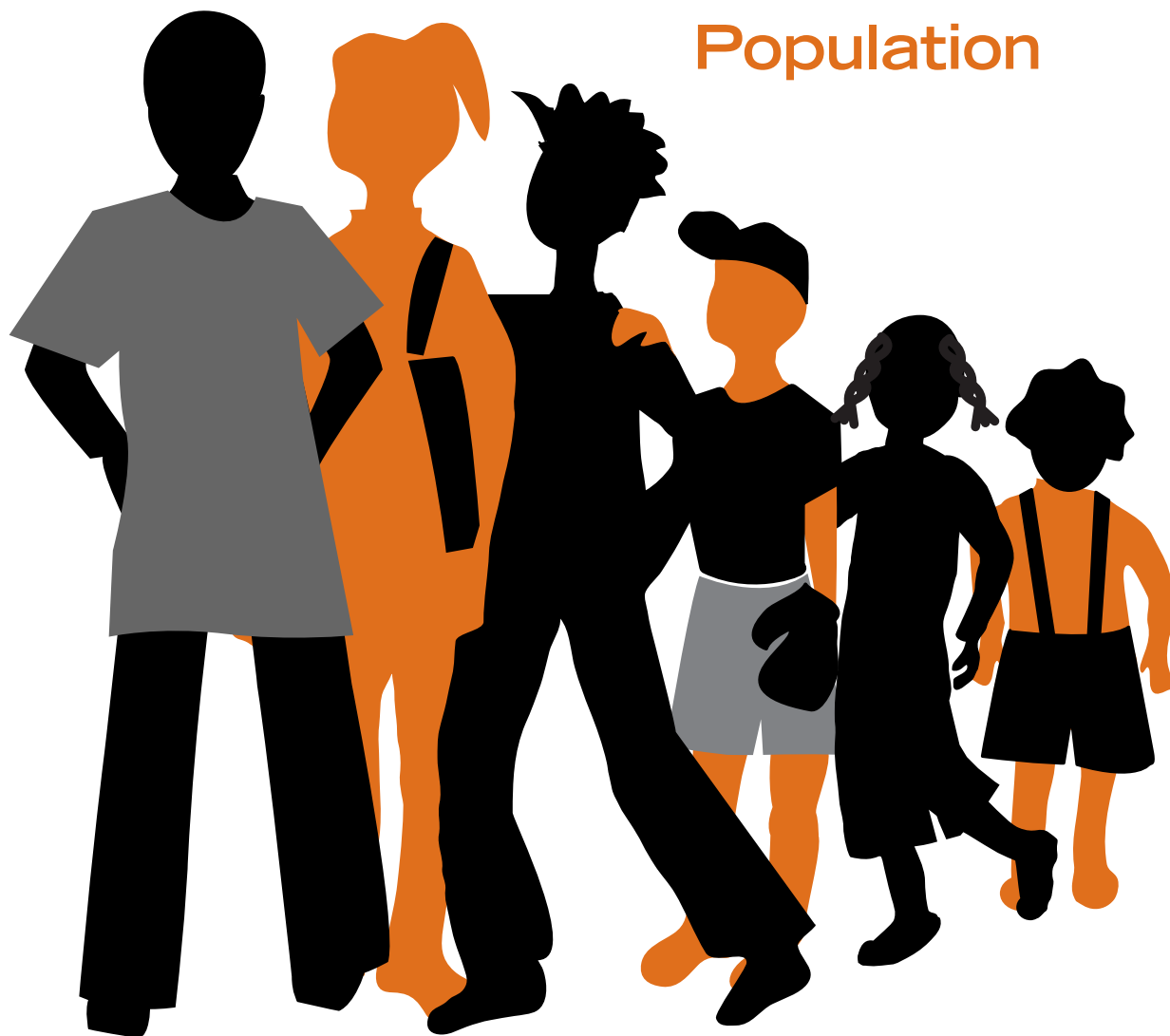


The Health of America's Middle Childhood Population



Public Policy Analysis and Education Center for
Middle Childhood and Adolescent Health

Divisions of Adolescent Medicine and General Pediatrics,
Department of Pediatrics

and

Institute for Health Policy Studies

School of Medicine

University of California, San Francisco

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Public Policy Analysis and Education Center for Middle Childhood and Adolescent Health

The Public Policy Analysis and Education Center for Middle Childhood and Adolescent Health (Policy Center) is funded through a Cooperative Agreement with the Maternal and Child Health Bureau (MCHB). Established in 1996, it is located within the School of Medicine at the University of California, San Francisco, where it is operated jointly by the Division of Adolescent Medicine and the Division of General Pediatrics (both within the Department of Pediatrics) and the Institute for Health Policy Studies. The overall goal of the Policy Center is to assist the Maternal and Child Health Bureau in identifying, analyzing and developing policy options and programs to enhance the health and well being of school-aged children, adolescents, young adults and their families. To accomplish this, the Policy Center analyzes the effects of current and emerging policies, regulations and practices at the federal, state and community levels; and examines health and related services and service systems for the middle childhood, adolescent and young adult populations.

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I. INTRODUCTION

The middle childhood years (ages 6-11) are a unique developmental time when children undergo critical physical, cognitive, and social changes. During this time, children enter school, and their social context broadens beyond their families. Ideally, middle childhood gives children the opportunity to develop competencies, interests, and a healthy sense of confidence that they can master and control their worlds (Eccles, 1999). This period has received relatively little attention from researchers and policy-makers. By contrast, early childhood and adolescence are recognized as established fields—each having intellectual foundations, advocacy groups, and federal and state programs and policies. Clearly, the critical development that occurs in the first five years of life and the high morbidity and mortality that accompanies risky behavior in adolescence justifies focusing on these areas. Nevertheless, there are substantial health issues in middle childhood that merit increased commitment. The health and well-being of the middle childhood population is part of a continuum that depends on what happens during infancy and early childhood and influences the behaviors and outcomes of adolescents and adults. Promoting the health of the middle childhood population, through research and policy development, would complement progress made in the areas of early childhood and adolescence, leading to a comprehensive approach for ensuring healthy development throughout childhood.

By traditional health measures, the middle childhood population is healthy. The health issues affecting this population are more likely to be behavioral and social in origin, rather than biomedical. For example, while mortality rates for this age group are low, mental health disorders affect nearly 20% of these children. In addition, some unhealthy behaviors of adolescence (e.g., poor nutritional habits, smoking) may have antecedents in middle childhood and some behaviors actually begin in middle childhood. These behaviors are linked to many diseases (e.g., hypertension, cancer, diabetes) that are unlikely to emerge clinically until adolescence and adulthood. Thus, the middle childhood years present an opportunity for early intervention to encourage healthy behaviors and prevent disease among adolescents and adults.

While middle childhood is an important bridge to adolescence, and can be considered an important point of intervention, it is also an important period in and of itself. Although there is abundant research on the health of early childhood and adolescence, research on middle childhood health is sparse by comparison. The lack of quality research on the health of these children leaves this age group literally “stuck in the middle.” Health does not take place in a vacuum, and the health needs of middle childhood, although different from early childhood and adolescence, are no less important.

The relationship between middle childhood and the risky behaviors of adolescence is one of many areas needing further study. Other areas include the effect of the changing health care system (e.g., changing managed care arrangements) and the shifting demographic and socio-economic status of these children's families (e.g., greater racial/ethnic diversity of children and families, greater numbers of working parents, more single-parent families, and more children in childcare). Understanding how these many factors interact to influence health and well-being during middle childhood is critical for developing responsive health and social policies that meet the needs of this age group.

This monograph presents the best available data on the health of the middle childhood population. We describe the environment in which children live and present a wide range of indicators of well-being, including traditional measures of health. We focus on demographic characteristics of the middle childhood population and other features of these children's environment. We then present measures of health care access and utilization, and traditional health status indicators (mortality, chronic illnesses and disabilities, hospitalizations, emergency rooms visits, common illnesses, and dental health). This is followed by more recently recognized health issues (mental health, health risk behaviors, diet and obesity) and the safety of children's environments. This overview of the health status of middle childhood provides the basis for developing a national research and policy agenda to promote the health and well-being of this unique population.

In Appendix A, we describe some limitations of data currently available for the middle childhood population. It is important to note that there is no exact consensus regarding an age range defining middle childhood. We decided to focus on children ages 6 to 11 for several reasons. First, similar ages have often been used to differentiate middle childhood from infancy and early childhood and adolescence, such as ages 6 to 10 (Eccles, 1999), and ages 6 to 12 (Collins, 1984). Second, several national health reports use this age range, such as *America's Children: Key National Indicators of Well-Being, 2001* (Federal Interagency Forum on Child and Family Statistics [FIFCFS], 2001), *Snapshots of America's Families II* (The Urban Institute, 2000), and the *Current Population Reports* (Census Bureau, 1998a) (see Appendix B for other sources of data). Third, this age range allows for equal comparisons between other age groups (i.e., 0 to 5 and 12 to 17) because each age group comprises a six-year interval, and these other age groups are commonly found in many national data sets. Fourth, most children start kindergarten at about age 5 or 6 and enter middle or junior high school around age 11 or 12, which many use to mark the beginning of adolescence.

II. DEMOGRAPHIC AND ENVIRONMENTAL FEATURES

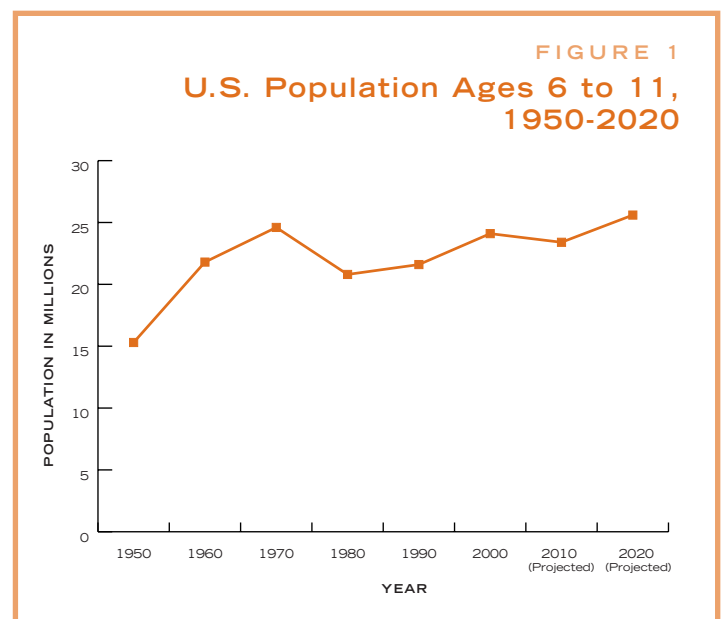
This section focuses on the demographic features of the middle childhood population and other environmental characteristics that shape these children's lives and their health. Demographic factors such as income, family structure and race/ethnicity are related to health outcomes (Goodman, 1999; Brooks-Gunn & Duncan, 1997; Montgomery, Kiely, & Pappas, 1996) and access to health care (Flores, Bauchner, Feinstein, & Nguyen, 1999; Newacheck, Hughes, & Stoddard, 1996; Lieu, Newacheck, & McManus, 1993). Children's health and well-being is also influenced by their school environment, the activities they engage in during and after school, and how they are supervised when their parents are working. In this section, we present data on the following demographic topics: population size and composition, family structure and income, working parents and childcare, and school environment. In presenting these data, we aim to describe the contexts in which the middle childhood population is being raised and how these contexts might influence their health.

A. Demographics

■ Children ages 6 to 11 are growing in number, but decreasing as a percentage of the total population.

Over the past 50 years, the total number of children ages 6 to 11 has increased, but this age group decreased as a percentage of the total population. In 2000, there were approximately 24 million children between the ages of 6 to 11, representing about nine percent of the total population in the United States. Over the last 10 years, the number of children in this age group has increased by almost 2.5 million, growing from 21.6 million in 1990 to 24.1 million in 2000, and will be approximately 25.6 million in 2020 (Figure 1). Since 1950, the childhood population (i.e., ages 0 to 17) has grown nearly 50% overall—expanding rapidly during the “baby boom” years, declining during the 1970s and 1980s, and rising again during the 1990s. However, even as the number of children ages 6 to 11 has increased, the percentage of the total population represented by this age group has decreased from 12% in 1970 to 9% in 1990, and will be only 8% by 2020 (FIFCFS, 2000).

Two recent studies indicate that the census



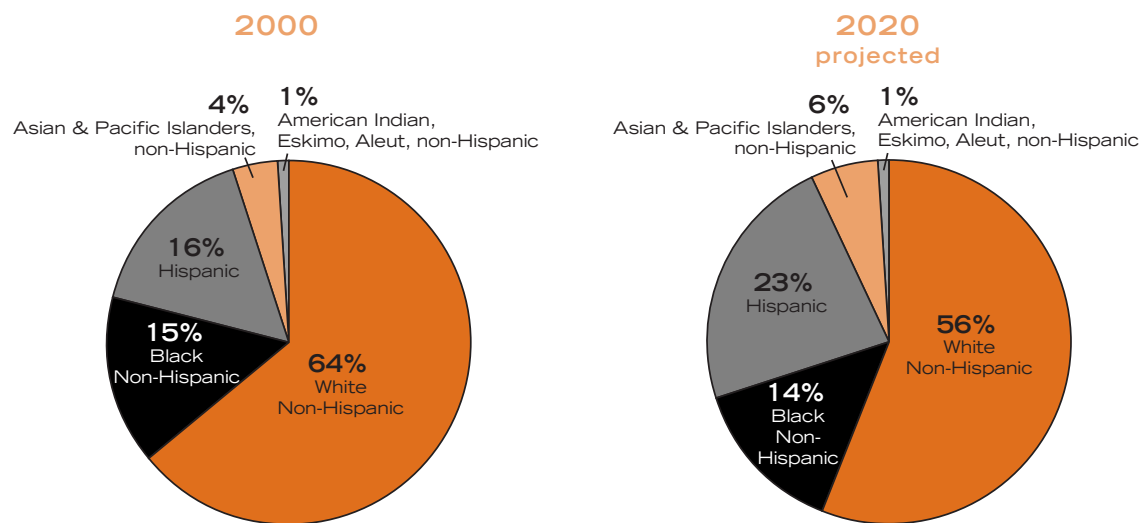
underestimates the population of children ages 5 to 9 by as much as 3-4% (nearly 700,000 children) and the percentage of children missed in census counts is much higher (ranging from 7-13%) for Hispanic, Black, and American Indian children (West & Robinson, 1999; O'Hare, 1999). These undercounts have financial and health implications because population estimates are used to allocate funds for federal and state programs such as special education, foster care, and schools, potentially leaving many of these programs under-funded and lacking adequate resources (O'Hare, 1999). With an increase in racial/ethnic diversity and a continued problem with undercounting of some racial/ethnic groups, children may have disproportionately fewer resources to meet their health, educational and human services needs. States with higher numbers of minority children may be more adversely affected.

■ **The middle childhood population is becoming increasingly diverse.**

Over the last 10 years, one of the most significant changes in the middle childhood population has been its evolving ethnic and racial composition. Since the late 1980s, the percentage of White children in this age group has steadily decreased, while the percentages of Hispanic and Asian/Pacific Islander (A/PI) children have increased dramatically. The percentages of Black and American Indian/Alaskan Native (AI/AN) population have remained stable during the same period (FIFCFS, 2000).

