

**The Health  
and Well-Being of  
Children  
in Rural Areas:**  
A Portrait  
of the Nation  
2007

September 2011

**U.S. Department of Health and Human Services  
Health Resources and Services Administration**



***Suggested citation:***

*U.S. Department of Health and Human Services,  
Health Resources and Services Administration,  
Maternal and Child Health Bureau.*

*The Health and Well-Being of Children in Rural  
Areas: A Portrait of the Nation 2007.  
Rockville, Maryland: U.S. Department of  
Health and Human Services, 2011.*

*Individual copies of this report are available  
at no cost from the HRSA Information Center,  
P.O. Box 2910, Merrifield, VA 22116;  
1-888-ASK-HRSA; or ask@hrsa.gov.*

*The publication is also available online at  
[www.mchb.hrsa.gov](http://www.mchb.hrsa.gov) and [www.cdc/nchs/slits.htm](http://www.cdc/nchs/slits.htm)*

Readers are free to duplicate and use all or part of the information contained in this publication; however, the photographs are copyrighted and permission may be required to reproduce. All photos are credited to iStockphoto.



## Table of Contents

Introduction	4
<b>The Child</b>	<b>7</b>
<b>Health Status</b>	
Characteristics of Urban and Rural Children	8
Health Status	9
Oral Health Status	10
Breastfeeding	11
Overweight and Obesity	12
Chronic Conditions	13
Problem Social Behaviors	14
Social Skills	15
<b>Health Care</b>	
Current Health Insurance	16
Adequacy of Health Insurance	18
Preventive Health Care	19
Preventive Dental Care	20
Developmental Surveillance and Screening	21
Mental Health Care	23
Medical Home	24
Components of the Medical Home: Access and Care Coordination	25
Components of the Medical Home: Family-Centered Care	26
<b>School and Activities</b>	
School Engagement	27
Repeating a Grade	28
Volunteering	29
Working for Pay	30
Reading for Pleasure	31
Playing with Children of the Same Age	32
Physical Activity	33
Screen Time	34
<b>The Child's Family</b>	<b>35</b>
Reading, Singing, and Telling Stories	36
Sharing Meals	38
Religious Services	39
Smoking in The Household	40
Parenting Stress	41
Child Care	42
<b>The Child and Family's Neighborhood</b>	<b>43</b>
Supportive Neighborhoods	44
Neighborhood Safety	45
Safety at School	46
Neighborhood Amenities	47
Neighborhood Conditions	48
Technical Appendix	49
References	51





## Introduction

Children in rural areas face particular risks to their health and well-being. Rural children are more likely to live in poor families,<sup>1</sup> are more vulnerable to death from injuries,<sup>2</sup> and are more likely to use tobacco than their counterparts in urban areas.<sup>3</sup> Rural families also face particular challenges in gaining access to health care, as they often have to travel greater distances to use health services.<sup>4</sup> In 2010, of the 2,052 non-metropolitan (including rural and frontier) counties in the United States, 704 were designated as Health Professional Shortage Areas (HPSAs) for primary care, 467 were considered HPSAs for dental care, and 521 were designated as HPSAs for mental health services. In addition, 1,505 entire counties were considered Medically Underserved Areas by the Federal Government.<sup>5</sup>

Discrepancies in health status and health risks may be attributable both to children's geographic location as well as to the demographic characteristics of the children and families who live in rural areas. Where these differences do exist, they can give program planners and policymakers important information with which to target services and interventions.

The National Survey of Children's Health (NSCH) provides a unique resource with which to analyze the health status, health care use, activities, and family and community environments experienced by children in rural and urban areas. The NSCH was designed to measure the health and well-being of children from birth through age 17 in the United States

while taking into account the environments in which they grow and develop. Conducted for the second time in 2007, the survey collected information from parents on their children's health, including oral, physical, and mental health, health care use and insurance status, and social activities and well-being. Aspects of the child's environment that were assessed in the survey include family structure, poverty level, parental health and well-being, and community surroundings. The survey was supported and developed by the U.S. Department of Health and Human Services, Health Resources and Services Administration (HRSA), Maternal and Child Health Bureau (MCHB) and was conducted by the Centers for Disease Control and Prevention (CDC), National Center for Health Statistics (NCHS).

### How Locations Were Defined

Children were classified as residing in an urban area, a large rural area, or a small or isolated rural area, based on their ZIP code, the size of the city or town, and the commuting pattern in the area. Urban areas include metropolitan areas and surrounding towns from which commuters flow into an urban area, including suburban and less densely populated areas. Large rural areas include large towns ("micropolitan" areas) with populations of 10,000 to 49,999 persons and their surrounding areas. Small or isolated rural areas include small towns with populations of 2,500 to 9,999 persons and their surrounding areas.<sup>6</sup> Thus, it is important to recognize that the geographic

categories used here describe the location's commuting pattern and proximity to a city or large town, not necessarily the population density of the child's home town.

The map on page 6 shows how these three types of areas are distributed across the United States. Of the 73.7 million children in the U.S., 60.2 million live in urban areas, 6.7 million live in large rural areas, and 6.8 million live in small or isolated rural areas.

### Findings of the Survey

Urban and rural children differ in their demographic characteristics, which, in combination with geographic factors, can affect their health status and health risks. Children in rural areas are more likely to be poor than those in urban areas. Of those who live in small or isolated rural areas, 23.3 percent have household incomes below the Federal poverty level (FPL), as do 23.7 percent of children in large rural areas. Of children living in urban areas, 17.4 percent have household incomes below the FPL. Rural children are also more likely to be non-Hispanic White. Among children in urban areas, just over half (53.0 percent) are White, compared to two-thirds (67.1 percent) of those in large rural areas and nearly three-quarters (73.8 percent) of those in small rural towns.

Children's overall health status does not vary substantially by location; approximately 84 percent of children are reported by their parents to be in excellent or very good health, regardless of where they live. (This percentage was slightly



lower, about 80 percent, among older children in rural areas.) While not quite as good as physical well-being, children's oral health was equally consistent across locations; the percentage of children reported to have excellent or very good oral health ranged from 69.0 to 71.1 percent.

Children living in large rural areas are slightly more likely than those in small rural or urban areas to have chronic conditions, including physical conditions and emotional, behavioral, and developmental conditions. Nearly one-quarter (24.9 percent) of children in large rural areas had at least one of 16 chronic conditions asked about in the survey, compared to approximately 22 percent of children in other locations. Thirteen percent of children in large rural areas were reported to have at least one of 7 emotional, behavioral, or developmental conditions (attention deficit disorder/attention deficit hyperactivity disorder [ADD/ADHD], anxiety, autism spectrum disorder, depression, developmental delay, oppositional defiant disorder [ODD] or conduct disorder, or Tourette Syndrome), compared to 11.1 percent of children in large rural or urban areas.

Across locations, approximately 90 percent of children currently have health insurance. Children living in rural areas are more likely to have public insurance, such as Medicaid or CHIP, and urban children are more likely to be privately insured. Some children have insurance that does not fully meet their needs, because it doesn't cover the services a child needs, allow access to needed provid-

ers, or it requires burdensome out-of-pocket payments. Older children (ages 12-17) in small rural areas were the most likely to have insurance that was not adequate (30.1 percent).

Rural children face specific health risks. For example, children from birth through age 5 in rural areas are less likely than urban children ever to be fed breast milk: 77.0 percent of urban children were ever breastfed, compared to 67.6 percent of children in large rural areas and 69.8 percent of those in small rural communities. Children living in rural areas are also more likely than urban children to be overweight or obese. More than one-third of rural children aged 10-17 met the criteria for overweight or obesity (having a BMI at or above the 85th percentile for their age and sex)—34.6 percent of children in large rural areas and 35.2 percent of those in small rural areas—compared to 30.9 percent of urban children. In addition, children in rural areas are more likely than urban children to live with someone who smokes. One-third (33.1 percent) of children in large rural areas and 35.0 percent of those in small rural areas lived with a smoker, compared to 24.4 percent of urban children.

Children in rural areas experience other risks to their educational and social well-being as well. Children in rural areas are more likely to repeat a grade in school; 12.6 percent of school-aged children in large rural areas and 13.5 percent in small rural areas (including 17.4 percent of boys) have repeated a grade, com-

pared to 10.0 percent of urban children. Rural children are also more likely to spend more than an hour each weekday watching television or videos: 60.9 percent of children in large rural areas did so, compared to 53.0 percent of children in small rural areas and 53.9 percent of urban children.

In other cases, rural children—especially those living in small rural areas—appear to be well protected on measures of connectedness to their families and communities. The percentage of children who shared a meal with their families every day in the past week was highest in small rural areas, where 50.7 percent of children did so, and parents of children in small rural areas were the least likely to report usually or always feeling parenting stress. The percentage of children who attend religious services once a week or more is highest in small rural areas (57.5 percent). Children in small rural areas are also the most likely to participate in physical activity every day (34.7 percent).

Rural communities themselves appear to provide health benefits for their residents as well. Children in rural areas are more likely than urban children to live in safe and supportive communities, as reported by their parents. However, they are less likely to have access to amenities such as community or recreation centers or parks or playgrounds than their urban counterparts.

This book presents information about the health and health care of children by location and by major de-

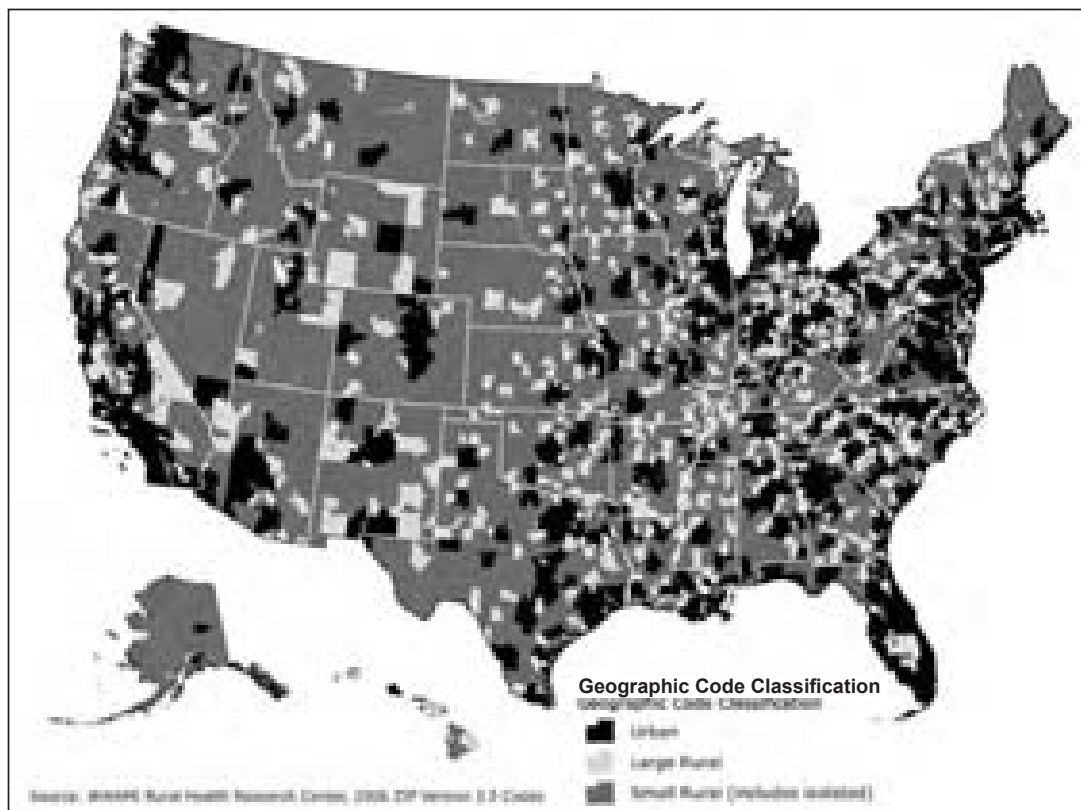


mographic characteristics such as age, sex, race and ethnicity, and household income as compared to the Federal poverty level. Unless otherwise noted, all graphs provide information on all children from birth through age 17. Children were classified by race and ethnicity in seven categories: non-Hispanic White, non-Hispanic Black, Hispanic (in homes where English is the primary spoken language), Hispanic (in homes where Spanish is the primary spoken language), non-Hispanic American Indian/Alaska Native (alone or in combination with other races), multiracial, and single races other than those listed above. All comparisons presented in the text of this chartbook are statistically significant at the .05 level; however, unless otherwise specified, other differences presented in the graphs have not been tested for significance and should be interpreted with caution.

A few limitations of the survey should be noted. All information presented here is based on parental reports and was not independently verified. In addition, the analyses in this book are simple tabulations; they do not use complex analytic techniques and do not control for demographic or other factors that may influence the differences among populations.

The Technical Appendices at the end of this book presents information about the survey methodology and sample. For more in-depth information about the survey and its findings, other resources are available. For more detailed analyses of the survey's findings, the Data Resource Center (DRC) on Child and Adolescent Health web site provides online access to the survey data. The interactive data query feature allows users to create their own tables and to compare sur-

vey results at the national and state levels and by relevant subgroups such as age, race/ethnicity, and income. The Child & Adolescent Health Measurement Initiative (CAHMI) leads the Data Resource Center in partnership with state and family leaders, including numerous Title V leaders, Family Voices, other family organizations and public and private sector child health data experts. It is sponsored by the Maternal and Child Health Bureau within the Health Resources and Services Administration. The website for the DRC is: [www.childhealthdata.org](http://www.childhealthdata.org). More complex analyses can be conducted using the public use data set available from the National Center for Health Statistics at: <http://www.cdc.gov/nchs/about/major/slaits/nsch.htm>





## The Child

While children's health care needs and their parents' concerns about their children's health and safety are consistent across the United States, the health issues, access barriers, and risks may vary for rural and urban children. This section presents information on children's health status, their access to and use of health care services, and their activities in and outside of school.

Children's health was measured through their parents' reports of their overall health and oral health; their Body Mass Index (based on their age); whether or not young children were breastfed; the presence of one or more chronic conditions; and their social skills and behaviors.

Children's access to and use of health care was measured through questions about children's health insurance coverage and whether or not it is adequate to meet their needs; their use of preventive health care, dental care, and mental health services; and whether their care meets the standards of the "medical home."

Children's participation in activities in school and in the community represents another important aspect of their well-being. The survey asked about children's school performance, including participation in early intervention or special education, their engagement with school, and whether or not they had repeated a grade, as well as their activities outside of school, including volunteering, working for pay, reading for pleasure, physical activity, and screen time.



## Characteristics of Urban and Rural Children

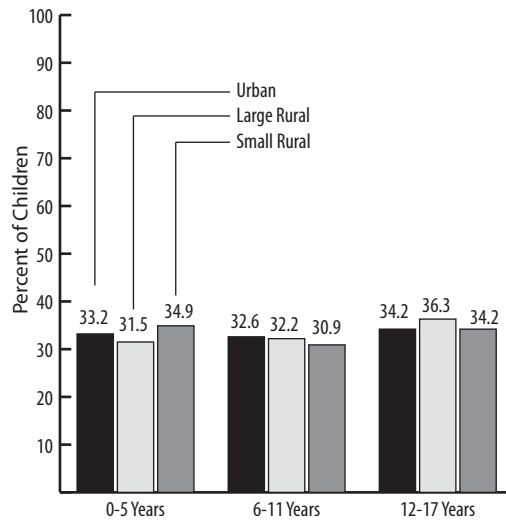
The demographic makeup of the population of children in small and large rural areas differs from that of urban children. While the age distribution is similar across the three geographic categories, rural children were more likely to be White and more likely to have low family incomes.

In each geographic category, about one-third of children were 0 to 5 years old, one-third were 6 to 11, and one-third were 12 to 17.

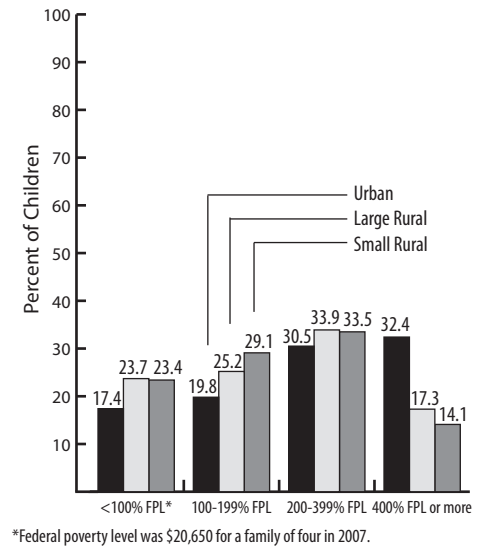
Among urban children, 53.0 percent were White, compared to 67.1 percent of children in large rural areas and 73.8 percent of those in small rural areas. Children in urban areas were more likely to be Black (15.3 percent of urban children, compared to fewer than 10 percent of rural children) and Hispanic (22.3 percent of urban children, compared to 15.5 percent of children in large rural areas and 9.4 percent of children in small rural areas). American Indian/Alaska Native children were more likely to reside in small rural areas, where they represent 3.3 percent of the population.

Children in rural areas were more likely than urban children to be poor:

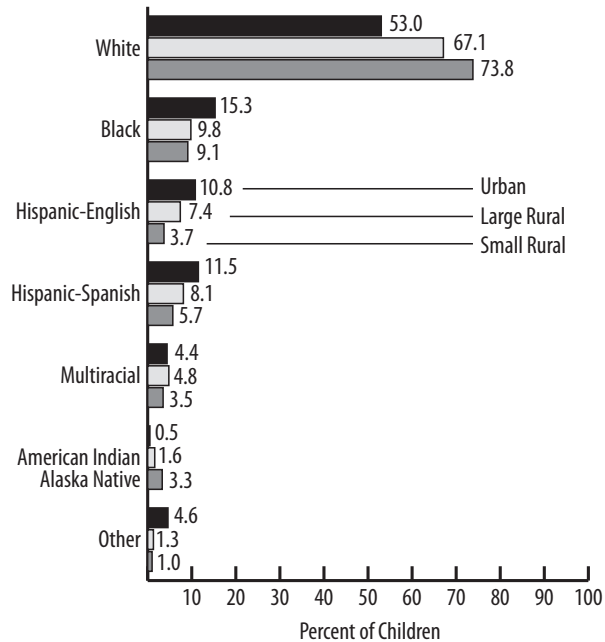
Children by Age and Location



Children by Poverty Level and Location



Children by Race/Ethnicity/Language and Location



Nearly one-quarter of children in both small and large rural areas had household incomes below the Federal poverty level (FPL), compared to 17.4 percent of urban children. In contrast, nearly one-third of urban chil-

dren had household incomes of 400 percent of the FPL or more, compared to 17.3 percent of children in large rural areas and 14.1 percent of those in small rural areas.





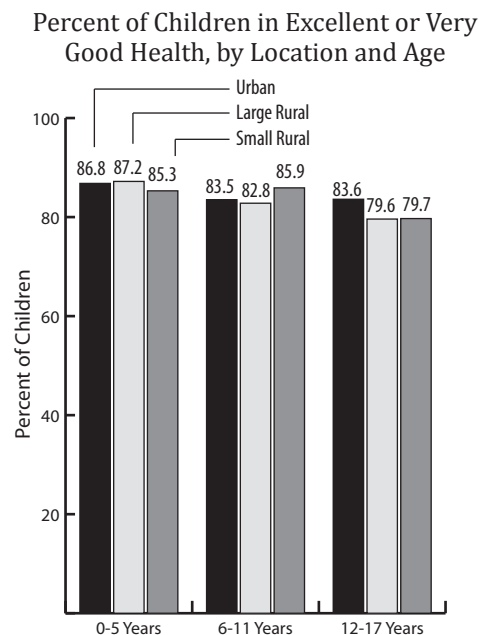
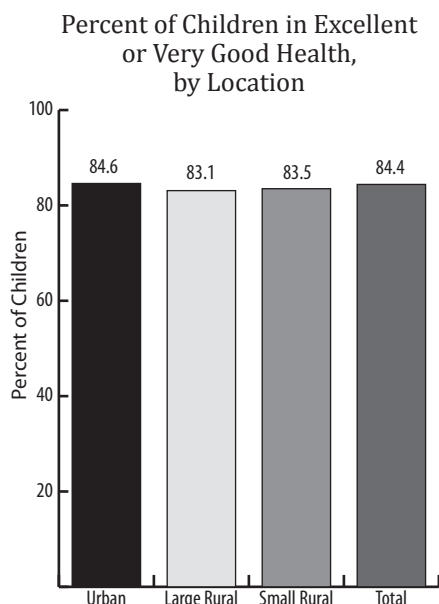
## Health Status

The survey asked parents to rate their children's overall health status as excellent, very good, good, fair, or poor. While this indicator does not give a complete picture of a child's health, it gives a general sense of the child's health and well-being.

