

# **Access to Care Among Rural Minorities: Children**



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# **Access to Care Among Rural Minorities: Children**

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## Executive Summary

### Rural children and factors affecting their health care use

An estimated 14.9 million children live in rural areas of the US. For this report, “rural” is defined as a county that is not part of a metropolitan area. Most of these children (11.8 million) are white, followed by 1.5 million African American children, 1.0 million Hispanic children, and 433,000 children of other races.

Non-metro minority children disproportionately live in households characterized by low maternal education and poverty.

#### Mom’s education:

- Among young children (ages 0 – 8), 47.1% of Hispanic children, 27.9% of children of other race, and 23.5% of African American children have mothers who have not completed high school.
- Among non-metro adolescents (ages 9 – 17), 52.4% of Hispanic children, 29.9% of African American children, and 13.4% of children of other race have mothers with low education.

#### Poverty:

- Seven of every ten African American young children (77.2%) living in non-metro areas live in poverty, as do over half (57.8%) of African American adolescents.
- Six of every ten Hispanic young children (60.5%) live in poverty, as do over half (51.2%) of adolescents.
- Between three and four of every ten children of “other” nonwhite race live in poverty (35.1% of young children and 39.5% of adolescents).

### *Health insurance among non-metro children*

Low education and poverty translate into lack of health insurance. The proportion of children without health insurance was nearly a third higher in non-metro areas (15.7%) than in metropolitan areas (12.0%;  $p < .0001$ ). Proportionately, non-metro minority children were at greater risk for being uninsured than white children. About a third of non-metro children of “other” race (35.4%) and Hispanic children (30.3%) lacked health insurance, followed by 19.0% of African American children, and 13.0% of white children.

An estimated 2.33 million children--1.6 million white children, 288,000 African American children, 316,000 Hispanic children, and 153,000 children of other race--did not have health insurance across non-metro America.

Factors affecting whether a young child (ages 0-8) would have health insurance included rural residence, minority status, maternal education, family income, and region of the country in which the child lived. Non-metro young children, holding all these factors constant, were less likely to be insured than urban children. Falling into a very low resource category (mother has

less than a high school education, family income is less than \$20,000) *increased* the likelihood that a young child would be insured, probably by qualifying the child for publicly funded programs.

Adolescents (ages 9 – 17) were less likely to be insured than were young children. Factors affecting whether an adolescent would be insured paralleled those for young children: rural residence, minority status, maternal education, family income, and region of the country. While low resource status (low maternal education, low income) was favorable for young children, it did not have this paradoxical effect among adolescents. Decreased resources were associated with decreased likelihood of being insured.

### *Health services use among non-metro children*

Health services use was measured by whether or not the child had seen a health care provider (hereafter, a physician) during the previous year. Nearly all children saw a physician or other health care provider during the year. However, non-metro children were more likely to have made no health care visits (14.6%) than were urban children (12.3%).

- Among non-metro young children, 16.5% of African American children, 11.3% of Hispanic children, 8.1% of children of “other” race and 7.4% of white children had not seen a physician in the preceding year.
- Among non-metro adolescents, 27.2% of Hispanic youths, 25.9% of African American youths, 20.9% of youths of other race, and 18.3% of white youths had not seen a physician in the preceding year.

Among both young children and adolescents, lack of health insurance coverage strongly reduced the likelihood that the child had seen a physician.

Among young children, factors significantly affecting health care use, over and above insurance, included race, maternal education, and region of the country in which the child lived. Rural children, when these variables were held constant, were not less likely to have seen a physician than their peers. This suggests that a principal source of unadjusted urban-rural differences for this age group lies in differing levels of insurance coverage and maternal education.

Among adolescents, the factor most significantly affecting health services use was physical impairment, which strongly increased use. Other factors significantly affecting health care use, over and above insurance, included rural residence (rural residence slightly reduced the effects of lack of insurance), gender (adolescent boys living in non-metro regions were less likely to have seen a physician), maternal education, and family income. After holding those factors equal, race did not significantly affect whether the adolescent had a physician visit during the preceding year. The absence of an effect of non-metro residence that was consistent across all groups of adolescents suggests, as was the case among younger children, that unadjusted differences in utilization between metropolitan and non-metro areas stem from differences in insurance coverage, which are in turn affected by maternal education and family income.

## **Policy recommendations**

To ensure that non-metro children obtain appropriate levels of health care, a multi-faceted approach is necessary, with short-term, intermediate and long-term objectives.

### *Access to Care*

In the short term, access to care needs to be improved for children who currently lack health insurance. To this end, programs that provide care to indigent or low income families, such as federally qualified community health centers, must be retained and, where necessary, expanded in non-metro areas.

### *Expanding Insurance Coverage*

Expansion of insurance coverage is an intermediate objective. The importance of health insurance to actual use of health services illustrates the necessity of ensuring that as many non-metro children as possible have coverage. Since its inception, the State Children's Health Insurance Plan (SCHIP) has been a major vehicle used by the states to expand health insurance coverage among needy children. Crucial issues with SCHIP include the dip in funding that begins in 2002 and the issue of program continuation after FY 2007.

The SCHIP funding dip in FY2002 - FY2004 coincides with a national economic downturn that has left many states facing a budget shortfall. The state budget shortfalls may result in either a loss of ability to bring in Federal match dollars or, in worst-case scenarios, an inability to sustain the SCHIP program in their state. In addition, current and proposed waivers allowing states to use SCHIP monies for other populations could further dilute SCHIP funds directed towards children's healthcare. SCHIP is currently set to expire in 2007; it is impossible to project what the national budgetary situation will be at that time. Finally, dependence on governmental funding is a potential drawback of SCHIP. Parents may not understand eligibility criteria or may not choose to associate with programs that were once restricted to welfare populations.

Enhancing the ability of low-income families to obtain insurance through employment is an option for increasing coverage among non-metro children. A single national mechanism for accomplishing this may not be feasible, given differences across rural counties in economic structure. It is recommended that the Secretary of Health and Human Services investigate the feasibility and acceptability of block grants that allow states to promote health insurance among small employers through locally appropriate means. State choices might include tax subsidies, formation of employer buyer's groups for dealing with insurers, development of a state-wide insurance product to be purchased by employees directly, or expansion of Medicaid through waiver programs.

### *Addressing Rural Poverty*

Childhood poverty and low maternal education are closely linked. While the health care system has neither the mandate nor the means to provide education, it cannot escape the consequences of lack of education. Funding currently provided under Title VII to promote health

careers among students can be explored as a vehicle to foster completion of a high school education. It is recommended that the Secretary of the Department of Health and Human Services assess the degree to which programs such as “Kids into Health Careers” and the Quentin N. Burdick Program for Rural Interdisciplinary Training could include components that provide funding directly to the high school or primary school level. Linkages with health education settings (Area health Education Consortia, technical colleges) would be required. Such program should focus simultaneously on enhancing workforce availability and improving educational outcomes.

Finally, the rapidly changing nature of the insurance situation for non-metro children must be addressed through ongoing research. It will be particularly important to track declining insurance for non-metro children as funds available for SCHIP decline, as scheduled.

# Chapter One

## Introduction: Children in Non-Metro Areas

Children need frequent clinical preventive services in addition to illness care. For example, six routine visits are recommended for children between birth and the age of 18 months alone, to accommodate immunizations, physical exams and anticipatory guidance (CDC, 2001). As a result, children are likely to see a health care provider each year, even if they live in poor families. Non-metro children, however, and non-metro poor and minority children in particular, may have poorer financial and realized access to care than other children. Previous research suggests that non-white children consistently are at a disadvantage compared to their white peers (relevant studies are listed Table 1-1 in the Appendix). Nonwhite children are more likely to have unmet clinical needs, to lack appropriate immunizations, to report having foregone care, to lack health insurance, and to report fewer physician visits than white children. Whether non-metro children of minority heritage suffer additional problems is not clear. Several studies have found no specific “rural” effect beyond the disadvantages conveyed by being poor and minority. Additional studies either did not test for a non-metro effect or, if multivariate analysis was used, did not report results for non-metro residence.

