percent of poverty), and pregnant women. Data are collected from the head of each family and that person's spouse or partner, as well as from one randomly-selected sample person from each family, and from medical examinations. More information about the NHANES is available at: www.cdc.gov/nchs/nhanes.htm.

For this indicator, blood lead level were assessed from blood samples collected from children ages one to five as part of the NHANES physical examination. Those children with blood lead levels greater than 10 micrograms per deciliter were considered to have elevated blood lead levels. For more information, see P. Meyer, T. Pivetz, T. Dignam, D. Homa, J. Schoonover, and D. Brody, "Surveillance for Elevated Blood Lead levels Among Children-United States 1997-2001," *Morbidity and Mortality Weekly Report* 52 (September 12, 2003): 1-24. Available at: www.cdc.gov/MMWR/preview/MMWRhtml/ss5210a1.htm.

Data by race come from state child blood lead surveillance data from 1997 to 2001. State surveillance systems collect information annually on blood lead levels of children under age six. State surveillance data come from state health department reports of blood lead tests from private and local and state government laboratories. Reporting criteria vary by state. Tests were administered to 2,422,298 children from 44 states, the District of Columbia, and New York City in 2001. Twenty-eight states also reported matching Medicaid data to assess the percentage of children eligible for or receiving Medicaid who had also received a blood test. Those children with one venous blood specimen greater than 10 micrograms per deciliter or two capillary blood specimens greater than 10 micrograms per deciliter and drawn within 12 weeks of each other were considered to have

elevated blood lead levels. These data were presented in the Centers for Disease Control and Preventions Report, "Surveillance for Elevated Blood Lead levels Among Children-United States 1997-2001," *Morbidity and Mortality Weekly Report* 52 (September 12, 2003): 1-24. Available at: www.cdc.gov/MMWR/preview/MMWRhtml/ss5210a1.htm.

Low and Very-Low Birthweight

Total estimates, estimates by race, and estimates by maternal smoking for this indicator are from the *National Vital Statistics Reports* on births. The National Center for Health Statistics of the Centers for Disease Control and Prevention compiles data from all birth, death, and fetal death records for its National Vital Statistics System. More information on the *National Vital Statistics Reports* is available at: www.cdc.gov/nchs/births.htm.

Low-birthweight babies are defined as those babies who weighed less than 2,500 grams or 5 pounds, 8 ounces at birth. Very-low-birthweight babies are those who weighed less than 1,500 grams or 3 pounds, 4 ounces at birth.

Data for cognitive ability of middle school children by birthweight are from a study of middle school children in Ohio who were born between July 1, 1982 and December 31, 1986 in Ohio. More information is available from H.G. Taylor, N. Klein, N.M. Minich, and M. Hack, "Middle-school-age Outcomes in Children with Very Low Birthweight," *Child Development* 71 (November/December 2000): 1495-1511.

Iron Deficiency

Data for total estimates and by children's weight are from the National Health and Nutrition Examination Survey conducted between 1988 and 1994, described for the Blood Lead Levels indicator. Data are for children ages one to four, and were presented in Centers for Disease

Control and Prevention, "Recommendations to Prevent and Control Iron Deficiency in the United States," *Morbidity and Mortality Weekly Report* 47 (April 3, 1998): 1-36. Available at: www.cdc.gov/MMWR/PDF/RR/RR4703.pdf.

Obesity, as presented in this indicator, was measured using age- and sex-specific body mass index (BMI) percentiles. Those at risk for being overweight were defined by a BMI between the 85th and 95th percentile, and those defined as overweight were in the 95th percentile or above. Data are for children ages 2 to 16. More information is available from: K.G. Nead, J.S. Halterman, J.M. Kaczorowski, P. Auinger and M. Weitzman, "Overweight Children and Adolescents: A New Risk Group for Iron Deficiency?" *Pediatric Research* 53 (April 2003): 1183 Part 2 Supplement.

Dietary intake data are from the U.S. Department of Agriculture's Continuing Survey of Food Intakes by Individuals, a nation-wide cross-sectional survey that collects information on what Americans eat and drink. The 1994 to 1996 version surveyed individuals residing in households, with an oversample of low-income residents. Information was collected through face-to-face interviews of over 16,000 individuals, including 5,354 children, on food intake for two nonconsecutive days. More information is available from: www.cdc.gov/MMWR/PDF/RR/RR4703.pdf.