In 2000, 15.4 million children ages 6 to 11—or 64% of this age group—were non-Hispanic Whites. Projections indicate that by 2020 the number of White,

FIGURE 2
U.S. Population Ages 6 to 11 by Race/Ethnicity, 2000 & 2020



non-Hispanic children in this age group will decrease to 14.2 million, representing 56% of the population. In contrast, the number of Hispanic children is expected to increase by 54% (from 3.8 million in 2000 to 6 million in 2020) and the number of A/PI children is expected to increase by 56% (from 988,000 to 1.54 million). The AI/AN child population is projected to grow by only 7% (from 228,000 to 245,000) and the Black, non-Hispanic child population is projected to increase by just 1% (from 3.61 million to 3.63 million) (Figure 2) (Census Bureau, 2000a). Two factors contribute to these trends: An increase in the immigration of Asian/Pacific Islander and Hispanic populations combined with decreased fertility rates among non-Hispanic Whites and non-Hispanic Blacks (Council of Economic Advisors, 1998).

These trends indicate that the middle childhood population will be even more diverse in the future (FIFCFS, 2000; Council of Economic Advisors, 1998). These trends have important implications for health policy because many of these children have significant health care needs and fewer resources for accessing health care services. For example, poverty rates vary significantly by race/ethnicity (Census Bureau, 1998a) and health insurance rates are lower for those living in poverty (Kenney, Dubay, & Haley, 2000).

■ **The childhood population growth is greatest in the West and the South, and the majority of children live in suburban areas surrounding cities.**

While the overall childhood population is becoming more diverse as a whole, the shift toward greater diversity is greater in metropolitan areas (i.e., cities and surrounding suburbs) in both the West¹ and South. Population growth is highest in the West and South, with the South having the largest number of new residents (Council of Economic Advisors, 1998; Census Bureau, 1998b). There are also substantial differences in the geographic location of the childhood population by race/ethnicity. Households with White, non-Hispanic children ages 6-11 are most likely to live in the South (31%) and Midwest (28%). The majority of households with Black, non-Hispanic children ages 6-11 live in the South (54%); the majority of Asian and Pacific Islander children ages 6-11 live in the West (54%); and most Hispanic children ages 6-11 live in the West (46%) and South (32%) (Census Bureau, 2001a).

More than 75% of the middle childhood population lives in metropolitan areas, which includes both cities and their surrounding suburbs (Census Bureau, 2001a). The majority of children ages 6 to 11 live in suburban areas (52%); 29% live in cities; and 19% live in non-metropolitan (e.g., rural) areas. However, these percentages vary by race/ethnicity. The majority of White, non-Hispanic children live in suburbs (59%), while about half of Black, non-Hispanic children and nearly half of all Hispanic children live in cities (52% and 46%, respectively). Looking at family structure, children living in

households headed by married couples are much more likely to live in suburban areas (56%) vs. cities (24%), while children living with single mothers are equally likely to live in suburban areas (42%) or cities (42%). Research indicates that children living in cities and rural areas have more health needs than children in suburban areas (Eberhardt et al., 2001), and are more likely to require additional resources to meet these health needs.

B. Family Structure and Socio-Economic Status

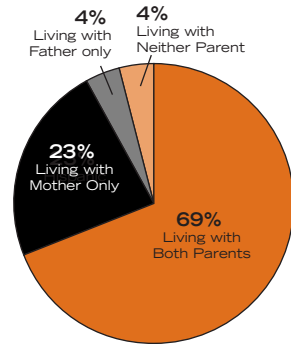
■ Fewer children are living in two-parent families.

The composition of family households has changed significantly since 1980. In 1980, 77% of children ages 0 to 17 lived in two-parent families and 18% lived in single-parent families, compared to 69% and 22%, respectively, in 2000 (FIFCFS, 2001). Among children ages 6 to 11, 69% lived in two-parent families, 27% lived in single-parent families, and 4% lived with other adults (e.g., grandparent, other relative, foster parent). These figures vary by race/ethnicity. Among children ages 6-11 living with parents, approximately 78% of White, non-Hispanic children live in two-parent

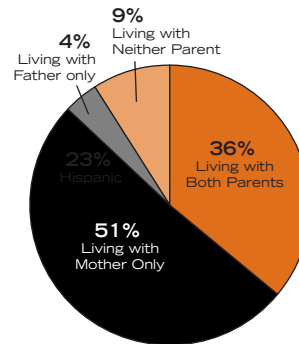
FIGURE 3

Family Structure for Children Ages 6 to 11 by Race/Ethnicity, 2000

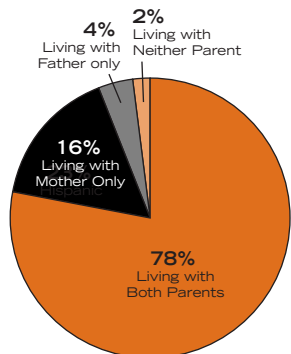
Total, United States



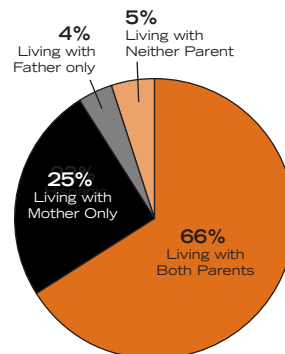
Black, Non-Hispanic



White, Non-Hispanic



Hispanic



families, compared to 66% of Hispanic children, and 36% of Black, non-Hispanic children (Figure 3) (Census Bureau, 2001a). Of children living with a single parent, about 80% lived with a single mother. For those children not living with their parents, about 50% lived with a grandparent (FIFCFS, 2000).

■ **Approximately 20% of children are living in poverty.**

Overall economic security for children has improved slightly over the last 15 years, although race/ethnicity disparities still exist. Secure parental employment is an indicator of economic security, and since the mid-1980s, the percentage of children ages 6 to 11 with at least one fully employed parent has increased from 70% in 1984, to 77% in 1997 (U.S. Department of Health and Human Services, 1999a). The percentage of children ages 0 to 17 living at or below the poverty level (i.e., \$16,660 for a family of four in 1998) has decreased from 21% in 1993 to 18% in 1998 (FIFCFS, 2001). Similarly, the percentage of children ages 6 to 11 living in poverty decreased from 22% to 20% over the same period (Census Bureau, 1998a). However, the prevalence of poverty for this age group varies greatly by both family structure and race/ethnicity. In 1998, the poverty rate for children residing with both parents was 10%, compared to nearly 50% for children residing with single mothers, and 20% for children residing with single fathers. While 16% of White children lived in poverty, the percentage for both Black and Hispanic children was closer to 37%. The percentages of children that lived in poverty are even higher for Black and Hispanic children who live with single mothers (55% and 64%, respectively) (Census Bureau, 1998a).

Similarly, disparities in median income levels exist by family structure and race/ethnicity. In 1998, the median household income level for families with children ages 6 to 11 was \$42,000. However, the median household income for children who lived with both parents was \$53,000, compared to \$16,000 for children who lived with single mothers and \$30,000 for children who lived with single fathers (Census Bureau, 1998a). Looking at race/ethnicity, the median household income for Black and Hispanic children was \$24,000, compared to \$46,000 for White children (Census Bureau, 1998a). Research indicates that much of the growth in child poverty is associated with the increase in single-parent families (Council of Economic Advisors, 1998).

Parental education also serves as a measure of socio-economic status (Moore, Vandivere, & Ehrle, 2000). In 1998, about 84% of parents with children ages 6 to 11 had completed high school (86% for two-parent families and 77% for single-parent families). Just under a quarter of parents of children ages 6-11 (23%) held a bachelor degree or higher. Hispanic parents were the least likely to hold a bachelor degree (8%), compared to Black parents (11%), and White parents (24%) (Census Bureau, 1998a).

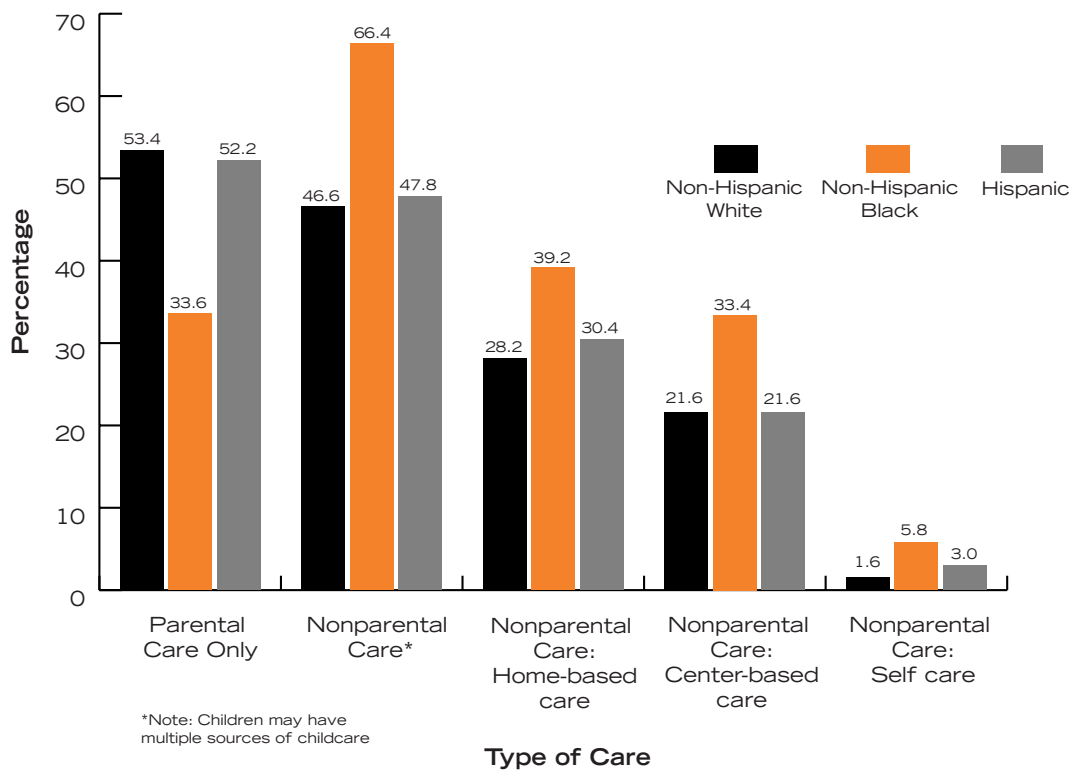
The demographic data presented here describe a changing middle childhood population that is diverse in terms of income, family structure, place of residence and race/ethnicity. To effectively serve all children and families in this age group, health policies and programs must take into account this diversity and the implications of current trends.

C. Working Parents and Childcare

- There are more families with both parents working than ever before and, as children get older, their parents are more likely to be in the workforce.

The number of families with both parents working has increased compared to previous years due to the significant growth in the number of working mothers (Hayghe, 1997). From 1975 to 1996, the percentage of women in the workforce with children rose from 47% to 70%. In 1998, 14 million children (63%) ages 6 to 11 and 15 million (69%) of adolescents ages 12 to 17 lived with employed parents (i.e., either both parents are employed or a single-parent who is employed), of whom 80% were employed full time. Furthermore, married couples are working more hours than before and most parents feel they do not have enough time with their children (National Institute of Out-of-School Time, 2000). Approximately 55% of children ages 6 to 12 live in families with

FIGURE 4
Children (Kindergarten through 3rd grade)
in Childcare by Race/Ethnicity, 2001



both parents working (or a single working parent) at least 30 hours per week (Anne E. Casey Foundation, 2000). Data also suggest that as children enter school, their parents are more likely to work. For example, in 1997, approximately 40% of children ages 0 to 5 lived in families in which both parents worked compared to 55% of children ages 6 to 12 (Anne E. Casey Foundation, 2000).

■ **More children are in childcare settings and there are not enough childcare centers available during non-school hours to meet the needs of families.**

With more parents working, families' need for childcare has increased (Kamerman, 2000). Given a 180-day, 6-hours/day-school calendar, children spend 185 days and many hours each day outside of school (National Education Commission on Time and Learning, 1994). Using data from the 1997 National Survey of America's Families, Urban Institute researchers found that 47% of children ages 6 to 12 with employed mothers were spending about 13 hours a week in some type of childcare (Capizzano, Tout, & Adams, 2000). In 1999, 43% of children in first through third grade were in non-parental childcare up from 38% in 1995 (FIFCFS, 2000). Although about half of all children are in some type of before- or after-school care, the type of arrangement varies. According to data from the 2001 National Household Education Surveys Program, 51% of children in kindergarten through third grade were in some type of non-parental before and after-school childcare. Black, non-Hispanic children in these grades were more likely to be in non-parental care than their Hispanic and White, non-Hispanic peers (66.4% vs. 47.8% and 46.6%, respectively). Among children in non-parental care²: 59% received home-based care (including care provided by relatives and non-relatives), 48% from center-based programs, and 5% were in self-care (defined as children caring for themselves, including staying with a sibling younger than 13) (Figure 4). While a similar percentage of children in fourth through eighth grade are in non-parental care (52%), the child care arrangements differ significantly for these older children: almost 25% are in self-care, and 21% and 18% are in home-based care and center-based programs, respectively (FIFCFS, 2002).

Even though the number of programs providing before- and after-school care has increased, it is difficult for parents to find before- and after-school supervision for their children. Between 1987/8 and 1993/4, the percentage of schools offering after-school programs nearly doubled from 15% to 30% for public schools and 33% to 50% for private schools (National Institute on Out-of-School Time, 2000). Despite this increase, parents face barriers to obtaining adequate childcare. The most common barrier is parents' lack of money to pay for these programs (Childcare Bureau, 2000). Even without financial barriers, evidence suggests that the rising number of programs is not sufficient to meet the increased need for childcare. Although not nationally representative, a study by the

U.S. Government Accounting Office estimates that in 2002 the supply of childcare services for school-age children will only meet 40% of the demand in the United States and only 30% of demand will be met for children living in poor areas (U.S. Government Accounting Office, 1997). The U.S. Department of Education estimates that its 21st Century Learning Centers program—which has funded over 3,600 community centers to provide after-school care primarily to elementary and middle school children—does not meet the demand for after-school care (U.S. Department of Education, 2000a).

The lack of childcare programs leaves many children without adult supervision. An estimated four million children ages 5 to 12 are without adult supervision on a regular basis (National Institute on Out-of-School Time, 2000). In 1997, about 7% of children ages 6 to 8 were without adult supervision or in “self-care”. This percentage rises to 23% by age 10 and 44% by age 12. Data also show that higher income families (i.e., above 200% of poverty level) are more likely to use self-care for their 10 to 12 year olds compared to lower income families (i.e., below 200% of the poverty level) (Capizzano et al., 2000). Additionally, White families are more likely to use self-care for children ages 10 to 12 than Black or Hispanic families (Capizzano et al., 2000). Black, non-Hispanic children are most likely to report being in self-care, with 30% of Black, non-Hispanic 4th through eighth graders in self-care compared to 24% and 21% of their Hispanic and White, non-Hispanic peers, respectively (FIFCFS, 2002). Lack of quality after-school care has been linked with poorer academic achievement and unhealthy behaviors (Stipek & Ogawa, 2000). In addition, youth are at greatest risk for being victims of violence during afternoon non-school hours (Childcare Bureau, 2000). The trends presented here—the growing number of working parents, combined with the lack of availability of childcare—have important implications for children's health and well-being. As indicated above, these trends are likely to increase children's educational difficulties. As we discuss in the following section, academic failure may consequently increase children's engagement in health-damaging behaviors.

D. School Environment

Schools play an important role in the lives of the middle childhood population. Factors such as class size, student/teacher ratio, and stability of school environment all influence educational outcomes (Lewit & Schuurmann Baker, 1997). As noted in the introduction, developmental research underscores the importance of building competencies and a sense of confidence during middle childhood. Given the central role of school in these children's lives, school performance has important implications for future development. In this section, we describe the current school environment for children and discuss the link between educational outcomes and health. (Information on school violence is presented under “Childhood Victimization”).