Health during childhood plays an important role in ensuring healthy adulthood. Behavioral habits affecting health, such as nutrition and exercise, are formed early. Preventive counseling and intervention by health care providers can reduce the effects of illness. Repeated ear infections associated with secondary tobacco smoke can have effects on hearing and learning, for example, and may be minimized through parental counseling. Growth related problems, such as scoliosis, are more easily corrected during childhood. For these reasons, it is important to understand whether non-metro poor and minority children face unique problems of health care access.

### **Purpose of this study**

This report examines reported health insurance coverage and health services use among non-metro children. Because a national data set is used for this analysis, the effects of race, non-metro residence and region can all be explored, in addition to the socio-demographic characteristics of the child’s family. To enhance readability in the main body of the report, supporting tables are presented in the Appendix.

The chapters that follow present findings regarding the characteristics of non-metro children, their health insurance coverage, and their self-reported use of physician services. Non-metro children are those who live in counties outside a metropolitan statistical area. All information comes from analysis of the 1997 and 1998 National Health Interview Surveys and thus is representative of the US population. Details concerning data elements and methods are presented in the Appendix.

## Chapter Two

### Characteristics of Non-Metro Children

An estimated 14.9 million children live in non-metro areas of the US. Most of these children (11.8 million) are white, followed by 1.5 million African American children, 1.0 million Hispanic children, and 433,000 children of other races (Table 2-1). Nationally, children lived in families averaging 4.4 persons, both in non-metro and metropolitan areas. Children's need for health care is affected by their state of health, while their ability to obtain it is affected by the resources available to them.

#### Risk factors

##### *Limitation in daily activity*

About 2.4% of children were reported by their caregivers to suffer from physical or mental impairments that reduced their ability to play, be physically active, or attend school (Table 2-2). A similar proportion of children in non-metro and urban areas suffered from impairment, 2.7% and 2.3%, respectively ( $p = 0.1243$ ). As would be anticipated, children who experienced physical or mental impairment averaged a higher number of health care visits per year, 7.7, than did children without impairment, 3.6 ( $p < 0.0001$ ).

About 404,000 non-metro children have physical or mental impairments.

##### *Presence of selected conditions*

Caregivers were asked whether their child experienced any of a number of conditions that might result in an increased need for health care. This question was different from that concerning impairment. "Impairment" specifically referred to limitations in daily activity. "Conditions" explored the presence or absence of a specific list of disorders, with differing levels of severity. These included autism, mental retardation, Down's Syndrome, learning disability, other types of developmental delays not specifically asked about, anemia, asthma, blindness, cerebral palsy, muscular dystrophy, cystic fibrosis, sickle cell anemia, diabetes, arthritis, congenital heart disease, other heart conditions, chickenpox, food or digestive allergy, frequent diarrhea or colitis, three or more ear infections in the past 12 months, frequent headaches or migraines, hay fever, respiratory allergies, eczema or skin allergies, and stuttering or stammering. A child could have a condition without being impaired, and vice versa.

Nearly all children, 91.5% of non-metro children and 89.3% of their urban peers, were reported to have at least one of the conditions on the list (Table 2-3). The national average number of conditions per child was 2.0. The average number of conditions was slightly higher among non-metro than urban children (2.2 vs. 2.0, respectively). There were little or no racial differences among non-metro children. Conditions were reported for 91.8% of white non-metro children, 92.6% of African American non-metro children, 88.0% of Hispanic children, and 88.5% of non-metro children of other races.

Nearly all (91.7%) of non-metro children had at least one condition requiring treatment by health care providers.

## Resources

The principal resources available to children are their mother's education, which serves as a proxy measure for the mother's ability to recognize and deal with health problems, and family income, which affects whether and how care will be sought. The presence of an implied medical home, one single place to which the child was taken for both illness and preventive care, can also be considered a resource.

### *Maternal education*

Non-metro minority children were particularly at risk of having a mother with less than a high school education (See Tables 2-1 and 2-4). Among young children (ages 0 – 8), 47.1% of Hispanic children, 27.9% of children of other race, and 23.5% of African American children have mothers who have not completed high school. Among non-metro adolescents (ages 9 – 17), 52.4% of Hispanic children, 29.9% of African American children, and 13.4% of children of other race have mothers with low education.

Mother's education strongly affects the subsequent health care access of their children. Children of mothers who had completed high school were more likely to have health insurance coverage (90.9% for high school or better versus 72.5% among others,  $p < 0.0001$ ), to have a single place for routine health care and preventive care for their children (97.0% for high school or higher versus 94.9% among others,  $p < 0.0001$ ), and to have made at least one health care visit during the preceding year (89.5% for high school or better versus 78.4% among others,  $p < 0.0001$ ).

Children of mothers who had completed high school were more likely (90.9%) to have health insurance.

### *Family poverty*

Within each race, poverty rates were higher among non-metro than among urban children. Poverty was highest among non-metro African American children (72.2%), followed by non-metro African American adolescents (57.8%). The next highest rates of poverty were experienced by non-metro Hispanic children, with 60.5% of young children and 51.2% of adolescents living in poverty. Poverty rates were lower among white non-metro children (26.3% for young children and 19.1% for adolescents), but remained higher than among urban children.

### *Medical home*

A similar percentage of urban and non-metro children, 99.3% and 99.5%, respectively ( $p = 0.1113$ ), had a regular place for routine health care and preventive care. A child was defined as having a regular place for care if the caregiver named at least one place where the child is taken when sick or the caregiver needs advice about his/her health or for routine preventive care. Children whose caregivers reported that they took their child to a hospital emergency room for acute and preventive care, or that they had no regular place for either type of care, were defined as not having a regular place for care.

Among non-metro children, 96.37% had a *single* place they were taken for routine health care and preventive care; 3.14% had more than one such place. The separation of sources for different services suggests a lack of continuity of care. Whether a non-metro child had a single

source for routine health care and preventive care did not vary significantly by race/ethnicity (Table 2-6;  $p = 0.2277$ ).

Non-metro minority mothers were more likely to report that they had delayed health care for their child than were white mothers (Table 2-7;  $p=.0001$ ). About one in ten African American or Hispanic non-metro mothers reported delaying care for their child.

In the next chapters, factors affecting whether a child has insurance and, subsequently, actually visits a physician are explored.

## Chapter Three

### Health Insurance Coverage

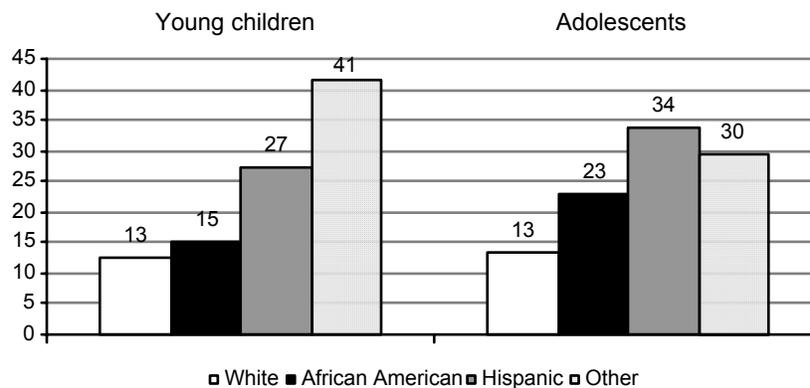
Most children, 87.3% nationally, had health insurance coverage during the year preceding the survey. The proportion of children without health insurance was nearly a third higher in non-metro areas (15.7%) than in non-non-metro areas (12.0%;  $p < .0001$ ). An estimated 2.33 million non-metro children did not have health insurance in 1997-1998.