Children with Chronic Health Conditions

Data for this indicator are from the National Health Interview Survey, described for the Attention Deficit Hyperactivity Disorder (ADHD) indicator. The NHIS asked knowledgeable adults (usually a parent or guardian) if their child was limited in the kind or amount of play he or she could do because of a physical, mental, or emotional problem. Information presented is for children ages two to four in 2002.

Breastfeeding:

Data for this indicator come from the Ross' Mothers Survey, a nationally representative cross-sectional annual survey that collects information on mother's breastfeeding habits and infants feeding habits. The multiple-choice survey is mailed to mothers with infants ages 1 month, 2 months, 3 months and so forth up until age 12 months. Roughly 1.4 million surveys are mailed each year, (117,000 monthly), with a return rate of around 31 percent. Questionnaires are mailed to a probability sample of new mothers chosen from a list of names that represents 82 percent of all national births. The survey has been conducted since 1955. For more information see: *Breastfeeding Trends-2002* (Ross' Mothers Survey, Ross Products Division, Abbott Laboratories, 2003).

CHAPTER 4: FAMILY FUNCTIONING

Reading to Young Children and Available Reading Materials in the Home

Data on reading to young children (under age three) are based on parents' reports of how often they read to their young children, from the National Survey of Early Childhood Health (NSECH). NSECH is a nationally representative random-digit-dialing telephone survey that provides information about parents' perceptions of their young children's pediatric care and health, and interactions with their families. In 2000, the survey contacted 2,068 families with children between the ages of 4 months and 35 months, with an over-sample of around 800 black non-Hispanic and Hispanic children. In households where more than one child was eligible, a sample child was selected. The adult primarily responsible for the sample child's medical care was interviewed. NSECH is a

cross-sectional survey conducted as a module of the State and Local Area Integrated Telephone Survey (SLAITS), which is an ongoing state and local surveillance system. More information about NSECH is available at: www.cdc.gov/nchs/data/series/sr_01/sr01_040.pdf. More information about the report is available from: A. Kuo, T. Franke, M. Regalado, and N. Halfon, "Parent Report of Reading to Young Children," in N. Halfon and L. Olson (eds.), *Content and Quality of Health Care for Young Children: Results from the 2000 National Survey of Early Childhood Health. Special Supplement to Pediatrics* 113 (6, 2004): 1944-1951.

Data for reading materials available in the home are from the ECLS-K, described in Indicator 1: Social Competence. Parents were asked how many children's books they had in the home. Data are for 1998 and only include first-time kindergartners. More information is available in K. Denton, E. Germino-Hausken, and J. West (project officer), *America's Kindergartners*, NCES 2000-070, (Washington, DC: US Department of Education, National Center for Education Statistics, 2000), available online at: nces.ed.gov/pubs2000/2000070.pdf.

Parental Warmth and Affection

Data for this indicator come from the Panel Study of Income Dynamics-Child Development Supplement (PSID-CDS). The PSID-CDS is a nationally representative longitudinal survey that collects information on the physical health, social well-being, and cognitive achievement of children and their parents. In 1997, the first year of the supplement, information was collected from 2,374 families and 3,563 children under age 13. (Re-interviews were conducted with 2,017 families between 2002 and 2003, and information was collected about 2,908 children, then between the ages of 5 and 18.) Low income-families

and immigrants were over-sampled. For further information about this survey, see: psidonline.isr.umich.edu/CDS/researchdesign.html.

For this indicator, parental warmth and affection was measured using three questions from the PSID-CDS. Parents who are living with their young children were asked to report how often in the past month they: hugged or showed physical affection to their child; told their child that they loved him/her; and told their child that they appreciated something he or she did. Data for this indicator came from the *Child Trends DataBank Indicator: Parental Warmth and Affection*. Available at: www.childtrendsdatabank.org/indicators/52ParentalWarmthAffection.cfm.

Child Maltreatment

The National Child Abuse and Neglect Data System (NCANDS) collects national and state child maltreatment data from State Child Protective Service (CPS) agencies. States provide aggregate data on child maltreatment, including the type of maltreatment, characteristics of victims, child maltreatment deaths, and the number, source, and disposition of reports. Maltreatment assessment methods vary by state. More information is available in the Children's Bureau, Administration on Children, Youth, and Families' *Child Maltreatment* reports, available at www.acf.dhhs.gov/programs/cb/publications/cm01/index.htm. For information about each state's reporting methods see *Appendix D: State Commentary*.

