Access to Care Among Rural Minorities: Children

Appendix

Methods and Data Sources, and Detailed Tables

Study Design

A cross-sectional analysis of data from the combined 1997 and 1998 National Health Interview Surveys (NHIS) was used to explore the interrelationship of non-metro residence and race on health care access, measured by health insurance, and health care utilization, measured as reported health care encounters. "Persons less than 18 years of age" was the definition of children. In analyzing health insurance and health services use, children were divided into two groups: ages 0 – 8 and 9 – 17 years.

Data Source

The NHIS is an annual survey conducted for the National Center for Health Statistics by the U.S. Bureau of the Census and is the principal source of information on the health of the civilian, non-institutionalized household population of the United States. It uses a complex sample design involving stratification, clustering, and multistage sampling. In both 1997 and 1998, the Hispanic and African American populations were over-sampled. NHIS files include weights for each person that reflect design, ratio, non-response, and post-stratification adjustments. The analysis on working age adults used data from the combined 1997 and 1998 Person-Level Files.

The 1997 NHIS consisted of 39,832 households with 103,447 people in 40,623 families; the 1998 NHIS had 38,209 households with 98,785 people in 38,773 families. The combined sample size for the Person-Level Files is 202,262. The total response rate for the NHIS in 1997 was 91.8%; in 1998 it was 90.0%.

The public use files for the National Health Interview Survey (NHIS) 1997 and 1998 are the basis for the analysis. The Sample Child data was constructed by randomly selecting a child in each family interviewed in the NHIS (in families with children). A knowledgeable adult (typically a parent or guardian) answered questions on the sample child's behalf. The Child Sample section of the NHIS comprises a Child Health Status section and a Child Health Care Access and Utilization Section.

The Child Health Status section has two components, one that covers health conditions the child might experience, limitations of activity, and health status, and one that covers child behavior. The former includes questions on specific conditions such as mental retardation, developmental delays, cerebral palsy, cystic fibrosis, sickle cell anemia, autism, diabetes, arthritis, congenital and other heart disease, asthma, allergies, anemia, ear infections, stuttering, and stammering. It also asks about hearing and vision loss; health problems that require special equipment such as a brace or a wheelchair; problems requiring prescription medicine for at least three months; and whether the sample child's health is better, worse, or the same compared to 12 months ago. The child behavior component questions were designed to serve as a global mental

health indicator. Questions came from the Child Behavior Checklist for Ages 2-3 and the Child Behavior Checklist for Ages 4-18, both of which are standardized instruments for reporting children's problems.

The Child Health Care Access and Utilization section has three parts, one covering access to care, one addressing dental care, and one health care provider contacts. Questions about access to health care concern having a regular place for sick care and routine or preventive care; changes in the place of care; reasons for any delay in medical care; and the affordability of medical care. The sole question about dental care asks the length of time since the child's last dental visit. Questions about health care provider contacts cover visits to or from medical doctors and other health care professionals and visits from home care providers. Unlike similar questions for adults in the NHIS Person Data files, which ask about such contacts in the last year, in the Sample Child survey the period asked about was the last 12 months. Thus, average number of visits per year are based on respondent's reports, rather than extrapolations based on year.

Analytic approach

Covariates used in the analysis for children are sex (male or female), race (non-Hispanic white; non-Hispanic African American; Hispanic; and other), impairment (presence of an impairment or health problem that limits the child's ability to crawl, walk, run, or play), region (Northeast, Midwest, South, and West), mother's education (high school graduate or non-high school graduate), rurality (rural or non-rural, where rural is defined as "non-MSA" and non-rural locations range in population from 5,000,000 or more to under 250,000), insurance (covered or not in the last 12 months), family size, and income (dichotomized into $20,000 and above or less than $20,000). Family size and income are used to approximate the effects of poverty. Although a poverty status variable (poor defined as up to 1.49 times the 1997 poverty threshold) was included with the data set, the variable was missing from 22% of the records. This high proportion of missing data was deemed to threaten the strength of model building, necessitating use of family size plus income as a surrogate measure.

The next logical step after thoroughly describing the data is investigation of any simultaneous associations between the covariates in the data and the outcomes of interest. For example, the association between a visit to a physician and income level may be changed or eliminated if health insurance coverage is also considered at the same time. This requires either stratified cross-tabulation tables or logistic regression. The sample sizes used in parameter estimation in a logistic regression model can be smaller than those necessary for a stratified cross-tabulation table analysis that produced adjusted odds ratios. Logistic regression is robust to small cell sizes, and the effects of any small cell sizes are reflected in the relative size of the standard errors of the parameter estimates. Because of the desirable properties of logistic regression, it is the method chosen for these analyses.

The outcomes of interest in this study are a *presence or absence of health insurance coverage* and *visit to a physician in the last 12 months*. Each is analyzed separately. Following Mueller *et al.* (1998) the outcome of a visit to a physician in the last 12 months was dichotomized to yes or no. Further, because the patterns of health care are known to be different for younger children and older children, each analysis was done on an age-specific group of the data (children 0-8 years old and children 9-17 years old). The analysis of each outcome was done with a logistic regression model using SAS-callable SUDAAN 8 with SAS 8.2.