An estimated 2.33 million non-metro children lack health insurance.

White children were least likely to be uninsured (13.3% in non-metro areas, 8.0% in urban), followed by African American children (19.0% in non-metro areas, 11.9% in urban) and Hispanic children (30.3% in non-metro areas, 26.7% urban). An estimated 1.6 million non-metro white children, 288,000 non-metro African American children, 316,000 non-metro Hispanic children, and 153,000 non-metro children of other races did not have health insurance. High need children, those with impairments in activities of daily living, were not significantly more likely to be covered by health insurance than children without impairment, 89.3% versus 87.2% ( $p = 0.1756$ ).

Minority adolescents (ages 9-17) living in non-metro areas were more likely than young children (ages 0-8) to lack health insurance (See chart at the top of the next page and Table 3-1.). White non-metro children had the lowest rate of uninsurance, and the rate was consistent across both age groups.

Percent of non-metro children lacking health insurance, 1997-1998, by race



#### Modeling health insurance coverage

Given that non-metro minority children and adolescents are less likely to be insured than their white peers, what circumstances place them at greatest risk? Because many factors influence a child's health insurance status, multivariate analysis was used to examine this question. Logistic regression was employed to detect the effects of rurality and race while taking

into consideration other demographic characteristics of the child. Because younger children and older children have different health needs and different eligibility for public insurance programs, analyses were conducted separately for children between the ages of 0 – 8 years and those between the ages of 9 – 17 years. The outcome of interest was health insurance coverage in the last 12 months. Details concerning the methods used for multivariate analysis and all supporting tables are presented in the Appendix.

Factors significantly influencing whether a young child would have health insurance included race, non-metro residence, region of the country in which the child lives, maternal education, and family income (Tables 3-2 and 3-3). Several of these terms interacted with one another, making the interpretation of individual factors difficult.<sup>1</sup> For policy purposes, however, it is useful to know the groups of children most at risk. To provide this information, we used the model to calculate the likelihood that children with a given set of characteristics would have health insurance (Table 3-3). This approach illuminated groups of children among whom insurance coverage rates are lowest.<sup>2</sup>

### **Health insurance coverage among children 0-8 years old**

#### *Rural residence*

Young non-metro children were consistently less likely to have insurance coverage than were urban children, across all regions and combinations of maternal education and income. Most non-metro minority children live in the South (African Americans) or West (Hispanics and children of “other” race). Among non-metro children in the South, Hispanic children and children of other race were most likely to lack coverage.

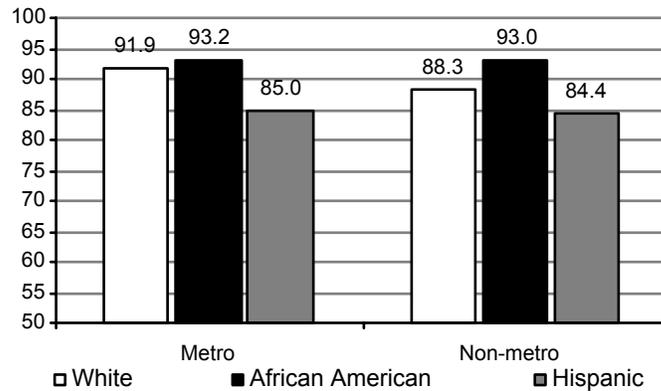
The interaction between race and rural residence is visible in the chart on the next page (see also Table 3-2). The chart shows the probability that a relatively high resource child, that is, one whose family income is \$20,000 or above and whose mother had completed high school, will have health insurance. The chart contrasts children who live in metropolitan versus non-metro areas. Differences across race/ethnicities were small but consistent. In the example shown, which models young children living in the South, white non-metro children were 3.6% less likely to be insured than metropolitan children (88.3% versus 91.9%). Minor differences, less than a full percentage point, were present for Hispanic and African American children.

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<sup>1</sup> A significant beta coefficient for an interaction means that the effects of the main covariates (the terms used to create the interaction) are not additive on a log scale; the effects of the covariates in the interaction must be adjusted from their sum by the value of the interaction beta coefficient. For example, poverty generally decreases the probability that a child will be insured. However, when a mother with less than a high school education was also poor, the probability that her child would be covered by health insurance was *increased* compared to a mother who has less than a high school education but is not poor.

<sup>2</sup> We modeled a “typical” family of 4.4 persons, the average across children. Because minority children living in the South and West proved to have the highest risk of being uninsured, we present charts illustrating their risk levels.

Probability that a young child living in the South will be insured,  
By metro versus non-metro residence, and race.  
(Assumes family income of 20,000 or above and mother who has completed high school)

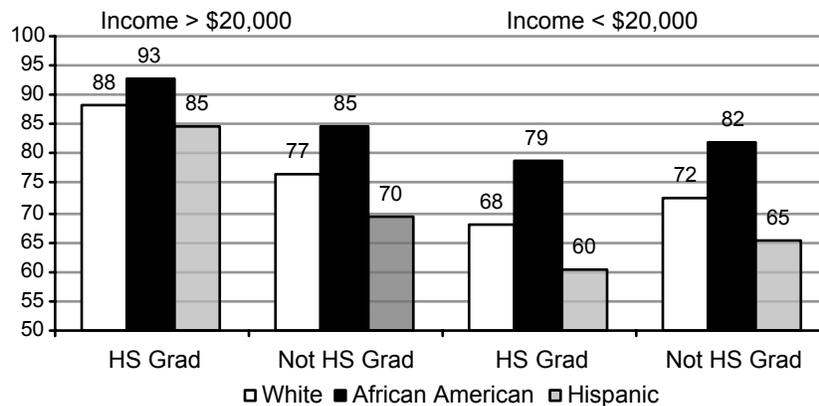


Data pertaining to children of “other race” do not appear in the preceding chart. Sharp differences were present between children of “other” race living in urban areas (90.8% insured) and those living in the rural areas (63.5% insured). Given previous research suggesting that the Asian / Pacific Islander population has only a very small rural component,<sup>3</sup> it appears likely that “other” in metropolitan areas has a different composition from “other” in non-metro areas, which contains more Native American residents. Thus, direct comparisons of rural and urban “other” children may not be appropriate.

*Maternal education*

Maternal education strongly affected whether a child had coverage. If a young child’s mother had not completed high school, the probability that the child would be insured dropped. The relationship was not straightforward, however, as it was complicated by the interaction between education and income. When family income was \$20,000 per year or more, the effects of differing levels of education were stronger than when family income was less than \$20,000 per year. The probability that a young child will be insured if his or her mother has graduated from high school is illustrated in the table below (See Also Table 3-3).

Probability that a non-metro young child living in the South will have health insurance if his or her mother has completed high school, by income and race



<sup>3</sup> Probst JC, Samuels ME, et al, *Minorities in Rural America*.

The effects of a high school education are much stronger among children living in families where the total income is \$20,000 or more, partially because coverage is at its highest among high income, high education families. If a mother has a high school education, the likelihood that her child will be insured is 85% or better across all races and regions of the country. However, if a mother lacks a high school degree, the probability that her child will be insured drops by as much as 24%, as shown in the graph on the preceding page.