For this indicator, rates of child maltreatment were based on the total number of victims (by summing totals in available reports from each state) divided by the child population in the reporting states and multiplied by 1,000. Each child can be the victim of more than one type of child maltreatment. Child fatalities are based on data from 30 states. If a state did not report the age

or sex of a child fatality victim, the fatality was not included in the analysis. The overall population percentage is based on July 1, 2001 population estimates from the U.S. Bureau of the Census.

Aggravated Parenting

Data for this indicator come from the National Survey of America's Families (NSAF). The NSAF is a cross-sectional survey designed to study the well-being of America's children and non-elderly adults. Data are gathered in two ways: through a random-digit-dialing sample of households with telephones and through an area probability sample of households without telephones. The survey was conducted three times (1997, 1999, and 2002) and is representative of the civilian, non-institutionalized population under age 65 at the national level and at the state level for thirteen states. In each year of data collection, interviews were conducted with more than 40,000 households, yielding information about more than 109,000 individuals under age 65. Data were collected for up to two children in each household (one under age 6 and one age 6-17) through proxy interviews with a knowledgeable adult (usually a parent) in the household. The NSAF includes an oversample of families below 200 percent of the poverty threshold. More information is about this survey is available at: www.urban.org/Content/Research/NewFederalism/NSAF/Overview/NSAFOverview.htm.

For this indicator, parental aggravation is assessed only for the adult in the household that is most knowledgeable about the child. Typically, this is a child's parent, and most often the mother. Parent aggravation is assessed by asking this adult how much of the time during the past month he/she felt his/her children are much harder to care for than most; felt his/her children do things that really bother him/her a lot; felt he/she is giving up more of his/her life to meet his/her children's needs than he/she ever

expected; and felt angry with his/her children. Response categories range from one to four (1=All of the time; 2=Most of the time; 3=Some of the time; 4=None of the time).

Parental Domestic Violence During Pregnancy

Data for this indicator are from the Pregnancy Risk Assessment Monitoring System (PRAMS), an annual cross-sectional survey that collects state information on mothers' experiences before, during, and after pregnancy. The survey has been conducted since 1987. In 1999, between 1,000 and 3,400 women were surveyed from each of the thirty-one participating states and New York City. Mothers receive questionnaires in the mail followed by telephone calls if questionnaires are not completed. Most states over-sample women whose babies were born at low birthweight. More information is available at: www.cdc.gov/reproductivehealth/srv_prams.htm.

This indicator is based on women's reports of physical abuse during pregnancy in 17 states. Mothers were asked whether they were physically abused by their husband or partner during their most recent pregnancy. Physical abuse includes being pushed, hit, slapped, kicked, choked, or physically hurt in any other way. Mothers were also asked if a health care practitioner had discussed physical abuse with them during prenatal care. Data are from 1997 to 1999.

Regular Bedtime and Mealtime

Data for this indicator are from the National Survey of Early Childhood Health (NSECH), described for the Reading to Young Children and Available Reading Materials in the Home indicator. Data are based on three questions asked of the most knowledgeable adult in the household (usually a parent): Are child's mealtimes usually the same everyday or do they change from day to day; Is child's bedtime

usually the same everyday or does it change from day to day; and In the last 12 months, did child's doctors or health providers talk with you about child's bedtime routines?

TV and Video Time

This indicator uses data from a Kaiser Family Foundation nationally representative random-digit-dial telephone survey of 1,065 parents of children ages six months to six years. Conducted in the spring of 2003, this cross-sectional survey collected information on young children's access to, and use of, media, including television, video games, and computers. Interviews with the parent who spends the most time with the child were conducted in English and Spanish. In households where parents spend equal amounts of time with children, one was selected at random. The response rate was 40 percent. Heavy TV watchers are defined as those who spend two or more hours a day watching TV. Survey results are published in the Kaiser Family Foundation's report, *Zero to Six: Electronic Media in the Lives of Infants, Toddlers and Preschoolers*. The report is available online at: www.kff.org/entmedia/3378.cfm.