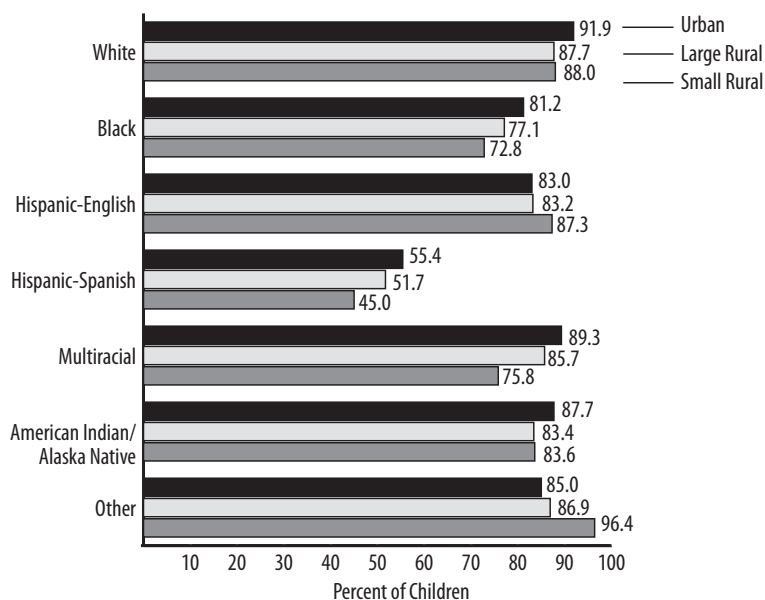
In all locations, over 80 percent of children were reported to be in excellent or very good health. This percentage did not vary significantly by location.

In all locations, younger children were more likely than adolescents to be in excellent or very good health. In both small and large rural areas, fewer than 80 percent of children aged 12-17 years were reported to be in excellent or very good health. The health status of children within each age group did not vary substantially by area of residence.

Children's health status varied more widely across locations within specific racial and ethnic groups. For example, among Black children, 81.2 percent of those living in urban areas were reported to be in excellent or very good health, compared to 72.8 percent of those in small rural areas. This difference is also significant among White children: 91.9 percent of those in urban areas were reported to be in excellent or very good health, compared to 87.7 percent of those in large rural areas and 88.0 percent of those in small rural areas.



**Percent of Children in Excellent or Very Good Health, by Location and Race/Ethnicity/Language**



percent of those in small rural areas. The group with the poorest reported health status was Hispanic children

who primarily speak Spanish, regardless of where they lived.



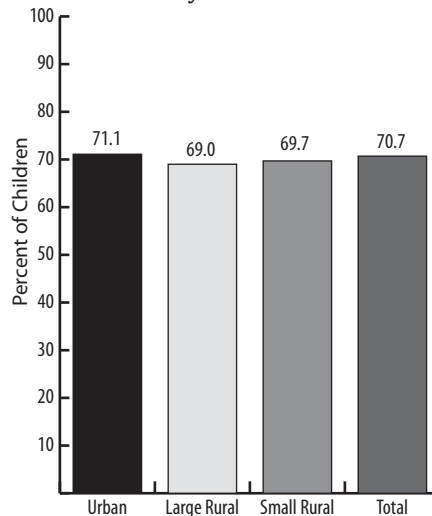
## Oral Health Status

Parents of children at least one year old were also asked to describe the status of their children's teeth as excellent, very good, good, fair, or poor. The percentage of children with excellent or very good oral health did not vary substantially across locations.

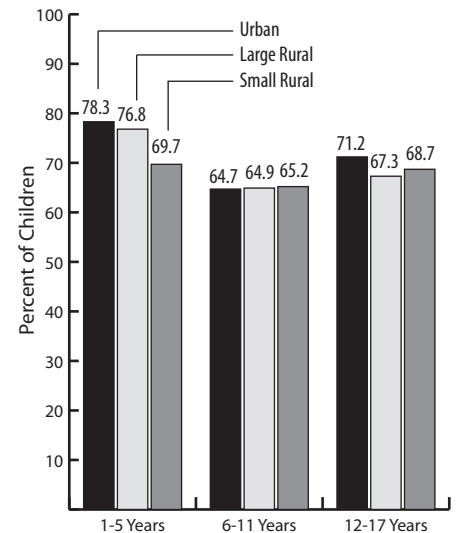
In all locations, the youngest children (aged 1-5 years) were the most likely to have excellent or very good oral health, with percentages ranging from 78.3 percent in urban areas to 69.7 percent in small rural areas. The oral health of children in the older age categories was similar across locations.

The oral health of children within each racial and ethnic group varied by location. Among White children, 81.8 percent of those in urban areas were reported to have excellent or very good oral health, compared to 77.3 percent of those in large rural areas and 74.9 percent of those in small rural areas. Among Black children, these percentages range from 63.4 percent of urban children to 55.0 percent of children in small rural areas. Hispanic children whose families primarily speak Spanish were the least likely to be in excellent or very good oral health, regardless of location.

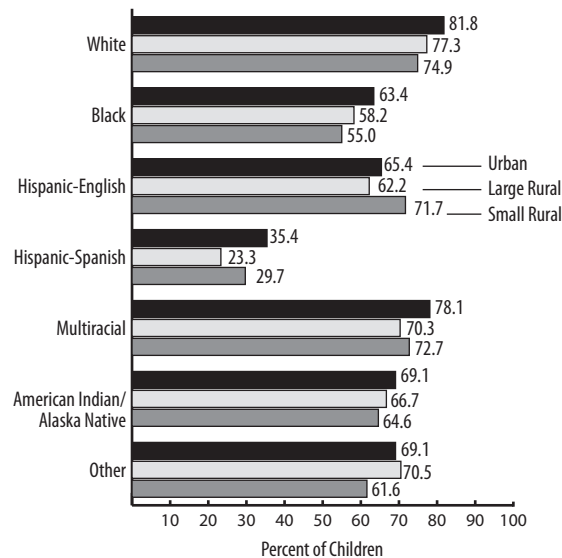
Percent of Children in Excellent or Very Good Oral Health, by Location



Percent of Children in Excellent or Very Good Oral Health, by Location and Age



Percent of Children in Excellent or Very Good Oral Health, by Location and Race/Ethnicity/Language



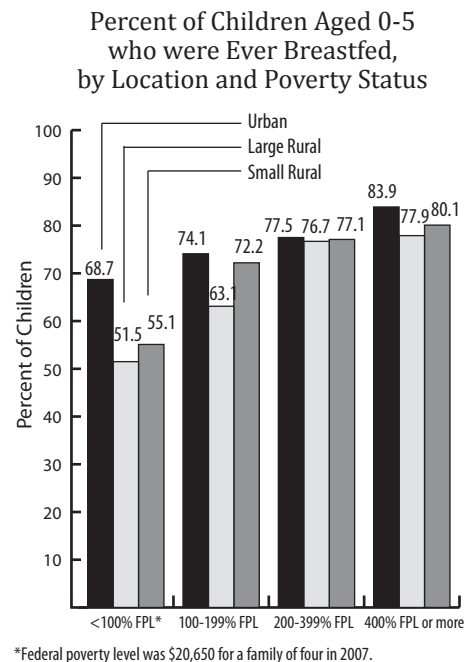
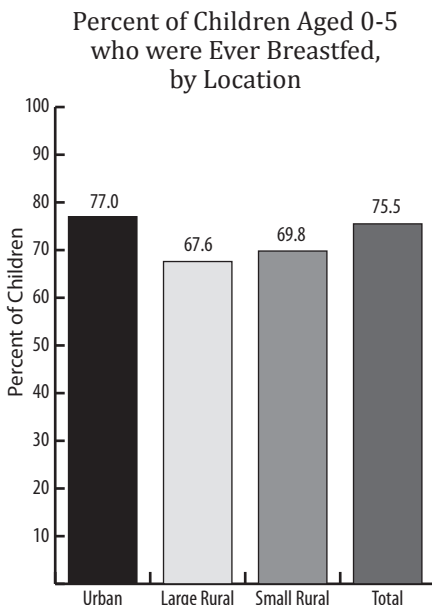


## Breastfeeding

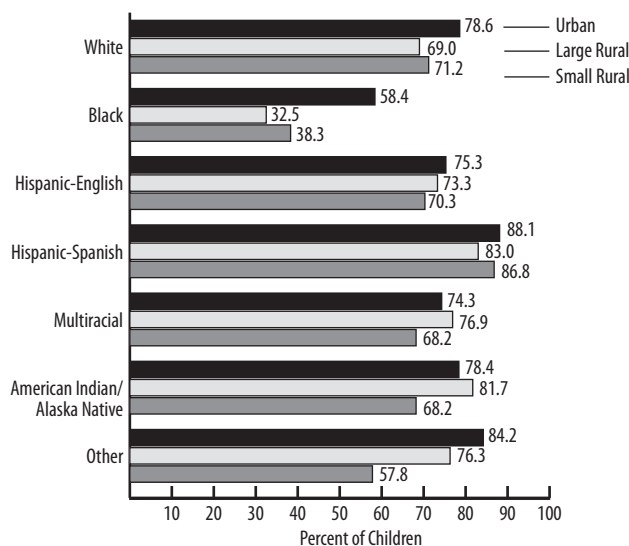
Breast milk is widely recognized to be the ideal form of nutrition for infants. Breastfed infants were less susceptible to infectious diseases and children who were breastfed were less likely to suffer from diabetes; overweight and obesity; asthma; and lymphoma, leukemia, and Hodgkin's disease compared to children who were not breastfed. In addition, rates of postneonatal mortality (death between the first month and the end of the first year of life) were lower among breastfed infants.<sup>7</sup> Therefore, the American Academy of Pediatrics recommends that, with few exceptions, all infants be fed with breast milk exclusively for the first 6 months of life.

Overall, 75.5 percent of children aged 5 and younger were ever breastfed or fed breast milk. Urban children were considerably more likely than those in rural areas to have ever been fed breast milk: 77.0 percent were ever breastfed, compared to 67.6 percent of children in large rural areas and 69.8 percent of those in small rural communities.

In all locations, breastfeeding was more common in families with higher household incomes. Children in urban areas with household incomes of 400 percent of the Federal poverty level (FPL) or more were the most likely ever to be breastfed (83.9



Percent of Children Aged 0-5 who were Ever Breastfed, by Location and Race/Ethnicity/Language



percent), and in each location, breastfeeding rates were highest among children with the highest household incomes. Likewise, the lowest rates were found among children with incomes below the FPL, ranging from 68.7 percent of children in urban areas to 51.5 percent of those in large rural areas.

Breastfeeding also varied by location within certain racial and ethnic

groups. Among both White and Black children, those in urban areas were more likely than those in either large or small rural areas ever to be breastfed. Overall, the highest rate of breastfeeding was found among Hispanic children whose families primarily spoke Spanish in urban areas (88.1 percent), and the lowest was among Black children in large rural areas (32.5 percent).



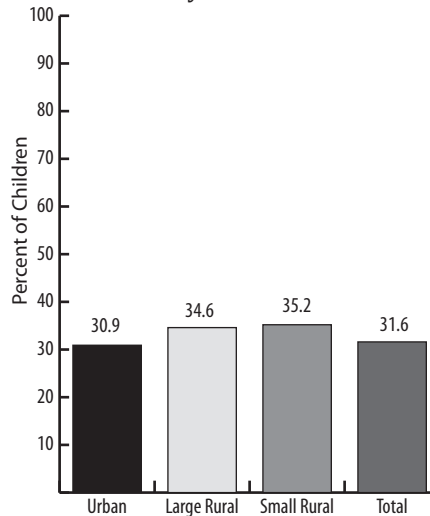
## Overweight and Obesity

Parents' reports of their children's height and weight can be used to calculate children's Body Mass Index (BMI), a ratio of weight to height. Children whose BMI falls between the 85th and 95th percentiles for their age and sex were considered to be overweight, and those with a BMI at or above the 95th percentile for their sex and age were considered to be obese. Although the survey collects data on height and weight for children of all ages, BMI is only calculated for children aged 10 to 17 because parent-reported height and weight were more reliable for this age group than they were for younger children. Overall, 31.6 percent of children met the criteria for overweight or obesity based on their parent-reported weight and height.

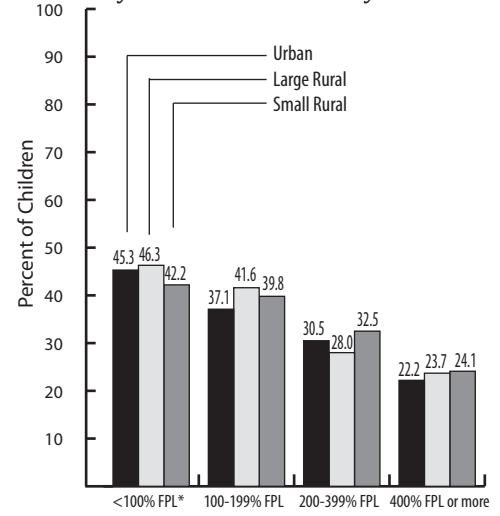
Children living in small rural areas were more likely than urban children to be overweight or obese. More than one-third of children in both large and small rural areas had a BMI at or above the 85th percentile for their age and sex, compared to 30.9 percent of urban children.

In all locations, children with lower household incomes were more likely to be overweight or obese. The rate of overweight and obesity among children in poverty was approximately twice that of children

Percent of Children Aged 10-17 who were Overweight or Obese, by Location

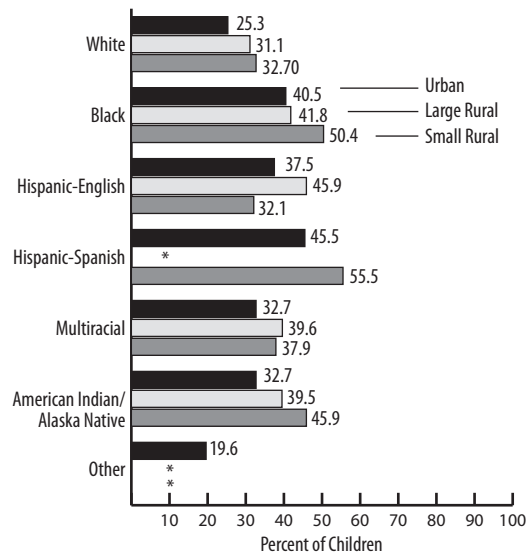


Percent of Children Aged 10-17 who were Overweight or Obese, by Location and Poverty Status



\*Federal poverty level was \$20,650 for a family of four in 2007.

Percent of Children Aged 10-17 who were Overweight or Obese, by Location and Race/Ethnicity/Language



\*Estimate suppressed as it does not meet the standard for reliability or precision.

with household incomes of 400 percent of the Federal poverty level (FPL) or more; for example, among children in large rural areas, 46.3 percent of those in poverty were overweight or obese, compared to 23.7 percent of those with household incomes of 400 percent of the FPL or more. Within each income group, however, rates of overweight and obesity did not vary

substantially by location.

Black children and Spanish-speaking Hispanic children were the most likely to be overweight or obese, regardless of location. More than 40 percent of Black children and at least 45 percent of Spanish-speaking Hispanic children are reported to be overweight or obese.



## Chronic Conditions

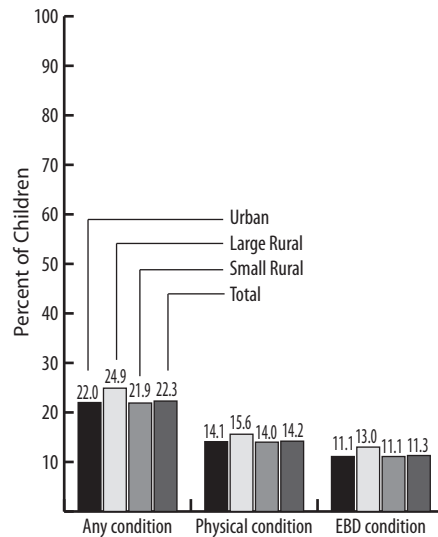
The survey asked parents if they had ever been told by a health care provider that their child had, and whether the child still had, one of a number of specific chronic conditions. These included 7 physical health conditions (asthma; diabetes; brain injury or concussion; bone, joint, or muscle problems; epilepsy or seizure disorder; hearing problems; or vision problems), 7 emotional, behavioral, or developmental (EBD) conditions (attention deficit disorder/attention deficit hyperactivity disorder [ADD/ADHD], anxiety, autism spectrum disorder, depression, developmental delay, oppositional defiant disorder [ODD] or conduct disorder, or Tourette Syndrome), speech problems, and learning disabilities. Overall, 22.3 percent of children were reported to have at least one of these 16 conditions. This proportion was slightly higher in large rural areas (24.9 percent) and lower in small rural areas (21.9 percent). This pattern was also evident for the 7 physical conditions and the 7 emotional, behavioral, or developmental conditions.

For all types of conditions and across locations, the proportion of children who had at least one condition was higher among older children. Among children aged 12-17 years, nearly one-third (31.2 percent)

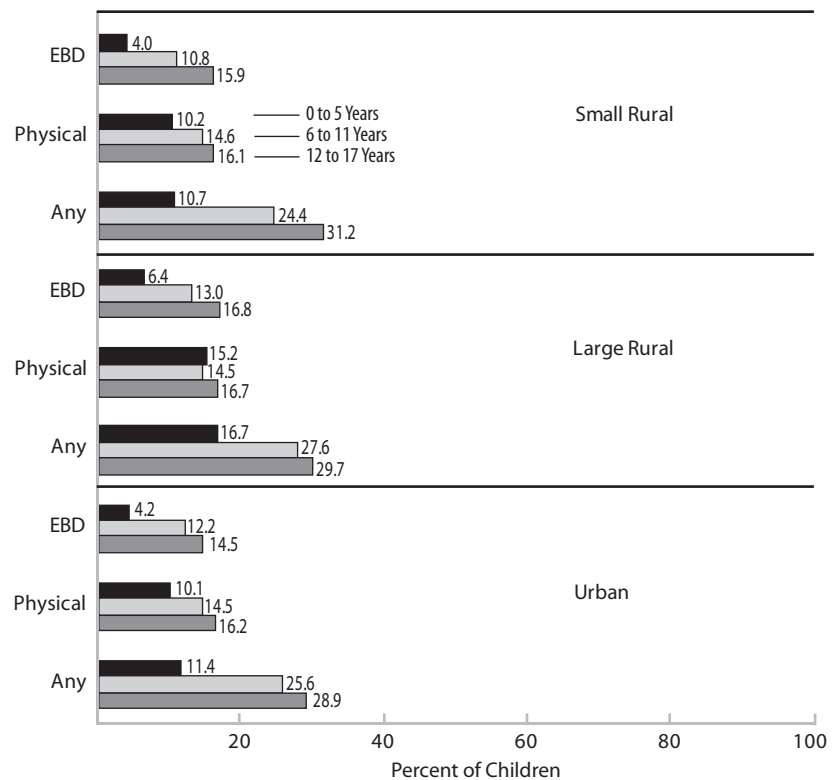
of children in small rural areas had at least one of the 16 conditions, and this proportion was similar for this age group in other locations. Within each age group, the proportion of children with at least one physical condition did not vary substantially by location,

except that the percentage of children aged 0-5 with at least one physical condition was higher in large rural areas (15.2 percent) than in small rural and urban areas (approximately 10 percent).