It is probable that mothers who have not completed high school but have family incomes above \$20,000 are “near poor.” It would have been desirable to study the effects of income more closely, or to use official “poverty” status. However, the indicator for “poverty” was missing from 22% of the records in the NHIS data set, while the two-level data item for income was present in virtually all records. Dropping such a large proportion of children from the study would have weakened the analysis.

### *Family income*

Family income affected whether a young child would be insured, although the effects of income were slightly smaller than those of maternal education. The chart on the preceding page illustrated the difference in probability that a non-metro child will be insured when family income was \$20,000 per year or higher, rather than below that level. Regardless of maternal education level, children from low income families were less likely to be insured than were higher income children. Among low income families, however, children of less well educated mothers were actually *more* likely to be insured than were those whose mothers had completed high school. These children may represent those at the bottom of the economic spectrum who are covered by public programs, such as Medicaid. Data for this study were collected in 1997 and 1998, before widespread implementation of the S-CHIP program.

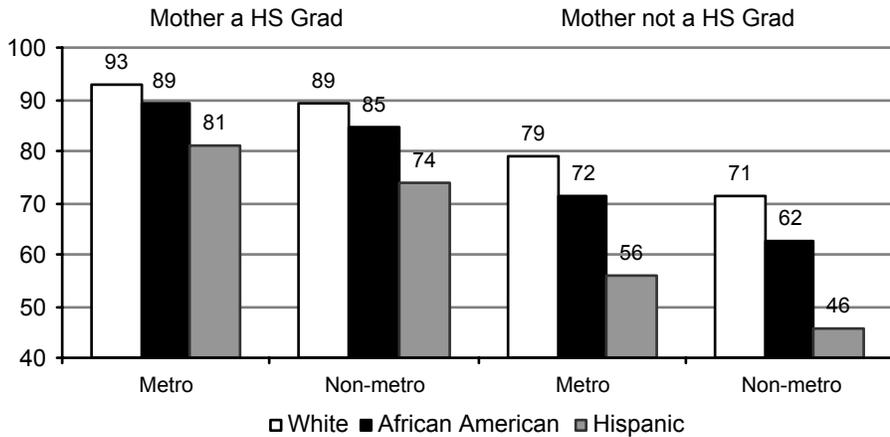
### **Health insurance coverage among adolescents (9-17 years old)**

A substantial group of non-metro adolescents lacked health insurance. While only 13% of white adolescents were without coverage, 23% of African Americans, 34% of Hispanics, and 30% of adolescents of “other” race did not have health insurance. Adolescence is a critical age for patient interventions regarding health, ranging from eating habits through high-risk behaviors such as sexual activity and alcohol and substance abuse. Which specific characteristics of adolescents and their home environment placed them at greatest risk for lack of health coverage? Again, multivariate analysis was used to isolate the effects of rural residence, race, and family characteristics. Logistic regression results are presented in Table 3-4. Probabilities associated with varying risk characteristics are presented in Table 3-5 and discussed here.

### *Rural residence*

Regardless of region of the country, family income or maternal education, non-metro adolescents were less likely to have health insurance coverage than their urban peers. An example of these differences, adolescents living in the South, is provided in the graph the top of the next page. Among children whose mothers have finished high school, small but consistent metro—non-metro differences can be seen. Among children whose mothers had less than a high school education, the non-metro disadvantage was larger.

Probability that an adolescent will be insured, by metropolitan versus a non-metro residence, maternal education and race. (Chart limited to adolescents from the South, in families with an annual income of \$20,000 or more)

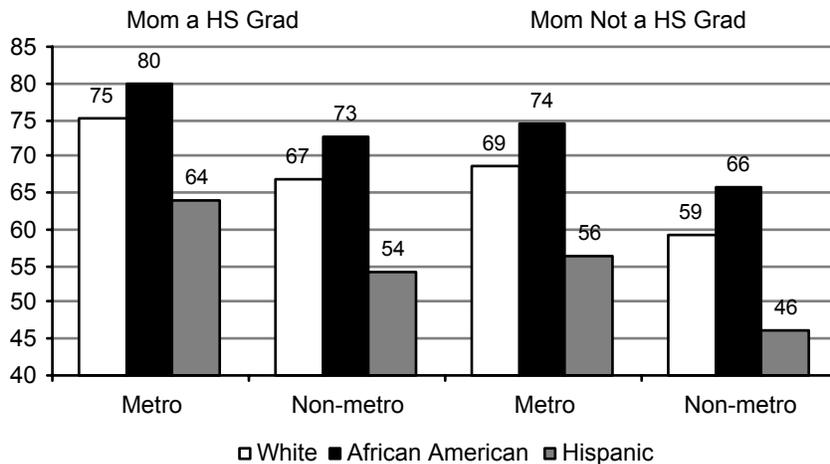


*Race / Ethnicity*

The effects of minority status were more pronounced among adolescents than among young children. At the same time, because race effects differed depending on whether the adolescent’s family income was above or below \$20,000, race changed the probability that an adolescent was insured in unanticipated ways.

Among adolescents whose family incomes were \$20,000 or higher, the probability that the youth would be insured was several points lower among African Americans and Hispanics (See chart above). Among low income families, however, African American adolescents were *more* likely to be insured than their white or Hispanic counterparts, in both metro and non-metro regions (See chart, below).

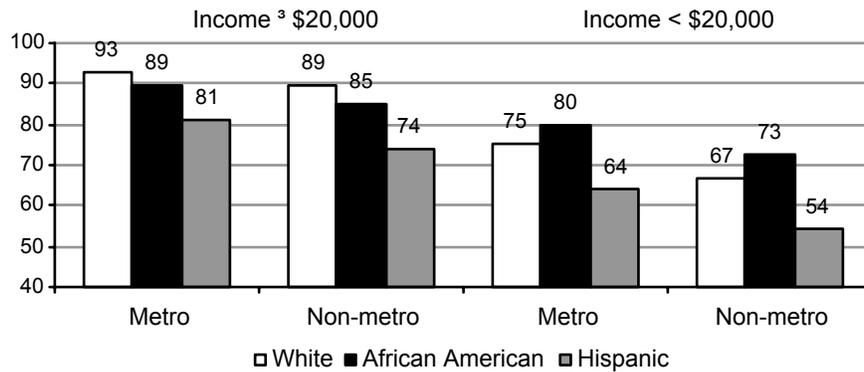
Probability that an adolescent will have health insurance, by maternal education and race. All values are for adolescents living in the South whose family income is less than \$20,000.



*Family income*

Given similar levels of maternal education, increased family income was associated with an increased probability of being insured. Among minority youth, however, advantages associated with increased income were less than among white adolescents. (See chart below.) When their mothers had less than a high school education, youths in families with incomes of \$20,000 or more were actually slightly less likely to have insurance coverage than their low income peers. As with younger children, this phenomenon is probably associated with families of the “working poor,” in which income is too high to allow the child to participate in public programs, but too low to allow the family to purchase health insurance.