■ **Student-teacher ratios are lower and we are spending more on education.**

Compared to 35 years ago, the individual attention provided for students—as measured by student/teacher ratios and money spent per student—has improved. The mean student/teacher ratio declined from 27.6 in 1965 to 19.5 in 1985, and to 19.1 in 1995 (U.S. Department of Education, 2000b). Similarly, expenditure per student in 1995 dollars has increased from \$2,600 in 1965 to almost \$5,400 in 1985, and \$6,300 in 1995 (U.S. Department of Education, 1996). However, public school expenditure per student varies by location of residence³ (e.g., central cities, suburban, rural) and is lowest for children living in rural areas (U.S. Department of Education, 2000b). Differences in class size between public and private schools are also evident. In 1998, the average class size of kindergartners for public schools was slightly higher than that for private schools (20 vs. 18) (U.S. Department of Education, 2000b).

■ **Nearly 5% of children ages 6 to 14 have learning disabilities.**

A significant minority of children in the middle childhood population have learning disabilities or trouble doing schoolwork that make it difficult to succeed in school. National data from the 1997 Survey of Income and Program Participation indicate that 5% of children and young adolescents ages 6 to 14 had a learning disability and 6.8% had difficulty doing regular schoolwork (Census Bureau, 2000b). There is some evidence that even more children go through school without having their learning disability correctly identified or an appropriate educational plan developed (Lester & Kelman, 1997). Having difficulty in school or having a learning disability has been linked to a number of poor outcomes including low self-esteem and school failure (Lyon, 1996; Center on Addiction and Substance Abuse at Columbia University, 2000).

■ **Academic problems can lead to social and behavioral problems.**

Education and health are inextricably related in that children who are not healthy have difficulty learning and children who have academic difficulties are more likely to engage in unhealthy behaviors (Carnegie Foundation, 1995). For example, negative school experiences and academic problems are highly correlated with the development of anti-social relationships (Conduct Problems Prevention Research Group, 1999). Peer acceptance and the development of positive social relationships are also considered one of the salient tasks of middle childhood and often predict future adjustment, (Morison & Masten, 1991) while peer rejection is linked to conduct problems (Coie & Dodge, 1998).

Early academic failure has also been linked with more long-term academic and social problems (Eccles, 1999). In 1999, 8% of 2nd graders had been retained in either kindergarten or 1st grade, a decrease from 11% in 1991. Retention rates are higher for males, poor children, children in single-parent families and children whose mothers

have not graduated from high school (U.S. Department of Health and Human Services, 2000a). Having poorer cognitive skills (e.g., being able to recognize letters and numbers, and count to 10) at school entry is also linked with poorer high school achievement (Stipek & Ogawa, 2000) and children from low-income families, who have less access to quality day care and early educational programs, often begin school with poorer cognitive skills. Programs such as Head Start have been shown to have positive educational and behavioral outcomes for children living poverty, but cannot compensate for all the effects of poverty (Stipek & Ogawa, 2000). Many academic problems, which can be associated with future behavioral and mental health problems, can be linked to learning disorders that are often not detected until the child is older.

The information presented in this first section describes the environment in which the middle childhood population lives and grows. The features of this environment—including family, school and childcare contexts—have important implications for the health and well-being of the middle childhood population. More research is needed to understand how these complex factors interact with one another to affect health.

III. ACCESS TO AND UTILIZATION OF HEALTH CARE SERVICES

Before turning to measures of health, we examine how the middle childhood population interacts with the health care system by looking at indicators of access to and utilization of health care services. Without a usual source of care, many children may not receive adequate health services; their health problems may be more likely to reach crises levels before they seek health care.

A. Access to Services

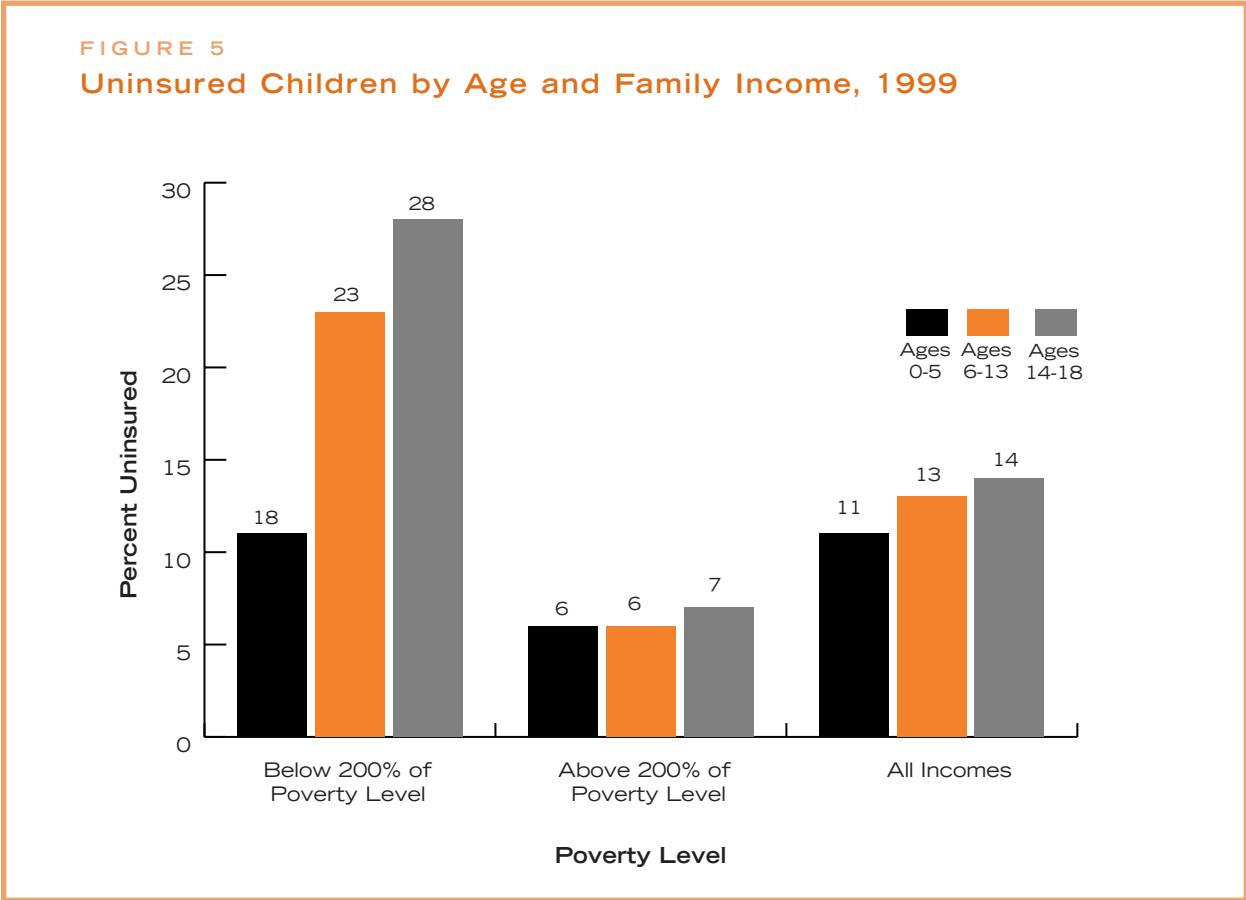
■ Just over 11% of children ages 6 to 11 do not have health insurance.

Insurance is an important indicator of access to health care services. Children without health insurance or access to health care have more health problems and consequently have more health needs than children with access to the health care system (Davidoff, Garrett, Makuc, & Schirmer, 2000). In 2000, about 11.5% of children ages 6 to 11 were uninsured (Census Bureau, 2001b). Over the past 15 years this rate has fluctuated between 12-15%, but has decreased slightly for children in this age group in the last few years, primarily due to children's enrollment in the State Children's Health Insurance Program (SCHIP) since 1997. In 2000, about 70% of children were covered by private health insurance, 19% were covered by public insurance, such as Medicaid and SCHIP, and 11% had no health insurance (Census Bureau, 2001b). Over the last 15 years, the

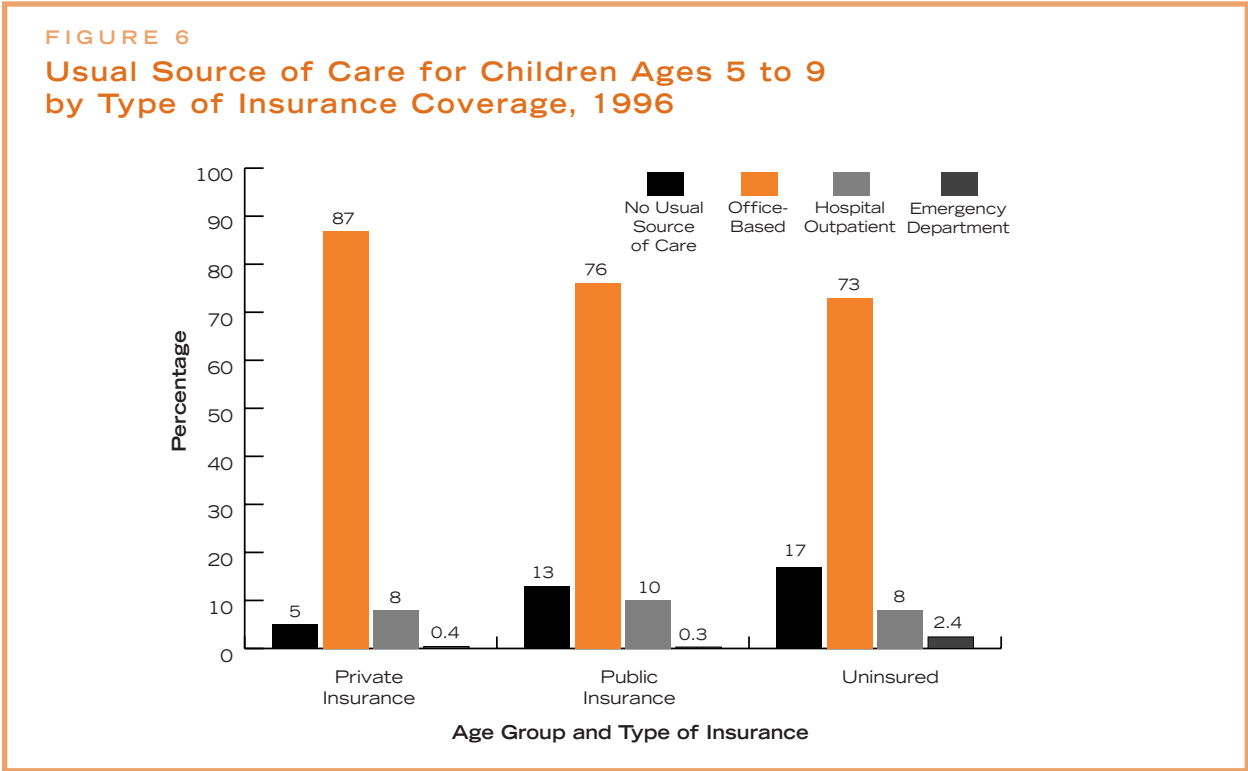
proportion of children covered by private insurance has decreased and the proportion covered by public insurance has increased (U.S. General Accounting Office, 1996). In addition, children are slightly less likely to be insured as they grow older. In 2000, children under 6 years of age had the lowest level of being uninsured (11.1%), compared to 11.5% for children ages 6 to 11 and 12.3% for adolescents ages 12 to 17 (Census Bureau, 2001b). The percentage of uninsured children also varies greatly by income. For example, in 1999, 6% of children ages 6 to 13 living above 200% of the poverty level were uninsured, vs. 23% of children living below 200% of the poverty level (Figure 5) (Kenney, Dubay, et al., 2000).

Since SCHIP's inception in 1997, the percentage of children with health insurance has increased. By October 2001, 4.6 million children had ever been enrolled in SCHIP, with the increase in enrollment varying by state (Centers for Medicare and Medicaid Services, 2002). A 1999 study indicates that, among the 6.8 million uninsured children ages 0-17, 57% were eligible for Medicaid and an additional 26% were eligible for SCHIP (Dubay, Haley & Kenney, 2002). Uninsured children are more likely to have unmet medical needs and are less likely to use health care services (Davidoff et al., 2000).

Having a usual source of health care is also an important indicator of access to health care services. In 1996, about 9% of children ages 0 to 17 had no usual source



of care, with older children less likely to have a usual source of care. About 17% of uninsured children ages 0 to 9 had no usual source of care, compared to 20% of children and young adolescents ages 10 to 14 and 27% of adolescents ages 15 to 17. Among children ages 0 to 17 with a usual source of care, most rely on an office-based setting (89%), followed by a hospital outpatient department or clinic (10%), and emergency department (1%) (Figure 6) (McCormick, Kass, Elixhauser, Thompson, & Simpson, 2000). These percentages vary by type of health insurance. Compared to privately insured children, those children who have public health insurance or have no health insurance are more likely to rely on hospital outpatient clinics and emergency departments for their usual source of care (McCormick, Weinick, Elixhauser, Stagnitti, Thompson, & Simpson, 2001).

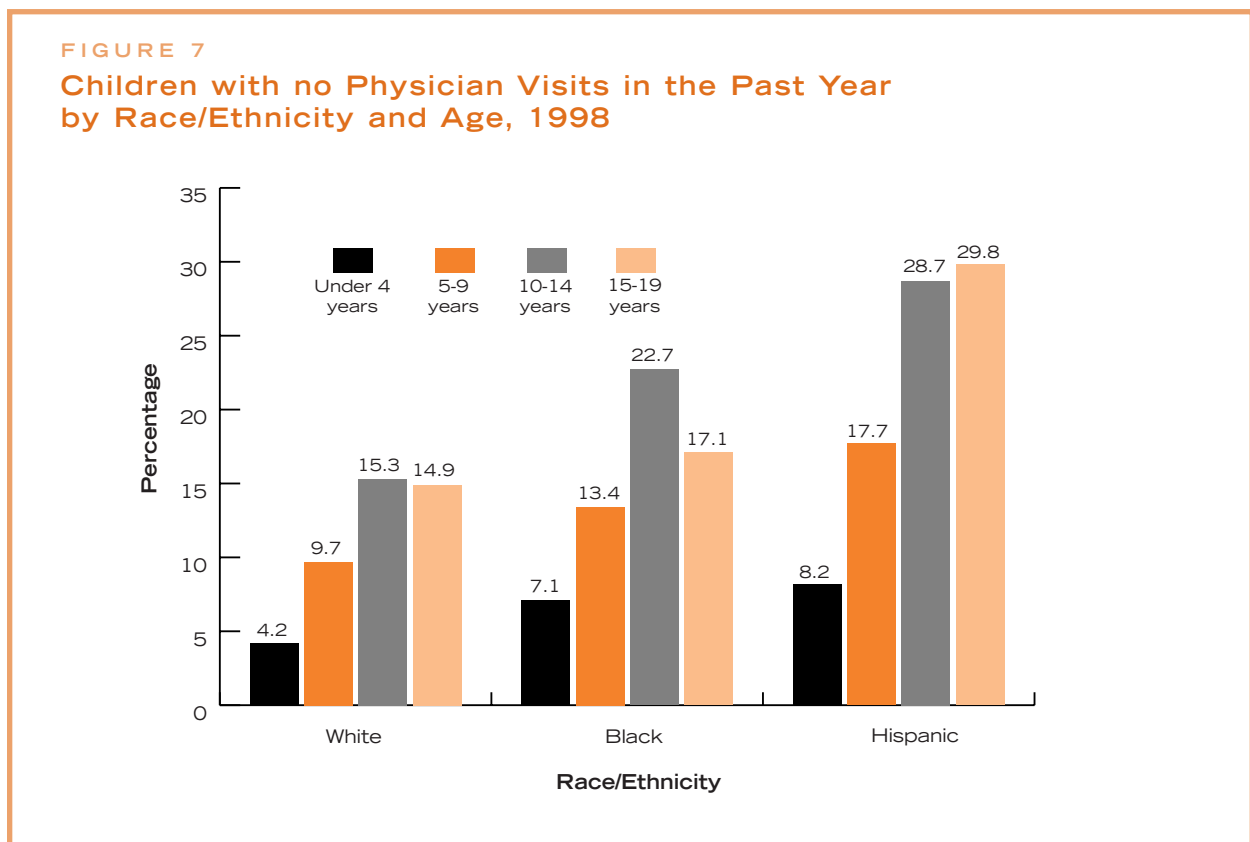


B. Utilization of Services

In 1998, 16% of children ages 1 to 19 had no physician visit in the preceding year. These rates vary by age and race/ethnicity, with younger children and White children having the highest rates of physician contact. For example, about 7% of children ages 1 to 4 did not see a physician in the past year, compared to 14% of children ages 5 to 9 and 22% of children and young adolescents ages 10 to 14. While 11% of White children ages 1 to 19 did not see a physician in the last year, this percentage was 15% for Black children and 21% for Hispanic children. These differences in race/ethnicity were consistent across all age groups (Figure 7) (Maternal and Child Health Bureau, 2001).