Percent of Children with Chronic Conditions, by Location



Percent of Children with Chronic Conditions, by Location and Age





## Problem Social Behaviors

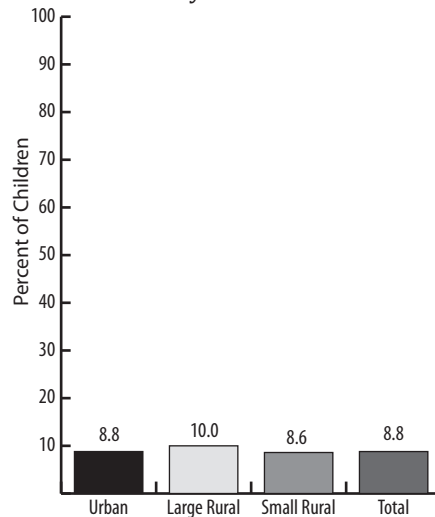
Some children have trouble getting along with others. Parents of 6- to 17-year-olds were asked if their children had never, rarely, sometimes, usually, or always exhibited each of the following behaviors in the past month: arguing too much; bullying or being cruel or mean to others; being disobedient; and being stubborn, sullen, or irritable. Overall, 8.8 percent of children aged 6-17 years were reported to usually or always exhibit two or more of these problem behaviors.

The percentage of children exhibiting problem social behaviors was similar across locations, ranging from 8.6 percent of children in small rural areas to 10.0 percent of children in large rural areas.

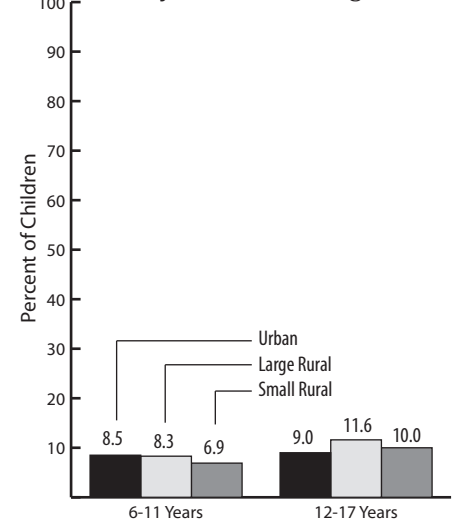
In all locations, older children (aged 12-17) were more likely than younger children to display problem behaviors. The percentage of children aged 6-11 exhibiting problem behaviors ranged from 6.9 percent in small rural areas to 8.5 percent in urban areas. The percentage of adolescents displaying problem behaviors ranged from 9.0 percent in urban areas to 11.6 percent in large rural areas.

In both urban and small rural areas, girls were more likely than boys to display problem social behaviors;

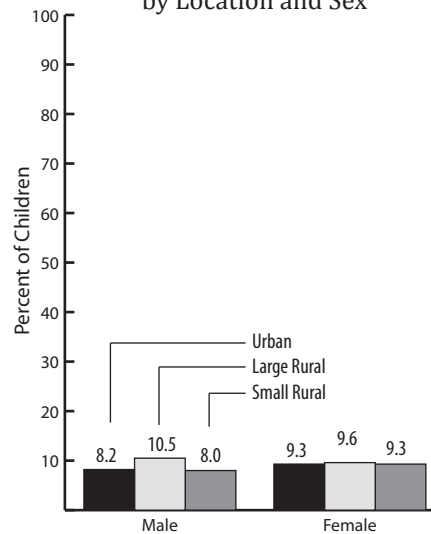
Percent of Children Aged 6-17 with Problem Social Behaviors, by Location



Percent of Children Aged 6-17 with Problem Social Behaviors, by Location and Age



Percent of Children Aged 6-17 with Problem Social Behaviors, by Location and Sex



9.3 percent of girls did so in both locations, compared to 8.2 percent of boys in urban areas and 8.0 percent of boys in small rural areas. In large

rural areas, 10.5 percent of boys displayed problem behaviors, compared to 9.6 percent of girls.



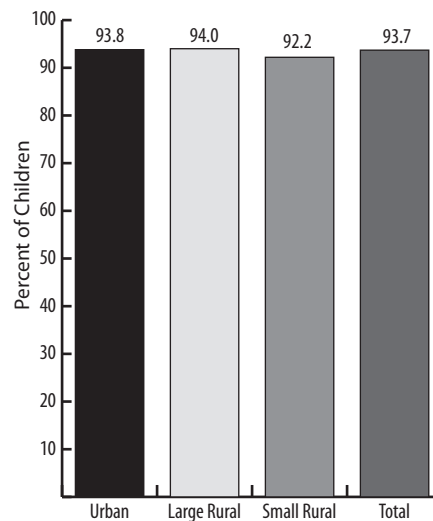
## Social Skills

Children begin developing positive social skills at an early age, a process that will influence their relationships with others throughout their lives. Parents of children aged 6-17 years were asked if their children had never, rarely, sometimes, usually, or always exhibited each of the following behaviors in the past month: showed respect for teachers and neighbors; got along well with other children; tried to understand other people's feelings; and tried to resolve conflict with classmates, family, or friends. Overall, 93.7 percent of children aged 6-17 years were reported to usually or always exhibit two or more of these social skills. This percentage was similar across locations.

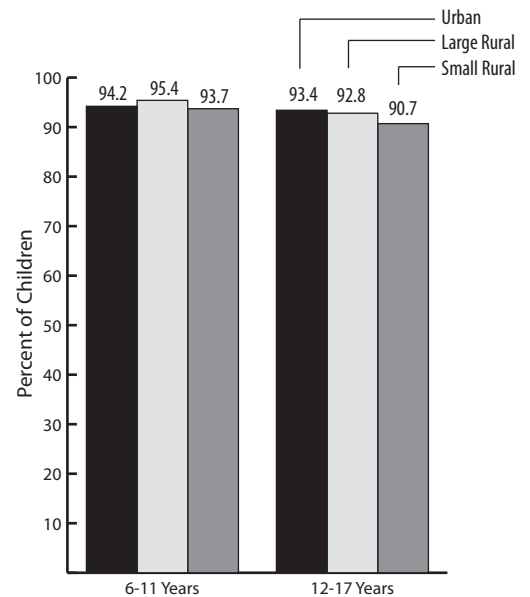
In all locations, younger children (aged 6-11) were more likely than older adolescents to display social skills. The percentage of children with social skills was similar across locations within each age group, ranging from 93.7 to 95.4 percent among children aged 6-11 and between 90.7 and 93.4 percent among adolescents aged 12-17.

In urban and large rural areas, the percentage with social skills was slightly higher among girls than boys, while in small rural areas, the percentage was the same for both sexes (92.1 percent).

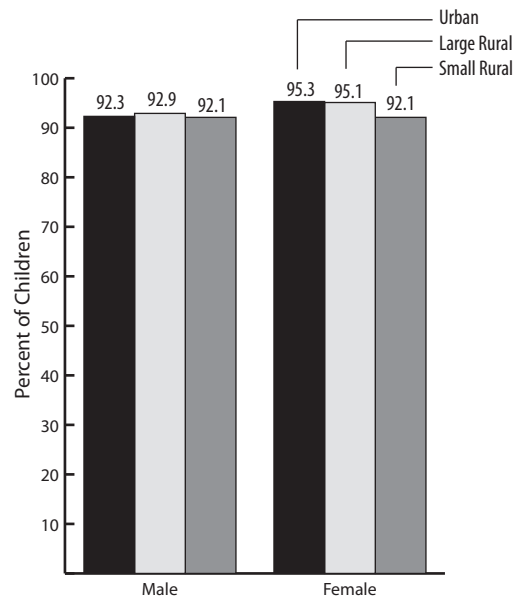
Percent of Children Aged 6-17 with Social Skills, by Location



Percent of Children Aged 6-17 with Social Skills, by Location and Age



Percent of Children Aged 6-17 with Social Skills, by Location and Sex

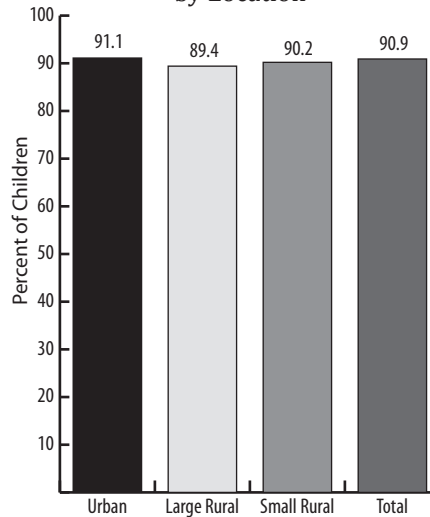




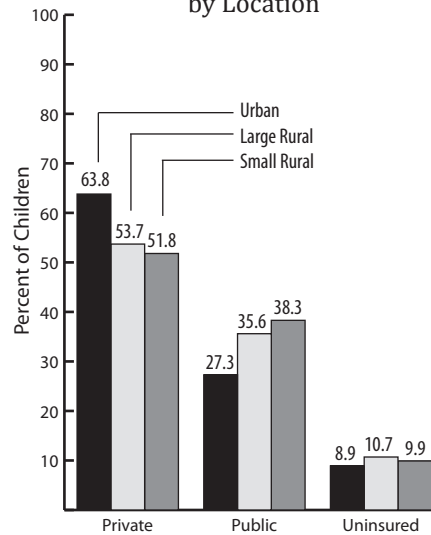
## Current Health Insurance

The survey asked parents if their children currently had coverage through any kind of health insurance, including private plans or government plans such as Medicaid. Overall, 90.9 percent of children had health insurance coverage: 61.8 percent had private health insurance coverage, 29.1 percent had public coverage, and 9.2 percent were uninsured. The percentage of children with some type of insurance did not vary significantly by location. However, children in rural areas were more likely than urban children to have insurance through public programs, such as Medicaid or the Children's Health Insurance Program. More than one-third of children in both large and small rural areas had public insurance, compared to 27.3 percent of urban children.

Percent of Children with Current Health Insurance, by Location



Type of Current Health Insurance, by Location



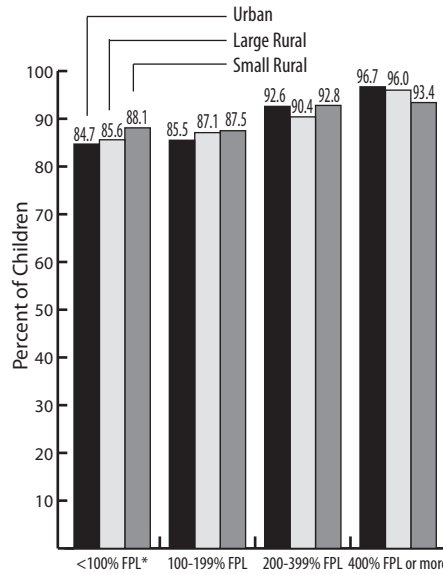




In all locations, children with the lowest household incomes were the least likely to have health insurance. However, within each income category, the percentage of children with insurance did not vary significantly by location.

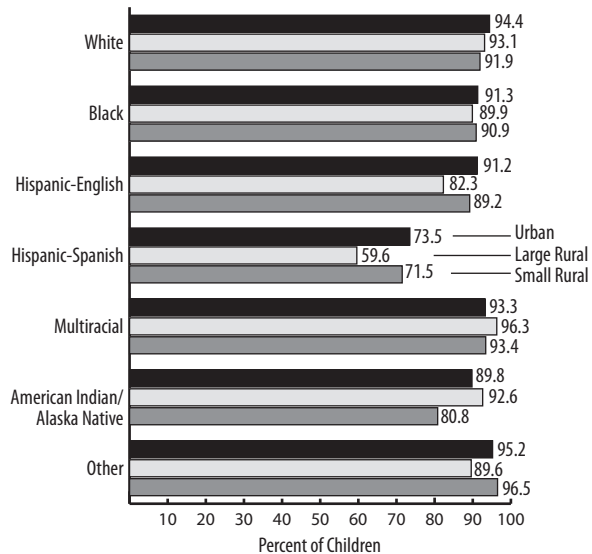
Within most racial and ethnic groups, and regardless of location, approximately 90 percent of children had insurance. However, this proportion was much lower for Hispanic children (as low as 59.6 percent of Hispanic children whose families' primary language is Spanish) and 82.3 percent of Hispanic children whose families primarily speak English, in large rural areas.

Percent of Children with Current Health Insurance, by Location and Poverty Status



\*Federal poverty level was \$20,650 for a family of four in 2007.

Percent of Children with Current Health Insurance, by Location and Race/Ethnicity/Language



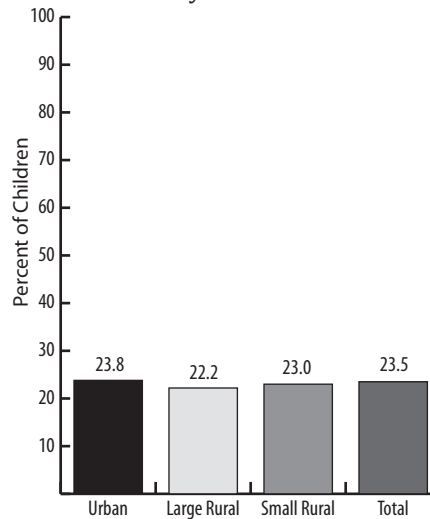


## Adequacy of Health Insurance

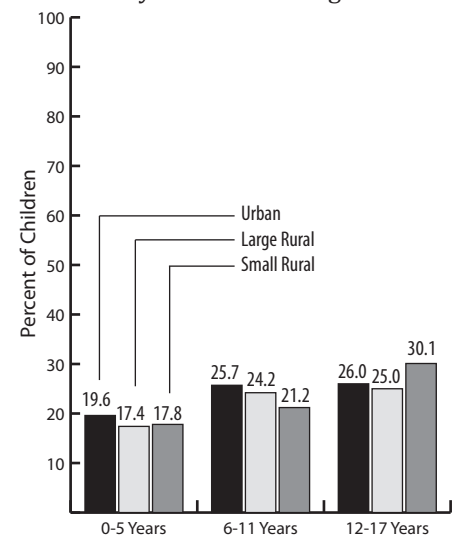
While most children had current health insurance coverage at the time of the survey, insurance coverage may not always be adequate to meet their needs. Parents whose children were currently insured were asked three questions regarding the services and costs associated with their child's health insurance: whether the out-of-pocket costs were reasonable, whether the plan offers benefits or covers services that meet their child's needs, and whether the plan allowed them to see the health care providers they need. Children were considered to have inadequate health insurance coverage if their parents did not answer "usually" or "always" to all of the three questions. Overall, 23.5 percent of children had inadequate insurance; this percentage did not vary significantly by location.

Across locations, older children were more likely to have inadequate insurance. At least one-quarter of children aged 12-17 had insurance that did not usually or always meet their needs, and this proportion was as high as 30.1 percent in small rural areas. Fewer than 20 percent of children aged 0-5 had inadequate insurance in all locations, with the highest percentage (19.6 percent) found among urban children.

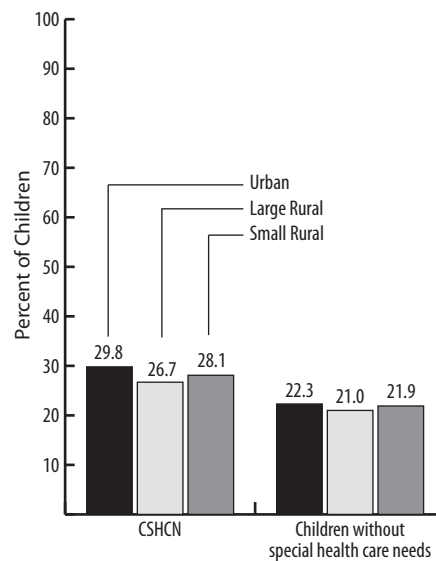
Percent of Children with Inadequate Health Insurance, by Location



Percent of Children with Inadequate Health Insurance, by Location and Age



Percent of Children with Inadequate Health Insurance, by Location and CSHCN Status



Children with special health care needs were more likely to have inadequate insurance in all locations as well. Among children with special health care needs, the percentage whose insurance was not adequate to meet their needs ranged from

26.7 percent in large rural areas to 29.8 percent in urban areas, a higher percentage than that found in children without special care needs (21.0 percent in large rural areas to 22.3 percent in urban areas).

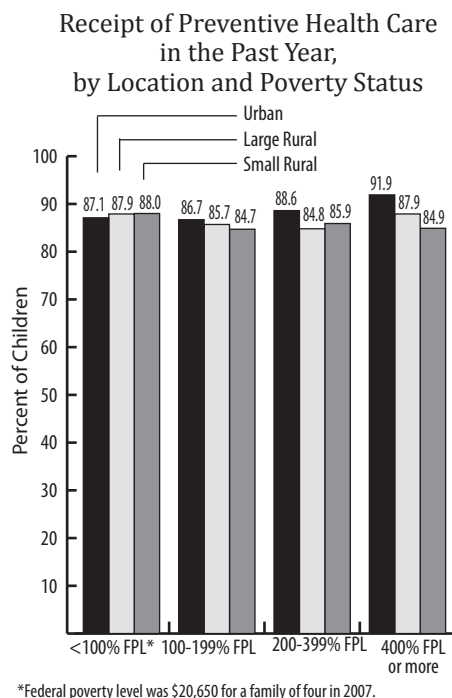
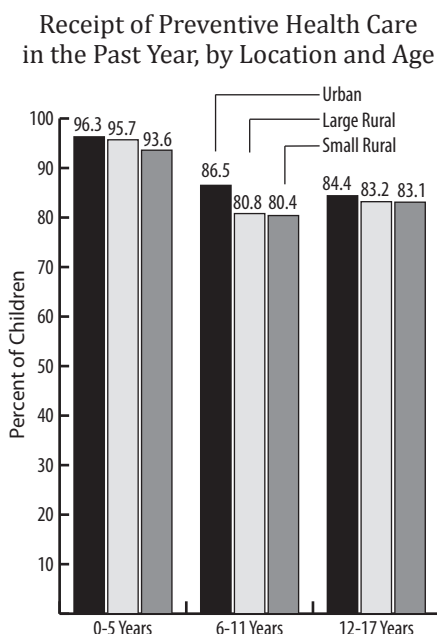
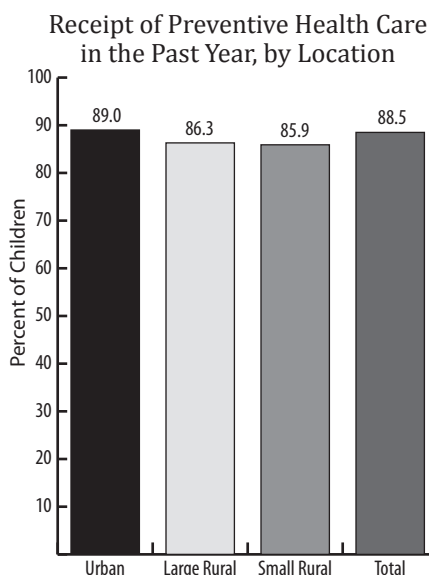


## Preventive Health Care

The Bright Futures guidelines for health supervision of infants, children, and adolescents recommend that children visit a physician six times during the first year, three times in the second year, and annually thereafter for preventive health care visits.<sup>8</sup> An annual preventive health care visit provides an opportunity to monitor a child's growth and development, to assess his or her behavior, to provide appropriate immunizations, to discuss important issues regarding nutrition and prevention of injury and violence, and to answer parents' questions about their children's health and care.

Overall, 88.5 percent of children received a preventive care visit in the past year. This percentage was slightly higher in urban areas (89.0 percent) than in rural areas (86.3 percent of children in large rural areas and 85.9 percent of those in small rural areas).

Among younger children, urban children were the most likely to receive an annual preventive health visit. This discrepancy was greatest among children aged 6-11; within this age group, 86.5 percent of urban children received an annual visit, compared to less than 81 percent of rural children. Among adolescents, the proportion who received an an-



nual preventive visit did not vary by location.

Among children in low-income households, the likelihood of having an annual preventive health visit did not vary substantially across locations. Among children with higher household incomes, however, urban children were more likely than those

in rural areas to receive an annual visit. For example, among children with household incomes of 400 percent of the Federal poverty level or more, 91.9 percent of those in urban areas had an annual visit, compared to 84.9 percent of those in small rural areas.



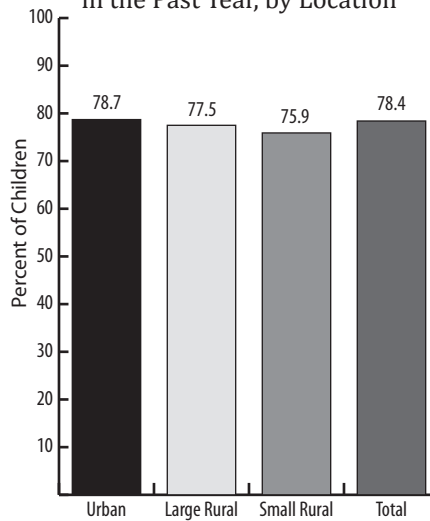
## Preventive Dental Care

In addition to an annual preventive medical care visit, it is also recommended that children see a dentist every 6 months beginning by age 1.<sup>9</sup> The majority of children aged 1-17 years (78.4 percent) received at least one preventive dental visit in the past year. This percentage is higher among urban children (78.7 percent) than among those in small rural areas (75.9 percent).