A model-building methodology was used in all analyses. The goal was to produce a model for each outcome and each age group that contained covariates with statistically significant effects. Because this study focuses on effects of rurality and race, these variables were retained in the model even if they were a statistically insignificant or marginally significant. The hierarchy rule was followed, meaning that all components of a statistically significant interaction were left in the model regardless of their own statistical significance.

The algorithm used to build each separate model was to start with a model that included all covariates of interest, including two- and three-way interactions. Then, starting with the highest order interactions, statistically insignificant covariates were deleted one at a time ($\alpha = 0.01$), then main effects ($\alpha = 0.05$). The final model in each case has only statistically significant covariates with the exceptions described already.

Modeling process: Health Insurance

The model-building process for children 0-8 years old using health insurance coverage in the last 12 months as the outcome started with the following list variables and covariates:

Variables:

- Sex (male or female)
- Race/ethnicity (white, African American, Hispanic, other)
- Income (≥$20,000 versus <$20,000)
- Family size
- Rurality (urban or rural)
- Impairment (yes or no)
- Region (Northeast, Midwest, South, West)
- Mother's Education (high school graduate yes or no)

Two way interactions:

- Rurality and sex
- Rurality and race/ethnicity
- Rurality and income
- Rurality and impairment
- Rurality and region
- Rurality and mother's education
- Mother's education and income
- Race/ethnicity and mother's education
- Region and income
- Race/ethnicity and income

Three way interactions:

- Rurality, mother's education, and income
- Rurality, race/ethnicity, and income
- Rurality, race/ethnicity, and mother's education
- Rurality, region, and omcp,e

The final model used for health insurance among children aged 0 - 8 contained the following covariates:

- Race/ethnicity

- Rurality
- Region
- Mother's Education
- Family size
- Income
- Rurality and race/ethnicity
- Mother's education and income

The model-building process for children 9-17 years old using health insurance coverage in the last 12 months as the outcome started with the same list of covariates and interactions as for children 0-8 years old. Each was selected based on its possible or suspected association with the outcome. The final model was almost the same as the model for children 0-8 years old and contained the following covariates:

- Race/ethnicity
- Rurality
- Region
- Mother's Education
- Family income
- Family size
- Race/ethnicity and income
- Mother's education and income

The only difference in the final models in the two age groups for children is that the interaction of race/ethnicity and mother's education is in the model for the 0-8 year olds and, instead of this interaction, race/ethnicity and poverty is in the model for the 9-17 year olds. The logistic regression was set up to predict the probability of having health insurance coverage in the last 12 months, so a negative beta coefficient reflects a decreased probability of being insured.

Modeling process physician visits

Following Mueller *et al.* (1998) the outcome of a visit to a physician in the last 12 months was dichotomized to yes or no. Analysis was again done on age-specific groups of children (children 0-8 years old and children 9-17 years old). The analysis of each outcome was done with a logistic regression model using SAS-callable SUDAAN 8 with SAS 8.2. A model-building methodology was used in all analyses.

The model-building process for *children 0-8 years old,* using visits to a physician in the last 12 months as the outcome, started with the following list of covariates and interactions. Each was selected based on its possible or suspected association with the outcome.

Variables:

- Sex (male or female)
- Race/ethnicity (white, African American, Hispanic, other)
- Family income (≥$20,000 versus <$20,000)
- Family size
- Insurance (yes/no)
- Rurality (urban or rural)

- Impairment (yes or no)
- Region (Northeast, Midwest, South, West)
- Mother's Education (high school graduate yes or no)

Two-way interactions:

- Rurality and sex
- Rurality and race/ethnicity
- Rurality and income
- Rurality and insurance
- Rurality and impairment
- Rurality and region
- Rurality and mother's education
- Income and insurance
- Mother's education and income
- Mother's education and insurance

Three-way interactions:

- Rurality, income, and insurance
- Rurality, mother's education, and income
- Rurality, mother's education, and insurance

The final model for predicting whether or not a child aged 0 – 8 years would see a physician, after iteratively deleting non-statistically significant covariates from the model, contained the following covariates:

- Race/ethnicity
- Insurance
- Rurality
- Region
- Mother's Education

The logistic regression was set to predict the probability of a visit to a physician in the last 12 months. A negative beta coefficient reflects a decreased probability of a physician visit. Note that the child's sex was not included in the final model because sex did not have a significant effect on physician use among children this age. Reported impairment also did not affect utilization in this group of young children.