In addition to physician visits, information about the location of health care services provides us with a more complete picture of how health care services are being utilized. Data from the Medical Expenditure Panel Survey (MEPS) indicate that about 72% of children ages 5 to 9 had at least one office-based visit in the last year, 16% had a hospital outpatient department (or clinic) visit, and 11% had an emergency department visit. These figures are almost identical to figures for children ages 0-17 (McCormick et al., 2000). It should also be noted that about half of all children were prescribed medication in 1999 (McCormick et al., 2001).

There have been changes in the nature of health insurance for children in the last five years, particularly the declines in private coverage and the growth of publicly



financed insurance, notably Medicaid and SCHIP (Almeida & Kenney, 2000; Newacheck, Brindis, Uhler Cart, Marchi, & Irwin, 1999). Even with these changes, many children are still without health insurance, lack a usual source of care, and did not see a physician within the last year. Thus, increased efforts and financing will be necessary to ensure adequate access and utilization of health care services for the middle childhood population. Furthermore, while there is information available about health insurance and access to health services, data are sparse on the quality of health care delivery to children. This is primarily due to a lack of national infrastructure and few

reliable measures to collect this type of data. The lack of standardized age groupings also makes it difficult to compare results across different sources (McCormick et al., 2000).

IV. HEALTH STATUS: TRADITIONAL MEASURES OF CHILDREN'S HEALTH

There are many ways to examine health. In addition to “the absence of disease,” the World Health Organization has defined health more broadly to include physical, mental, and social well-being. This broad definition has particular relevance for the middle childhood population, as many current health issues of the middle childhood population are more social and behavioral than in the past (Guyer, Freedman, Strobino, & Sondik, 2000). In 1900, infectious diseases were the leading cause of mortality in children, while the leading cause of mortality in 1998 was unintentional injury (Guyer et al., 2000). This section describes the health of the middle childhood population in two parts. In the first part, we present data on more traditional indicators of health status, including mortality rates, hospitalizations and emergency room visits, chronic illness rates, and measures of oral health. In the second part, we present data on topics that reflect the broader definition of health, including mental health, health risk behaviors, and child victimization.

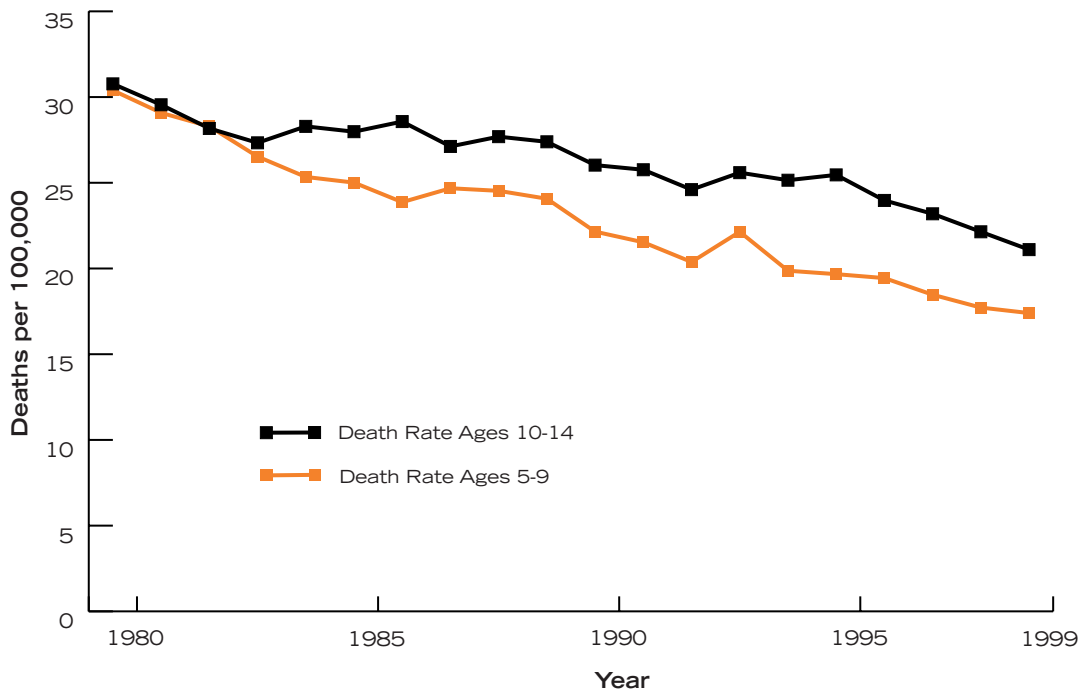
A. Mortality

- **Injuries are the leading cause of death in middle childhood; mortality rates are higher for boys than girls.**

Mortality data are available for children ages 5 to 9 and young adolescents ages 10 to 14. In 1999, 3,474 children ages 5 to 9 died, resulting in a death rate of 17.4/100,000, the lowest of any age group. In the same year, 4,121 young adolescents ages 10 to 14 died, resulting in a death rate of 21.1/100,000 (Figure 8). These death rates have decreased for both age groups since the early 1980s. For ages 5-9, the rate per 100,000 children declined from 29 in 1981, to 23.8 in 1986, to 17.4 in 1999. For ages 10-14, the corresponding figures are 29.5, 28.5 and 21.1. (Centers for Disease Control and Prevention, 2002). The decline in the overall death rate is due largely to the reduction in motor vehicle accidents (MVAs) and other causes of trauma. Between 1990 and 1999, the death rate for MVAs for children ages 6-11 declined from 5.01/100,000 to 3.88/100,000 (National Center for Injury Prevention and Control [NCIPC], 2002).

Data are available on the leading 20 causes of death for children ages 6 to 11, providing a more detailed picture of mortality for this age group (NCIPC, 2002). In

FIGURE 8
Mortality Rates for Children Ages 5 to 14, 1980-1999



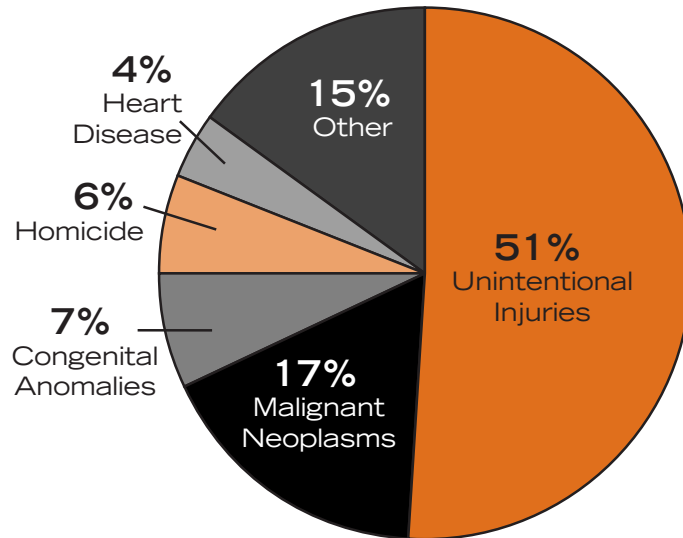
1999, the five leading causes of death for children ages 6 to 11 were unintentional injuries, malignant neoplasms, congenital anomalies (i.e., birth defects), homicide, and heart disease (NCIPC, 2002). These five causes account for 85% of the 20 leading causes of deaths in this age group.

Death rates for this age group vary by gender⁴. In 1999, death rate for boys was 1.3 times higher than for girls (15.9/100,000 vs. 12.2/100,000). Disparities also appear across race/ethnicity. Black, non-Hispanic children had the highest death rate (23.9/100,000) in this age group, about 1.5 to 2.5 times greater than the rates for AI/AN children (16.4/100,000), White, non-Hispanic children (12.5/100,000), Hispanic children (11.8/100,000), and A/PI children (9.3/100,000) (NCIPC, 2002).

The majority of deaths in the middle childhood population are due to unintentional injury (Figure 9) (NCIPC, 2002). In 1999, over 1,700 children ages 6 to 11 died from unintentional injuries. MVAs accounted for the majority of these deaths (54%), followed by drowning (12.5%), fire-burns (10.2%), and suffocation (3.7%). For example, in 1999, the unintentional injury mortality rate for males was 1.5 times the rate for females (8.7/100,000 vs. 5.6/100,000). Differences also appear across race/ethnicity. For example, the 1999 unintentional injury death rate for Black, non-Hispanic and AI/AN children (12.7/100,000 and 9.1/100,000, respectively) was about two to three times

FIGURE 9

Leading Causes of Mortality for Children Ages 6 to 11, 1999



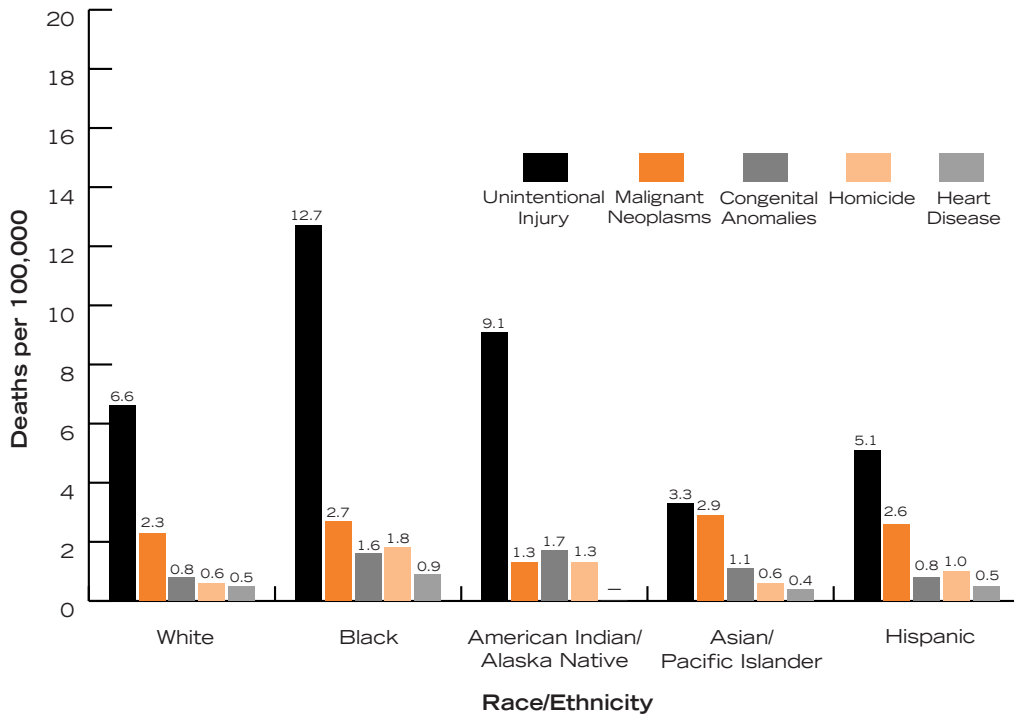
higher than the rate for White, non-Hispanic (6.6/100,000), Hispanic children (5.1/100,000), and A/PI children (3.3/100,000) (Figure 10) (NCIPC, 2002).

Relatively few deaths for children ages 6 to 11 are due to intentional causes (e.g., homicide or suicide). In 1999, just over 200 children ages 6 to 11 died from homicide (NCIPC, 2002). The three leading causes of homicide were due to firearms (35%), suffocation (11%) and fire/burn (9%). Slightly more males than females died due to homicide (109 vs. 95). This pattern was also similar for homicide firearm deaths where 48 males died compared to 23 females. (There were also 25 unintentional deaths due to firearms for both males and females in 1999). During 1990-1998 more males than females died from homicide (917 vs. 776), including homicide due to firearms (522 vs. 334). Data show that boys and girls have similar homicide rates until about age 13, after which male homicide rates rise dramatically. Furthermore, adolescents ages 12 to 17 have the highest homicide rates among children under age 18, followed by children ages 0 to 5 and ages 6 to 11 (Snyder & Sickmund, 1999).

Intentional injury death rates also vary by race/ethnicity. In 1999, non-Hispanic Black children had the highest death rate due to homicide (1.83/100,000), followed by AI/AN (1.29/100,000), Hispanic (0.97/100,000), Asian (0.63/100,000), and White, non-Hispanic children (0.59/100,000) (NCIPC, 2002). Suicide is another intentional cause of death in children, and while quite rare, does occur in this age group. In 1999, 31 children (29 boys and 2 girls) ages 6 to 11 committed suicide. However, the number

FIGURE 10

Leading Causes of Mortality for Children Ages 6 to 11 by Race/Ethnicity, 1999



of suicides during middle childhood is much lower than during adolescence. From 1990-1999, 307 children ages 6 to 11 committed suicide (about 30 per year) compared to 11,692 adolescents ages 12 to 17 (about 1,170 per year) (NCIPC, 2002).

B. Chronic Illness and Disability

Chronic illness and disabilities can have serious effects on children's development. These problems can make daily life difficult and can be life threatening without proper and ongoing treatment. Severe chronic illnesses are relatively rare among children compared to adults. However, they do suffer from a variety of diseases, ranging from asthma to leukemia to genetic problems such as sickle cell anemia and cystic fibrosis. Other disabilities include developmental disabilities (e.g., mental retardation, autism, and cerebral palsy), learning disabilities (e.g., dyslexia, dyscalculia), difficulty in activities of daily living (e.g., getting around inside the home, getting in or out of bed, dressing, eating), and difficulty seeing, hearing, or using stairs. Children with chronic health issues have more health needs than other children. In addition, these chronic health issues can necessitate additional health resources and services (Newacheck et al., 1998).

■ **Approximately 20% of children ages 6 to 10 have some type of special health care need.**

Children with special health care needs (defined as a chronic physical, developmental, behavioral, or emotional condition that requires health services beyond those required generally), and especially those without health insurance, are vulnerable to a number of health problems. Compared to children without special health needs, children with special health care needs spend more days sick in bed (2.0 vs. 6.1 days), miss more school days (2.8 vs. 7.8 days), are more likely to be hospitalized (2.2% vs. 7.4%), and have more unmet health needs than other children (6.4% vs. 12.9%). Data from the National Health Interview Survey indicate that nearly 20% of children ages 6 to 10 have some type of special health care need—a rate nearly double that of toddlers (ages 0 to 2). Differences also exist by gender, race/ethnicity, and poverty level. Males are more likely to have special health care needs than females (21% vs. 15%); children who live at or below poverty have higher rates than their non-poor peers (23% vs. 17%); and White and Black non-Hispanic children are more likely to have special health care needs than their Hispanic peers (20% and 19%, respectively, vs. Hispanic 15%) (Newacheck et al., 1998).