CHAPTER 5: PARENTAL HEALTH

Parental Depression

Data for this indicator are from the ECLS-K, described for the Social Competence indicator. The ECLS-K used a 12-item version of the 20-item Center for Epidemiologic Studies Depression Scale (CES-D) to measure parents at risk for depression. Parents were asked such questions as how often during the past week they had felt bothered by things that did not usually bother them, did not feel like eating or felt their appetite was poor, could not shake the blues, even with help from their family, were depressed, or felt lonely. For each question, parents were

allowed to choose from among the following response categories: 0= Never; 1= Some of the time; 3= A moderate amount of the time; and 4= Most of the time. Parents who displayed many depressive symptoms, and who were thus at risk for depression, were identified by applying the cutoff ratio created by Devins and Orme for the original 20-item scale to the ECLS-K 12-item scale. For this indicator, parents who gave high responses to the twelve questions (those with a total score of 9.6 or more out of a possible 36) were considered to be at-risk for depression.

Parental Smoking and Drinking

Data for the percentage of newborns whose mothers smoked during pregnancy are from the *National Vital Statistics Reports* on births, described for the Low- and Very-Low Birthweight indicator. Data are for 1990 through 2002. Information was reported for 49 states and the District of Columbia in 2002. Data for California are excluded because California does not require mothers to report whether they smoked during pregnancy. For more information see: J.A. Martin, B.E. Hamilton, S.J. Ventura, F. Menacker, and M.M. Park, "Births: Final Data for 2000," *National Vital Statistics Report* 50 (5, 2002) and J.A. Martin, B.E. Hamilton, P.D. Sutton, S.J. Ventura, F. Menacker, and M.L. Munson, "Births: Final Data for 2002," *National Vital Statistics Reports* 53 (10, 2003).

Data for binge drinking are from the National Health Interview Survey, described for the Attention Deficit Hyperactivity Disorder (ADHD) indicator. In this indicator, parents who binge drink are defined as those parents who reported consuming at least five drinks in a row at least once per month in the past year, and current smokers are defined as those who have ever smoked 100 cigarettes and currently smoke every day or some days. Data are from 2002 for parents of children under age six.

Data for newborns with fetal alcohol syndrome are from the Fetal Alcohol Syndrome Surveillance Network (FASSNet). FASSNet collected statewide information about those infants born between 1995 and 1997 with fetal alcohol syndrome. Each state participating in FASSNet uses the same general surveillance methodology so as to make data comparable across states. Each state used multiple sources to identify potential cases of Fetal Alcohol Syndrome, including health care clinician referral to a state FASSNet program, clinician records of those infants with prenatal alcohol exposure or suspected Fetal Alcohol Syndrome, hospital discharge datasets, and birth defect monitoring programs. Records for 1,489 children were reviewed. Information was reported in “Fetal Alcohol Syndrome—Alaska, Arizona, Colorado, and New York,” in *Morbidity and Mortality Weekly Reports*. More information is available at: www.cdc.gov/MMWR/PDF/wk/mm5120.pdf.

Data for children who live in households in which someone smokes are from the Surveys on Radon Awareness and Environmental Tobacco Issues. The surveys collect information on household smoking, tobacco issues, and radon awareness. More information on the survey is available at: www.epa.gov/economics/children/ace_2003.pdf (Appendix B).

Data for pregnant women who use alcohol and report binge drinking are from the National Survey on Drug Use and Health, a cross-sectional survey that collects information on the prevalence and consequences of drug and alcohol use. Mothers are asked about alcohol consumption during pregnancy. Current alcohol users are defined as those who have had at least one drink in the past 30 days. Binge drinkers are those who have had five or more drinks on the same occasion at least once in the past month. Heavy drinkers are those who have had five or

more drinks on the same occasion at least five times in the past month. Data for this indicator are from 2002. More information is available at: www.samhsa.gov/oas/NHSDA/2k2NSDUH/Results/appA.htm.

CHAPTER 6: HEALTH CARE RECEIPT

Developmental Screening and Well-Child Visits

Data for well-child visits are from the National Health Interview Survey, described in Indicator 3: Attention Deficit Hyperactivity Disorder (ADHD). For this indicator, the most knowledgeable adult (usually a parent or guardian) reported whether sample children had received a well-child visit with a health professional in the past year. Data are for 2002 for children under age six.