The model-building process for *children 9-17 years old* using visits to a physician in the last 12 months as the outcome was the same as for children 0-8 years old. The final model, after iteratively deleting non-statistically significant covariates from the model, contained the following covariates:

- Sex
- Race/ethnicity
- Family size
- Income
- Insurance
- Rurality
- Impairment

- Region
- Mother's Education
- Rurality and sex
- Rurality and insurance

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Table 1-1. Summary of recent studies addressing access to care among non-metro minority children

Study	Data Source	Geographic scope	Outcome of interest	Race effect?	Rural effect?
Smith et al 1996	Clinical records (screening project in a non-metro county)	CA	Unmet needs	Yes	Not tested (rural setting only)
Bussing et al 1998	Diagnostic and services assessment interviews	FL	ADHD service use	Yes	Yes
Lowery et al, 1998	National Maternal and Infant Health Survey, 1991; NHIS, 1993	US	Immunization rates	Yes	No
Ford et al, 1999	National Longitudinal Study of Adolescent Health, 1995	US	Physical exam, foregone care	Yes	Not reported
Newacheck et al 1999	National Health Interview Survey (NHIS) 1995	US	Health insurance status	Yes	No
Ziv et al 1999	NAMCS 1994	US	Visits, health insurance status	Yes	Not tested
Newacheck et al 2000	NHIS 1994 1995	US	Health insurance status	Yes in bivariate; not reported in multivariate	Yes in bivariate; not reported in multivariate
Guendelman et al 2001	NHIS 1997	US	Health insurance; delay of care	Not reported	Not reported

Table 2-1. Summary characteristics of children (under 18 years old) by race/ethnicity and metropolitan and non-metro residence, 1997 & 1998 NHIS Sample Child data

	Total	White	African American	Hispanic	Other
Metropolitan					
Total sample *(Weighted population estimates)*	22,672 *56,680,661*	11,256 *34,749,517*	3,815 *9,237,919*	6,616 *9,811,625*	990 *2,881,601*
Age (mean in years)	8.4	8.5	8.5	7.8	8.3
Mother's Education (mean in years)	13.2	13.8	12.7	11.3	13.6
Percent: Mother's Education less than High School	17.3	8.4	20.7	46.0	18.1
Family Size (mean number of persons)	4.4	4.3	4.4	4.9	4.7
Number of Physician Visits	3.7	4.1	3.2	3.2	3.3
Number of Conditions (mean per respondent)	2.0	2.1	2.1	1.8	1.7
Percent Uninsured	11.9	8.0	11.8	26.6	13.6
Non-metro					
Total sample *(Weighted population estimates)*	5,258 *14,853,862*	3,786 *11,840,988*	583 *1,536,700*	750 *1,043,228*	139 *432,946*
Age (mean in years)	9.0	9.1	8.7	8.3	8.2
Education (mean in years)	12.8	13.0	12.1	11.1	12.8
Percent: Mother's Education less than High School	16.5	12.2	26.7	49.6	20.6
Family Size (mean number of persons)	4.4	4.3	4.6	5.1	4.5
Number of Physician Visits	3.6	3.7	3.2	3.0	3.5
Number of Conditions (mean per respondent)	2.2	2.2	2.2	1.9	2.1
Percent Uninsured	15.7	13.3	19.0	30.3	35.4

Unweighted and weighted sample sizes calculated using the 1997 & 1998 NHIS Sample Child Data in SAS-Callable SUDAAN 7.5.6
Means and percentages calculated using the 1997 & 1998 NHIS Sample Child Data in SAS 8.1.

Table 2-2. summary characteristics for children (under 18 years old) by race/ethnicity and impaired/not impaired status in metropolitan and non-metro locations, 1997 & 1998 NHIS data*

		Impaired				**Not Impaired**		
Metropolitan	**White**	**African American**	**Hispanic**	**Other**	**White**	**African American**	**Hispanic**	**Other**
Characteristic	239 742,925	90 258,104	134 209,590	17 62,713	11,007 33,979,958	3,720 8,962,150	6,476 9,594,275	972 2,817,384
Age (mean in years)	10.2	9.0	8.7	10.6	8.4	8.5	7.8	8.3
Mother's Education (mean in years)	13.5	11.9	11.8	12.3	13.8	12.7	11.3	13.6
Percent: Mother's Education less than High School	8.6	37.1	38.8	24.3	8.4	20.2	46.2	18.0
Family Size (mean number of persons)	4.5	4.9	4.9	5.3	4.3	4.4	4.9	4.7
Number of Physician Visits	8.0	8.2	7.8	6.6	4.0	3.1	3.1	3.2
Number of Conditions (mean per respondent)	3.8	4.2	4.3	3.3	2.0	2.0	1.8	1.7
Percent Uninsured	7.23	8.56	17.76	5.33	8.04	11.95	25.84	13.85
Non-metro	**White**	**African American**	**Hispanic**	**Other**	**White**	**African American**	**Hispanic**	**Other**
Characteristic	114 330,311	13	30** 35,710	3	3,669 11,503,746	569 1,503,777.5	720 1,007,518	136 426,243
Age (mean in years)	11.9	**	10.2**	**	9.0	8.7	8.2	8.1
Mother's Education (mean in years)	12.7	**	11.6**	**	13.0	12.1	11.1	12.8
Percent: Mother's Education less than High School	12.2	**	50.5**	**	12.2	27.0	49.6	20.9
Family Size (mean number of persons)	4.1	**	4.6**	**	4.3	4.6	5.1	4.6
Number of Physician Visits	7.4	**	5.5**	**	3.6	3.1	2.9	3.6
Number of Conditions (mean per respondent)**	3.8	**	3.4**	**	2.1	2.2	1.9	2.1
Percent Uninsured	15.33	**	18.29**	**	13.17	19.21	30.76	35.18