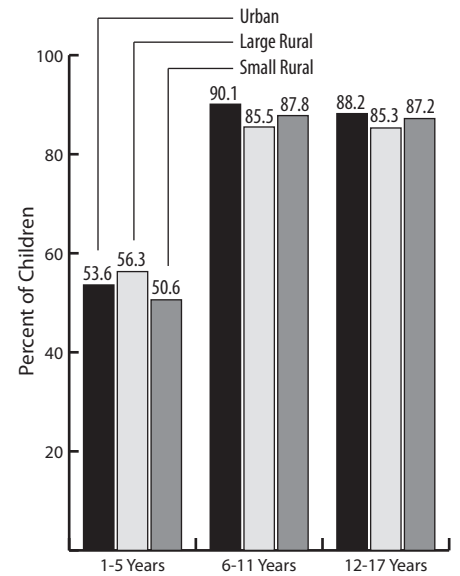
Rural children aged 1-5 years, like their urban counterparts, were less likely than older children to have made a preventive dental visit, with only about half doing so. Among children aged 6-11, those in large rural areas were less likely to have an annual dental checkup than those in urban areas (85.5 percent versus 90.1 percent).

Children in households with higher incomes, regardless of geography, were more likely to receive preventive dental care. At least 85 percent of children with household incomes of 400 percent of the Federal poverty level (FPL) or more received an annual visit, compared to as few as 67.5 percent of those with household incomes below the FPL.

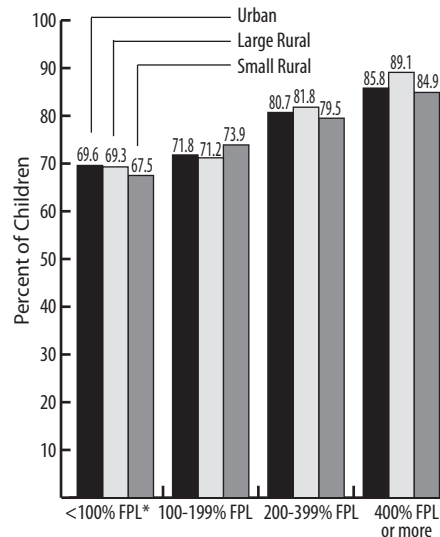
Receipt of Preventive Dental Care among Children Aged 1-17 in the Past Year, by Location



Receipt of Preventive Dental Care among Children Aged 1-17 in the Past Year, by Location and Age



Receipt of Preventive Dental Care among Children Aged 1-17 in the Past Year, by Location and Poverty Status



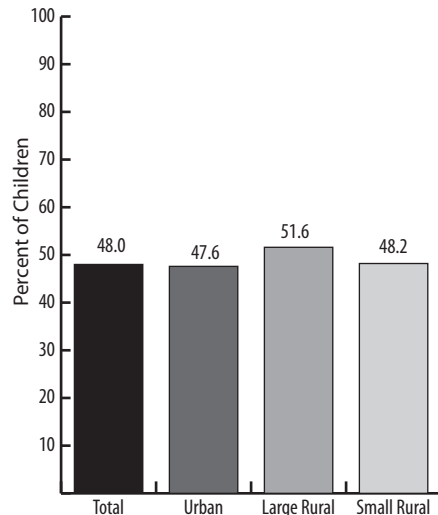
\*Federal poverty level was \$20,650 for a family of four in 2007.



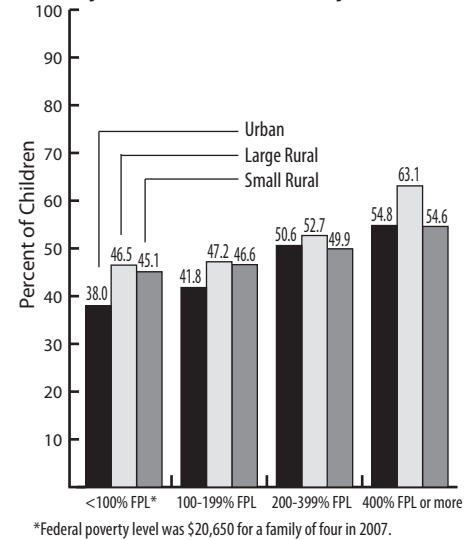
## Developmental Surveillance and Screening

Asking about and addressing parents' concerns is one of the most important aspects of well-child care. A key component of the American Academy of Pediatrics (AAP) recommendations for developmental surveillance is asking all parents if they have concerns about their child's learning, development, or behaviors. In addition, the AAP and Bright Futures guidelines call for routine screening by pediatric health care providers for developmental and behavioral problems and delays using standardized developmental screening tools.<sup>10</sup> The survey assessed whether children received basic developmental surveillance and whether a parent completed a developmental and behavioral screening tool. Specifically, parents were asked: (1) whether the child's doctors or other health care providers asked the parent if he or she had concerns about the child's learning, development or behavior; and (2) whether parents filled out a questionnaire about specific concerns and observations they had about their child's development, communication or social behavior. These items were based on the Promoting Healthy Development Survey.<sup>11</sup>

Percent of Children Aged 0-5 whose Parents Were Asked by Health Care Providers about Developmental Concerns, by Location



Percent of Children Aged 0-5 whose Parents Were Asked by Health Care Providers about Developmental Concerns, by Location and Poverty Status

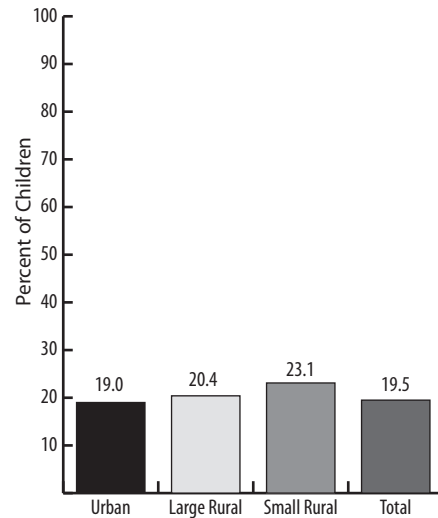




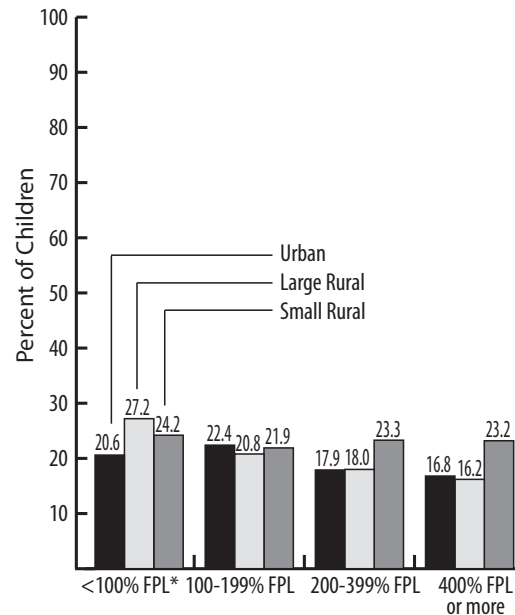
Parents of about half of children aged 0-5 years reported that their health care providers had asked them whether they had concerns about their child's development or behavior. This percentage did not vary significantly by location, ranging from 47.6 percent in urban areas to 51.6 percent in large rural areas. In all locations, the parents of children with higher household incomes were more likely to report having been asked about their developmental concerns. Within each income group, however, the percentage of children whose parents were asked about their concerns did not vary by location.

Overall, fewer than 20 percent of children between 10 months and 5 years of age receive a standardized developmental screen. This percentage did not vary by location, but did vary by household income; in all locations, children with lower household incomes were more likely to receive a standard screening.

Percent of Children 10 Months-5 Years who Received Standardized Developmental Screening, by Location



Percent of Children 10 Months-5 Years who Received Standardized Developmental Screening, by Location and Poverty Status



\*Federal poverty level was \$20,650 for a family of four in 2007.

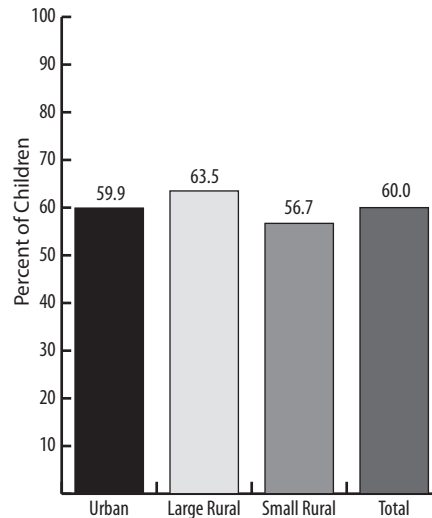


## Mental Health Care

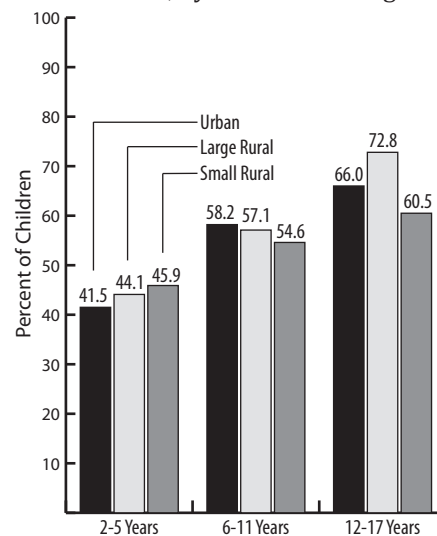
Mental health services, including counseling, medications, or specialized therapies, may be beneficial for children with behavioral or emotional problems. However, these services may not be readily available to all children who need them. Among children who had an ongoing emotional, developmental, or behavioral problem that required treatment or counseling, 60.0 percent received mental health care or counseling in the past year. This percentage was similar across locations, ranging from 56.7 percent in small rural areas to 63.5 percent in large rural areas.

In all locations, adolescents aged 12-17 were the most likely to receive needed mental health services, with receipt of these services ranging from 60.5 percent of those in small rural areas to 72.8 percent of those in large rural areas. The differences in receipt of mental health services across locations in the other age groups did not vary significantly.

Receipt of Mental Health Services in the Past Year among Children Aged 2-17 with Emotional, Behavioral, or Developmental Problems, by Location



Receipt of Mental Health Services in the Past Year among Children Aged 2-17 with Emotional, Behavioral, or Developmental Problems, by Location and Age



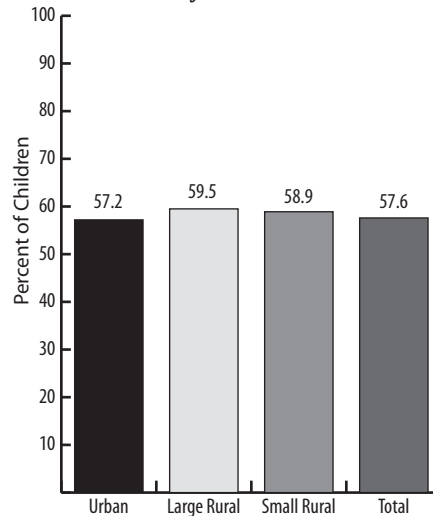


## Medical Home

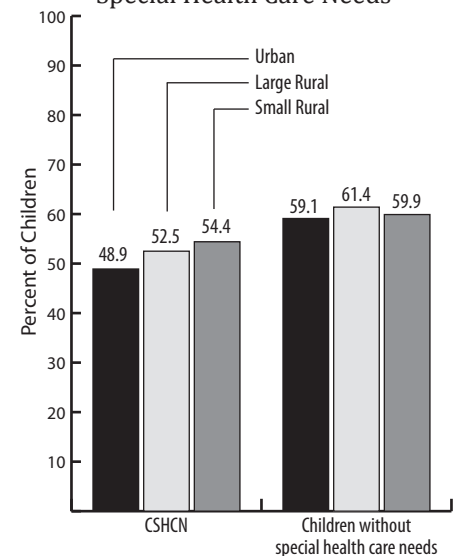
A number of characteristics of high-quality health care for children can be combined into the concept of the medical home. As defined by the American Academy of Pediatrics, children's medical care should be accessible, family-centered, continuous, comprehensive, coordinated, compassionate, and culturally effective. The survey included several questions that sought to measure whether a child's health care met this standard:

- Whether the child has at least one personal doctor or nurse who knows him or her well and a usual source of sick care
- Whether the child has no problems gaining referrals to specialty care and access to therapies or other services or equipment
- Whether the family is very satisfied with the level of communication among their child's doctors and other programs
- Whether the family usually or always gets sufficient help coordinating care when needed and receives effective care coordination
- Whether the child's doctors usually or always spend enough time with the family, listen carefully to their concerns, were sensitive to their values and customs, pro-

Percent of Children who Receive Care from a Medical Home, by Location



Percent of Children who Receive Care from a Medical Home, by Location and Presence of Special Health Care Needs



vide any information they need, and make the family feel like a partner in their child's care

- Whether an interpreter is usually or always available when needed.

A child was defined as having a medical home if his or her care is reported to meet all of these criteria. Overall, the care of 57.6 percent of children met this standard. This percentage was similar in urban and rural locations.

A medical home is particularly important for children with special health care needs (CSHCN), who were more likely to require specialized care and services, follow-up, and care coordination. In all locations, CSHCN were less likely than other children to receive their care from a medical home. The percentage of CSHCN who had access to a medical home ranged from 48.9 percent of urban children to 54.4 percent of children in small rural areas.





## Components of the Medical Home: Access and Care Coordination

An important component of the medical home is children's access to primary and preventive care, consistent care when they are sick, access to referrals when they are needed, and support to help to assure that the various services they receive are coordinated.

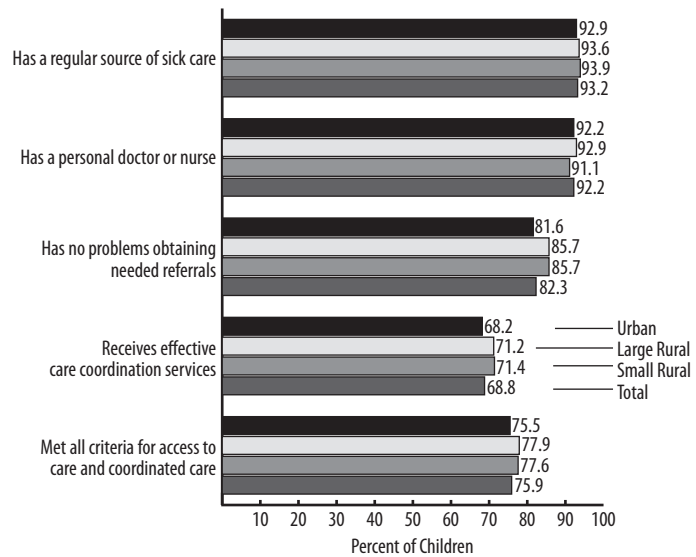
These criteria were met for the majority of children. Overall, 93.2 percent were reported to have a regular source of sick care, 92.2 percent had a personal doctor or nurse, and 82.3 percent had no problems obtaining referrals when needed. The criterion that was met for the lowest percentage of children was the receipt of effective care coordination services, when needed, which was reported for 68.8 percent of children. Overall, 75.9 percent of children received care that met all four of these criteria. These percentages did not vary substantially across locations, except that children in rural areas were slightly less likely to report problems obtaining needed referrals.

Nearly all children with special health care needs in all locations also had a regular source of sick care and a personal doctor or nurse. CSHCN

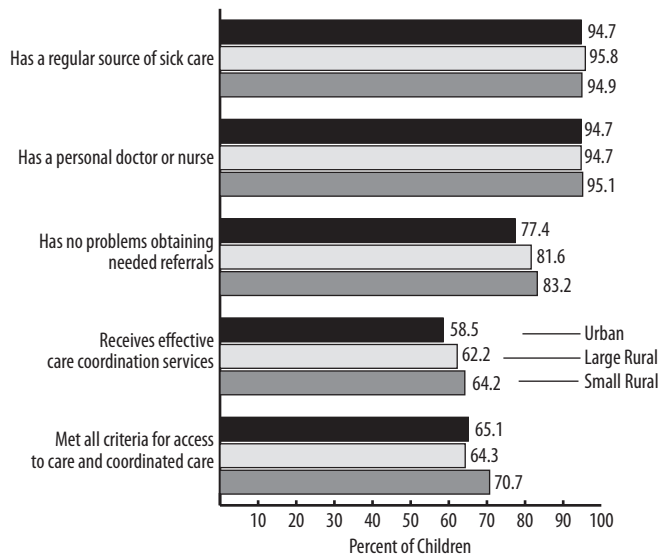
in urban areas were less likely than those in small rural areas to have no problems obtaining referrals: 77.4 percent were reported not to have referral problems, compared to 83.2 percent of CSHCN in small rural areas. Care coordination is a greater chal-

lenge for CSHCN in urban areas as well, with 58.5 percent reporting that they received effective care coordination services, compared to 64.2 percent of those in small rural areas.

Percent of Children Receiving Specific Components of Access to Care and Coordinated Care, by Location



Percent of CSHCN Receiving Specific Components of Access to Care and Coordinated Care, by Location



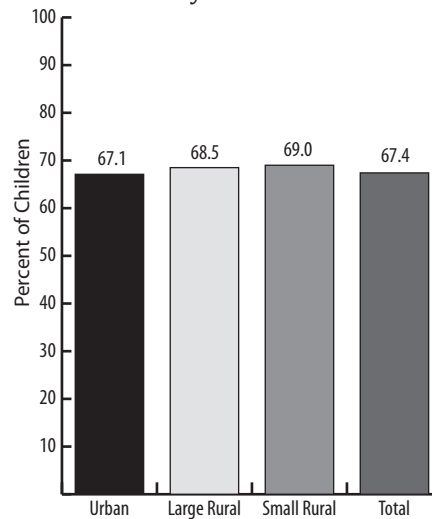


## Components of the Medical Home: Family-Centered Care

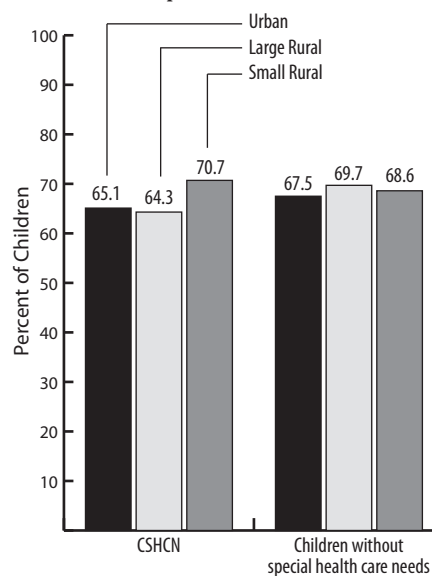
Another important aspect of the medical home is whether or not children receive care that is “family-centered;” that is, whether parents report that their children’s doctors usually or always spend enough time with them, listen carefully to their concerns, are sensitive to their values and customs, provide needed information, make the family feel like a partner in their child’s care, and provide an interpreter when needed. Together, these measures of family-centered care provide an important picture of how comfortable families feel with their children’s medical care. Overall, of the children who had at least one medical visit in the past year, two-thirds (67.4 percent) were reported to have received care that was family-centered. This proportion did not vary significantly by location.

In urban and small rural areas, children with special health care needs (CSHCN) were less likely than children without special health care needs to receive family-centered care. Only in small rural areas were CSHCN more likely to receive family-centered care.