Data for screening for developmental delays and for parental concern about their children’s development are from the National Survey on Early Childhood Health, described for the Reading to Young Children and Available Reading Materials in the Home indicator. Parents of children between the ages of 4 months and 35 months were asked whether they had any concerns about their children’s speech, social development, or behavior. They were also asked whether health clinicians had ever said they were doing a developmental assessment of their children, or if the clinicians had ever asked their child to pick up small objects, throw a ball, or recognize different colors. For more information see: N. Halfon, L. Olson, M. Inkelas, et al., *Summary Statistics from the National Survey of Early Childhood Health, 2000*, (Hyattsville, MD: National Center for Health Statistics, 2002). Available at: www.cdc.gov/nchs/about/major/slaits/Publications_and_Presentations.htm.

Health Insurance Coverage

The Current Population Survey’s Annual Social and Economic Supplement (formerly known as the March supplement) is a cross-sectional survey of the civilian non-institutionalized population conducted each March. Employment, income, and demographic data are collected for all persons ages 15 and older, and tabulated for persons ages 16 and over. CPS data are representative at the national level and include an oversample of persons of Hispanic origin. More information is available at: www.bls.census.gov/cps/asec/adsmain.htm.

For this indicator, insurance status is based on whether children had coverage at any time in the past year. Government health insurance for children consists mostly of Medicaid, but also includes Medicare, the State Children’s Health Insurance Programs (S-CHIP), and CHAMPUS/Tricare, the health care program for members of the armed services and their families. Children who had more than one type of insurance were counted in multiple categories. Data are for 1987 to 2003, for children under age six. For more information, see *Child Trends, Child Trends DataBank Indicator: Health Care Coverage*. Available at: www.childtrendsdatabank.org/indicators/26HealthCareCoverage.cfm, or see *CPS Annual Social and Economic Supplement: Table H103*. Available at: ferret.bls.census.gov/macro/032004/health/h03_000.htm.

Child Immunization

The National Immunization Survey is a nationally representative telephone survey that monitors immunizations of children currently living in the United States. Data are collected for about 30,000 children ages 19 to 35 months, residing in 50 states, the District of Columbia, and 27 large urban areas. Through telephone interviews with randomly selected households, parents or guardians are asked

about the vaccines that their children have received. Following the telephone interview (upon consent from parents or guardians), the children’s immunization providers are contacted through mail surveys to confirm the children’s vaccination histories. The survey has been conducted annually since 1994, and is representative of all children ages 19–35 months at the national and state levels, as well as for many subgroups and smaller geographic areas. More information on the NIS is available at: www.cdc.gov/nis/. Data for this indicator were taken from the *Child Trends DataBank Indicator: Immunization*. Available at: www.childtrendsdatabank.org/indicators/17Immunization.cfm.

Screening for Hearing and Vision Problems

Data for this indicator are from the ECLS-K, described for the Social Competence indicator. Data are based on parent reports of whether children had a screening for vision or for hearing by kindergarten entry in 1998.

State data are also included from the CDC, which collects state data on the number of infants screened, evaluated, and enrolled in intervention services for hearing problems. From 1999 to 2001, CDC requested data from the 50 states, the District of Columbia, Guam, Puerto Rico, and the U.S. Virgin Islands. Responses were received from 22 states/areas in 1999, from 46 states/areas in 2000, and from 50 states/areas in 2002.

Dental Visits and Unmet Dental Needs

Data for this indicator are from the National Health Interview Survey, described for the Attention Deficit Hyperactivity Disorder (ADHD) indicator. Unmet dental need is based on the question, “During the past 12 months, was there any time when [child’s name] needed dental

care (including check ups) but did not get it because you couldn't afford it?" Time since last dental contact is based on the question, "About how long has it been since [child's name] last saw or talked to a dentist? Include all types of dentists, such as orthodontists, oral surgeons, and all other dentist specialists, as well as dental hygienists." Data are for 1997 to 2002 for children ages two to five.

CHAPTER 7: COMMUNITY/NEIGHBORHOOD FACTORS

Community/Neighborhood Poverty Status

Data for this indicator are from the 5-Percent Public Use Microdata Sample (PUMS) from the 2000 Decennial Census. PUMS is a microdataset that allows users to perform their own analyses on a wide array of Census topics. There are two PUMS datasets available for analysis: the 5 percent file (used for this indicator) is representative of 5 percent of the nation's households and people, and the 1 percent file is representative of 1 percent of the nation's households and people. Data for the PUMS files are collected through the Census "long form." Using the 5 percent file allows users to examine data at smaller geographic levels and to study fairly rare characteristics in the population. More information is available at: www.census.gov/main/www/pums.html.