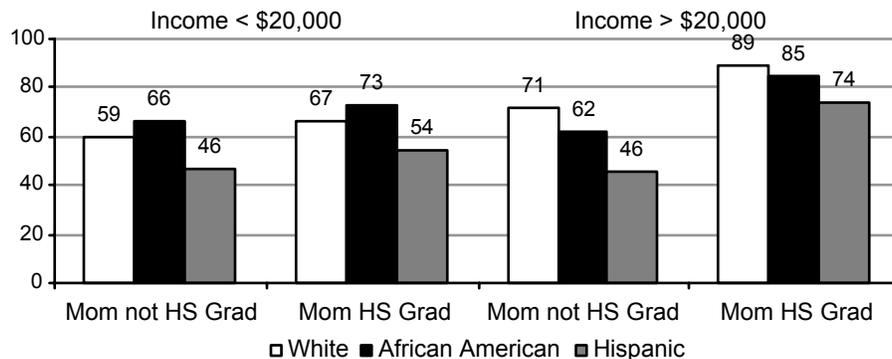
Probability that an adolescent will have health insurance, by family income, residence, and race. Values pertain to an adolescent living in the South whose mother has completed high school



*Maternal education*

At every income level and across all races, non-metro adolescents whose mothers have completed high school were dramatically more likely to be insured than those with less educated mothers (see chart on page 14). The effects of education were more pronounced among high income families than low income families, probably because increased education lifts the family further above the bottom value of \$20,000. The adverse effects of low maternal education were strongest among Hispanic adolescents. Hispanic adolescents whose mothers lack a high school education were the least well insured of all non-metro children, with rates of coverage ranging from 46% in the South to 64% in the Northeast, regardless of maternal income.

Probability that a Southern rural adolescent will have health insurance, by family income and race.



## Chapter Four

### Health Care Visits

#### Children's use of health services

Non-metro and urban children averaged about the same number of visits to a physician per year, 3.6 and 3.7 respectively, despite differences in insurance coverage among non-metro children. Only 12.8% of children nationwide did not make at least one health care visit during the preceding year. Many factors affected children's use of health care:

- **Rurality:** Non-metro children were more likely to have made *no* health care visits in a year (14.6%) than were urban children (12.3%;  $p = 0.0014$ ).
- **Race/Ethnicity:** Rural African American children were most likely to have no reported visits (21.2%), followed by Hispanic children (18.9%), and white children (13.4%).<sup>i</sup> Race also affected whether the care-giver reported having to delay care for the child for any reason. Non-metro African American, Hispanic and other race children were more likely to have experienced delayed care (Table 2-4;  $p = 0.0091$ ).
- **A medical home:** Children who had a regular place for routine health care and preventive care (either a single place or different places for different types of care) made, on average, 3.9 visits during the preceding 12 months, versus 2.4 visits among children without such a place or who received healthcare from a hospital emergency room ( $p < 0.0001$ ). Delayed care tended to be less if the child had a single place for routine and preventive health care (8.2%), compared to children who had more than one place for such care (11.82%) or who had no place for care or sought their care from a hospital emergency room (9.61%;  $p = .0671$ ).
- **Health insurance:** Children with health insurance were more likely to have had at least one health care visit during the year (89.6% among covered and 71.2% among uninsured children,  $p < 0.0001$ ). The average number of visits per year was significantly higher among children with health insurance, 3.9 visits versus 2.5 visits among children who lacked health insurance ( $p < 0.0001$ ).

2.16 million non-metro children (14.6%) had not seen a physician during the previous year.

More than 28% of children without health insurance did not make a health care visit during the past year.

Detailed analysis of physician visits and the multiple factors affecting whether a given child will have had such medical contact during the past year was conducted separately for young children (ages 0 – 8) and adolescents (ages 9 – 17).

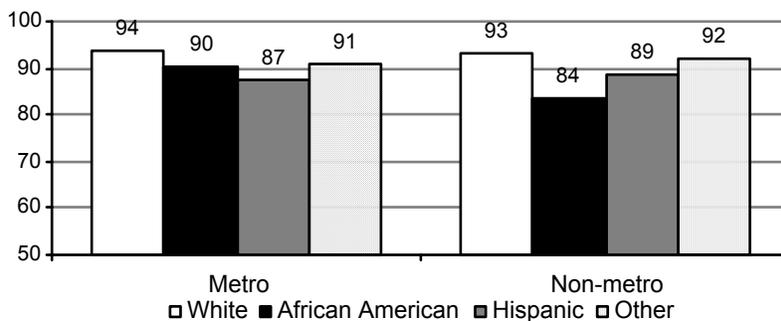
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<sup>i</sup> An estimated 14.51% of children of “other” race had no visit during the past year. However, this estimate is based on fewer than 30 unweighted observations and is thus not reliable.

## Physician visits among children ages 0 – 8

Most young children in both metropolitan and non-metro setting saw a physician during the year. The group most at risk were African American children, about one in six of whom (16.4%) had not seen a physician in the year before the health survey interview (See chart below). About one in nine Hispanic children (11.3%), one in 12 children of “other” race (8.1%) and one in 14 white children (7.1%) had not seen a health care provider in the past year.

Probability\* of a physician visit during the past year among young children, by residence and race



\*Simple probability, not adjusted for insurance or other factors.

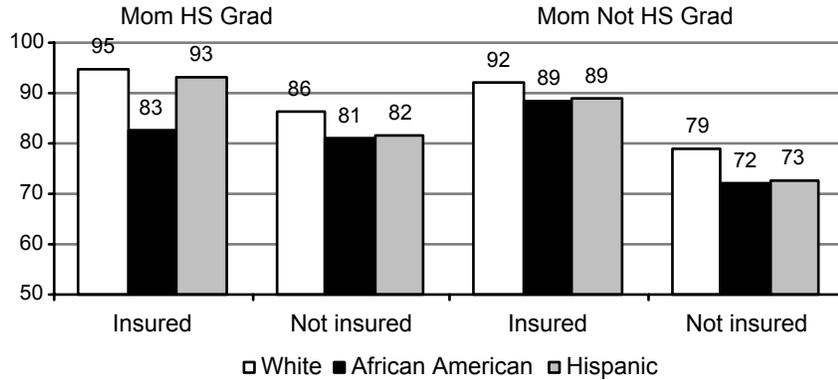
Multiple factors influenced a child’s use of health services. Therefore, multivariate analysis was used to identify pertinent risk factors.<sup>5</sup> Four factors were found to affect whether a young child would have seen a physician during the past year: health insurance, region of the country in which the child lived, maternal education, and race. Rural residence in and of itself did not affect the probability of a physician visit among children this age.

### *Insurance coverage*

Health insurance coverage was the single largest factor affecting health care visits by young children (See Table 4-1). Regardless of maternal education, region of residence, or race / ethnicity, young children who were insured were more likely to have seen a physician in the past year than those who were not (see chart, top of next page). When health insurance status was controlled, rural children were not significantly less likely to have seen a physician than other children. However, rural children, and rural minority children in particular, were less likely to be insured.

<sup>5</sup> Details concerning the methods used for multivariate analysis are presented in the Appendix.

Probability that a young non-metro child will have seen a physician during the past year, by maternal education, insurance status and race

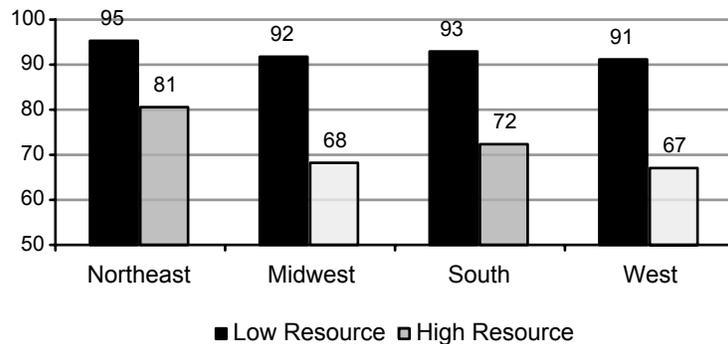


*Geographic region*

Regional variation principally affected young children in the Northeast, where the probability of a physician visit was higher across all races, levels of maternal education, and insurance status differences (Table 4-2). Regional variation in the probability of a physician visit for a high resource (insured, high maternal education) and a low resource (not insured, low maternal education) African American non-metro child is illustrated in the chart below.