Percent of Children who Receive Family-Centered Care, by Location



Percent of Children who Receive Family-Centered Care, by Location and Presence of Special Health Care Needs



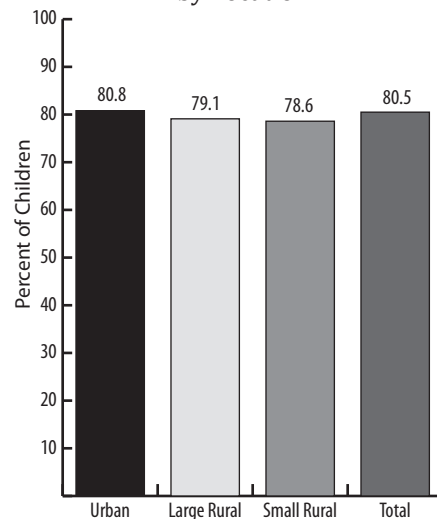


## School Engagement

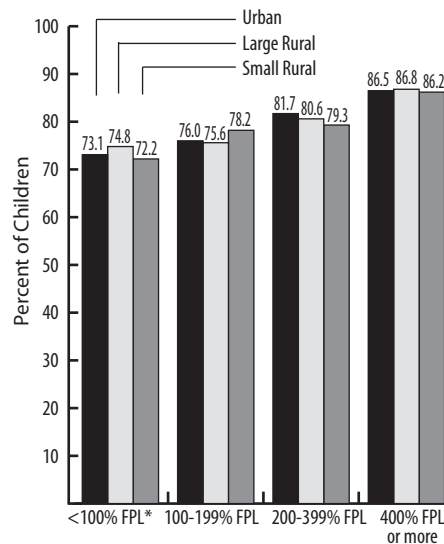
Parents of school-aged children (aged 6-17 years) were asked two questions to assess their child's engagement in school: whether the child cares about doing well in school and whether the child does all required homework. Children were considered to be engaged in school if their parent responded "usually" or "always" to both of these items. Overall, 80.5 percent of children aged 6-17 years were engaged in school. This percentage was highest in urban areas, but did not vary substantially across locations.

In all locations, children with higher household incomes were more likely to be adequately engaged in school than those with lower household incomes. For example, among urban children, the percentage who were engaged in school ranges from 73.1 percent of those with household incomes below the Federal poverty level (FPL) to 86.5 percent of those with household incomes of 400 percent of FPL or more. Within each income group, however, the rate of school engagement was similar across locations.

Percent of Children Aged 6-17 who were Engaged in School, by Location



Percent of Children Aged 6-17 who were Engaged in School, by Location and Poverty Status



\*Federal poverty level was \$20,650 for a family of four in 2007.



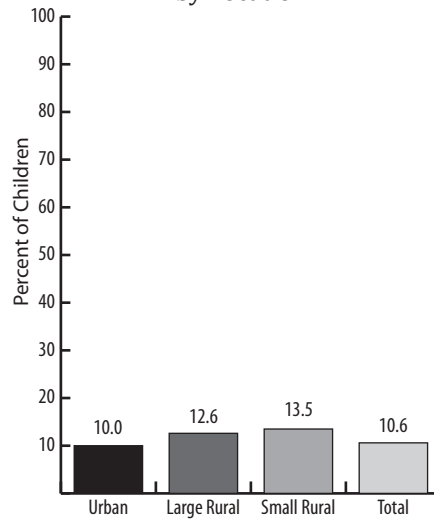
## Repeating a Grade

Parents of school-aged children (aged 6 and older) were asked if their children had repeated one or more grades since starting school. Overall, 10.6 percent of children aged 6-17 years had repeated a grade. Repeating a grade is more common in rural areas, with 12.6 percent of school-aged children in large rural areas and 13.5 percent in small rural areas repeating a grade, compared to 10.0 percent of urban children.

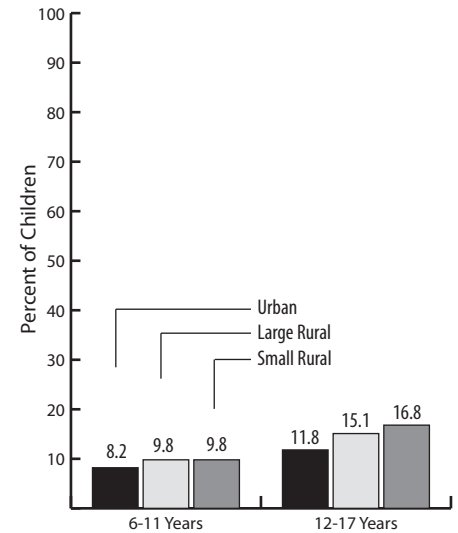
Older children have had more opportunity to repeat a grade over the course of their school careers, so the percentage who have done so is higher in all locations. Fewer than 10 percent of children aged 6-11 in all areas have repeated a grade; among those aged 12-17, the percentage ranged from 11.8 percent in urban areas to 16.8 percent in small rural areas.

In all locations, boys were more likely than girls to have repeated a grade, and the discrepancy between urban and rural locations is greatest among boys. Among girls, 10.0 percent or fewer had repeated a grade in all locations; among boys, the percentage who had repeated ranges from 11.9 percent in urban areas to 17.4 percent in small rural areas.

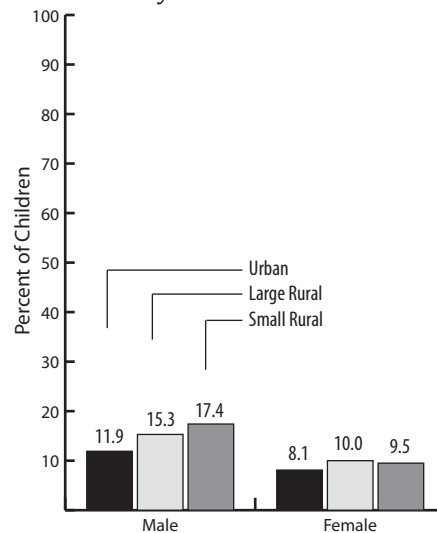
Percent of Children Aged 6-17 who have Repeated a Grade, by Location



Percent of Children Aged 6-17 who have Repeated a Grade, by Location and Age



Percent of Children Aged 6-17 who have Repeated a Grade, by Location and Sex



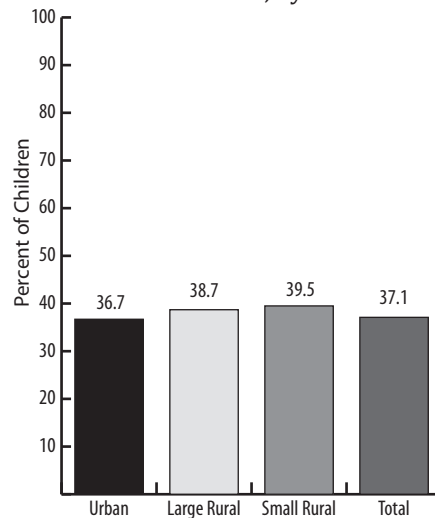


## Volunteering

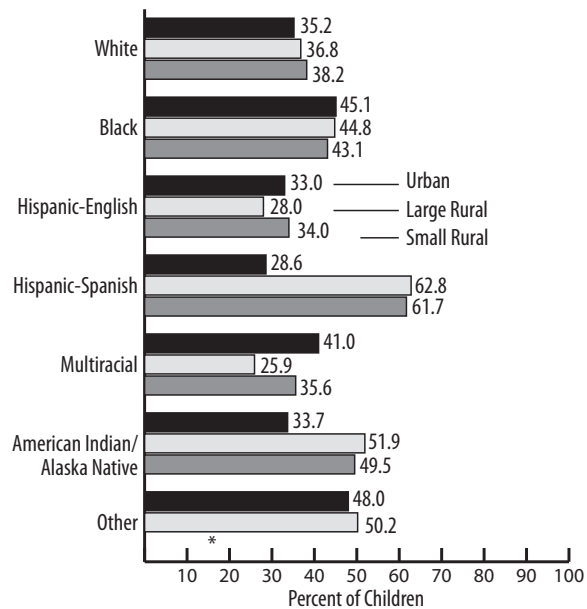
Parents of children aged 12-17 years were asked how often their children had participated in community service or volunteer activities during the past year, including activities at school, church, and in the community. Among children in this age group, 37.1 percent of children participated in these types of activities once a month or more during the past year, while 40.8 percent did so a few times that year and 22.0 percent had not participated in any community service or volunteer activities in the past year. The total percentage of children volunteering a few times a month or more did not vary across locations.

The percentage of adolescents who volunteer at least a few times a month varied by racial and ethnic group. The highest rates of volunteering were found among Black youth, with approximately 45 percent of adolescents volunteering a few times a month or more, regardless of location. Other groups show more variation by location; among Spanish-speaking Hispanic youth, those in rural areas were more than twice as likely to volunteer a few times a month or more than those in urban areas.

Percent of Children aged 12-17 who Volunteer a Few Times a Month or More, by Location



Percent of Children aged 12-17 who Volunteer a Few Times a Month or More, by Location and Race/Ethnicity/Language



\*Estimate suppressed as it does not meet the standard for reliability or precision.

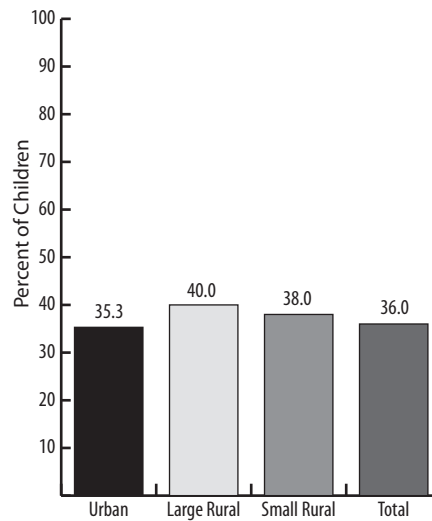


## Working for Pay

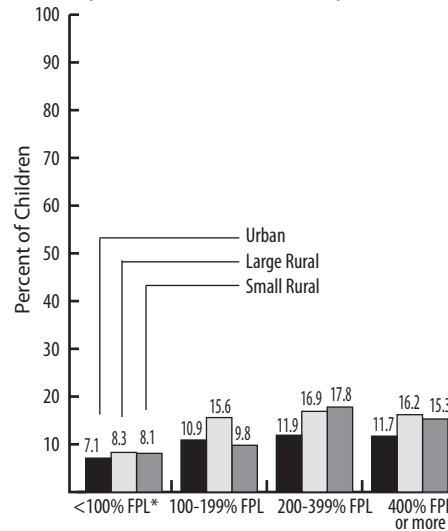
Parents of children aged 12 and older were asked whether their children worked outside the home for pay in the past week, and if so, how many hours their children had worked for pay in the past week.† Overall, 36.0 percent of children aged 12-17 years had worked for pay; the parents of those who did work outside the home reported that their children worked an average of 8.8 hours. Working for pay was slightly more common among adolescents in large rural areas than in urban areas; 40.0 percent of those in large rural areas worked for pay, compared to 35.3 percent of urban adolescents.

The percentage of adolescents who work at least 10 hours a month for pay was higher among children from higher-income households, and this discrepancy was greater in rural than in urban areas. In large rural areas, the percentage of adolescents who work at least 10 hours a month was nearly twice as high among those with household incomes of 400 percent of the Federal poverty level or more as among those with household incomes below the poverty level (16.2 and 8.3 percent).

Percent of Children aged 12-17 who Work for Pay, by Location



Percent of Children Aged 12-17 Who Work for Pay, by Location and Poverty Status



\*Federal poverty level was \$20,650 for a family of four in 2007.

†The question asked in 2007 was not comparable to the 2003 National Survey of Children's Health, and has resulted in higher estimates. Estimates from 2003 and 2007 should not be compared.



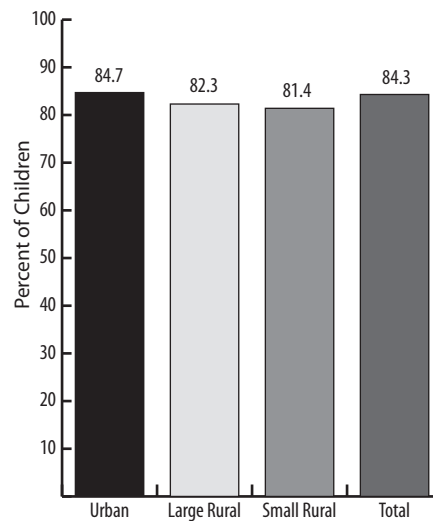
## Reading for Pleasure

Parents of school-aged children (aged 6-17 years) were asked how much time their child spent reading for pleasure on an average school day. Overall, 84.3 percent of children in this age group read for pleasure for some amount of time, and those who did read were reported to spend an average of 61.0 minutes per school day reading. The percentage of children who read for pleasure is slightly higher in urban areas (84.7 percent) than in small rural areas (81.4 percent).

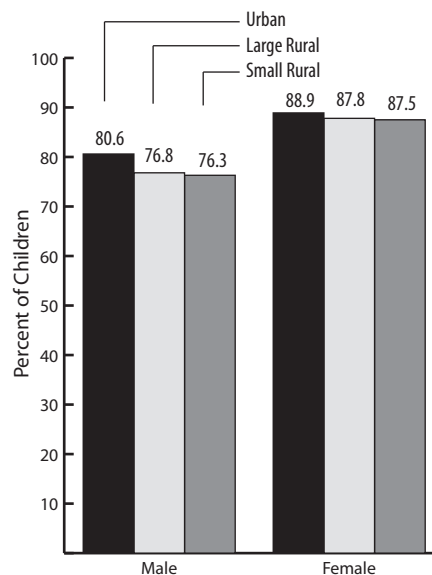
In all locations, younger children (aged 6-11) were more likely to read than older adolescents (aged 12-17). Approximately 90 percent of 6- to 11-year-olds were reported to read for pleasure, compared to 74.1 percent (in small rural areas) to 79.5 percent (in urban areas) of those aged 12 to 17.

Girls were also more likely to read for pleasure than boys. Approximately 88 percent of girls in all locations read, compared to 76.3 percent (in small rural areas) to 80.6 percent (in urban areas) of boys.

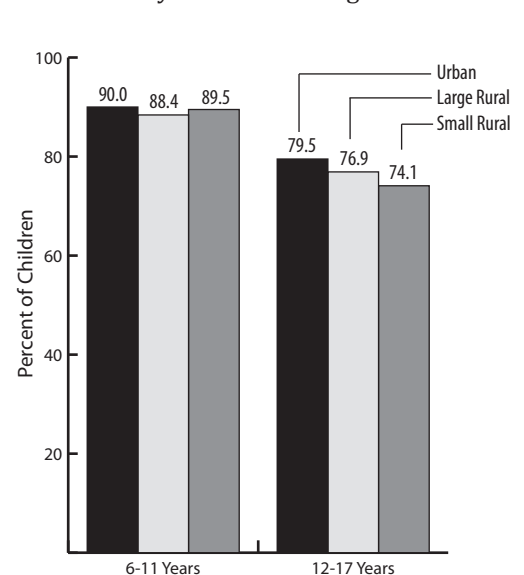
Percent of Children Aged 6-17 who Read for Pleasure, by Location



Percent of Children Aged 6-17 who Read for Pleasure, by Location and Sex



Percent of Children Aged 6-17 who Read for Pleasure, by Location and Age





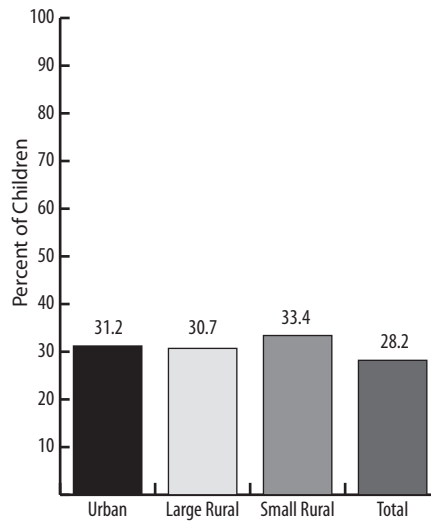
## Playing with Children of the Same Age

Children learn and develop social skills and behaviors through interactions with other children their own age. Parents of 1- to 5-year-olds were asked to report on how many days in the past week their child played with other children their own age. In all, 28.2 percent of children aged 1-5 years had played with other children every day in the past week, while 54.9 percent of children did so on some days. Fewer than 17 percent of children had not played with another child their own age on any day in the past week. Approximately one-third of children in all locations played with children of the same age every day in the past week.

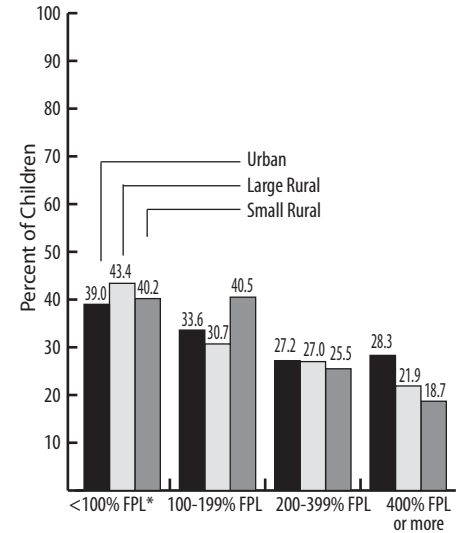
In all locations, children with lower household incomes were more likely to play with their peers every day. Among children with household incomes below the Federal poverty level (FPL), 39.0 percent (in urban areas) to 43.4 percent (in large rural areas) played with other children of the same age every day, compared to 18.7 percent (in small rural areas) to 28.3 percent (in urban areas) of those with household incomes of 400 percent of the FPL or more.

The percentage of children who play with their peers every day varied by race and ethnicity, although

Percent of Children Aged 1-5 who Played with Children of the Same Age Every Day in the Past Week, by Location

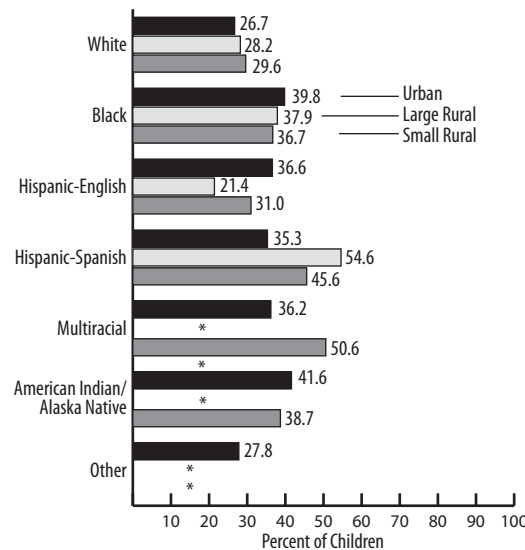


Percent of Children Aged 1-5 who Played with Children of the Same Age Every Day in the Past Week, by Location and Poverty Status



\*Federal poverty level was \$20,650 for a family of four in 2007.

Percent of Children Aged 1-5 who Played with Children of the Same Age Every Day in the Past Week, by Location and Race/Ethnicity/Language



\*Estimate suppressed as it does not meet the standard for reliability or precision.

within each racial and ethnic group, this percentage did not vary substantially by location. One exception is Hispanic children whose families primarily speak English; within this

group, 36.6 percent of those in urban areas played with other children of the same age every day, compared to 21.4 percent of those in large rural communities.





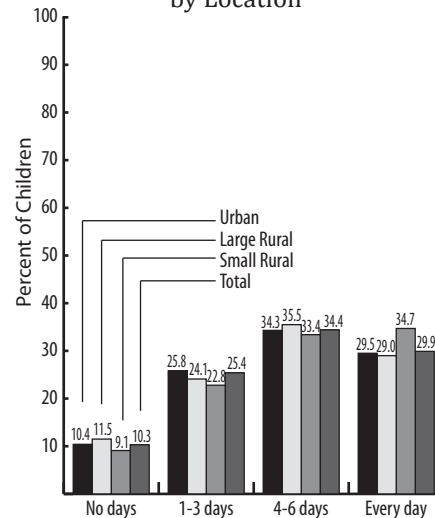
## Physical Activity

Regular physical activity plays an important part in children's health by helping them to maintain an appropriate energy balance, which in turn helps to regulate weight. Physical activity also reduces the risk of certain cancers, diabetes, and high blood pressure, and contributes to healthy bones and muscles.<sup>12</sup> The most recent U.S. Department of Health and Human Services' Physical Activity Guidelines for Americans recommends that children aged 6-17 engage in 60 minutes of physical activity every day.<sup>13</sup>

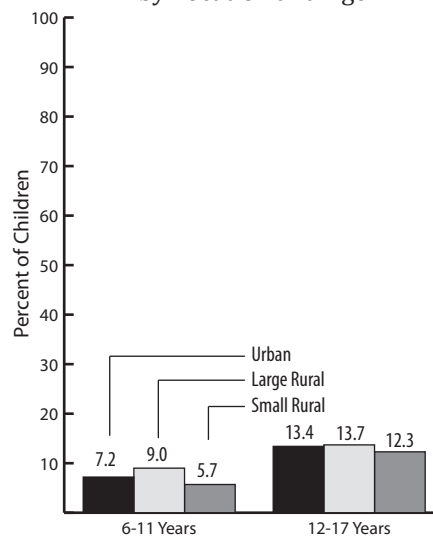
Parents of children aged 6-17 were asked on how many days in the past week their children exercised, played a sport, or participated in physical activity for at least 20 minutes. Overall, 29.9 percent of children participated in physical activity every day, 34.4 percent did so on 4 to 6 days, 25.4 percent exercised on 1 to 3 days, and the remaining 10.3 percent did not participate in physical activity on any days in the past week.