While data confined to the middle childhood population on specific disabilities are scarce, statistics for children and young adolescents ages 6 to 14 are available from the 1997 Survey of Income and Program Participation. In 1997, 4.8% of children and young adolescents ages 6 to 14 had a severe disability⁵ and 1.3% had a developmental disability (Census Bureau, 2000b). Without access to care, many of these children may not receive health care services related to their special needs. An analysis of 1994/95 NHIS data indicated that just over 32% of uninsured children with special health needs were unable to get needed medical care (Newacheck, McManus, Fox, Hung, & Halfon, 2000).

■ **Asthma is the most common chronic illness experienced during middle childhood.**

Asthma is the most prevalent chronic illness for children in the United States and is the leading cause of school absences. In 1998, nearly 7% of children ages 5 to 10 were told by a health professional they had asthma compared to about 5% for children ages 0 to 4 and 11 to 17 (FIFCFS, 2001). Moreover, the percentage of children with asthma has increased. In 1980, about 4% of children and young adolescents ages 5 to 14 (or their parents) reported that they had asthma, compared to approximately 7% in 1994 (Centers for Disease Control and Prevention, 1998). This increase is reflected in asthma-related hospitalizations, emergency room visits, office visits, and deaths. Racial/ethnic differences exist in the prevalence of hospitalizations due to asthma, with Black children ages 5 to 14 having five times the rates for same-age White children (500/100,000 vs. 100/100,000). They also have higher death rates from asthma (Jack, Boss, & Millington, 1999).

Other chronic illnesses exist in the middle childhood population, although they are not as prevalent as asthma. For example, among children ages 3 to 10 years old, mental retardation affects 8.7/1,000 children, cerebral palsy affects 2.4/1,000 children, hearing impairment affects about 1.1/1,000 children, and vision impairment affects about 0.8/1,000 children (Centers for Disease Control and Prevention, 1996a). Racial/ethnic and gender differences also exist in these conditions, with Black males having higher rates for all these conditions, except vision impairment. Additionally, many of these children have more than one of these conditions and other developmental disabilities (Centers for Disease Control and Prevention, 1996a).

AIDS also affects a small percentage of children in the middle childhood population and is declining. In 2000, there were nearly 2,000 cases of AIDS among children ages 5 to 12, compared to nearly 7,000 cases of AIDS children under 5, and 3,865 cases for adolescents ages 13 to 19. Racial and gender differences also exist for the number of children with AIDS. Black children ages 5 to 12 have a higher number of cases of AIDS than any other race/ethnicity group. Cases number 946 Blacks, 524 among Whites, 492 among Hispanics, 18 among Asian/Pacific Islanders, and 6 among American Indians/Alaskan Natives. Slightly more males had AIDS than females (1,096 vs. 896) (Centers for Disease Control and Prevention, 2000a).

C. Hospitalizations and Emergency Room Visits

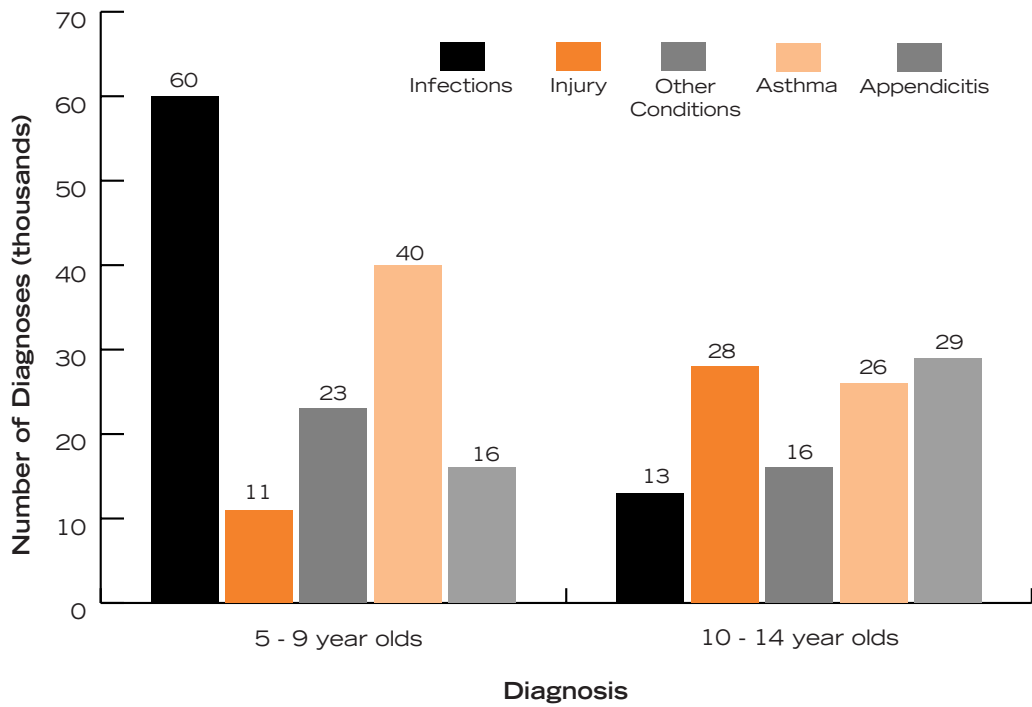
Each year children who are seriously hurt or ill are taken to the emergency room and many of these children require hospitalization. These hospitalizations and emergency room visits add to our understanding of health problems in children in this age group, and provide a more comprehensive picture of children's health status.

■ Many children ages 5 to 9 are diagnosed and hospitalized for infections and asthma.

Data from the National Hospital Discharge Survey indicate that in 1999, just over 900,000 children and young adolescents ages 5 to 14 were hospitalized (about 22 per 100,000 children), spending an average of 5 days in the hospital (Popovic, 2001). When children are hospitalized, they are given specific diagnoses. Based on data from the 1996 Medical Expenditure Panel Survey (MEPS), the four most frequent diagnoses among hospitalized children ages 5 to 9 were infections, asthma, appendicitis, and injury. Of these, there were approximately 60,000 discharges for infections and 40,000 for asthma, with these two illnesses accounting for nearly 31% of all hospital discharges for this age group (Figure 11). For children and young adolescents ages 10 to 14, the top diagnosis was a mental disorder, followed by appendicitis, injury, asthma, and infections (McCormick et al., 2000).

FIGURE 11

Most Frequent Hospital Discharge Diagnoses Among Children Ages 5 to 14 by Age, 1996

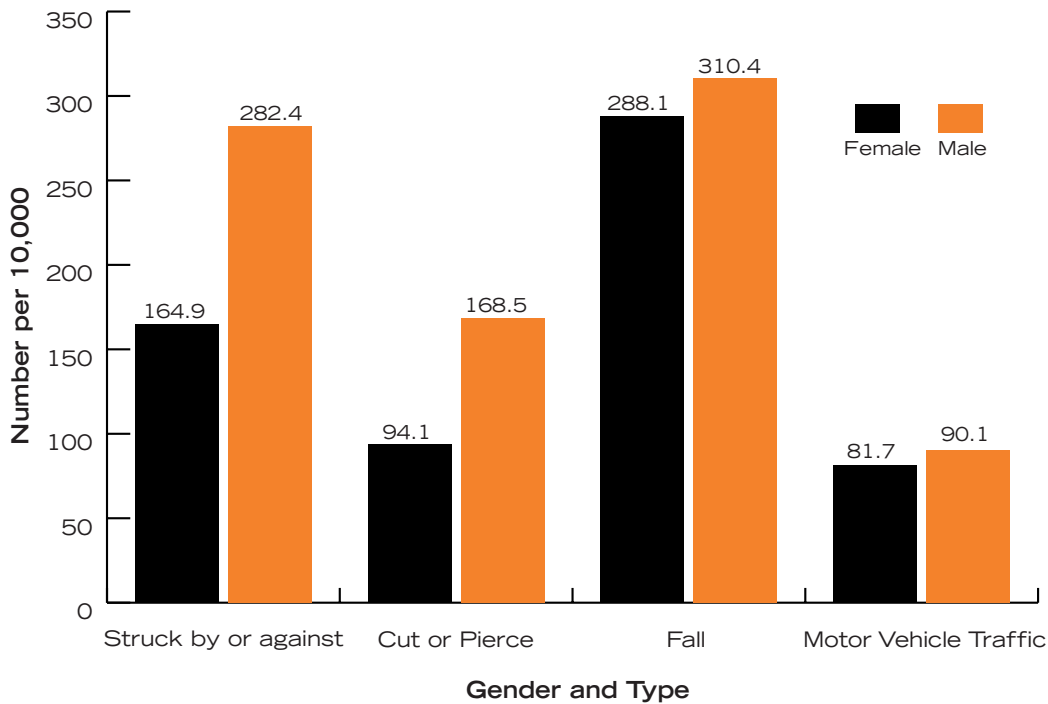


■ **More than half of emergency room visits are for an injury.**

During 1995-1997, about 22% of children ages 10 to 11 had emergency room visits. Boys and girls had similar rates. More than half of these visits were for an injury-related problem, with males having more injuries than females. The major causes of these injuries were due to falls, being struck by something, cuts or pierces, and motor vehicle accidents (Figure 12) (MacKay, Fingerhut, & Duran, 2000). Many of these injury diagnoses were due to motor vehicle collisions and many of these injury rates could have been prevented by proper use of safety restraints. However, data from 1990 indicate that 24% of children ages 5 to 9 did not use car restraints “all the time” or “most of the time.” This percentage increases as children grow older (U.S. Department of Health and Human Services, 1998). While about 76% of parents of children and adolescents ages 5 to 15 report that their child wears seatbelts “all the time” or “most of the time,” observation of seat belt use indicates that the percentage of children actually wearing seatbelts is somewhat lower—about 58% in 1994 and 69% in 1998 (U.S. Department of Health and Human Services, 2000a).

FIGURE 12

Emergency Department Visit Rates for Selected External Causes of Injury by Gender, Ages 10 to 11, 1995-1997



D. Immunizations and Common Diseases

Immunizations have played an important role in the eradication of smallpox, the virtual elimination of polio and measles, and the substantial reduction in the incidence of other diseases such as hemophilus influenza B. Recent data demonstrate the success of immunizations. In 1998, only 12 children ages 5 to 14 were reported with rubeola (measles), 289 had mumps, and 19 had rubella (German measles). For all these diseases, the prevalence rate is less than 1 per 100,000 children (Centers for Disease Control and Prevention, 1999a).

■ **Most children are getting proper vaccinations.**

In 1998, nearly 80% of children age 3 received the recommended vaccination regimen. However, this means that approximately one million children under age 3 did not receive adequate vaccinations. Vaccination rates are lower for poor children, minority children, and inner-city children (Centers for Disease Control and Prevention, 2000c; Centers for Disease Control and Prevention, 1999b). Due to national mandates requiring children to be immunized before they enter school, nearly 96% of children in kindergarten (ages 5 to 6) are properly vaccinated. In the 1997/1998 school year, the

estimated rate of vaccination was about 96% for polio, DTP/DT/Td, measles, mumps, and rubella (Centers for Disease Control and Prevention, 2000b).

While there have been dramatic declines in the prevalence of immunization-preventable diseases, children are often afflicted with illness such as pneumonia, influenza, and ear infections that require them to miss school. In 1996, children and adolescents ages 5 to 17 missed about three school days due to acute conditions. NHIS data indicate that in 1996, 35-45% of children and adolescents ages 5 to 17 had influenza or colds, 13% had ear infections, and almost 2% had pneumonia (Centers for Disease Control and Prevention, 2000d).

E. Oral Health

■ Over 50% of children have oral health problems.

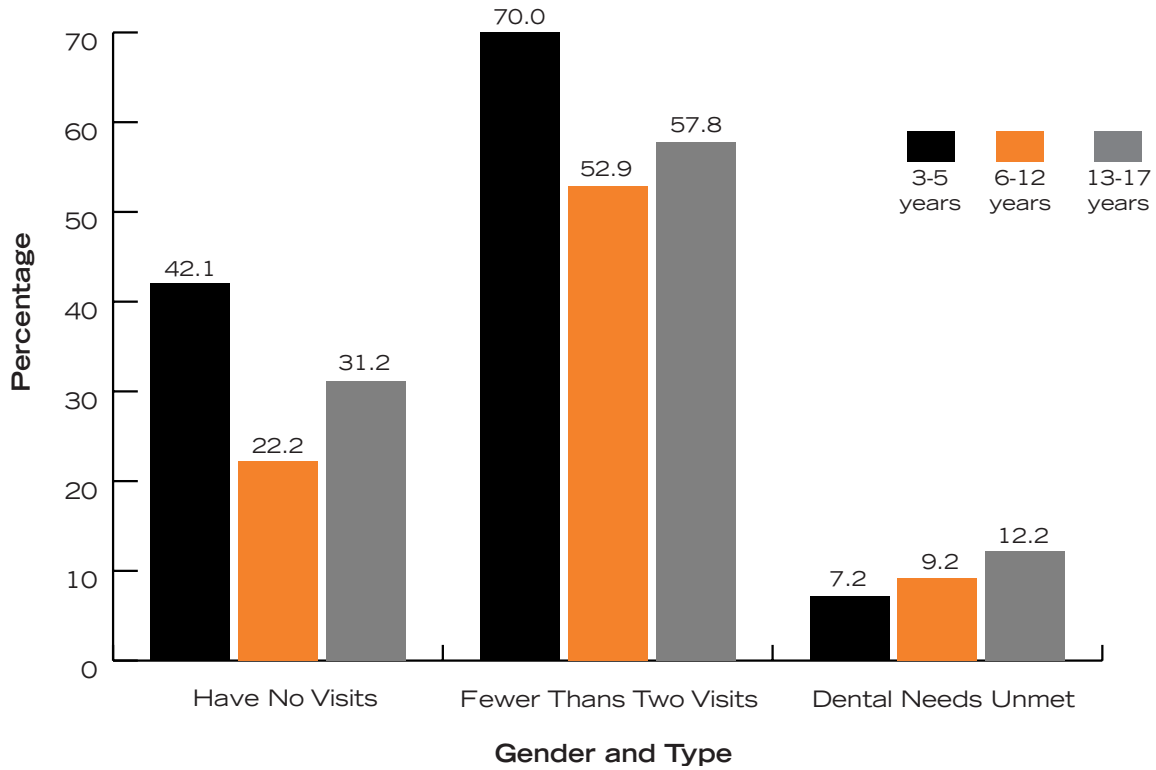
Despite the fact that oral health problems are highly preventable, dental disease is prevalent among children, with over 50% of children age eight having tooth decay (National Center for Chronic Disease Prevention and Health Promotion [NCCDPHP], 2000). Each year, an estimated 52 million hours of school are missed by school-aged children due to tooth decay and other dental problems (Gift, Reisine, & Larach, 1992). Data also demonstrate that tooth decay (both past decay that was treated and active untreated decay) worsens as children grow older. According to the Centers for Disease Control and Prevention (CDC), tooth decay affects 17% of 2 to 4 year olds, 52% of eight year olds, and 78% of 17 year olds. The Third National Health and Nutrition Examination Survey (NHANES III) indicates about 40% of children experience dental decay in their primary (baby) teeth by age 5, but by age 9, over 55% have dental decay. The situation is even more dramatic in permanent teeth. At age 6, less than 10% have dental decay, but by age 11, over 40% have dental decay, and by age 17, more than 70% of adolescents have dental decay (NCCDPHP, 2000).

Differences in dental health needs exist by age and race/ethnicity. A 1997 study of low-income children ages 3 to 5 found that 7% had unmet dental needs, compared to 9% of children ages 6 to 12, and 12% of adolescents ages 13 to 17 (Figure 13) (Kenney, Ko, & Ormond, 2000). Data from NHANES III indicate that the percentage of Mexican-American children and African-American children with untreated dental caries (17% and 18%, respectively) is about twice that of White, non-Hispanic children (9%) (Vargas, Crall & Schneider, 1998). Despite the prevalence of oral health problems in children, NHANES data indicate that oral health in children is improving, with the average number of dental caries in children ages 6 to 11 decreasing from 1.67 during 1971-1974 to 0.56 during 1988-1994 (Brown, Wall, & Lazar, 2000).