Probability that a non-metro African American child will have seen a physician during the past year, by resource level and region

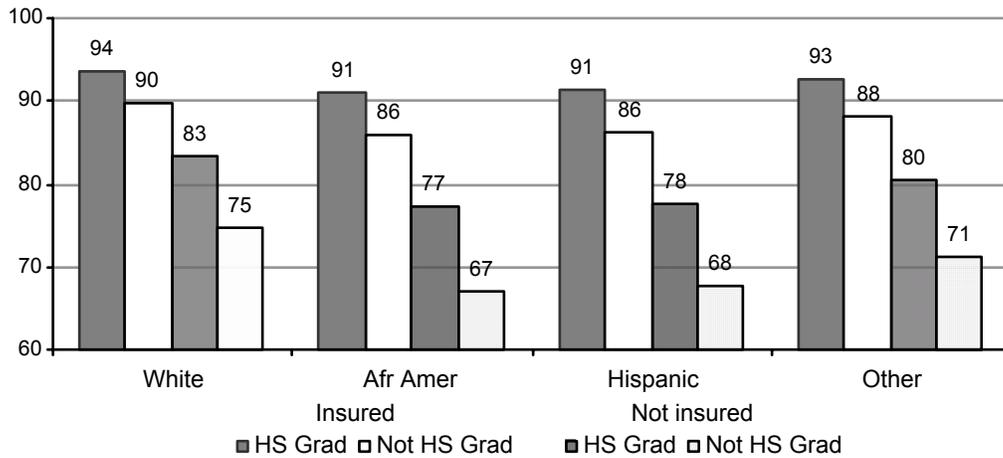
(High resource = mother has completed high school and child is insured.  
Low resource = mother has less than high school education and child is not insured)



*Maternal Education*

Maternal education influenced whether a child had seen a physician during the past year, even beyond its influence on whether the child had insurance. Regardless of whether the child was insured, children with more highly educated mothers were more likely to have seen a physician within the past year (see chart, top of next page).

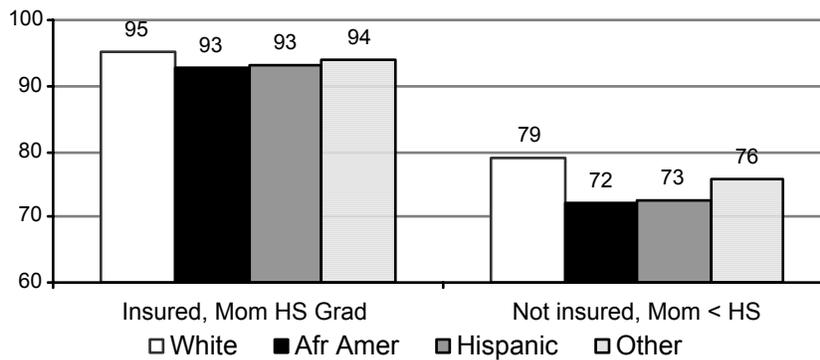
Probability that a young non-metro child will have seen a physician during the past year, By insurance status, race and maternal education. (Example uses child living in the West)



*Race / Ethnicity*

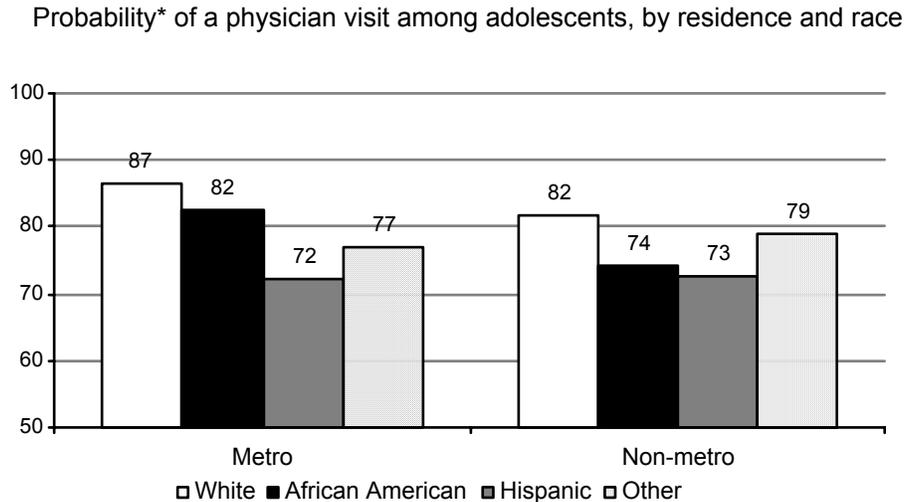
Race effects were lesser in magnitude than the effects of insurance, maternal education and region. Hispanic and African American children were less likely to have seen a physician during the past year than were their white peers. Children of “other” race did not differ significantly from white children. Differences in utilization associated with race are noticeable in the chart above. The chart below illustrates differences across children of different races for both high resource (insured, mother has completed high school) and low resource children (not insured, mother has less than a high school education).

Probability that a non-metro child will have seen a physician during the past year, by resource level and race. (Example uses non-metro South)



## Physician visits among adolescents (9-17 years old)

Adolescents were less likely to have seen a physician during the past year than were younger children (See chart below). More than one in four non-metro African American (25.9%) and Hispanic (27.2%) youth had not seen a physician during the previous year.



\*Simple probability, not adjusted for insurance or other factors

The mix of factors influencing physician visits among adolescents aged 9 – 17 was complex (Table 4-3). Minority status and non-metro residence, principal concerns of this report, did not significantly affect the probability that an adolescent would have seen a physician during the past year *after controlling for factors such as insurance*. Simply put, the reason that minority adolescents were less likely to have seen a physician is that they were less likely to be insured, more likely to be poor, and less likely to have a mother who had completed high school. In the sections that follow, the most significant factors affecting adolescent physician use are addressed.

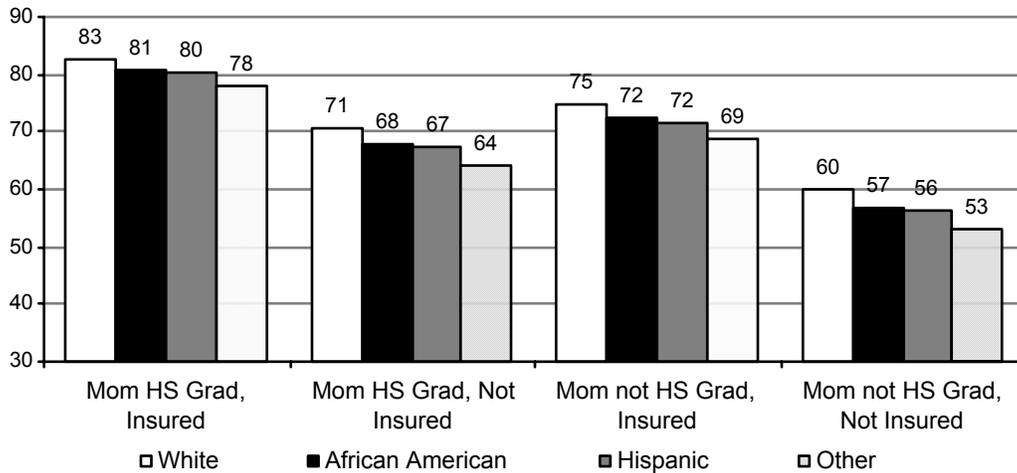
### *Functional limitations*

Impairment in activities of daily living was the most important factor affecting the probability of a physician visit among adolescents, although it had not significantly influenced utilization among young children. Under the most favorable circumstances in the total model (living in an urban area, having insurance coverage, having an educated mother, high family income, and so on), an adolescent with functional limitations was almost certain to have seen a physician during the past year (probability of 99%). Even under the worst circumstances (living in a non-metro area, no insurance, poor maternal education, low income), the probability of a physician visit in the past year was over 85%.