In all locations, older adolescents (aged 12-17) were more likely than children aged 6-11 not to participate in physical activity at all. This discrepancy was greatest in small rural areas, where 5.7 percent of 6- to 11-year-olds got no physical activity, compared to 12.3 percent of 12- to 17-year-olds.

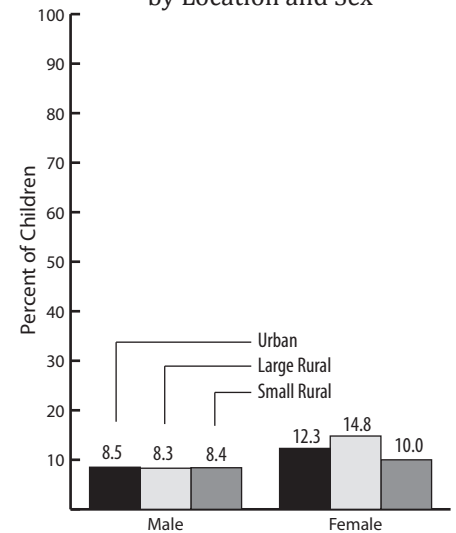
Number of Days Children Aged 6-17 Participated in Physical Activity in the Past Week, by Location



Percent of Children Aged 6-17 who Did Not Participate in Physical Activity in the Past Week, by Location and Age



Percent of Children Aged 6-17 who Did Not Participate in Physical Activity in the Past Week, by Location and Sex



Girls were also more likely than boys not to participate in physical activity in all locations. Regardless of location, about 8.5 percent of boys got no exercise in the past week; for girls, this percentage ranged from 10.0 percent in small rural areas to 14.8

percent in large rural communities.

Children in small rural areas were the most likely to participate in physical activity every day (34.7 percent did so), while children in urban areas were the most likely to exercise on 1 to 3 days (25.8 percent).

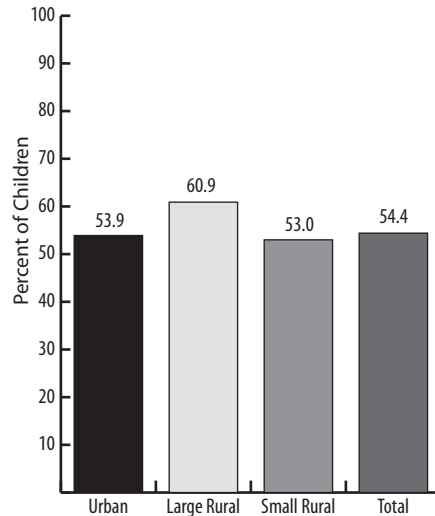


## Screen Time

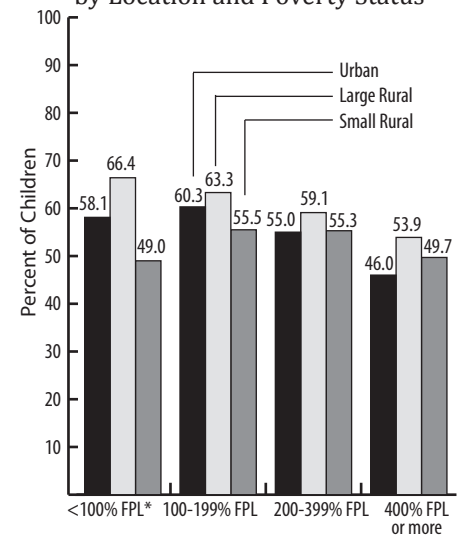
The Bright Futures guidelines for infants, children, and adolescents recommend that parents limit children's screen time to 1-2 hours per day for children aged 1-5 years. Parents of children aged 1-5 years were asked how many hours children spent watching TV or videos on weekdays. Overall, only 7.9 percent of children aged 1-5 years did not watch any TV, while 37.7 percent watched 1 hour or less per weekday, and 54.4 percent watched TV for more than 1 hour per weekday. The percentage of children who watched more than an hour per weekday was highest in large rural areas, where 60.9 percent of children did so.

In general, children with higher household incomes were less likely to watch more than an hour of TV or videos a day. However, this discrepancy was smallest in small rural areas, where the percentage of children aged 1-5 with more than an hour of screen time a day ranged from 49.0 percent among children with household incomes below the Federal poverty level (FPL) to 55.5 percent of children with household incomes of 100 percent to 199 percent of the FPL. In urban areas, by contrast, only 46.0 percent of children with household incomes of 400 percent of the FPL or more watched more than an hour of TV or videos a day, compared

Percent of Children Aged 1-5 with More than One Hour of Screen Time per Weekday, by Location

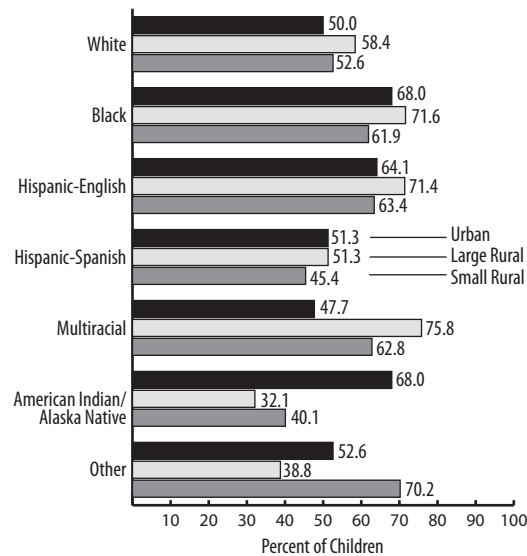


Percent of Children Aged 1-5 with More than One Hour of Screen Time per Weekday, by Location and Poverty Status



\*Federal poverty level was \$20,650 for a family of four in 2007.

Percent of Children Aged 1-5 with More than One Hour of Screen Time per Weekday, by Location and Race/Ethnicity/Language



to 60.3 percent of those with household incomes of 100 to 199 percent of FPL.

Within most racial and ethnic groups, the percentage of children who watch TV or videos for more than an hour per weekday does not

vary by location. One exception is White children, who are more likely to report more than an hour of screen time if they live in large rural areas (58.4 percent) than in urban areas (50.0 percent).



## The Child's Family

The family environment provides the backdrop and context for children's health and development. Family activities and experiences contribute to children's health and wellness, and parents' problems and stresses reflect the family's well-being. This section examines a range of family activities, including reading, singing, and telling stories to young children, sharing meals, and attending religious services, as well as risk factors for families, including smoking in the household, parental stress, and problems with child care.

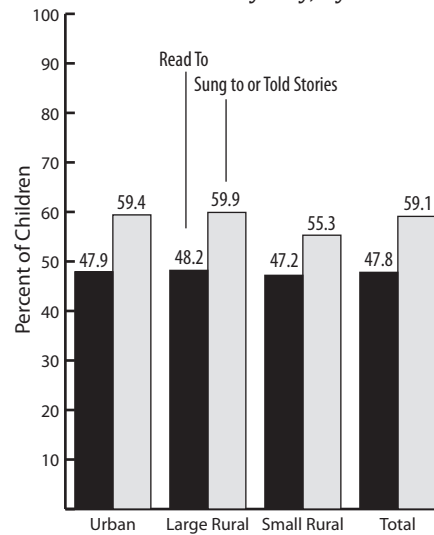


## Reading, Singing, and Telling Stories

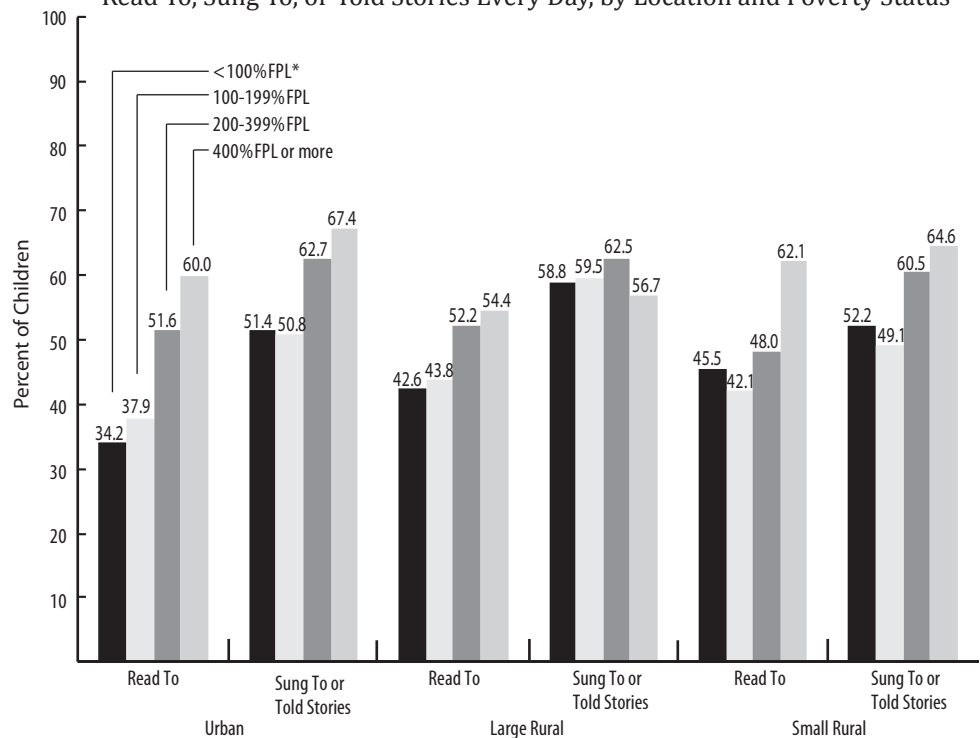
Reading, telling stories, and singing to young children regularly can lay the foundation for future literacy and educational success. Parents of children aged 0-5 were asked how often their children were read to during the past week. A total of 47.8 percent of children in this age group were read to (by a parent or other family member) every day. Parents were also asked how often they or other family members sang or told stories to their children in the past week. Overall, 59.1 percent of children aged 0-5 years were sung to or told stories every day. Neither of these percentages varied greatly across locations.

Children in low-income households were less likely to have a family member read to them every day. This discrepancy is greatest in urban areas, where the parents of 34.2 percent of children with household incomes below the Federal poverty level (FPL) read to them every day, compared to 60.0 percent of children with household incomes of 400 percent of FPL or more. The percentage of children whose parents sing or tell stories to them every day also varies by income, but not as widely. In urban areas, for example, 51.4 percent of children with household incomes below the FPL were sung to or told

Percent of Children Aged 0-5 who were Read To, Sung To, or Told Stories Every Day, by Location



Percent of Children Aged 0-5 who were Read To, Sung To, or Told Stories Every Day, by Location and Poverty Status



\*Federal poverty level was \$20,650 for a family of four in 2007.

stories every day, compared to 67.4 percent of those with incomes of 400 percent of FPL or more.

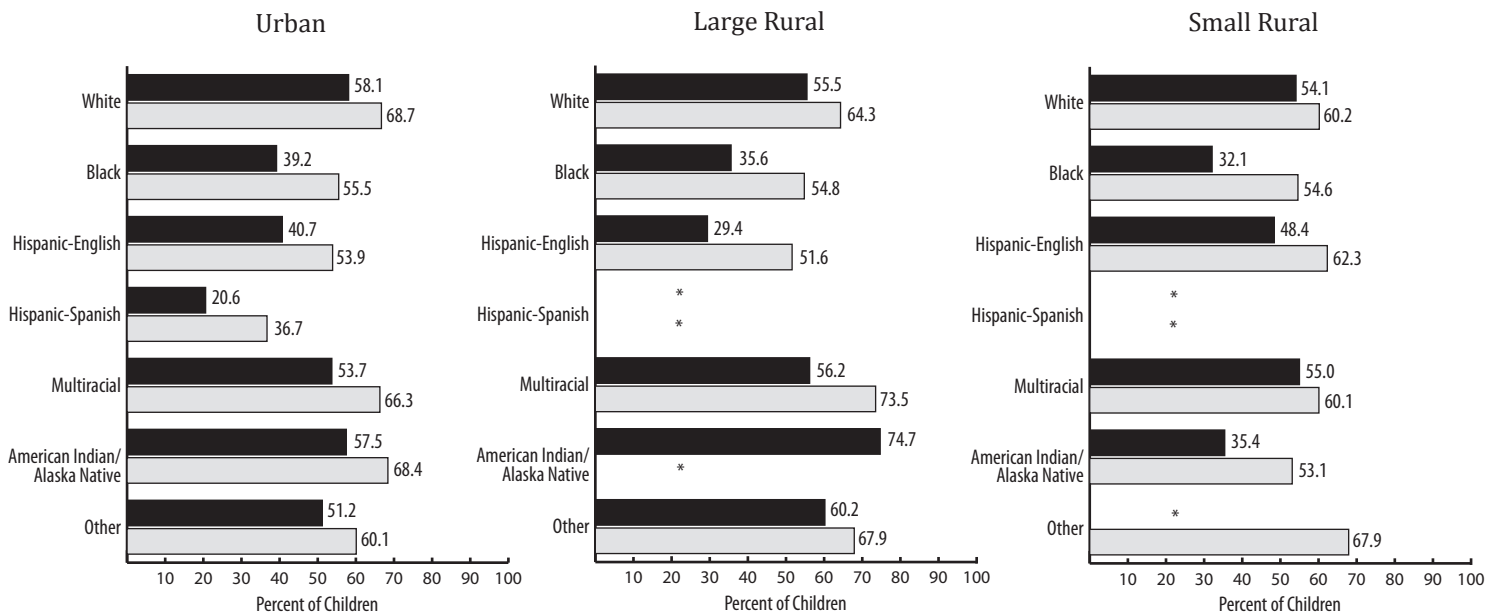
While the percentage of children who were read to, sung to, or told stories by family members every day

varies across racial and ethnic groups, within each group these proportions generally do not vary greatly by location. One exception is American Indian/Alaska Natives, who were considerably less likely to be read to if they lived in small rural areas.



Percent of Urban Children Aged 0-5 who were Read To, Sung To, or Told Stories Every Day, by Location and Race/Ethnicity/Language

Read To    Sung To or Told Stories



\*Estimate suppressed as it does not meet the standard for reliability or precision.



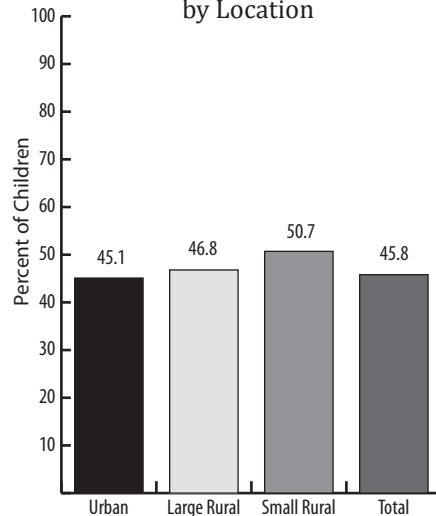
## Sharing Meals

Eating together as a family can promote family bonding and good nutrition and eating habits. Overall, the parents of 45.8 percent of children reported that their families had eaten at least one meal together every day during the previous week. More than 31 percent of children were reported to eat meals with their families on 4-6 days per week, while 19.1 percent ate meals together on only 1-3 days per week and 4.1 percent of children did not eat at least one meal with their families during the previous week. On average, children and their families ate meals together on 5.4 days during the previous week. The percentage of children who shared a meal with their families every day in the past week was highest in small rural areas, where 50.7 percent of children did so.

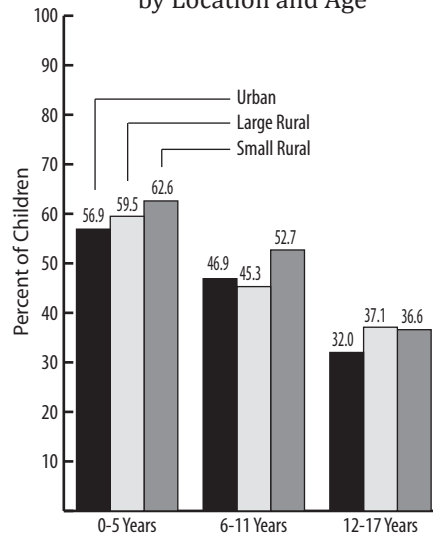
In all locations, younger children were more likely than older children and adolescents to share meals with their families. In small rural areas, for example, 62.6 percent of children aged 0-5 shared meals with their families every day, compared to 36.6 percent of adolescents aged 12-17.

Children with lower household incomes were also more likely to share meals with their families, regardless

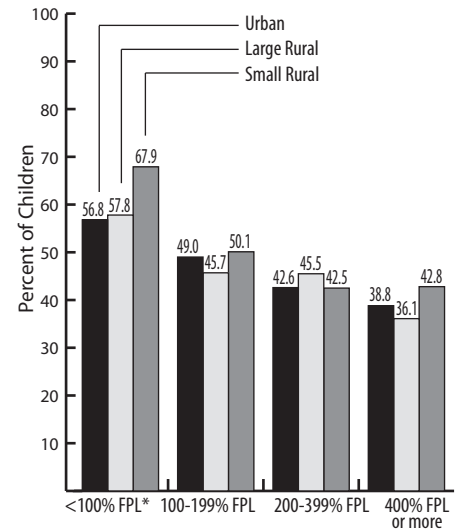
Percent of Children who Shared a Meal with their Families Every Day in the Past Week, by Location



Percent of Children who Shared a Meal with their Families Every Day in the Past Week, by Location and Age



Percent of Children who Shared a Meal with their Families Every Day in the Past Week, by Location and Poverty Status



\*Federal poverty level was \$20,650 for a family of four in 2007.

of location. In urban areas, for example, 56.8 percent of children with household incomes below the Federal poverty level (FPL) shared a meal

with their families every day, compared to 38.8 percent of children with household incomes of 400 percent of FPL or more.



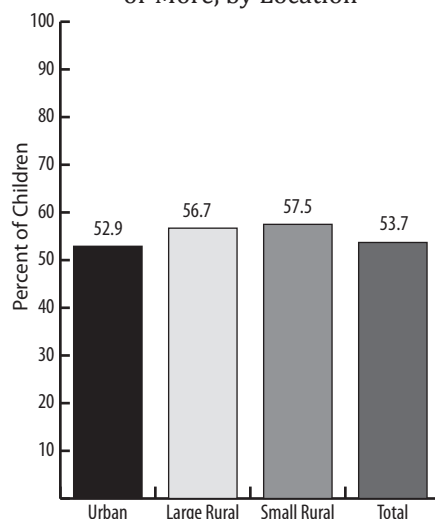
## Religious Services

Attendance at religious services is a family activity that can involve children in the broader community. Overall, the parents of 53.7 percent of children reported that their children attended religious services at least once a week, while 20.7 percent did not attend any religious services. The percentage of children who attend services once a week or more was higher in rural areas (56.7 percent in large rural areas and 57.5 percent in small) than in urban areas (52.9 percent).

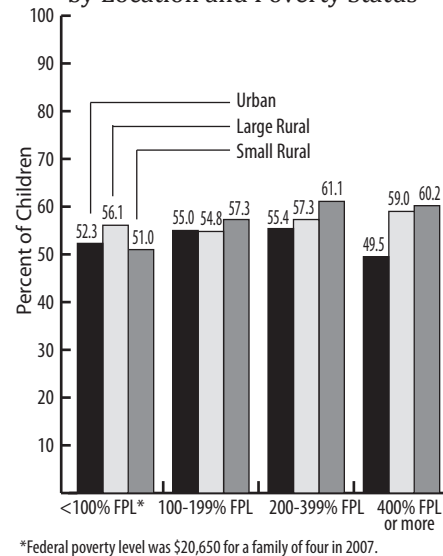
In urban areas, children in lower-income households were more likely to attend religious services at least weekly than were those with higher family incomes. In small rural areas, the reverse was true: the highest percentage of children attending religious services at least weekly (61.1 percent) was found among children with family incomes between 200 and 399 percent of the Federal poverty level (FPL), and the lowest was found among children with household incomes below the FPL.