*Unweighted and weighted sample sizes calculated using the 1997 & 1998 NHIS Sample Child Data in SAS-Callable SUDAAN 7.5.6 All means and percentages calculated using the 1997 & 1998 NHIS Sample Child Data in SAS 8.
**Unweighted sample size too small for estimation

Table 2-3. Weighted (italics) and unweighted sample sizes of children (under 18 years old) by condition status, by race/ethnicity and non-rural and rural residence

	Total	White	African American	Hispanic	Other
Metropolitan					
No conditions	2,861 *6,070,834*	1,328 *3,518,849*	403 *871,348*	982 *1,287,774*	148 *392,884*
At least one condition	19,816 *50,609,828*	9,928 *3,123,069*	3,412 *8,366,571*	5,634 *8,523,871*	842 *2,488,718*
Non-metro					
No conditions	544 *1,259,967*	369 *971,793*	60 *112,968*	95 *125,551*	20 *49,655*
At least one condition	4,714 *13,593,895*	3,417 *10,869,195*	523 *1,423,732*	655 *917,677*	119 *383,291*

Unweighted and weighted sample sizes calculated using the 1997 & 1998 NHIS Sample Child Data in SAS-Callable SUDAAN 7.5.6

Table 2-4. Percentages of children whose mothers have less than a high school education, by race, residence and age of child

	Total	Metropolitan	Non-metro
Young Children (0 – 8)			
Total, all races	18.0	18.2	17.1
White	9.8	8.9	12.8
African American	23.5	23.6	23.5
Hispanic	44.3	44.0	47.1
Other	19.5	18.2	27.9
Adolescents (9-17)			
Total, all races	16.3	16.4	15.9
White	8.9	7.9	11.7
African American	19.5	17.7	29.9
Hispanic	49.0	48.6	52.4
Other	17.4	18.0	13.4

*Estimates based on 14,293 unweighted observations for young children and 13,642 unweighted observations for adolescent children.

Table 2-5. Percentages of children living in poverty, by race, residence and age of child

	Total	Metropolitan	Non-metro
Young Children (0 – 8)			
Total, all races	28.8	27.4	34.4
White	17.4	14.7	26.3
African American	56.1	53.0	72.2
Hispanic	51.8	50.9	35.2
Other	28.7	27.8	35.1
Adolescents (9-17)			
Total, all races	22.5	21.6	25.5
White	12.5	10.1	19.1
African American	45.8	43.5	57.8
Hispanic	48.3	47.9	51.2
Other	28.1	26.0	39.5

* Estimate based on 11,164 observations for younger children and 10,584 observations for adolescents. This represents a decrease of 22% from the original sample. Differences due to missing data, principally poverty status.

Table 2-6. Percentages of non-metro children with access to routine health care and preventive care, by race

Race/Ethnicity	Single Place	More Than One Place	No, or Care at ER
White	96.7%	2.97%	0.35%
African American	93.8%	4.52%	1.73%
Hispanic	96.1%	3.64%	0.25%
Other	97.5%	1.89%	0.64%

Table 2-7. Percentages of non-metro children with delayed health care, by race

Race/Ethnicity	Delay of Care?	
	Yes	**No**
White	6.5%	93.6%
African American	10.8%	89.2%
Hispanic	10.1%	89.9%
Other	13.7%	86.3%

Tables for Chapter Three

Table 3-1. Children who lack health insurance, by age, race and residence

Percent without coverage:	Total	Metropolitan	Non-metro
Young Children (0 – 8)			
Total, all races	12.3	11.5	15.0
White	9.3	8.2	12.7
African American	10.6	9.8	15.0
Hispanic	23.7	23.3	27.4
Other	15.4	11.6	41.4
Older Children (9-17)			
Total, all races	13.4	12.5	16.3
White	9.4	7.8	13.4
African American	15.2	13.9	22.9
Hispanic	29.1	28.6	33.6
Other	17.1	15.9	29.5

Table 3-2. Logistic Regression predicting health insurance among children aged 0-8 Years