### Health insurance coverage

As was the case among younger children, lack of health insurance significantly reduced the probability that an adolescent would have received any medical care during the preceding year. The chart below contrasts the experience of children with and without health insurance, whose mothers have or have not completed high school. Uninsured youths, even if their mothers have completed high school, were less likely to have seen a physician. The probabilities of a physician visit were lowest among non-metro adolescent boys with poorly educated mothers and no health insurance. Outside the Northeast, the chances of such a child seeing a physician over a year ranged from a high of 60.9% to a low of 49.5% (Details in Table 4.4).

Probability that a male adolescent in the non-metro South will have seen a physician during the past year  
(Model assumes a non-impaired youth, family income \$20,000 or higher)



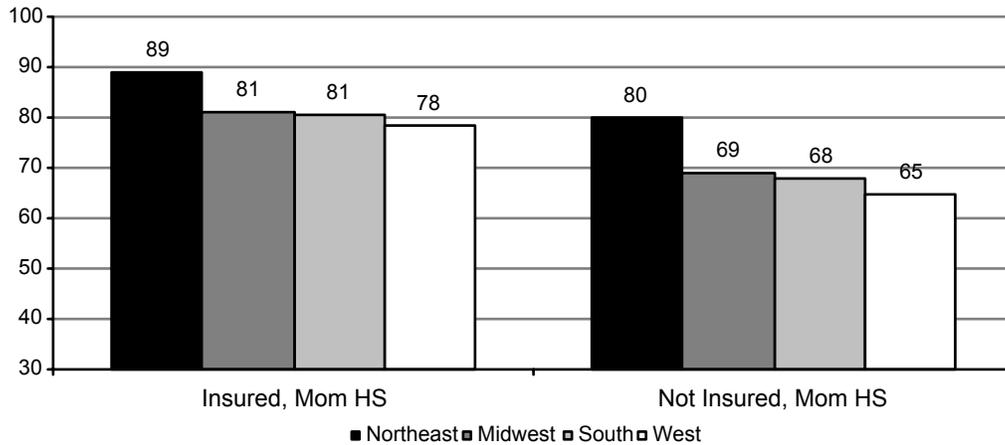
### Maternal education

Effects of maternal education, as well as insurance coverage, were visible in the chart above. Whether insured or uninsured, children of more educated mothers were more likely to have seen a physician during the past year than were children of less educated mothers. Over half of non-metro Hispanic adolescents (52%; Table 2-4) and nearly a third of non-metro African American adolescents have mothers who have not completed high school.

### Region

Region of residence had a marked effect on the probability that an adolescent would have seen a physician (See Table 4-3). The probability that a non-metro adolescent would have seen a physician were markedly higher in the Northeast than elsewhere across the country.

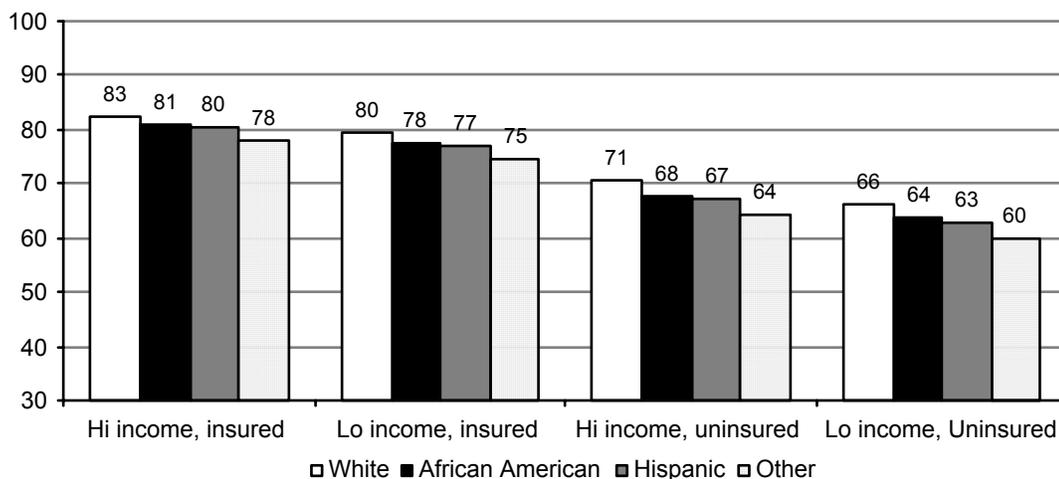
Likelihood of a physician visit among non-metro adolescent boys, by region and insurance status



### Family income

Family income had a small but significant independent effect on whether an adolescent would have seen a physician during the past year, controlling for insurance status. As shown in the chart below, income effects were smaller than those of insurance status. However, within the “insured” and “uninsured” groups, adolescents from low income families were slightly less likely to have seen a physician than were their more well-off peers.

Likelihood of a physician visit among non-metro adolescent boys, \*  
by income, insurance status and race



\* Model assumes a boy living in the South, who has no physical impairments, lives in an “average” family (4.4 persons), has a mother who completed high school.

## Chapter Five

### Conclusions and Policy Implications

#### Conclusions

##### *Rural children and factors affecting their health care use*

An estimated 14.9 million children live in non-metro areas of the US. Most of these children (11.8 million) are white, followed by 1.5 million African American children, 1.0 million Hispanic children, and 433,000 children of other races.

Non-metro minority children disproportionately live in households characterized by low maternal education and poverty. Maternal education is lowest in the Hispanic community, where approximately half of all children (47% of young children and 52% of adolescents) have mothers who have not completed high school. Poverty among non-metro minority children is startling: seven of every 10 non-metro African American young children, six of every ten Hispanic young children, and between three and four of every 10 children of “other” nonwhite races live in poverty. Non-metro minority adolescents fare only slightly better: 58% of African American adolescents, 51% of Hispanic adolescents, and 40% of adolescents of “other” race live in poverty.

##### *Health insurance among non-metro children*

Low education and poverty translate into lack of health insurance. An estimated 2.33 million children--1.6 million white children, 288,000 African American children, 316,000 Hispanic children, and 153,000 children of other race--did not have health insurance across non-metro America. The proportion of children without health insurance was nearly a third higher in non-metro areas (15.7%) than in metropolitan areas (12.0%;  $p < .0001$ ). Proportionately, non-metro minority children were at greater risk for being uninsured than white children. About a third of non-metro children of “other” race (35.4%) or Hispanic background (30.3%) lacked health insurance, followed by 19.0% of African American children, and 13.0% of white children.

Factors affecting whether a young child (ages 0-8) would have health insurance included rural residence, minority status, maternal education, family income, and region of the country in which the child lived. Non-metro young children, all this considered, were less likely to be insured than urban children. Falling into a very low resource category (mother has less than a high school education, family income is less than \$20,000) *increased* the likelihood that a young child would be insured, probably by qualifying the child for publicly funded programs.

Adolescents (ages 9 – 17) were less likely to be insured than were young children. Factors affecting whether an adolescent would be insured paralleled those for young children: rural residence, minority status, maternal education, family income, and region of the country. While low resource status (low maternal education, low income) was favorable for young children, it did not have this paradoxical effect among adolescents. Decreased resources were associated with decreased likelihood of being insured.