There are also disparities in access to dental health services by income and race/ethnicity. In 1997, nearly 10% of children and adolescents ages 3 to 17 living in

FIGURE 13

Number of Visits and Unmet Dental Needs of Low-Income Children by Age, 1997



poverty had unmet dental needs, compared to 5% of their non-poor counterparts (Kenney, Ko, et al., 2000). Several factors may impede utilization of dental services including a lack of knowledge or low priority regarding dental care standards, lack of access to providers, and lack of means of payment (Kenney, Ko, et al., 2000). Many children without dental insurance may seek dental treatment in emergency rooms, which—at an average cost of \$3,000-4,000 per visit—are more expensive than office-based dental visits (Ettelbrick, Webb, & Seale, 2000). Racial/ethnic differences also exist in dental health access, with 52% of White children having dental insurance, compared to 39% of Black children and 32% of Mexican-American children (U.S. Department of Health and Human Services, 2000b).

V. HEALTH STATUS: OTHER MORBIDITIES AND HEALTH BEHAVIORS

The traditional measures of health presented above offer important information that can be used in developing programs and policies to improve the health of the middle childhood population. Policies and programs must also take into account broader measures of health that reflect the behavioral and social aspects that shape the health of this population. Assessing the prevalence of these new morbidities complements the more traditional approaches of measuring health status and gives a more comprehensive picture of children's health (Millstein, Ozer, Ozer, Brindis, Knopf, & Irwin, 1999). This section presents information on mental health issues, health risk behaviors, diet and exercise, and the victimization of children.

A. Mental Health and Emotional Well-Being

■ Nearly 20% of children are impaired by mental health disorders

According to the Surgeon General's Report on Mental Health, two in 10 children suffer from mental disorders (e.g. anxiety, mood, disruptive disorders) and only about 25% of these children receive specialized treatment (U.S. Department of Health and Human Services, 1999b). The number of children experiencing mental health problems seems to be increasing. For example, from 1979 to 1996, the prevalence of psychosocial problems increased from 7% to 18% among 4 to 15 year olds, although some of this increase is due to better provider training (Kelleher, McInerney, Gardner, Childs, & Wasserman 2000). The use of psychotropic medications for children with mental health disorders is also increasing and there have been significant improvements using medications to treat disorders such as depression, anxiety, and attention deficit disorders. However, additional research is needed to test the long-term efficacy of different therapies and medications for children (Steinberg, Gadomski, & Wilson, 1999).

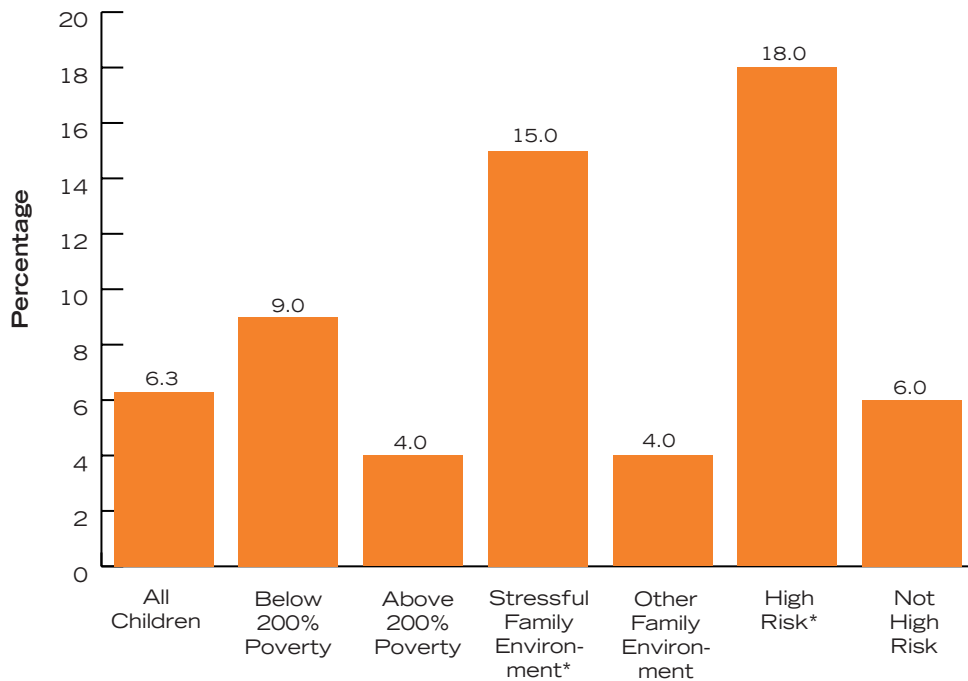
There are little data on the prevalence of diagnosed mental disorders for the middle childhood population. Data do exist for children and adolescents ages 9 to 17. Almost 21% of children and adolescents in this age group have some type of mental disorder with at least minimum impairment, 11% of children have mental disorders with significant impairment, and 5% have mental disorders with severe impairment (U.S. Department of Health and Human Services, 1999b). Among the 5% of children with minimum impairment, approximately 13% have anxiety disorders, 10% have disruptive disorders, 6% have mood disorders, and 2% have substance abuse disorders. (Some of these children have multiple disorders). It is estimated that between 3-5% of school-age children have Attention Deficit Hyperactivity Disorder (ADHD). The national prevalence of depression is about 2% for prepubertal children and 5-8% for adolescents. The onset

of depression at earlier ages appears to be increasing (Son & Kirchner, 2000).

Data based on parent-reported behavioral and emotional problems are available for children ages 6 to 11 from the Snapshots of America's Families Survey (The Urban Institute, 2000). Although these problems are not formally diagnosed mental disorders, they do give some idea of parent's perception of children's mental health status. In 1999, 6.3% of children ages 6 to 11 were reported by their parents to have behavioral and emotional problems (Moore, Hatcher, Vandivere, & Brown, 2000). This percentage is higher for children living in poverty, children living in stressful family environments⁶, and children who have multiple risk factors (e.g., living in poverty and have a stressful family environment). For example, 9.3% of children living below 200% of the poverty level are reported to have behavioral and emotional problems compared to 4.2% of children living above 200% of the poverty level (Moore, Hatcher, et al., 2000). Children growing up in stressful environments have higher levels of behavioral and emotional problems compared to children living in less stressful environments (15% vs. 4%) (Moore & Vandivere, 2000). These differences are even more dramatic for children with multiple risk factors (i.e., three of the following: having a single parent, living in poverty, four or more children in household, parent without high school diploma or GED). Eighteen percent of children ages 6 to 11 with at least three risk factors are reported to

FIGURE 14

Children Ages 6 to 11 with Behavioral and Emotional Problems by Presence of Risk Factors, 1999



*See endnote 6.

have behavioral and emotional problems compared to 6% of children who have fewer risk factors (Figure 14) (Moore, Vandivere, and Ehrle, 2000).

Although national data are lacking, research indicates that many children do not have access to mental health care providers. There is both a lack of qualified practitioners and a lack of access to those who are qualified, often leaving primary care physicians to provide mental health services for children (Steinberg et al., 1999). These physicians often lack adequate training in the diagnosis and treatment of mental disorders. Consequently, many children with mental disorders are not identified by the primary care system. Children with mental health problems are often overlooked and underserved until they reach a crisis stage (U.S. Department of Health and Human Services, 1999b). The prevalence of mental health issues in children combined with the lack of access to qualified mental health providers makes mental health a critical issue for the middle childhood population. The American Academy of Pediatrics has recognized the need for more psychosocial services and more collaboration between physicians and mental health specialists (American Academy of Pediatrics, 2000).

B. Risky Behaviors

The broad definition of health guiding this report includes behaviors that influence health. Healthy children are not only free of illness, but also make decisions about health-related behaviors that reduce the likelihood that they will become ill from physical or mental health problems. Children who do not engage in risky behaviors, such as the use of tobacco or illicit drugs, or early sexual activity, increase their chance of positive health outcomes compared to those who do engage in these behaviors. Many of these behaviors are linked with both adolescent and adult health problems.

■ Some children are engaging in risky behaviors by age 12.

Although data about risky behaviors are rarely collected for children under 12, data from the 1995 National Longitudinal Study of Adolescent Health (AddHealth) show that by age 12, 13% of children have engaged in at least one of the following behaviors: sexual activity, alcohol use, cigarette use, or illegal drug use (U.S. Department of Health and Human Services, 1998). This percentage differs by gender, family structure, and income. Males are twice as likely as females to engage in at least one risky behavior (16% vs. 8%). Differences also are found in family structure, with children living in two-parent families (9%) engaging in fewer risky behaviors than children living with single parents (16%) and children living in other family structures (18%). Finally, children living in lower income families (<\$35,000/year) engage in more risky behaviors than children in moderate (\$35,001-\$50,000/year) and higher income-families (>\$50,000/year) (15% vs. 10% and 8%, respectively) (U.S. Department of Health and Human Services, 1998).

Data from the 1998 National Household Survey on Drug Abuse also indicate that young adolescents ages 12 to 13 engage in alcohol, tobacco, or drug use. Lifetime use for alcohol was 14%, 17% for cigarettes, 3% for marijuana, and less than 1% for cocaine (Office of Applied Studies, 1998). Data on past-month use of substances show that between 1994 and 1998, the use of alcohol by 12 to 13 year olds decreased from 9% to 5%; binge alcohol episodes in this age group decreased from 2% to 1%; and marijuana use has stayed steady at 2% (MacKay et al., 2000).

Although data on risky behaviors are rarely collected from children under age 12, some surveys of adolescents do provide data about the age of initiation. These surveys indicate that some children engage in these risky behaviors at or before age 10. According to the 1996 Youth Risk Behavior Survey (YRBS), 11% of students aged 16 who smoked, started smoking at or before age 10 (Everett, Warren, Sharp, Kann, Husten, & Crossett, 1999). Similarly, the Monitoring the Future survey indicates that 16.4% of eighth graders who smoke began smoking by 5th grade or earlier. Among current users of other substances, the percentage reporting initiation by 5th grade or earlier is as follows: alcohol, 14%; inhalants, 6.9%; smokeless tobacco, 4.5%; and marijuana, 3.2% (Johnston, O'Malley, & Bachman, 2001). While these surveys suggest that risky behaviors occur at an early age for a small number of children, it is worth noting that some research indicates that data gathered through retrospective reporting may be inaccurate by as much as 30% (Engels, Knibbe, & Drop, 1997).

Data from the 1999 YRBS indicate that 8.3% of students had had intercourse by age 13, with boys more likely than girls to report first intercourse before age 13 (12.2% vs. 4.4%) (Centers for Disease Control and Prevention, 2000e). While extremely rare, some girls under age 13 do give birth. In 1998, 202 girls age 12 gave birth, compared to 23 girls age 11 and 5 girls age 10 (National Center for Health Statistics, 2002).

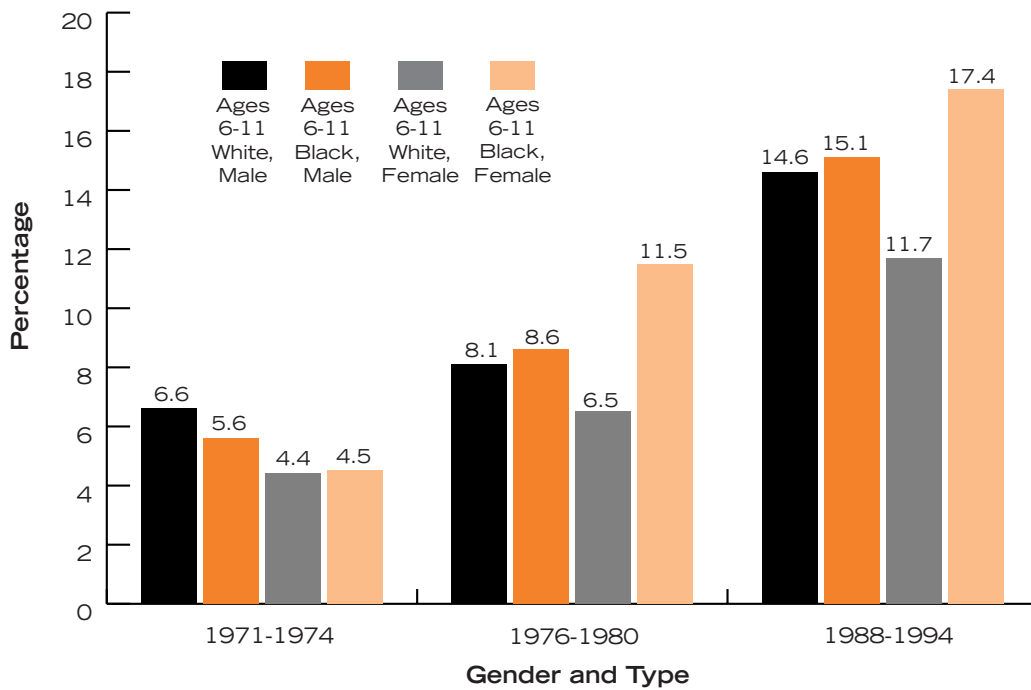
C. Diet and Obesity

■ More children are overweight than before.

In 1999, data from the National Health and Nutrition Examination Survey (NHANES) indicated that 13% of children ages 6 to 11 were overweight (Centers for Disease Control and Prevention, 2001). This percentage has increased from 5.5% for the years 1971-1974, to 7.6% in 1976-1980, and 13.6% in 1988-1994 (Figure 15). Gender and race/ethnicity influence the likelihood for being overweight. From 1988-1994, more males than females were overweight (14.7% vs. 12.6%). However, this varies significantly by race/ethnicity and gender with overweight status most prevalent among Black females (17.4%) and least prevalent among White females (11.7%). Furthermore, more children ages 6 to 11 are overweight than adolescents ages 12 to 17 (13.6% vs. 11.5%) (U.S. Department of Health and Human Services, 1998).

FIGURE 15

Overweight Children Ages 6 to 11 by Race/Ethnicity, 1971-1994



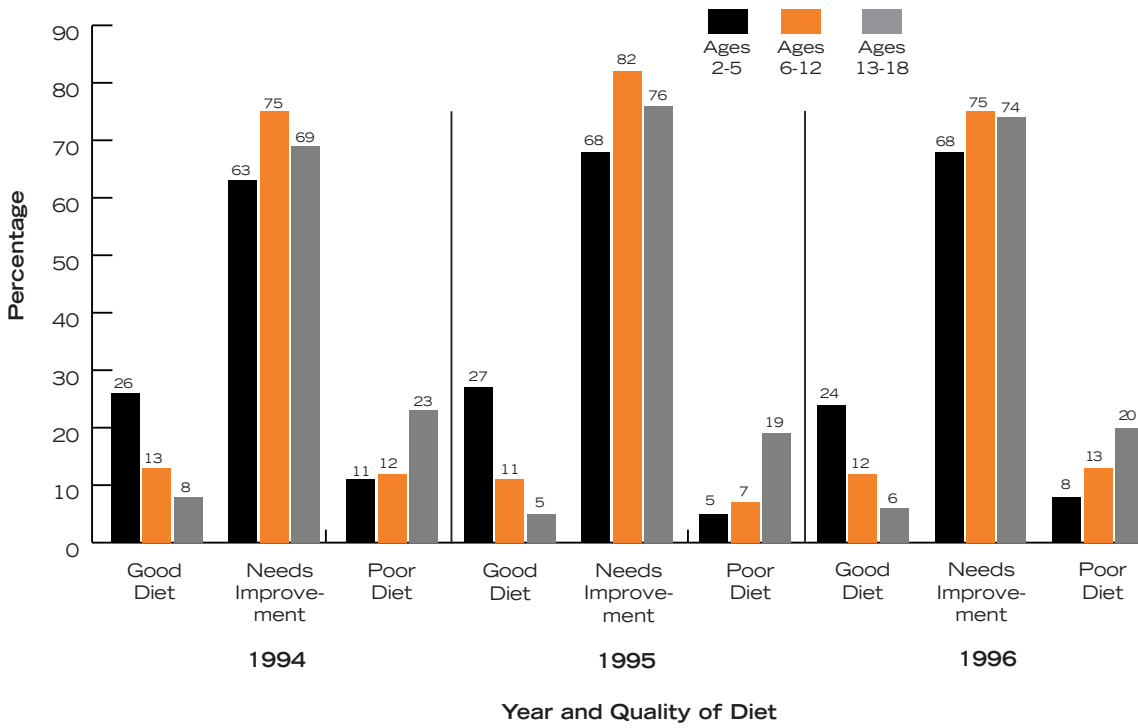
Note: Overweight is defined as body mass index (BMI) at or above the sex- and age- specific 95th percentile BMI cutoff points calculated at 6-month age intervals for children ages 6 through 11. Age is at time of examination at mobile examination center.