Covariates	Beta Coefficient	SE Beta	P-value
Intercept	3.44	0.15	0.0000
Race/ethnicity			
Hispanic	-0.70	0.09	0.0000
White	0.00	0.00	.
African American	0.19	0.12	0.1220
Other	-0.15	0.20	0.4575
Family Income			
$20,000 or more	0.00	0.00	.
Less than $20,000	-0.87	0.09	0.0000
Family Size			
Each additional family member	-0.04	0.02	0.1205
Metro vs. Non-Metro			
Metro	0.00	0.00	.
Non-Metro	-0.41	0.10	0.0001
Region			
Northeast	0.00	0.00	.
Midwest	-0.22	0.15	0.1469
South	-0.83	0.13	0.0000
West	-0.65	0.13	0.0000
Mother's Education			
High School +	0.00	0.00	.
Less than High School	-1.27	0.11	0.0000
Metro, Race/ethnicity			
Metro – Hispanic	0.00	0.00	.
Metro – White	0.00	0.00	.
Metro – African American	0.00	0.00	.
Metro – Other	0.00	0.00	.
Non-Metro – Hispanic	0.37	0.22	0.1045
Non-Metro – White	0.00	0.00	.
Non-Metro – African American	0.37	0.30	0.2164
Non-Metro – Other	-1.32	0.45	0.0036
Education, Family Income			
High School +, $20k or more	0.00	0.00	.
High School +, < $20k	0.00	0.00	.
<HS, $20k or more	0.00	0.00	.
<HS, <$20k	1.08	0.16	0.0000

Table 3-3. Probability that a non-metro child age 0 – 8 would have health insurance, by race, area of residence, family income and maternal education

Note: Probabilities were calculated using the beta coefficients from Table 3-2. Family size was set to 4.4, the mean for the study population. All other factors vary as indicated in the tables below.

	Over $20,000		Under $20,000	
	Mom HS Grad	Mom not HS Grad	Mom HS Grad	Mom not HS Grad
Northeast				
Metropolitan				
White	96.3	88.0	91.6	90.1
African American	96.9	89.9	93.0	91.6
Hispanic	92.9	78.5	84.5	81.8
Other	95.7	86.3	90.4	88.9
Non-metro				
White	94.6	83.0	87.9	85.7
African American	96.8	89.5	92.7	91.3
Hispanic	92.6	77.8	83.9	81.2
Other	80.0	52.8	62.6	58.0
Mid West				
Metropolitan				
White	95.5	85.5	89.8	87.9
African American	96.2	87.7	91.4	89.8
Hispanic	91.2	75.5	81.4	78.3
Other	94.8	83.5	88.3	86.2
Non-metro				
White	93.3	79.6	85.4	82.8
African American	96.1	87.2	91.1	89.4
Hispanic	90.9	73.8	80.7	77.6
Other	76.2	47.4	57.3	52.6
South				
Metropolitan				
White	91.9	76.2	82.7	79.8
African American	93.2	79.5	85.2	82.7
Hispanic	85.0	61.4	70.3	66.2
Other	90.8	73.4	80.4	77.3
Non-metro				
White	88.3	68.0	76.0	72.4
African American	93.0	78.8	84.7	82.1
Hispanic	84.5	60.4	69.5	65.3
Other	63.5	32.8	42.2	37.6
West				
Metropolitan				
White	93.2	79.3	85.1	82.5
African American	94.3	82.3	87.4	85.1
Hispanic	87.1	65.6	74.0	70.1
Other	92.2	76.7	83.1	80.3
Non-metro				
White	90.1	71.8	79.2	75.8
African American	94.1	81.7	86.9	84.6
Hispanic	86.7	64.7	73.2	69.3
Other	67.6	36.9	46.6	41.9

Table 3-4. Logistic Regression for health insurance among children aged 9-17 Years

Covariates	Beta Coefficient	SE Beta	P-value
Intercept	3.39	0.13	0.0000
Race/ethnicity			
Hispanic	-1.08	0.10	0.0000
White	0.00	0.00	.
African American	-0.40	0.13	0.0043
Other	-0.98	0.22	0.0000
Family Income			
$20,000 or more	0.00	0.00	.
Less than $20,000	-1.42	0.12	0.0000
Family Size			
For each additional family member	-0.03	0.02	0.1129
Metro vs. Non-Metro			
Metro	0.00	0.00	.
Non-Metro	-0.41	0.10	0.0000
Region			
Northeast	0.00	0.00	.
Midwest	-0.17	0.12	0.1811
South	-0.73	0.11	0.0000
West	-0.31	0.12	0.0114
Mother's Education			
High School +	0.00	0.00	0.0000
Less than High School	-1.21	0.10	0.0000
Education, Family Income			
High School +, $20k or more	0.00	0.00	.
High School +, < $20k	0.00	0.00	.
<HS, $20k or more	0.00	0.00	.
<HS, <$20k	0.89	0.15	0.0000
Race/ethnicity, Family Income			
Hispanic, $20k or more	0.00	0.00	.
Hispanic, < $20k	0.55	0.16	0.0010
White, $20k or more	0.00	0.00	.
White, <$20k	0.00	0.00	.
African American, $20k or more	0.00	0.00	.
African American, <$20k	0.68	0.21	0.0016
Other, $20k or more	0.00	0.00	.
Other, <$20k	0.91	0.37	0.0165

Table 3-5. Probability that an adolescent (ages 9 – 17) would have health insurance, by race and residence, varying family income and maternal education Note: Probabilities are calculated using the beta coefficients for main effects and interactions from Table 3-4. Family size is set to 4.4, the mean for the study population. All other factors vary as indicated in the tables below.