Within each racial and ethnic group, the percentage of children attending religious services weekly was highest in either small or large rural areas. The highest percentages were found among Black children in large rural areas (69.0 percent),

Percent of Children who Attend Religious Services Once a Week or More, by Location

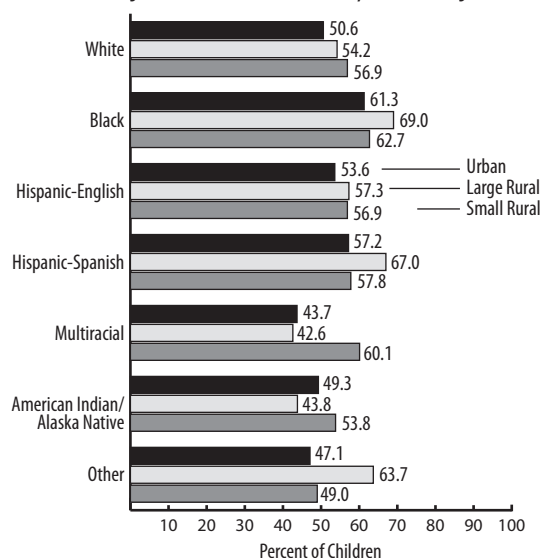


Percent of Children who Attend Religious Services Once a Week or More, by Location and Poverty Status



\*Federal poverty level was \$20,650 for a family of four in 2007.

Percent of Children who Attend Religious Services Once a Week or More, by Location and Race/Ethnicity



Spanish-speaking Hispanic children in large rural areas (67.0 percent) and children whose race was identified

as "other" in large rural areas (63.7 percent).

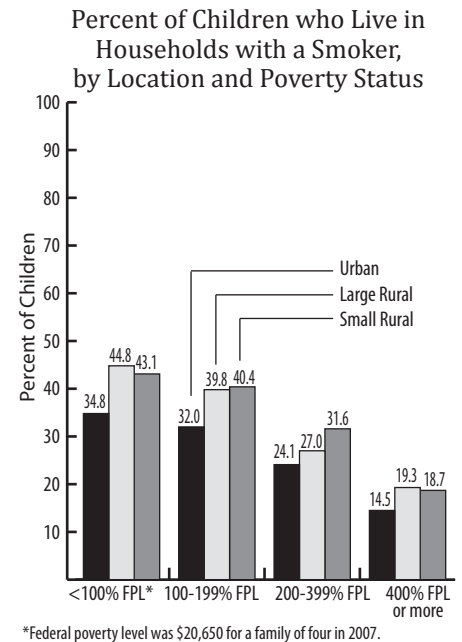
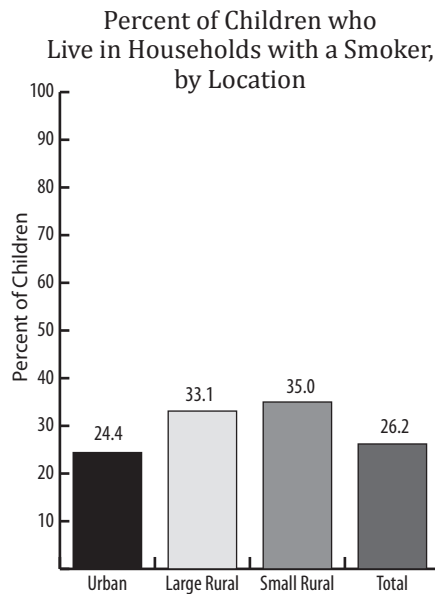


## Smoking in the Household

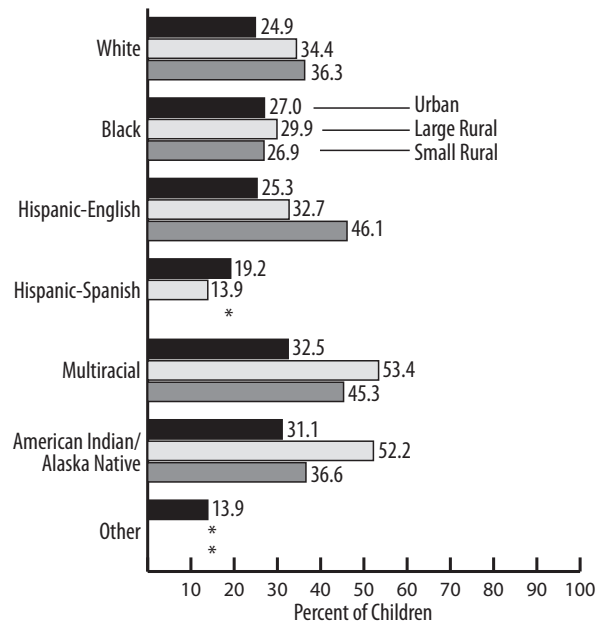
Exposure to environmental smoke— from cigarettes, cigars, or pipes— can be a serious health hazard for children. According to the Centers for Disease Control and Prevention, exposure to secondhand smoke is associated with higher rates of sudden infant death syndrome (SIDS), more frequent and severe asthma, and acute respiratory infections in young children.<sup>14</sup> Parents were asked whether anyone in the household used cigarettes, cigars, or pipe tobacco. Overall, 26.2 percent of children were reported to live in households where someone smokes, 7.8 percent of whom were exposed to secondhand smoke inside their homes (data not shown).

The percentage of children who live in a household with a smoker is considerably higher in rural areas. One-third (33.1 percent) of children in large rural areas and 35.0 percent of those in small rural areas lived with a smoker, compared to 24.4 percent of urban children.

In all locations, children with higher household incomes were less likely to live with a smoker. For example, among children in large rural areas, 44.8 percent of those with household incomes below the Federal poverty level (FPL) lived with a smoker, compared to 19.3 percent of



Percent of Children who Live in Households with a Smoker, by Location and Race/Ethnicity/Language



those with household incomes of 400 percent of the FPL or more.

Among Black children, the percentage who lived with a smoker did not vary greatly by location. Variation was evident among White children, of whom 24.9 percent in urban areas lived with a smoker, compared to 36.3

percent in small rural areas. There was also great variation in the percent of American Indian/Alaska Native children who lived with a smoker, ranging from 31.1 percent in urban areas to 52.2 percent in large rural communities.





## Parenting Stress

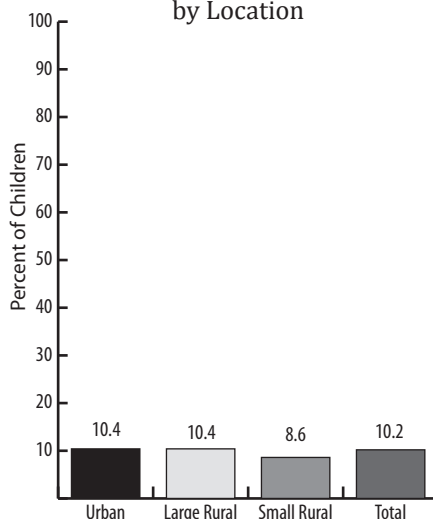
The demands of parenting can cause considerable stress for families. Parents were asked how often during the past month they had felt that their child was much harder to care for than others of his or her age; how often the child did things that really bothered them a lot; and how often they had felt angry with the child. Parents were considered to often feel stressed if they answered “usually” or “always” to at least one of these measures: Overall, parents of 10.2 percent of children reported often feeling stressed.†

Parents in small rural areas were less likely to report often feeling stress than those in urban areas. The parents of 8.6 percent of children in small rural areas reported often feeling stress, compared to 10.4 percent of those in urban or large rural areas.

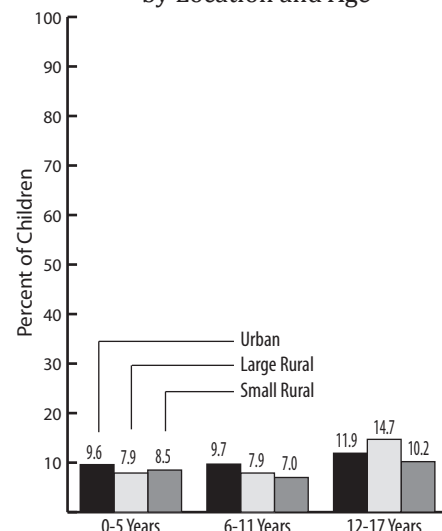
In all locations, parents of adolescents (aged 12-17) were more likely to report often feeling stressed than parents of younger children. The parents of 10.2 percent (in small rural areas) to 14.7 percent (in large rural areas) of adolescents reported often feeling stressed, compared to the parents of less than 10 percent of children in the younger age groups.

Parents of children in low-income families reported higher levels of stress as well. In all locations, the greatest percentage of children

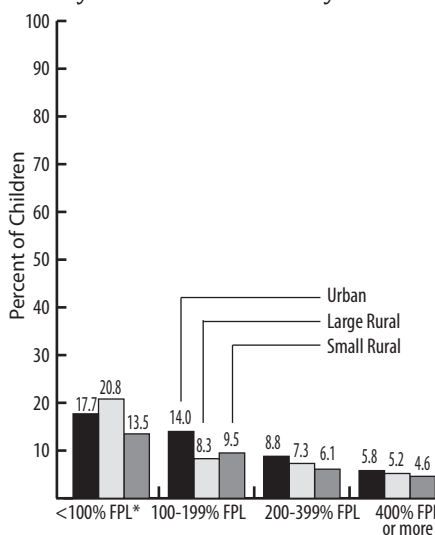
Percent of Children whose Parents Usually or Always Felt Parenting Stress, by Location



Percent of Children whose Parents Usually or Always Felt Parenting Stress, by Location and Age



Percent of Children whose Parents Usually or Always Felt Parenting Stress, by Location and Poverty Status



\*Federal poverty level was \$20,650 for a family of four in 2007.

whose parents reported often feeling stress was found among children with household incomes below the Federal poverty level (FPL). These proportions ranged from 13.5 percent of poor children in small rural areas to 20.8 percent of those in large rural

areas. The parents of a relatively small percentage of children with household incomes of 400 percent of the FPL or more report often feeling stress, and this percentage did not vary significantly by location.

†Due to changes in response options to the survey questions, 2007 estimates cannot be directly compared with those from 2003.



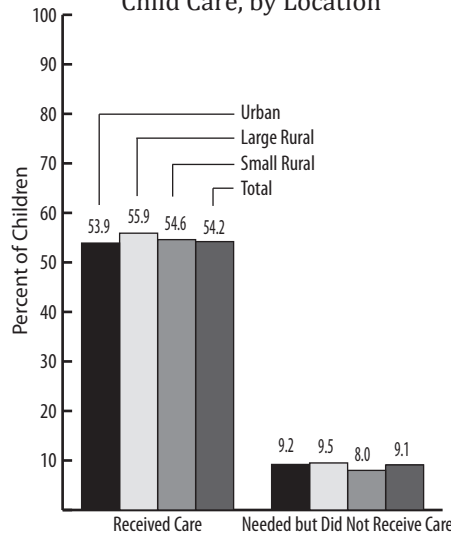
## Child Care

The availability of child care, and the ability to make backup child care arrangements in emergencies, can also put stress on parents and the family. Overall, parents of 54.2 percent of children aged 0-5 reported that their child received some form of non-parental care; however, parents of an additional 9.1 percent of children reported needing but not receiving child care during the past month. These percentages did not vary greatly by location.

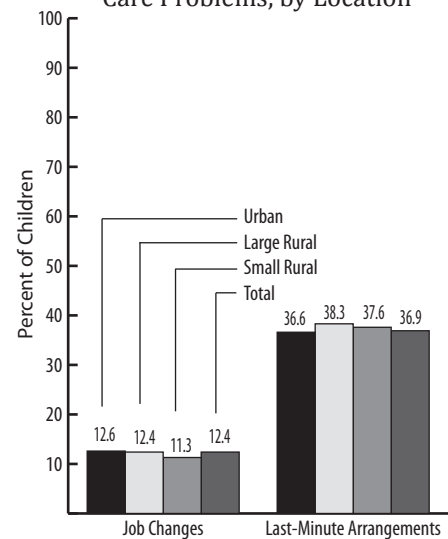
Parents of children aged 0-5 were asked whether they had had to make different child care arrangements in the past month due to circumstances beyond their control and whether anyone in the family had had to quit a job, not take a job, or greatly change their job because of child care problems within the past year. Among parents with children receiving care, 30.7 percent reported one or both of these issues. The prevalence of these problems did not vary greatly by location; the parents of between 11.3 and 12.6 percent of children reported problems that affected their job, while the parents of 36.6 to 38.3 percent reported having to make last-minute arrangements at least once in the past year.

In urban and small rural areas, the percent of children whose parents reported at least one child care

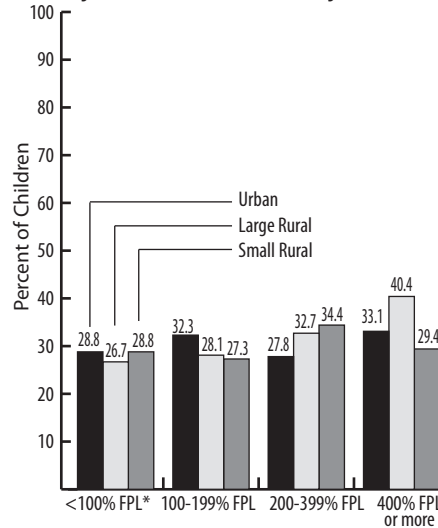
Percent of Children Aged 0-5 who Needed Non-Parental Child Care, by Location



Percent of Children Aged 0-5 whose Families Experienced Child Care Problems, by Location



Percent of Children Aged 0-5 whose Families Experienced One or More Child Care Problems, by Location and Poverty Status



\*Federal poverty level was \$20,650 for a family of four in 2007.

problem in the past year did not vary greatly by income. In large rural areas, however, the parents of 40.4 percent of children with household incomes of 400 percent of the Federal

poverty level (FPL) reported child care problems, compared to the parents of 26.7 percent of children with household incomes below the FPL.



## The Child and Family's Neighborhood

Urban and rural communities differ in their physical structure, and may also vary in their support for families and children. This section examines parents' reports about their children's safety and support in their school and neighborhood, as well as the amenities and physical conditions that make their communities safe and healthy places to live.



## Supportive Neighborhoods

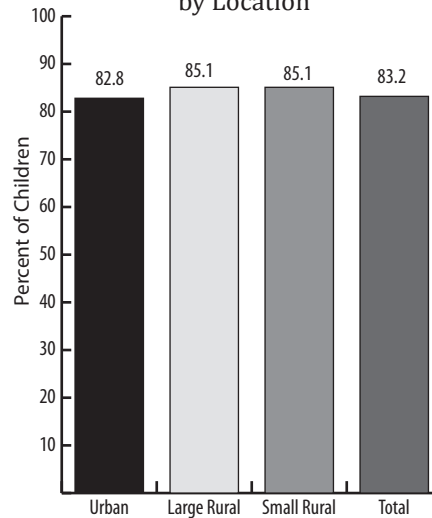
To assess whether or not families and children were supported in their neighborhoods, parents were asked whether they agreed with the following statements:

- People in the neighborhood help each other out.
- We watch out for each other's children.
- There are people I can count on in the neighborhood.
- If my child were outside playing and got hurt or scared, there are adults nearby whom I trust to help my child.

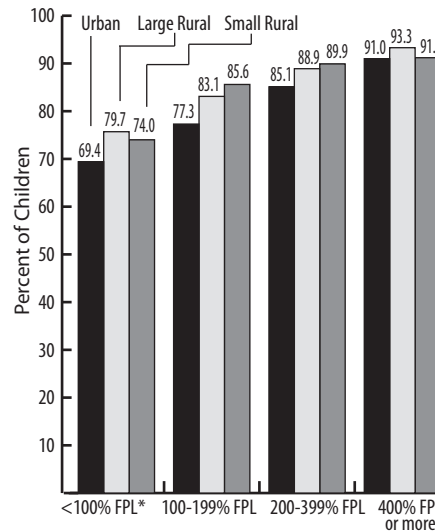
Families were considered to live in supportive neighborhoods if they answered "definitely agree" or "somewhat agree" to each of the four statements. Overall, parents of 83.2 percent of children reported that they live in supportive neighborhoods. This percentage was slightly higher (85.1 percent) in both small and large rural areas.

The discrepancy between urban and rural communities is greatest among children in lower-income households. Among rural children with household incomes below the Federal poverty level (FPL), approximately three-quarters lived in supportive neighborhoods, compared

Percent of Children Living in Supportive Neighborhoods, by Location



Percent of Children Living in Supportive Neighborhoods, by Location and Poverty Status



\*Federal poverty level was \$20,650 for a family of four in 2007.

to 69.4 percent of urban children of the same income level. Among children with household incomes of 400

percent of the FPL or more, however, at least 91 percent lived in supportive neighborhoods regardless of location.

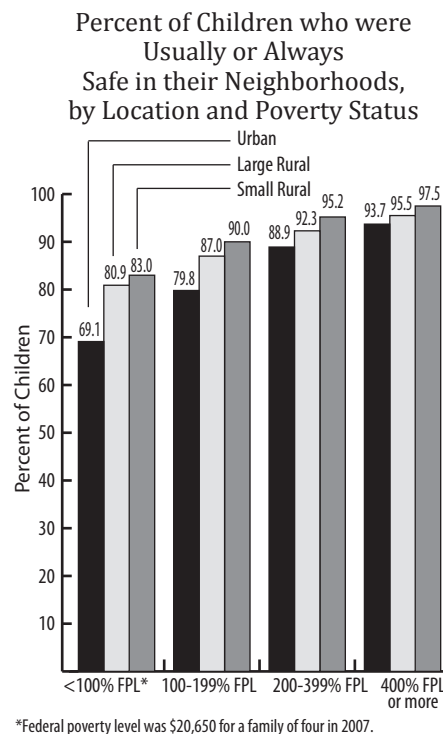
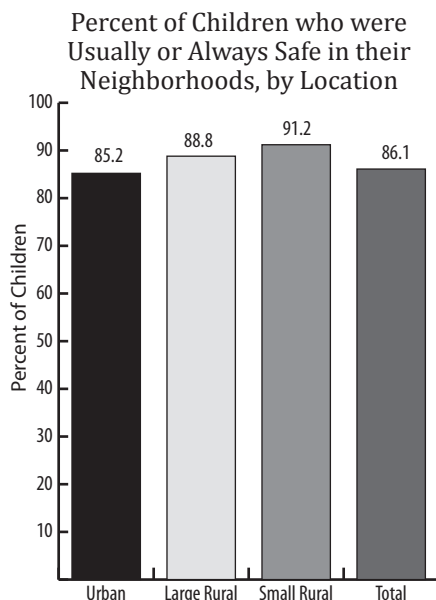


## Neighborhood Safety

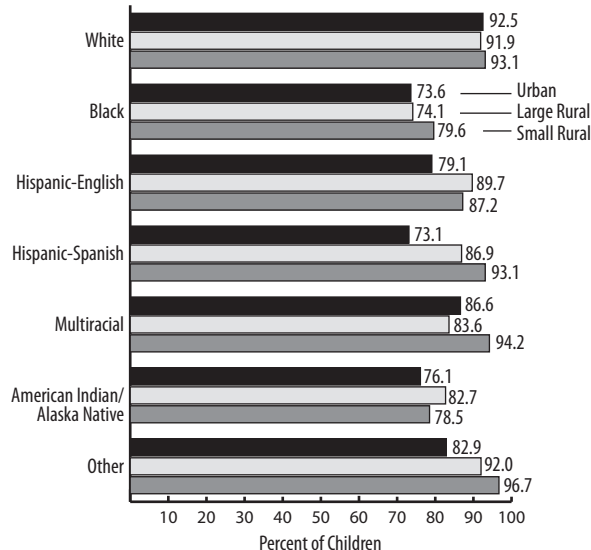
Families are more likely to feel comfortable in a neighborhood if they feel that their children are safe. Parents were asked how often they felt that their child was safe in their community or neighborhood—never, sometimes, usually, or always. Overall, parents of 86.1 percent of children report that they feel that their child is usually or always safe in their neighborhood. This percentage was higher in small rural areas (91.2 percent) and large rural areas (88.8 percent) than in urban areas (85.2 percent).