### *Health services use among non-metro children*

Health services use was measured by whether or not the child had seen a health care provider (hereafter, a physician) during the previous year. Nearly all children saw a physician or other health care provider during the year. However, non-metro children were more likely to have made no health care visits (14.6%) than were urban children (12.3%).

- Among non-metro young children, 16.5% of African American children, 11.3% of Hispanic children, 8.1% of children of “other” race and 7.4% of white children had not seen a physician in the preceding year.
- Among non-metro adolescents, 27.2% of Hispanic youths, 25.9% of African American youths, 20.9% of youths of other race, and 18.3% of white youths had not seen a physician in the preceding year.

Among both young children and adolescents, lack of health insurance coverage strongly reduced the likelihood that the child had seen a physician.

Among young children, factors significantly affecting health care use, over and above insurance, included race, maternal education, and region of the country in which the child lived. Rural children, all other things held equal, were not less likely to have seen a physician than their peers. This suggests that a principal source of unadjusted urban-rural differences for this age group lies in differing levels of insurance coverage and maternal education.

Regional differences in the probability that a child saw a physician during the past year were consistent across both young and adolescent groups: in both age categories, the probability of a physician visit was significantly higher in the Northeast than in other regions. This difference was present even when accounting for health insurance coverage, which was higher among children living in the Northeast. Possible explanations for this phenomenon include higher physician / population ratios in the rural Northeast than elsewhere in the country, differing practice styles among physicians, more assertive care seeking behavior among parents, and for some diagnoses, greater illness severity.

Among adolescents, the factor most significantly affecting health services use was physical impairment, which strongly increased use. Other factors significantly affecting health care use, over and above insurance, included rural residence (rural residence slightly reduced the effects of lack of insurance), gender (adolescent boys living in non-metro regions were less likely to have seen a physician), maternal education, and family income. After holding those factors equal, race did not significantly affect whether the adolescent had a physician visit during the preceding year. The absence of an effect of non-metro residence that was consistent across all groups of adolescents suggests, as was the case among younger children, that unadjusted differences in utilization between metropolitan and non-metro areas stem from differences in insurance coverage, which are in turn affected by maternal education and family income.

### **Policy recommendations**

To ensure that non-metro children obtain appropriate levels of health care, a multi-faceted approach is necessary. Targets for this approach include: ensuring access to care for children who are currently uninsured; continuing to provide coverage for low income children through SCHIP; working to expand private insurance coverage of children; and finally, working to improve the economic status of children by improving the educational status of their parents.

In the short term, access to care needs to be improved for children who currently lack health insurance. To this end, programs that provide care to indigent or low income families in non-metro areas, such as federally qualified community health centers, must be retained and, where necessary, expanded.

The importance of health insurance to actual use of health services illustrates the necessity of ensuring that as many non-metro children as possible have health coverage. Since its inception, the Supplemental Children’s Health Insurance Plan (SCHIP) has been a major vehicle used by the states to expand health insurance coverage among needy children.<sup>6</sup> By mid-year 2001, the number of children under 18 in the United States who lacked health insurance dropped from 13.9% in 1997 to 11.2% (Sweeney and Neff, 2002). Further, there was an increase in the proportions of children with public coverage, from 20% in 1998 to 23.1% in 2001 (Sweeney and Neff, 2002).

SCHIP is a ten year program with funds allotted through Fiscal year 2007. A total of \$40 billion has been allotted across this time period (See table below ).

**Allotments to SCHIP program by Fiscal Year**

<b>Fiscal year</b>	<b>Funding allotted (In \$Billions)</b>
1998	\$4,295
1999	\$4,275
2000	\$4,275
2001	\$4,275
2002	\$3,150
2003	\$3,150
2004	\$3,150
2005	\$4,050
2006	\$4,050
2007	\$5,000

Crucial issues with SCHIP include the dip in funding that begins in 2002 and the issue of program continuation after FY 2007. The key problem in the funding dip is its unfortunate concurrence with a national economic recession, which has left many states facing a budget shortfall. The state budget shortfalls may result in either a loss of ability to bring in Federal match dollars or, in worst-case scenarios, an inability to sustain the SCHIP program in their state. An analysis conducted by The Center on Budget and Policy Priorities projects that growing SCHIP expenditures will force states to increase state funding or to cut programs (Park and Broaddus, 2001). The authors also caution that many states, particularly those who began funding SCHIP earlier, may have to take action before 2005. Further, the dip in funding was not based on policy, but rather on the desire to show a balanced budget starting in 2002 under the fiscal and economic assumptions in use when SCHIP was designed (Park and Broaddus, 2001). Finally, the long term fate of SCHIP has not yet been determined. The program is currently set to expire in 2007; it is impossible to project what the national budgetary situation will be at that time.

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<sup>6</sup> It is important to note that the current study uses data from 1997 – 1998, a period when SCHIP was not fully implemented

Current and proposed waivers could further dilute SCHIP funds directed towards children's healthcare. As of 2000, states can seek waivers to use unspent SCHIP funds to insure people other than children, such as parents of eligible children. State expansions for parents have not been as widespread, seen primarily in the Northeast, West, and Upper Midwest (Blaney et al., 2001). As of 2001, states can apply to divert unspent funds to cover unemployed workers. If states were to take advantage of waivers, which seems unlikely in the current budget situation, it would further take funds away from children.

Dependence on governmental funding is a potential drawback of SCHIP. Parents may not understand eligibility criteria or may not choose to associate with programs that were once restricted to welfare populations.<sup>7</sup> Further, as noted, SCHIP has a built-in sunset date. Enhancing the ability of low-income families to obtain insurance through employment is an additional option for increasing coverage among non-metro children. A single national mechanism for accomplishing this may not be feasible, given differences across rural counties in economic structure. Block grants that allow states to promote health insurance among small employers through locally appropriate means should be evaluated. State choices might include tax subsidies, formation of employer buyer's groups for dealing with insurers, development of a state-wide insurance product to be purchased by employees directly, or expansion of Medicaid through waiver programs.

Childhood poverty and low maternal education are closely linked. While the health care system has neither the mandate nor the means to provide education, it cannot escape the consequences of lack of education. Funding currently provided under Title VII to promote health careers among students can perhaps be used as a vehicle to foster completion of a high school education. For example, the "Kids into Health Careers" program and the Quentin N. Burdick Program for Rural Interdisciplinary Training could include components that provide funding directly to the high school or primary school level. Linkages with health education settings (Area health Education Consortia, technical colleges) would be required. Such program should focus simultaneously on enhancing workforce availability and improving educational outcomes.

Finally, the rapidly changing nature of the insurance situation for non-metro children must be addressed through ongoing research. It will be particularly important to track declining insurance for non-metro children as funds available for SCHIP decline, as scheduled.

#### References for this chapter

Blaney, Shannon; Broaddus, Matthew; Dude, Annie; Guyer, Jocelyn; Ku, Leighton; and Jaia Peterson. 2001. "Expanding Family Coverage: States' Medicaid Eligibility Policies for Working Families in the Year 2000." Policy Paper for the Center on Budget and Policy Priorities.

Park, Edwin and Matthew Broaddus. 2001. "OMB Estimates Indicate 400,000 Children will Lose Health Insurance Due to Reductions in SCHIP Funding" Internet publication, [www.cbpp.org](http://www.cbpp.org)

Sweeney, Rosemarie and Matthew Neff. 2002. "Survey Shows Improved Health Insurance Coverage for American Children." *American Family Physician*, V65: 770-775.

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<sup>7</sup> The Personal Responsibility and Work Opportunity Reconciliation Act of 1996 removed the link between Medicaid and receipt of assistance, but Blaney et al suggest that this has not removed all barriers to participation in Medicaid and other governmental insurance programs.