	Over $20,000		Under $20,000	
	Mom HS Grad	Mom not HS Grad	Mom HS Grad	Mom not HS Grad
Northeast				
Metropolitan				
White	96.3	88.6	86.3	82.0
African American	94.6	83.9	89.3	85.8
Hispanic	89.8	72.5	78.7	72.9
Other	90.7	74.4	85.4	81.0
Non-metro				
White	94.5	83.7	80.7	75.2
African American	92.0	77.5	84.7	80.0
Hispanic	85.4	63.9	71.7	64.1
Other	86.6	65.9	79.5	73.8
Mid West				
Metropolitan				
White	95.6	86.7	84.1	79.4
African American	93.6	81.4	87.5	83.6
Hispanic	88.2	69.0	75.7	69.4
Other	89.2	71.1	83.2	78.2
Non-metro				
White	93.6	81.3	77.9	71.9
African American	90.7	74.4	82.3	77.2
Hispanic	83.2	59.6	67.4	60.1
Other	84.5	62.0	76.6	70.4
South				
Metropolitan				
White	92.6	789	75.2	68.7
African American	89.4	71.5	80.0	74.4
Hispanic	81.0	55.9	64.1	56.4
Other	82.5	58.4	73.8	67.2
Non-metro				
White	89.3	71.3	66.8	59.3
African American	84.8	62.4	72.7	65.9
Hispanic	73.8	45.7	54.2	46.2
Other	75.7	48.2	65.2	57.6
West				
Metropolitan				
White	95.0	85.0	82.2	77.0
African American	92.7	79.2	85.9	81.6
Hispanic	86.6	65.9	73.1	66.3
Other	87.7	68.1	81.1	75.7
Non-metro				
White	92.7	79.1	75.4	69.0
African American	89.5	71.7	80.2	74.6
Hispanic	81.1	56.2	64.3	56.7
Other	82.6	58.6	74.0	67.4

Table 4-1. Logistic regression predicting physician visit in the previous year among children aged 0-8 Years

Covariates	Beta Coefficient	SE Beta	P-value
Intercept	3.49	0.12	0.0000
Race/ethnicity			
Hispanic	-0.35	0.11	0.0015
White	0	0	.
African American	-0.38	0.12	0.0027
Other	-0.19	0.20	0.3441
Insurance			
Not Covered	-1.10	0.09	0.0000
Covered	0	0	.
Metro vs. Non-Metro			
Metro	0	0	.
Non-Metro	-0.07	0.11	0.5233
Region			
Northeast	0	0	.
Midwest	-0.67	0.15	0.0000
South	-0.48	0.14	0.0007
West	-0.72	0.14	0.0000
Mother's Education			
High School +	0	0	.
Less than High School	-0.51	0.10	0.0000

Table 4-2. Percentage of children age 0 – 8 with a health care visit during the past year, by region, residence, race / ethnicity, and resources available to the child

Residence and race of child:	Mom a HS Grad		Mom not a HS Grad	
North	Insured	Not insured	Insured	Not insured
Metropolitan				
White	97.0	91.6	95.2	86.8
African American	95.7	88.2	93.1	81.8
Hispanic	95.9	88.5	93.3	82.2
Other	96.4	90.0	94.2	84.4
Non-metro				
White	96.8	91.1	94.8	85.9
African American	95.4	87.4	92.6	80.7
Hispanic	95.6	87.8	92.8	81.2
Other	96.2	89.4	93.8	83.5
Midwest				
Metropolitan				
White	94.3	84.8	91.0	92.4
African American	92.0	79.2	87.3	89.3
Hispanic	92.2	79.7	87.7	89.6
Other	93.1	82.2	89.3	91.0
Non-metro				
White	94.0	83.9	90.4	75.8
African American	91.5	78.1	86.5	68.1
Hispanic	91.7	78.6	86.9	68.8
Other	92.8	81.2	88.6	72.1
South				
Metropolitan				
White	95.3	87.1	92.4	80.2
African American	93.3	82.2	89.3	73.5
Hispanic	93.5	82.6	89.6	74.1
Other	94.4	84.8	91.0	77.0
Non-metro				
White	95.0	86.3	91.9	79.1
African American	82.8	81.2	88.6	72.1
Hispanic	93.0	81.6	88.9	72.7
Other	94.0	83.9	90.4	75.8
West				
Metropolitan				
White	94.1	84.2	90.6	76.1
African American	91.6	78.4	86.8	68.6
Hispanic	91.8	78.9	87.1	69.2
Other	93.0	81.5	88.8	72.5
Non-metro				
White	93.7	83.2	89.9	7.8
African American	91.0	77.2	85.9	67.0
Hispanic	91.3	77.7	86.3	67.7
Other	92.5	80.4	88.1	71.1

Table 4-3. Logistic Regression for Adolescents age 9-17 years for physician visit in the previous year