Overweight children have been shown to have a number of health risks including elevated cholesterol, higher blood pressure, and higher incidence of diabetes (Freedman, Dietz, Srinivansan, & Berenson, 1999). Compared to children who are not overweight, overweight children are at increased risk for adult mortality and morbidity from causes such as diabetes and cardiovascular diseases (Power, Lake, & Cole, 1997). They are also at risk for peer rejection, discrimination, poor body image, and low self-esteem (Brownell, 1984). Research indicates that children as young as 9 years old may engage in unsafe weight-loss methods to control their weight (Centers for Disease Control and Prevention, 1996b).

The majority of children have diets that do not meet national guidelines for healthy eating, developed by the U.S. Department of Agriculture. In 1996, only about 14% of children ages 2 to 18 had good diets; 72% needed improvement; and 14% had poor diets. For children ages 6 to 12, 12% had good diets, 75% needed improvement, and 13% had poor diets⁷ (Figure 16). These percentages get worse as children grow older. For example, 24% of children ages 2-5 had good diets, while only 6% of adolescents ages 13 - 18 had good diets. Furthermore, with less than 40% of children ages 4 to 10 getting the recommended dietary amounts for different food groups, it is clear that the

FIGURE 16

Quality of Diet in Children Ages 2 to 18, 1994-1996



majority of children do not meet guidelines for healthy recommended diets (FIFCFS, 2000).

The increase in obesity can be linked to lack of physical activity, as well as changes in the quality of foods available in schools. According to data from the 2000 School Health Policies and Programs Study, 39.7% of elementary schools require physical education in kindergarten, compared to about one half requiring physical education in grades 1-5. Among middle/junior high schools, just under a third (32.2%) require physical education (Burgeson, Wechsler, Brener, Young, & Spain, 2001). Many national nutrition efforts have been undermined by the rising availability of foods with high caloric density and little nutritional value (e.g., fast foods, sodas) in schools over the last 10 years (U.S. Department of Agriculture, 2001; Public Health Institute, 2000). Also, due to lack of affordable healthy foods (e.g. fruits and vegetables), poorer families struggle to serve healthy meals to their children and lack the funds for sports programs and other organized physical activities (Cohen, 2000). The prevalence of poor diets and obesity in the middle childhood age group is cause for concern because of the short- and long-term impact discussed in this section. Policies and programs to improve diets and decrease obesity would benefit the health of children and adults.

D. Childhood Victimization

In order to develop into healthy adults, children need healthy, safe environments. Unfortunately, many children do not always live in safe environments, with children and adolescents twice as likely to be victimized (i.e., aggravated assault, robbery, and rape) as adults (Snyder & Sickmund, 1999). Moreover, nearly one million children suffered from maltreatment (e.g., neglect, physical abuse, and sexual abuse) at the hands of their parents or relatives (Golden, 2000). Studies suggest that sibling assault is also common, with estimates of victimization rates ranging from 65-95% for milder forms of violence (e.g., pushing, kicking, hitting) and 4-5% for severe forms of violence (beating, choking or being bodily thrown) (Lewit & Schuurmann Baker, 1996). Nearly 10% of children report being victimized during school (Kaufman et al., 2000). Several factors contribute to children's victimization. First, they are physically smaller and weaker than their victimizers. Second, they have little control over their environment and are dependent on family and social institutions to keep them safe. Third, social tolerance may enable different kinds of victimization that happen to children, such as sibling assault or being bullied in school (Finkelhor & Dziuba-Leatherman, 1994). Fourth, children are less likely to report violent crimes than adults (Snyder & Sickmund, 1999). In this section, we present statistics indicating the safety of children focusing on neglect, maltreatment, sexual assault, and the school environment.

■ Some children suffer from neglect and maltreatment.

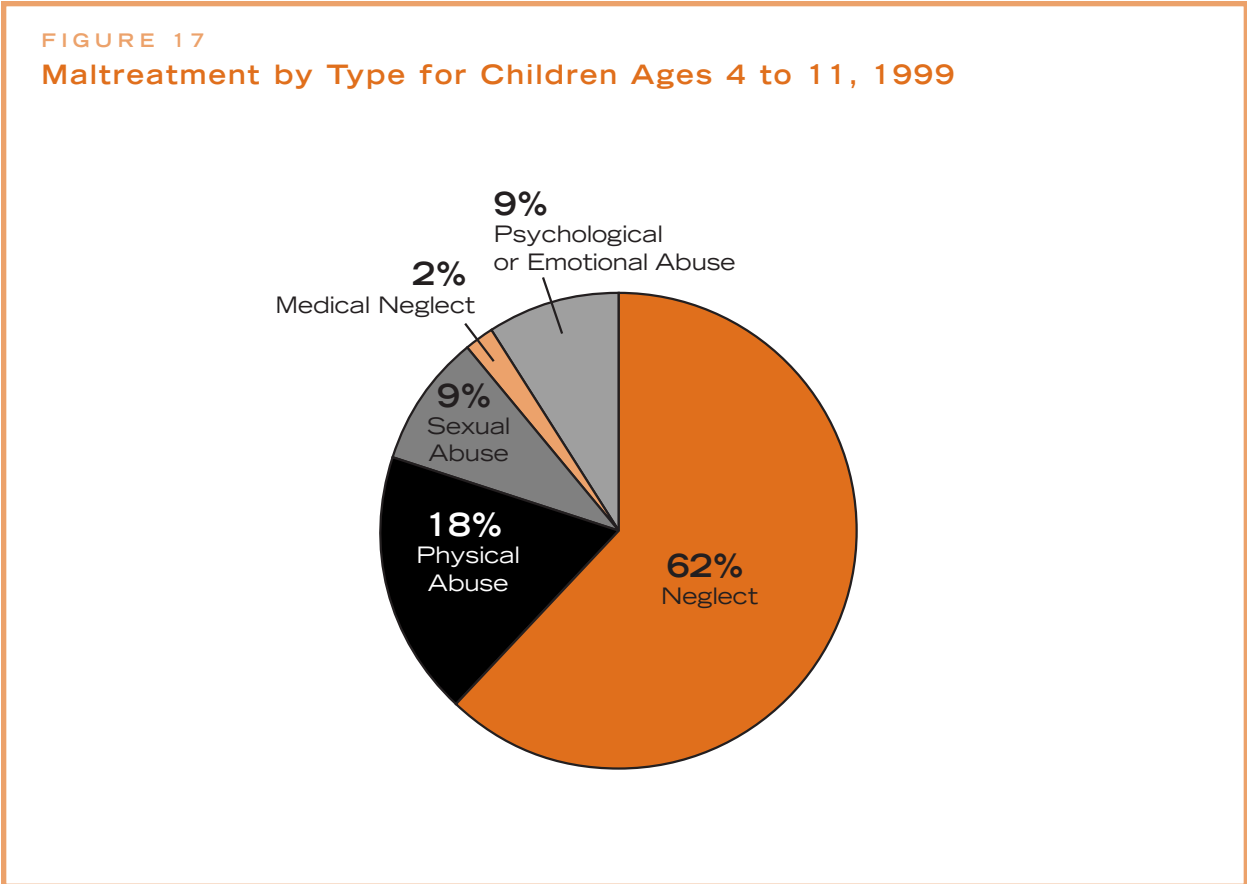
Data from the National Child Abuse and Neglect Data system show that in 1999, an estimated 826,000 children ages 0 to 17 (just over 1%) were victims of maltreatment, mostly at the hands of parents (87%) and relatives (4%) (U.S. Department of Health and Human Services, Administration on Children, Youth and Families, 2001). Maltreatment in childhood is linked to difficulty in school and social relationships, a lack of problem-solving skills, and problems in adjusting to new situations. Additionally, maltreated children are at risk for engaging in aggressive and violent behavior, developing depression and other mental health conditions (Golden, 2000), engaging in delinquent behavior, and becoming incarcerated (Johnson-Reid, 1998).

Data from 1999 show that children ages 0 to 3 were the most likely to be maltreated, with a rate of 13.9 per 100,000 children, followed by ages 4 to 7 (13/100,000), ages 8 to 11 (11.6/100,000), ages 12 to 15 (10.1/100,000), and ages 16 to 17 (5.9/100,000). Among children ages 0 to 17 who were victims of maltreatment, over 58% suffered from neglect, 21% from physical abuse, and 11% from sexual abuse. Over 1,000 children died from maltreatment in 1999 (nearly 90% of these fatalities were ages 5 and under) (U.S. Department of Health and Human Services, Administration on Children, Youth and Families, 2001). For children ages 4 to 11, the leading cause of maltreatment was

neglect (62%), followed by physical abuse (18%), sexual abuse (9%) and psychological abuse (9%) (Figure 16). The rates for these causes of maltreatment were as follows: neglect (7.6/1,000), physical abuse (2.2/1,000), sexual abuse (1.5/1,000), and psychological abuse (1.1/1,000). Females have a slightly higher chance of being maltreated than males (12.5/1,000 vs. 11.2/1,000) (U.S. Department of Health and Human Services and Administration on Children, Youth and Families, 2001).

■ **Children ages 6 to 11 account for 20% of all sexual assaults.**

Children ages 6 to 11 are also victims of sexual assault (i.e., rape, sodomy, assault with an object, and fondling). The National Incident-Based Reporting System (NIBRS) collects data from 12 states and, while not nationally representative, does give some information about the victimization of children (Snyder, 2000). From 1991-1996, more children were sexually assaulted than adults, and children ages 6 to 11 had the second highest proportion of sexual assault. For example, of all sexual assaults during 1991-1996, adolescents ages 12 to 17 accounted for 32.8% of these victims, followed by children ages 6 to 11 (20.1%), young adults ages 18 to 24 (14.2%), children ages 0 to 5 (14.0%), adults ages 25 to 34 (11.5%), and adults ages 35 and older (7.4%). Gender differences also exist. For children ages 6 to 11, 25% of sexual assault victims were male



and 75% were female; females were nearly three times more likely to be sexually assaulted than males.

The perpetrator of these assaults was most likely to be an acquaintance (53%), a family member (42%), or a stranger (5%). Finally, adults are not the only perpetrators of sexual assaults in the middle childhood population. For sexual assault victims ages 6 to 11, 39% of the perpetrators are under 18 (Snyder, 2000). Children who are sexually assaulted are more than three times as likely to develop major depressive disorders, five times as likely to attempt suicide, and nine times as likely to have repeated suicide attempts (Brown, Cohen, Johnson, & Smailes, 1999).

■ **Many children are victims of crimes during school hours, including bullying.**

Schools are supposed to be safe places for children. During 1996-1997, however, about 45% of elementary schools had at least one criminal incident reported to police. While most of these were for less serious violent (i.e., physical attack or fighting without a weapon, theft/larceny, and vandalism) or nonviolent crimes, about 4% of elementary schools reported at least one serious violent crime (i.e., physical attack or fight with a weapon, robbery, rape or other sexual assault, suicide, or murder) during 1996-1997 (Kaufman et al., 2000). The rates of crimes per 1,000 students is relatively very low for elementary schools, with about 3/1,000 for less serious violent crimes compared to 15/1,000 for middle schools and 17/1,000 for high schools. The most common types of crimes reported by elementary schools are vandalism (31%), theft/larceny (19%), and physical attack or fight without a weapon (12%) (Kaufman et al., 2000).

Victimization also occurs in the form of bullying. Many children are bullied (i.e., being picked on or made to do things they did not want to do) during school hours by peers or older students. In 1999, 10% of 6th and 7th graders reported being bullied at school. Males were more likely to be bullied than females (12% vs. 7%). Additionally, 6th and 7th graders (10%) are more likely to be bullied than 8th and 9th graders (5%) or 10th to 12th graders (2%). Research has shown that both children who are bullied and those that bully experience a number of psychosocial problems and suffer long-term effects (Nansel, Overpeck, Pilla, Ruan, Simons-Morton, & Scheidt, 2001). Data indicate that school victimization has decreased since 1995 when 10% and 11% of 6th and 7th graders, respectively, reported being victimized during the previous 6 months. In 1999, that percentage dropped to 8% for both grades (Kaufman et al., 2000).

Guns in schools are also a growing concern for the safety of children. There is little information on guns in the lives of children younger than 12; however, some information is available for older children. During the 1996-1997 school year, about 6,000 students (ages 5 to 18) in the United States were expelled for carrying a gun to school (Center for the Study of Prevention and Violence, 2000). In 1999, about 7% of high

school students reported carrying a gun to school in the previous 30 days (U.S. Department of Health and Human Services, 2001). About 3% of young adolescents ages 12 to 13 reported carrying a gun (not restricted to school) in the last year (Office of Applied Studies, 2000). Consequently, children are often afraid of their school environment (U.S. Department of Health and Human Services, 2001). In 1999, 5% of students ages 12 to 18 feared being attacked or harmed at school and avoided one or more places during school, decreasing from 9% in 1995 (Kaufman et al., 2000). These figures suggest that many children do not have a safe school environment.

VI. SUMMARY AND IMPLICATIONS

By traditional definitions of health, the middle childhood population is often considered healthier than any other age group (Collins, 1984). However, by a broader definition—one that includes health problems that have behavioral and social origins—the data presented here suggest that there are a significant number of health problems affecting this population.

Important health issues affecting middle childhood include unintentional injuries, respiratory problems (e.g., asthma), mental health disorders, learning disabilities, poor oral health, obesity, and lack of safe environments. The leading cause of death during middle childhood and the number one reason for emergency room visits is unintentional injuries. Respiratory problems are the leading cause of hospitalizations, with asthma being the most common disease during middle childhood. Poor oral health also affects many children in this age group. Both learning disabilities and mental health disorders can have immediate consequences and long-term effects. Obesity is increasing in the middle childhood population and many children lack adequate diets. Finally, there is a need to make environments for children safer for their development.

The data presented in this monograph indicate that there are health disparities among different groups of the middle childhood population, including disparities by gender, poverty, and race/ethnicity. One recurring theme is that male gender is highly correlated with many bad outcomes. For example, males are 1.4 times more likely than females to die from unintentional injuries. Mental health disorders and learning disabilities are more common in males than females. Males are also more likely to be victimized during school. However, females are more likely to be sexually assaulted.

Another recurring theme is the greater burden of health problems borne by children living in poverty. Compared to non-poor children, children who are poor have higher rates of dental disease, and behavioral and emotional problems. In addition, they are more likely to have poorer diets and to engage in health risk behaviors. Poor children

are also less likely to have health insurance, and consequently, are less likely to have an ongoing source of medical care.