In all locations, children with higher household incomes were more likely than lower-income children to live in safe neighborhoods. This discrepancy is greatest among urban children, of whom 69.1 percent of those with household incomes below the Federal poverty level (FPL) were reported to usually or always be safe in their neighborhoods, compared to 93.7 percent of children with household incomes of 400 percent of FPL or more.

Within most racial and ethnic groups, the percentage of children who were usually or always safe in their neighborhoods is greatest in small rural areas. This discrepancy is greatest among Hispanic children who primarily speak Spanish; within this group, 73.1 percent of children



Percent of Children who were Usually or Always Safe in their Neighborhoods, by Location and Race/Ethnicity



in urban areas live in safe neighborhoods, compared to 93.1 percent of those in small rural areas. Among English-speaking Hispanic and Ameri-

can Indian/Alaska Native children, the highest percentage living in safe neighborhoods was found in large rural areas.

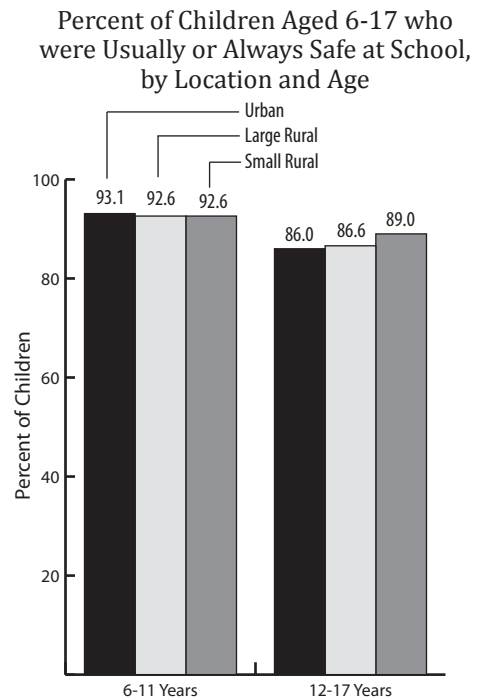
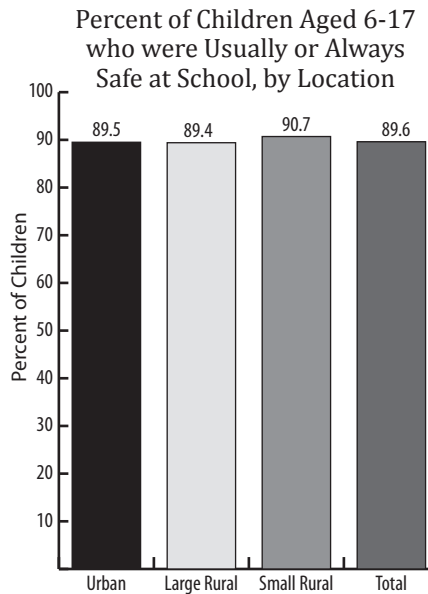


## Safety at School

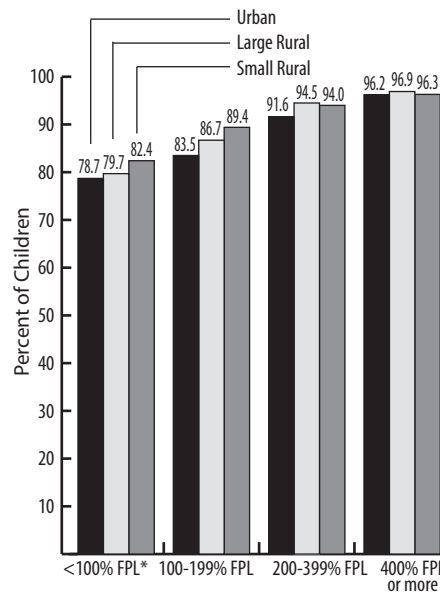
Parents of school-aged children (aged 6-17 years) were also asked how often they felt that their children were safe in school. Overall, parents of 89.6 percent of children reported that their children were usually or always safe in school. This percentage does not vary substantially by location.

In all locations, younger children (aged 6-11) were more likely to be considered safe at school than older adolescents (aged 12-17). Approximately 93 percent of children aged 6-11 were reported to be safe at school, compared to 86.0 percent (in urban areas) to 89.0 percent (in small rural areas) of adolescents.

Children with higher household incomes were also more likely to be reported to be safe at school. Approximately 96 percent of children with household incomes of 400 percent of the Federal poverty level (FPL) or more were usually or always safe at school; among children with family incomes below the FPL, this percentage ranged from 78.7 percent of urban children to 82.4 percent of those in small rural areas.



Percent of Children Aged 6-17 who were Usually or Always Safe at School, by Location and Poverty Status



\*Federal poverty level was \$20,650 for a family of four in 2007.



## Neighborhood Amenities

The availability of neighborhood amenities, such as playgrounds, community centers, and libraries, provides children with opportunities for recreation, education, and socializing without going far from home. Overall, 73.3 percent of children were reported to live in neighborhoods with sidewalks or walking paths; 80.8 percent had a park or playground in their neighborhood; 86.0 percent had a library or bookmobile in the community; and 65.0 percent had a recreation center, community center, or Boys' and Girls' club. Only 4.6 percent of children were reported to live in neighborhoods with none of these amenities, while 48.2 percent of children lived in neighborhoods with all of these amenities.

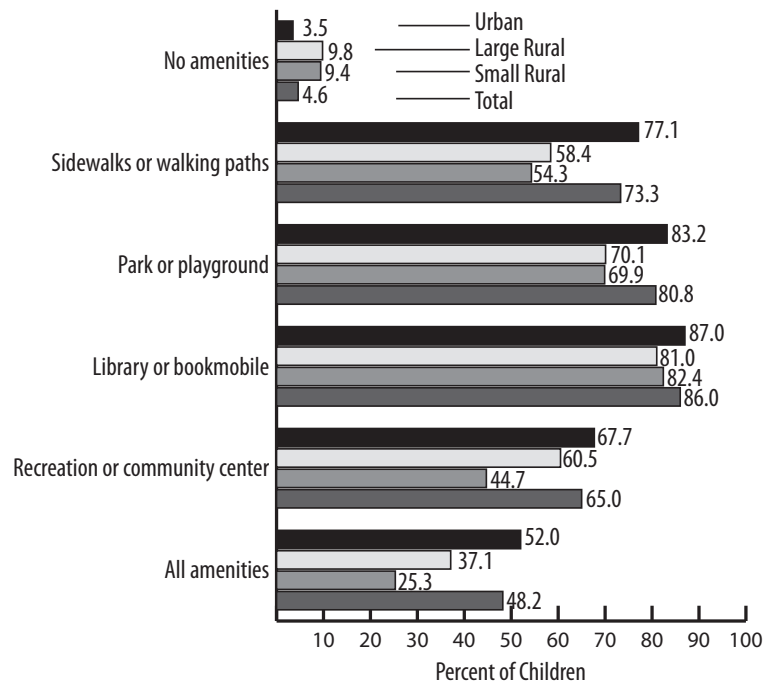
Children in urban areas were more likely to have access to neighborhood amenities than rural children. More than half of urban children (52.0 percent) had access to all four amenities, compared to one-quarter (25.3 percent) of children in small rural areas and 37.1 percent of those in large rural areas. Very few children (3.5 percent) in urban areas had access to no amenities, compared to 9.4 percent of children in small rural

areas and 9.8 percent of those in large rural areas. However, rural communities may have other features, such as swimming holes or hiking trails, that were not included in the survey question.

Libraries and bookmobiles were most likely to be available in all locations; more than 80 percent of children in both urban and rural areas

have access to a library. Children in small rural areas were least likely to have access to a recreation center or community center; this was reported to be available to only 44.7 percent of children in these areas. Among children in large rural areas, the amenity least often reported was sidewalks or walking paths, available to 58.4 percent of children.

Percent of Children with Access to Neighborhood Amenities, by Location





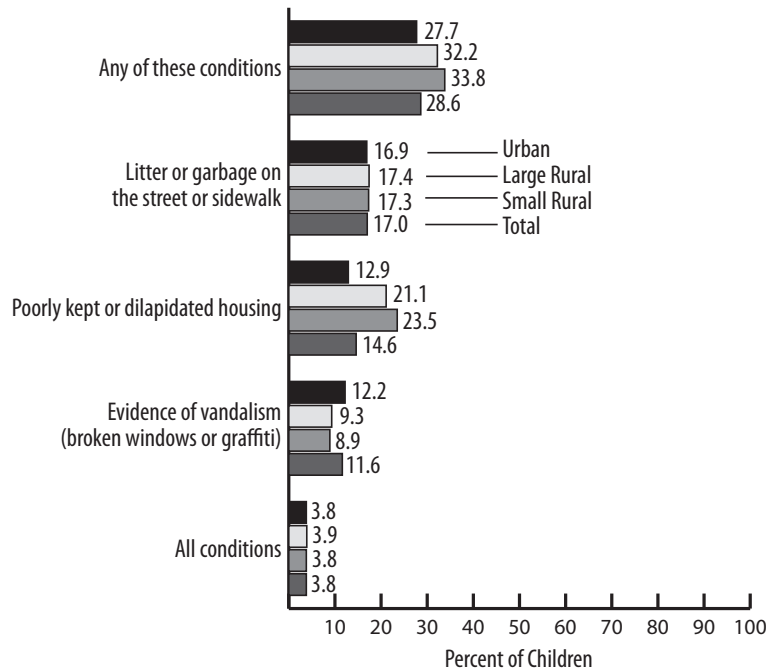
## Neighborhood Conditions

The physical environment can affect the physical health, safety, social opportunities, and development of a child. Poor neighborhood conditions, such as dilapidated housing, evidence of vandalism, and litter or garbage on the street may contribute adversely, either directly or indirectly, to a child's overall well-being.

Parents of 17.0 percent of children reported that they lived in neighborhoods with litter or garbage on the street or sidewalk, while 14.6 percent of children were reported to live in neighborhoods with poorly kept or dilapidated housing, and 11.6 percent lived in neighborhoods with evidence of vandalism, such as broken windows or graffiti. Overall, 71.4 percent of children were reported to live in neighborhoods with none of these conditions, while the remaining 28.6 percent lived in neighborhoods with at least one of these conditions.

A small percentage of children—approximately 3.8 percent, regardless of location—lived in areas with all three of these conditions. The percentage of children whose neighborhoods have any of these conditions was highest in small rural areas (33.8 percent) and lowest in urban areas (27.7 percent).

Condition of Children's Neighborhoods, by Location



The percentage of children whose neighborhoods have litter or garbage on the street or sidewalk did not vary substantially by location. Rural children were more likely to live in neighborhoods with poorly kept or dilapidated housing: 21.1 percent of those in large rural areas and 23.5 percent of those in small rural areas,

compared to 12.9 percent of urban children. Children in urban areas were the most likely to live in neighborhoods with evidence of vandalism: this was reported by the parents of 12.2 percent of urban children, compared to 9.3 percent of children in large rural areas and 8.9 percent of those in small rural communities.





## Technical Appendix

### About the Survey

The National Survey of Children's Health (NSCH) was fielded using the State and Local Area Integrated Telephone Survey (SLAITS) mechanism. SLAITS is conducted by the National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention (CDC). It uses the same large-scale random-digit-dial sampling frame as the CDC's National Immunization Survey.<sup>15</sup>

Approximately 2.8 million telephone numbers were randomly generated for inclusion in the NSCH. After eliminating numbers that were determined to be nonresidential or nonworking, the remaining numbers were called to identify households with children less than 18 years of age. From each household with children, one child was randomly selected to be the focus of the interview.

The respondent was the parent or guardian in the household who was knowledgeable about the health and health care of the randomly selected child. For 73.5 percent of the children, the respondent was the mother. Respondents for the remaining children were fathers (20.5 percent), grandparents (4.2 percent), or other relatives or guardians (1.8 percent).

Surveys were conducted in English, Spanish, Mandarin, Cantonese, Vietnamese, and Korean. Overall, 5.3 percent of the interviews were completed in Spanish, and 0.2 percent of the interviews were conducted in one of the four Asian languages.

### Data Collection

Data collection began on April 5, 2007 and ended on July 27, 2008, with interviews conducted from telephone centers in Chicago, Illinois and Las Vegas, Nevada. A computer-assisted telephone interviewing system was used to collect the data. A total of 91,642 interviews were fully or partially completed for the NSCH, with 79 percent of the interviews completed in 2007. The number of completed interviews varied by state, ranging from 1,725 in Vermont to 1,932 in Illinois.

The interview completion rate, which is the proportion of interviews completed after a household was determined to include a child under age 18, was 66.0 percent. The overall response rate, which is the product of the resolution rate (the proportion of telephone numbers identified as residential or nonresidential), the screener completion rate (the proportion of households successfully screened for children), and the interview completion rate, was 51.2 percent. This rate is based on the assumption that telephone numbers that were busy or rang with no answer on all attempts were nonresidential.

Overall response rates ranged from 39.4 percent in New Jersey to 61.9 percent in North Dakota. Several efforts were made to increase response rates, including sending letters to households in advance to introduce the survey, toll-free numbers left on potential respondents' answering machines to allow them to call back, and small monetary incentives for those households with children who initially declined to participate.

### Data Analysis

For producing the population-based estimates in this report, the data records for each interview were assigned a sampling weight. These weights are based on the probability of selection of each household telephone number within each State, with adjustments that compensate for households that have multiple telephone numbers, for households without telephones, and for nonresponse.

With data from the U.S. Bureau of the Census, the weights were also adjusted by age, sex, race, ethnicity, household size, and educational attainment of the most educated household member to provide a dataset that was more representative of each State's population of noninstitutionalized children less than 18 years of age. Analyses were conducted using statistical software that accounts for the weights and the complex survey design.

Responses of "don't know" and "refuse to answer" were considered to be missing data. Records with missing data on the variables of interest were excluded from all analyses, with one exception. For households with missing data for income or household size, the household income relative to the federal poverty level was multiply imputed.

Children's areas of residence were classified according to the Rural-Urban Commuting Areas (RUCAs).<sup>16</sup> The RUCA codes were developed by the U.S. Department of Agriculture's Economic Research Service and the University of Washington's Rural Health Research Center through



funding provided by the Federal Office of Rural Health Policy. The 10 RUCA codes were grouped into three categories. “Urban-focused areas” (RUCA codes 1.0, 1.1, 2.0, 2.1, 3.0, 4.1, 5.1, 7.1, 8.1, and 10.1) include metropolitan areas and surrounding towns from which commuters flow to an urban area; large rural areas (RUCA codes, 4.0, 4.2, 5.0, 5.2, 6.0, and 6.1) include large towns (“micropolitan” areas) with populations of 10,000 to 49,999 and their surrounding areas; and small or isolated rural areas (all remaining codes) include small towns with populations of 2,500 to 9,999 and their surrounding areas.

Children were classified by race and ethnicity in seven categories: non-Hispanic White, non-Hispanic Black, non-Hispanic American Indian/Alaska Native, other single races, other combined races, Hispanic (English speaking) and Hispanic (Spanish speaking). Racial and ethnic groups are mutually exclusive; that is, data reported for White, Black, American Indian/Alaska Native, multiracial, and children of other races do not include Hispanics, who may be of any race. These categories differ from the racial aggregation method recommended by the Office of Management and Budget, which keeps intact the five single-race categories and includes the four double-race categories that are most frequently reported. This analysis did not employ these nine groups because sample sizes did not support it. However, a separate category was included for American Indian/Alaska Natives, as well as those of other races, because their health risks may vary by locality.

## Accuracy of the Results

The data from the NSCH are subject to the usual variability associated with sample surveys. Small differences between survey estimates may be due to random survey error and not to true differences among children or across States.

The precision of the survey estimates is based on the sample size and the measure of interest. Estimates at the national level will be more precise than estimates at the urban/rural level, and those for all children will be more precise than estimates for subgroups of children (for example, children in small rural areas or children of the same race). For national estimates of the health and health care of all children, the maximum margin of error is 0.8 percentage points.<sup>17</sup> For estimates reported by area of residence for all children, the maximum margin of error is 3.8 percentage points.

## Availability of the Data

Except for data suppressed to protect the confidentiality of the survey subjects, all data collected in the NSCH are available to the public on the NCHS and MCHB websites. Data documentation and additional details on the methodology<sup>18</sup> are available from the National Center for Health Statistics (<http://www.cdc.gov/slaits.htm>).

Interactive data queries are possible through the Data Resource Center for the NSCH ([www.childhealthdata.org](http://www.childhealthdata.org)). The Data Resource Center provides immediate access to the survey data, as well as resources and assistance for interpreting and reporting findings.



## References

- 1 U.S. Census Bureau, 2008 American Community Survey. Table C17001, accessed through American Factfinder.
- 2 Cherry DC, Huggins B, Gilmore K. Children's health in the rural environment. *Pediatric Clinics of North America* 54 (2007):121-133.
- 3 Johnston LD, O'Malley PM, Bachman JG, Schulenberg JE. (2009) *Monitoring the Future: National Survey Results on Drug Use, 1975-2008*. (NIH Publication No. 09-7402.) Bethesda, MD: National Institute on Drug Abuse.
- 4 Probst JC, Laditka SH, Wang J-Y, Johnson AO. Effects of residence and race on burden of travel for care: cross sectional analysis of the 2001 US National Household Travel Survey. *BMC Health Serv Res* 2007 Mar 9;7:40.
- 5 Health Resources and Services Administration, Geospatial Data Warehouse. <http://datawarehouse.hrsa.gov>
- 6 University of Washington Rural Health Research Center. RUCA Data: Code Definitions Version 2.0. <http://depts.washington.edu/uwruca/ruca-codes.php>
- 7 American Academy of Pediatrics, Section on Breastfeeding. Breastfeeding and the Use of Human Milk. *Pediatrics* 2005;115(2):496-506.
- 8 Hagan JF, Shaw JS, Duncan PM, eds. *Bright Futures: Guidelines for Health Supervision of Infants, Children, and Adolescents*. 3rd edition. Elk Grove Village, IL: American Academy of Pediatrics, 2008.
- 9 Casamassimo P. *Bright Futures in Practice: Oral Health*. Arlington, VA: National Center for Education in Maternal and Child Health, 1996.
- 10 American Academy of Pediatrics. *Statement on Identifying Infants and Young Children with Developmental Disorders in the Medical Home*. July 2006; Hagan JF, Shaw JS, Duncan PM, eds. *Bright Futures: Guidelines for Health Supervision of Infants, Children, and Adolescents*. 3rd edition. Elk Grove Village, IL: American Academy of Pediatrics, 2008.
- 11 Bethell C, Reuland C, Schor E. Assessing health system provision of well-child care: The Promoting Healthy Development Survey. *Pediatrics* 2001;107(5):1084-94.
- 12 Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Nutrition and Physical Activity. *Overweight and obesity: contributing factors*. Atlanta, GA: CDC, 2005.
- 13 U.S. Department of Health and Human Services. *2008 Physical Activity Guidelines for Americans*. October 2008. <http://www.health.gov/PAguidelines>
- 14 Centers for Disease Control and Prevention. *Smoking and Tobacco Use, Secondhand Smoke Fact Sheet*. September 2006.
- 15 Zell ER, Ezzati-Rice TM, Battaglia MP, Wright RA. National immunization survey: The methodology of a vaccination surveillance system. *Public Health Reports* 115:65-77. 2000.
- 16 USDA Economic Research Service and the WWAMI Rural Health Research Center. *Rural-Urban Commuting Area Codes*. <http://www.ers.usda.gov/Data/RuralUrbanCommuntingAreaCodes/>
- 17 U.S. Department of Health and Human Services, Health Resources and Services Administration, Maternal and Child Health Bureau. *The Health and Well-Being of Children: A Portrait of States and the Nation 2007*. Rockville, Maryland: U.S. Department of Health and Human Services 2009.
- 18 Blumberg SJ, Foster EB, Frasier AM, et al. *Design and Operation of the National Survey of Children's Health, 2007*. National Center for Health Statistics. *Vital Health Stat*