Covariates	Beta Coefficient	SE Beta	P-value
Intercept	3.10	0.13	0.0000
Sex			
Male	0.08	0.06	0.1627
Female	0.00	0.00	.
Race/ethnicity			
Hispanic	-0.15	0.08	0.0600
White	0.00	0.00	.
African American	-0.12	0.09	0.1771
Other	-0.28	0.15	0.0626
Family Income			
$20,000 or more	0.00	0.00	.
Less than $20,000	-0.19	0.08	0.0211
Family Size			
Each additional family member	-0.12	0.02	0.0000
Insurance			
Not Covered	-1.15	0.08	0.0000
Covered	0.00	0.00	.
Metro vs. Non-Metro			
Metro	0.00	0.00	.
Non-Metro	0.01	0.12	0.9498
Impairment/Health Problem limits crawl/walk/run/play			
Yes	1.69	0.26	0.0000
No	0.00	0.00	.
Region			
Northeast	0.00	0.00	.
Midwest	-0.59	0.10	0.0000
South	-0.63	0.09	0.0000
West	-0.77	0.10	0.0000
Mother's Education			
High School +	0.00	0.00	.
Less than High School	-0.47	0.08	0.0000
Metro vs. Non-Metro, Sex			
Metro, Male	0.00	0.00	.
Metro, Female	0.00	0.00	.
Non-Metro, Male	-0.48	0.16	0.0028
Non-Metro, Female	0.00	0.00	.
Metro vs. Non-Metro, Insurance			
Metro, Not Covered	0.00	0.00	.
Metro, Covered	0.00	0.00	.
Non-Metro, Not Covered	0.47	0.17	0.0065
Non-Metro, Covered	0.00	0.00	.

Table 4.4 Probability of a physician visit in the past year among adolescents 9 – 17 years of age. Model is specific to a boy who is not impaired and whose family income is $20,000 or higher.

	Insured		Not Insured	
	Mom HS Grad	Mom not HS Grad	Mom HS Grad	Mom not HS Grad
Northeast				
Metropolitan				
White	93.4	89.9	81.8	73.7
African American	92.6	88.7	79.9	71.3
Hispanic	92.4	88.4	79.4	70.7
Other	91.5	87.0	77.2	68.0
Non-metro				
White	89.8	84.7	81.8	73.7
African American	88.7	83.1	79.9	71.3
Hispanic	88.4	82.6	79.4	70.7
Other	87.0	80.7	77.2	67.9
Mid West				
Metropolitan				
White	88.7	83.1	71.3	60.9
African American	87.5	81.3	68.8	58.0
Hispanic	87.1	80.9	68.2	57.2
Other	85.6	78.7	65.3	54.0
Non-metro				
White	83.1	75.4	71.3	60.8
African American	81.3	73.1	68.8	57.9
Hispanic	80.8	72.5	68.1	57.2
Other	78.7	69.8	65.2	54.0
South				
Metropolitan				
White	88.3	82.5	70.5	59.9
African American	87.0	80.7	68.0	57.0
Hispanic	86.7	80.3	67.3	56.3
Other	85.1	78.1	64.4	53.0
Non-metro				
White	82.5	74.6	70.5	59.9
African American	80.7	72.3	67.9	56.9
Hispanic	80.2	71.7	67.3	56.2
Other	78.1	69.0	64.3	53.0
West				
Metropolitan				
White	86.8	80.4	67.5	56.5
African American	85.3	78.4	64.8	53.5
Hispanic	5.0	77.9	64.2	52.8
Other	83.2	75.6	61.1	49.6
Non-metro				
White	80.4	71.9	67.5	56.5
African American	78.4	69.4	64.8	53.5
Hispanic	77.9	68.8	64.1	52.7
Other	75.6	65.9	61.1	49.5

Table 4.5. Probabilities of a physician visit in the past year for a very low resource adolescent (mother's education less than high school, no insurance, income less than $20,000), by gender, region, residence and race.

	Female adolescent	Male adolescent
Northeast		
Metropolitan		
White	68.2	69.9
African American	65.5	67.3
Hispanic	64.8	66.6
Other	61.8	63.7
Non-metro		
White	77.6	69.8
African American	75.4	67.3
Hispanic	74.9	66.6
Other	72.3	63.6
Midwest		
Metropolitan		
White	54.3	56.3
African American	51.3	53.3
Hispanic	50.5	52.5
Other	47.3	49.3
Non-metro		
White	65.7	56.2
African American	62.9	53.2
Hispanic	62.2	52.5
Other	59.1	49.2
South		
Metropolitan		
White	53.3	55.3
African American	50.3	52.3
Hispanic	49.6	51.5
Other	46.3	48.3
Non-metro		
White	64.8	55.2
African American	62.0	52.3
Hispanic	61.3	51.5
Other	58.2	48.2
West		
Metropolitan		
White	49.8	51.8
African American	46.8	48.8
Hispanic	46.1	48.1
Other	42.8	44.8
Non-metro		
White	61.5	51.7
African American	58.7	48.7
Hispanic	57.9	48.0
Other	54.7	44.8

Technical Data

The following sequence of tables (T-1through T-4) shows the number of unweighted observations in each cell for principal variables of interest. This information is provided to demonstrate the sample sizes on which observations are based. **No calculations should be performed on these data**, as the numbers can only be expanded to a valid national projection by applying appropriate weighting factors.