A final recurring theme is the difference in health status by race/ethnicity. Children who are non-White have higher rates of living in poverty and living in single-parent families. Moreover, these children are less likely to have seen a physician in the last year. Significant disparities exist among racial/ethnic groups in rates of mortality, chronic illnesses, dental disease, and obesity. With the childhood population becoming more ethnically diverse, the health needs of children are likely to increase due to these health disparities.

Preventive interventions hold great promise for addressing the health issues of this population. Many of the deaths due to unintentional injuries are preventable. Likewise, many of the deaths and illnesses due to asthma are highly preventable with proper pharmacotherapy and health education. Furthermore, the incidence of oral health problems can be reduced by improving access to and affordability of dental care. If detected early enough, mental health issues may be prevented or ameliorated through counseling and/or pharmacotherapy and behavioral management strategies. Improving school and community environments for learning and safety is another option.

While data presented here identified many important health issues for the middle childhood population, limited research in many areas limits our understanding of these children's health. For example, national data are scarce for a range of special populations. Also, research is lacking on the middle childhood antecedents of the health-damaging and health-promoting behaviors that contribute to positive and negative health outcomes during adolescence and adulthood.

The information summarized above has important implications for advancing a research, program, and policy agenda to promote the health of the middle childhood population. First, one implication is that any agenda must be grounded in children's developmental needs and reflect the changing contexts of children's lives. These changes include the increasing racial/ethnic diversity of families, the greater number of single parents, and the increase in the proportion of parents that work full time outside the home. These changes have important implications for children's lives. Families need support through strategies such as parental education regarding child development and parenting skills, and other programs that give parents the guidance and skills to successfully navigate their way through complex health, school, and community systems.

Children's understanding, perceptions, and attitudes about health behaviors develop rapidly during middle childhood, particularly as they assume greater responsibility for their own diet, physical activity, hygiene, oral health, and sleep. By fostering positive predispositions toward the adoption of healthy behaviors, we can create greater recognition of the opportunity to influence not only the health and well-being of

children, but that of adolescents and adults as well. To promote healthy development, programs and policies must recognize that many sectors of society—including school, community organizations, employers and health care organizations—influence children's health and development.

Research in several areas may increase our understanding of children's health and well-being, strengthening the effectiveness of programs and policies aimed at improving children's health. First, further research is needed to understand the trajectory leading to the onset of risky behaviors in middle childhood, adolescence and adulthood. Such research should address the influence of antecedent factors, such as family relations and other environmental factors, and the onset of risky behaviors. More empirical studies on the specific indicators (e.g., social and emotional health and decision-making competence) that influence health behaviors and beliefs are needed to better identify opportunities for earlier interventions. Studies that examine how health beliefs (e.g., attitudes towards drug use and exercise) are established, influenced, and changed during this specific age period would also be useful. More research is also needed to understand the antecedents of children's mental health issues. Finally, many of these studies need to incorporate longitudinal designs, exploring the relationship between developmental periods and the predictors of health over time. Without studies examining these factors over time, it will be difficult to implement intervention programs, create monitoring systems, and develop public policy to improve the lives of children.

Second, there is a need for a more comprehensive set of health indicators for the middle childhood population. The health data for this population are limited by the number of health data sources and the type of health information that is currently collected. Although recent reports (e.g., *America's Children: Key National Indicators of Well-Being, 2000* [FIFCFS, 2000], *Snapshots of America's Families II* [The Urban Institute, 2000]) have begun to include this age group, most of the information focuses on negative health outcomes (e.g., mortality, illnesses, hospitalizations). A comprehensive set of indicators that are developmentally appropriate would include those that measure positive and negative health outcomes. These positive health indicators might focus on factors such as the child's sense of connection to parents, school, and the community; achievement; and successful progression of developmental tasks. Health and other professionals are well aware of the need to build a better set of indicators for this population and there have been several recent advancements in accomplishing this task (Child Trends, 2001; Grunbaum, personal communication, May 2002).

Third, we need to better understand how the health care delivery system affects access to care, health utilization patterns, services provided to children, and the subsequent health of the middle childhood population. Topics which merit further study include: the amount of time primary care clinicians need to assess the health

status of children in office-based visits; how the process of referrals affects health care; how to provide adequate reimbursement for delivering relevant preventive health services such as anticipatory guidance; and how efforts to improve health care services actually affect health outcomes. The increase in the use of pharmacological interventions for children's mental health disorders, particularly ADHD, also merits further study. Potential research topics in this area include clinical issues (e.g., the quality of ADHD diagnosis, and efficacy among children with moderate symptoms), and system issues such as how the health care system itself may be influencing this increase (Zametkin & Ernst, 1999; Ellia, Ambrosini, & Rappoport, 1999; Steinberg et al., 1999). Additionally, there is a need to improve the delivery of preventive services and develop more efficient ways for health care providers to identify community resources where they can refer their clients. Research on innovative alternatives to the current health system may be necessary. For example, studies might address the effectiveness and costs of expanding primary health care in schools and other community settings or increasing the delivery of anticipatory guidance for both children and their families. Studies might also examine whether strengthening relationships between health providers, school nurses, and parents of students would lead to a more coordinated and comprehensive system of care.

Fourth, given the complex array of factors that affect children's health, it is important that research, programs and policies for this population be grounded in an ecological approach. An ecological approach takes into account the many sectors and institutions—including families, schools, businesses, communities, the health care system and media—that shape the context in which children live. This approach is especially important as the middle childhood population becomes more diverse—e.g., in terms of race/ethnicity, family structure, and place of residence. Knowledge gained from research and evaluation that uses an ecological approach will be critical for developing interventions that take into account the growing diversity of the population. Finally, an ecological approach also implies that the many sectors influencing children's lives assume greater responsibility for their health. Greater commitment from these sectors is needed to create an environment that fosters health and positive development in the middle childhood population.

VII. APPENDICES

A. Data Notes

Quality health data are essential for assessing the health status of children during middle childhood. Health professionals, program directors and policy makers use this information to monitor health trends, prioritize health issues, determine the impact of programs and policies, and develop future policy (Maternal and Child Health Bureau, 2001).

Compared to early childhood and adolescent populations, there are limited national reported data for the middle childhood population. Although many data sets have information on the middle childhood population, the majority of government and private health publications do not report data separately for this age group and often include other age ranges (e.g., ages 0 to 5, 5 to 13, 6 to 17, 9 to 17, 0 to 17). Where data are reported, the lack of standardized age groups makes it difficult to compare results across different sources. Moreover, some reported age groupings (e.g., ages 6 to 17) span more than one developmental stage. Finally, it should be noted that while the majority of health publications do not report data separately for this age group, virtually all of the data sets used to produce these reports do contain specific age information that would allow the inclusion of any age range including the middle childhood population.

Health statistics for the middle childhood population are also limited by the lack of data on race/ethnicity, income, and specific populations, making it difficult to identify special needs that some children may have. Health reports that examine racial/ethnic differences often group children under 18 together so that comparisons cannot be made across developmental stages. Health data categorized by income level and age group are also difficult to find. Furthermore, data on some topics, such as substance use and victimization, are not collected for children under 12 in national surveys (e.g., National Household Survey on Drug Abuse and the National Victimization Survey). Finally, national data for many specific populations are lacking. Some of these populations include children living in rural areas, immigrant children, Asian and Pacific Islander children, Native American and Alaskan Native children, children in foster care, children whose parents may have a disability, or children of incarcerated parents. Without information about these children, programs and policies are more likely to overlook their needs, even though many children in these populations may have the greatest health needs.

Health information on the middle childhood population often does not come directly from children themselves and therefore limits the reliability and validity of the data collected for some health indicators. Many data for children under 12 are often provided by parents; while parents probably give more accurate information concerning

insurance, diagnoses, and other conditions, we do not know how accurately they perceive more subjective aspects of health, such as feeling depressed or being bullied in school. Consequently, data for these types of health indicators may not accurately reflect children's experiences.

Finally, it should be noted that we were also unable to identify national data sets that include indicators of positive development, such as the number of children who feel a sense of personal and social competence, a sense of mastery and self-confidence, or who feel that they have a sense of connection to key adults in their lives. Promising efforts to measure development are underway, with the potential to broaden our understanding of and ability to monitor the health and well-being of children (Chapin Hall Center for Children, 2001; Child Trends, 2001). Because nation-wide measures are not available, nearly all of the health indicators presented here focus on the prevalence of illnesses or other health problems, rather than healthy development.

As mentioned earlier, we present data for children ages 6 to 11, whenever available. However, when these data are not available, we use other age ranges where necessary, such as ages 5 to 9 or 5 to 13. Many of the national health reports we used in this report do not use this age range and more often than not use different age ranges. For this document, we presented health data reported in publications and, except where noted, did not conduct our own analyses of available data sets. While this monograph generally presents the most recent data, slightly older data were sometimes used. For example, in cases where two data sources from the same year were compared and only one of the data sources was subsequently updated, we did not update data from the more recent source. Also, in cases where the most recent data are not reported for the middle childhood population, we present the slightly older data which best describes the our age group of interest.

B. Major Sources of Data for the Middle Childhood Population

| Report Name | Methodology | Type of Data Collected | Sample | Periodicity | Reference |
|--|--|---|--|--------------------------------|--|
| Current Population Reports: Marital Status and Living Arrangement (1998); America's Families and Living Arrangements (2001). | Population-based data economic information | Demographic, representative sample | Nationally | Annually | Census Bureau. (1998a); Census Bureau. (2001a) |
| Snapshots of American Families II, 1999: Findings From the National Survey of America's Families | Survey data | Demographic, economic, health access, health, behaviors, family environment | Nationally representative probability sample | Every two years from 13 states | The Urban Institute. (2000) |
| America's Children: Key National Indicators of Well-Being. | Varies by type of information | Demographic, economic, health access, health, behaviors, family environment | Varies by type of information | Annually | FIFCFS. (2000); FIFCFS. (2001) |
| Trends in the Well-Being of America's Children and Youth. | Varies by type of information | Demographic, economic, health access, health, behaviors, family environment | Varies by type of information | Annually | U.S. Department of Health and Human Services. (1998, 1999a, 2000a) |
| Child Health USA. | Varies by type | Demographic, economic, health access, of information | Varies by type health, behaviors | Annually of information | Maternal and Child Health Bureau. (2000) |
| The Condition of Education. | Varies by type of information | Demographic, education, family environment | Varies by type of information | Annually | U.S. Department of Education. (2000b, 2001) |
| Indicators of School Crime and Safety. | Varies by type | Crime and victimization rates in schools of information | Varies by type | Annually of information | Kaufman et al. (2000) |
| National Household Survey on Drug Abuse. | Survey data | Behaviors concerning use of tobacco, alcohol, and illicit drugs | Nationally representative sample | Annually | Office of Applied Studies. (1998, 2000) |
| Juvenile Offenders and Victims, 1999 National Report. | Program data | Demographic, economic, crime and victimization | Varies by type of information | Varies | Snyder & Sickmund. (1999) |
| Child Maltreatment 1999: Reports From the States to the National Child Abuse and Neglect Data System. | Program data | Child maltreatment | National data, but varies due to state reporting | Annually | U.S. Department of Health and Human Services, Administration on Children, Youth and Families. (2001) |

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A. References for Figures

- Figure 1: U.S. Population Ages 6 - 11, 1950-2020
Source: Federal Interagency Forum on Child and Family Statistics [FIFCFS], 2000.
- Figure 2: U.S. Population Ages 6 - 11 by Race/Ethnicity, 2000 & 2020
Source: Census Bureau, 2000a.
- Figure 3: Family Structure for Children Ages 6 - 11 by Race/Ethnicity, 2000
Source: Census Bureau, 2001a.
- Figure 4: Children in Childcare by Race/Ethnicity, 2001
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- Figure 5: Uninsured Children by Age and Family Income, 1999
Source: Kenney et al., 2000.
- Figure 6: Usual Source of Care for Children Ages 5 – 9 by Type of Insurance Coverage, 1996
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- Figure 7: Children with no Physician Visits in the Past Year, by Race/Ethnicity and Age, 1998
Source: Maternal and Child Health Bureau, 2001.
- Figure 8: Mortality Rates for Children Ages 5 - 14, 1980-1999
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- Figure 9: Leading Causes of Mortality for Children Ages 6 - 11, 1999
Source: National Center for Injury Prevention and Control [NCIPC], 2002.
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Source: National Center for Injury Prevention and Control [NCIPC], 2002.
- Figure 11: Most Frequent Hospital Discharge Diagnoses Among Children Ages 5 - 14 by Age, 1996
Source: McCormick et al., 2000.
- Figure 12: Emergency Department Visit Rates for Selected External Causes of Injury by Gender, Ages 10 – 11, 1995-1997
Source: MacKay et al., 2000.
- Figure 13: Number of Visits and Unmet Dental Needs of Low-Income Children by Age, 1997
Source: Kenney et al., 2000.
- Figure 14: Children Ages 6 - 11 with Behavioral and Emotional Problems by Presence of Risk Factors, 1999
Source: Moore et al., 2000.

Figure 15: Overweight Children Ages 6 - 11 by Race/Ethnicity, 1971-1994

Source: U.S. Department of Health and Human Services, 1998.

Figure 16: Quality of Diet in Children Ages 2 - 18, 1994-1996

Source: Federal Interagency Forum on Child and Family Statistics [FIFCFS], 2000.

Figure 17: Maltreatment by Type for Children Ages 4 - 11, 1999

Source: U.S. Department of Health and Human Services, Administration on Children, Youth and Families, 2001.

B. End Notes

¹ Regional Definitions are as follows: West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming; Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin; South: Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia; Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont.

² Children may have multiple childcare arrangements.

³ The Census Bureau defines metropolitan areas (MAs) according to standards published by the United States Office of Management and Budget. The general concept of a MA is one of a large population nucleus, together with adjacent communities that have a high degree of economic and social integration with that nucleus. Each MA must contain either a place with a minimum of 50,000 or a Census Bureau-defined urbanized area and a total MA of at least 100,000. An MA is comprised of one or more central counties and may include one or more outlying counties. The MA is then subdivided into two categories “inside the central city” and “outside the central city.” A central city is defined as the largest place in the MA and areas “outside the central city” would be considered suburban areas. Areas with smaller populations are considered non-metropolitan areas (non-MAs) and include many rural areas.

⁴ Due to limitations in available data, the death rates for 6-11 year-olds are based on the top twenty causes of death for this age group. We estimate that these deaths represent about 83% of all deaths in this age group. Thus, these figures are underestimates of the overall death rate for children ages 6-11.

⁵ The Census Bureau report defines this as children who: (1) used an ambulatory aid; (2) had serious difficulty seeing, hearing or speaking; (3) needed help with one or more activities of daily living, (which include getting around inside the home, getting in or out of a bed or chair, taking a bath or shower, dressing, eating, and using the toilet); and (4) had a developmental disorder or a developmental condition.

⁶ Stressful family environments are defined as families who have at least two of the following factors (family unable to pay mortgage, rent, or utilities; more than two people living in one bedroom; food did not last to the end of the month; a parent is not confident that family member can get health care if they need it; a parent or partner is in poor health, or has a physical, learning, or mental condition; and a child is in poor health, or has a physical, learning, or mental condition). Children considered to be at high risk are defined as having at least three of the following factors (having single parents; four or more children living in the child’s household; having a parent without a high school diploma or a GED; living in poverty).

⁷ The Healthy Eating Index (HEI) is a summary measure of diet quality consisting of 10 different components that represent different aspects of a healthy diet. The maximum combined score for the 10 components is 100. An HEI score above 80 implies a good diet, an HEI score between 51 and 80 implies a diet that needs improvement, and an HEI score less than 51 implies a poor diet.