For this indicator, poor neighborhoods are defined as those neighborhoods in which at least 20 percent of the population is living below the poverty line. Very poor neighborhoods are those neighborhoods in which at least 40 percent of the population is living below the poverty line. Data are for children under age five in 1999. Estimates for this indicator were provided by the Population Reference Bureau, www.prb.org/.

Perceived Neighborhood Safety

Data for this indicator are from the ECLS-K parent reports, described for the Social Competence indicator. Parents were asked how safe it was for their children to play outside during the day. The original response categories were: (1) Not at all safe; (2) Somewhat safe; and (3) Very safe. The variable was re-coded to a dichotomous variable by combining categories one and two into a general 'Not safe' category. Data are from 1998 for kindergarteners.

CHAPTER 8: CHILD CARE

Type of Child Care

The Early Childhood Program Participation Surveys, part of the National Household Education Survey (NHES) Program, are nationally representative cross-sectional surveys that collect information on early childhood care and education programs, family literacy activities, and early school experiences. For each NHES survey, between 54,000 and 64,000 households are screened by random-digit-dialing telephone interviews to identify eligible respondents. The Early Childhood Program Participation Survey was conducted by telephone in 1991, 1995, 1999, and 2001. In 2001, almost 7,000 parents of children under age 15 were interviewed. The parent or guardian most knowledgeable about the sample child's education was interviewed. More information is available at: nces.ed.gov/nhes/surveytopics_early.asp.

Estimates for this indicator are for children ages six and under and exclude those children already in kindergarten. In this indicator, center-based care can take place in day care centers, pre-kindergartens, nursery schools, Head Start centers, or other early childhood education programs. Relative care can take place either in the child's home or another home. Children who

participate in more than one type of care are counted in both percentages. Those few children without a mother in the home are not included in estimates by maternal employment.

CHAPTER 9: DEMOGRAPHIC FACTORS

Parental Educational Attainment

Data for total estimates, estimates by race, and estimates by family structure are from the Current Population Survey's Annual Economic and Social Supplement, described for the Health Insurance Coverage indicator. Parental education level reflects the higher education level of the resident parent(s). Data are for children under age six in 2003.

Data for school readiness are from the ECLS-K, described for the Social Competence indicator, and are only for first-time kindergartners. Education level reflects the highest education level completed by the child's mother.

Family Poverty Status

Data for this indicator are from the Current Population Survey's Annual Economic and Social Supplement, described for the Health Insurance indicator. The poverty level is based on money income and does not include noncash benefits such as Food Stamps, or the Earned Income Tax Credit. Poverty thresholds reflect family size and composition and are adjusted each year using the annual average Consumer Price Index (CPI). The average poverty threshold was \$18,660 in 2003 for a family of four with two children. Data are for related children under age six. Related children include biological children, stepchildren, and adopted children of the householder and all other children in the household related to the householder (or reference person) by blood, marriage, or adoption. More

information is available at: ferret.bls.census.gov/macro/032004/pov/toc.htm.

Linguistic Isolation

This indicator uses data from the 2000 Census 5-Percent Public Use Microdata Sample (PUMS), described for the Community/Neighborhood Poverty Status indicator. Children were considered to live in linguistically isolated households if they lived in a household in which no one over age 14 spoke only English and in which no one over age 14 spoke English very well. Data are for children under age six in 2000. Estimates for this indicator were provided by the Population Reference Bureau, www.prb.org/.

Births to Teen Mothers

Data for this indicator are from *National Vital Statistics Reports* birth certificate data, described for the Low- and Very-Low-Birthweight indicator. For more information see the *Child Trends DataBank Indicator: Teen Births*. Available at: www.childtrendsdatabank.org/indicators/13TeenBirth.cfm or J. Martin, B. Hamilton, P. Sutton, S. Ventura, F. Menacker, and M. Munson, "Births: Final data for 2002," *National Vital Statistics Reports*, 52 (10, 2003): Table B. Available at: www.cdc.gov/nchs/data/nvsr/nvsr52/nvsr52_10.pdf.

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