Table T-1. Unweighted observations used for studying health insurance among young children (0 – 8)

	Total	Insured	No Insurance
Race/ethnicity	14,293		
Hispanic	4,103	3,100	1,003
White	7,278	6,598	680
Black	2,232	1,987	245
Other	572	486	86
Family Income			
$20,000 or more	9,561	8,567	994
Less than $20,000	4,020	3,127	893
Metro vs. Non-Metro			
Metro	11,754	10,129	1,625
Non-Metro	2,431	2,042	389
Region			
Northeast	2,578	2,361	217
Midwest	2,941	2,672	269
South	4,971	4,134	837
West	3,695	3,004	691
Mother's Education			
High School +	10,531	9,477	1,054
Less than High School	2,833	2,049	784
Metro			
Hispanic	3,719	2,817	902
White	5,595	5,131	464
Black	1,942	1,741	201
Other	498	440	58
Non-Metro			
Hispanic	384	283	101
White	1,683	1,467	216
Black	330	286	44
Other	74	46	28
Education, Family Income			
High School +, $20k or more	8,050	7,421	629
High School +, < $20k	2,130	1,749	381
<HS, $20k or more	1,072	784	288
<HS, <$20k	1,591	1,153	438

Table T-2. Unweighted observations used in studying health insurance among adolescents (9 – 17)

	Total	Insured	No Insurance
Race/ethnicity	13,642		
Hispanic	3,208	2,237	971
White	7,673	6,929	744
Black	2,125	1,799	326
Other	545	451	94
Family Income			
$20,000 or more	10,043	8,913	1,130
Less than $20,000	2,902	2,039	863
Metro vs. Non-Metro			
Metro	10,758	9,113	1,645
Non-Metro	2,793	2,303	490
Region			
Northeast	2,495	2,231	264
Midwest	2,976	2,694	282
South	4,888	3,904	984
West	3,191	2,587	604
Mother's Education			
High School +	9,903	8,873	1,030
Less than High School	2,445	1,607	838
Education, Family Income			
High School +, $20k or more	8,146	7,489	657
High School +, < $20k	1,407	1,084	323
<HS, $20k or more	1,174	820	354
<HS, <$20k	1,141	713	428
Race/ethnicity, Family Income			
Hispanic, $20k or more	1,880	1,426	454
Hispanic, < $20k	1,148	701	447
White, $20k or more	6,500	6,030	470
White, < $20k	914	683	231
Black, $20k or more	1,245	1,102	143
Black, < $20k	738	580	158
Other, $20k or more	418	355	63
Other, < $20k	102	75	27

Table T-3. Unweighted observations used in studying physician visits among young children (0-8)

	Total	Visit	No Visit
Race/ethnicity	14,293		
Hispanic	4,094	3,593	501
White	7,275	6,857	418
Black	2,215	2,024	191
Other	572	522	50
Insurance			
Yes	12,064	11,309	755
No	1,993	1,607	386
Metro vs. Non-Metro			
Metro	11,728	10,771	957
Non-Metro	2,428	2,225	203
Region			
Northeast	2,576	2,460	116
Midwest	2,929	2,718	211
South	4,961	4,540	421
West	3,690	3,278	412
Mother's Education			
High School +	10,529	9,878	651
Less than High School	2,824	2,420	404

Table T-4. Unweighted observations used to study physician visits among adolescents (9-17)

	Total	Visit	No Visit
Sex	13,642		
Male	6,956	5,643	1,313
Female	6,548	5,389	1,159
Race/ethnicity			
Hispanic	3,195	2,321	874
White	7,655	6,570	1,085
Black	2,110	1,726	384
Other	544	415	129
Metro vs. Non-Metro			
Metro	10,708	8,771	1,937
Non-Metro	2,796	2,261	535
Region			
Northeast	2,477	2,229	248
Midwest	2,964	2,504	460
South	4,886	3,885	1,001
West	3,177	2,414	763
Mother's Education			
High School +	9,893	8,447	1,446
Less than High School	2,438	1,683	755
Family Income			
$20,000 or more	10,047	8,433	1,614
Less than $20,000	2,887	2,166	721
Insurance			
Yes	11,310	9,673	1,637
No	2,110	1,299	811
Impaired			
Yes	403	374	29
No	13,098	10,656	2,442
Metro vs. Non-Metro, Sex			
Metro-Male	5,455	4,470	985
Metro-Female	5,253	4,301	952
Non-Metro -Male	1,501	1,173	328
Non-Metro-Female	1,295	1,088	207
Metro vs. Non-Metro, Insurance			
Metro-Not Covered	1,624	966	658
Metro-Covered	9,021	7,760	1,261
Non-Metro – Not Covered	486	333	153
Non-Metro- Covered	2,289	1,913	376