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Differential Impact of Recent Medicaid Expansions by Race and Ethnicity

Andrew D. Racine, MD, PhD*‖; Robert Kaestner, PhD‡‖; Theodore J. Joyce, PhD‡‖; and Gregory J. Colman, BA§‖

ABSTRACT. *Objective.* Between 1989 and 1995, expansions in Medicaid eligibility provided publicly financed health insurance to an additional 7 million poor and near-poor children. It is not known whether these expansions affected children's insurance coverage, use of health care services, or health status differently, depending on their race/ethnicity. The objective of this study was to examine, by race/ethnicity, the impact of the recent Medicaid expansions on levels of uninsured individuals, health care service utilization, and health status of the targeted groups of children.

Methods. Using a stratified set of longitudinal data from the National Health Interview Surveys of 1989 and 1995, we compared changes in measures of health insurance coverage, health services utilization, and health status for poor white, black, and Hispanic 1- to 12-year-old children. To control for underlying trends over time, we subtracted 1989 to 1995 changes in these outcomes among nonpoor children from changes among the poor children for each race/ethnicity group. Measures of coverage included uninsured rates and Medicaid rates. Utilization measures included annual probability of visiting a doctor, annual number of doctor visits, and annual probability of hospitalization. Health status measures included self-reported health status and number of restricted-activity days in the 2 weeks before the interview. Differences in means were analyzed with the use of Student's *t* tests accounting for the clustering sample design of the National Health Interview Surveys.

Results. Among poor children between 1989 and 1995, uninsured rates declined by 4 percentage points for whites, 11 percentage points for blacks, and 19 percentage points for Hispanics. Medicaid rates for these groups increased by 16 percentage points, 22 percentage points, and 23 percentage points, respectively. With respect to utilization, the annual probability of seeing a physician increased 7 percentage points among poor blacks and Hispanics but only 1 percentage point among poor whites (not significant) for children in good, fair, or poor health. Among those in excellent or very good health, the respective increases were 1 percentage point for poor whites (not significant), 7 percentage points for poor blacks, and 3 percentage points for poor Hispanics (not significant). Significant increases in numbers of doctor visits per year were recorded only for poor Hispanics who were in excellent or very good health, whereas significant decreases in hospitalizations were recorded for Hispanics who were in good fair or poor health. Measures of health status remained unchanged for poor children over time. The recorded decreases in uninsured rates and increases in Medicaid coverage remained robust to adjustments for underlying trends for all 3 race/ethnicity groups. With respect to adjusted measures of utilization and health status, the only significant differences found were among poor blacks who were in good, fair, or poor health and who registered increases in the likelihood of hospitalization and in poor Hispanics who were in excellent or very good health and who registered decreases in the numbers of restricted-activity days.

Conclusions. Recent expansions in the Medicaid program from 1989 to 1995 produced greater reductions in uninsured rates among poor minority children than among poor white children. Regardless of race/ethnicity, poor children did not seem to experience significant changes during the period of the expansions in either their level of health service utilization or their health status. *Pediatrics* 2001;108:1135–1142; *Medicaid, health insurance, health status, health services.*

ABBREVIATIONS. FPL, federal poverty level; NHIS, National Health Interview Surveys; AFDC, Aid to Families With Dependent Children.

Expansions in the Medicaid program enacted by Congress during the past decade increased the number of poor and near-poor children who are eligible for publicly financed health insurance. Beginning with the 1902(r)(2) provisions of the Social Security Act, passed in 1988 and amended in 1989 and 1990, states were permitted to extend Medicaid eligibility to groups of women and children using expanded income and asset thresholds. Initially targeted only at families that earned between 100% and 133% of the federal poverty level (FPL), these and later Medicaid expansions eventually combined to provide insurance to 7 million previously uninsured children from 1989 to 1995.[1]

In cross-section analyses, provision of health insurance has been shown to be associated with increased use of primary care services.[2–5] A more recent longitudinal study found similar results.[6] Compared with uninsured children, those with insurance (public or private) are reported to have greater access to primary care as measured by having a usual source of care, a regular physician, access to care after normal business hours, and greater satisfaction.[7] Consistent with this finding, insured chil-

dren also have been shown to be more likely to receive medical care from a physician for specific ambulatory conditions that are amenable to primary care intervention,[8] yet despite the accumulated evidence regarding the relationship among insurance coverage, access, and utilization, certain questions remain unanswered.

One question is whether the expansion of Medicaid to near-poor children had equivalent effects on white and nonwhite eligible populations. In past cross-section analyses, race/ethnicity has been shown to be a powerful predictor of utilization of health care services independent of insurance status.[9–13] Minority children have been shown to have lower rates of health insurance coverage, less utilization, and worse health status than their white counterparts. The question of whether the Medicaid expansions resulted in relatively larger improvements in utilization of health care services for disadvantaged minority children is, therefore, an important one with relevant public policy implications. Equally important is the question of whether adoption of these new policies had differential effects on the health status of members of the affected populations depending on their race/ethnicity.

In this study, we used a stratified set of longitudinal data to examine the differential impact of recent Medicaid expansions by race/ethnicity. Using a before-and-after comparison of health care service utilization and health status of poor white, black, and Hispanic children relative to their nonpoor counterparts, we estimate the differential impact of recent changes in Medicaid policy on these outcomes among poor families.

METHODS

Data

We used the 1989 and 1995 National Health Interview Surveys (NHIS)[14] to compare changes in the health insurance coverage, health care utilization, and health status of white, black, and Hispanic poor and nonpoor children. The NHIS is a national probability sample of the civilian noninstitutionalized population that collects information on family background, health conditions, and health care utilization. We chose 1989 and 1995 because these years bracket the largest increase in Medicaid enrollment of children.

In the early part of this period, Medicaid eligibility was decoupled from the family structure requirements of state Aid to Families with Dependent Children (AFDC) programs and states were permitted to extend eligibility for Medicaid coverage beyond AFDC levels up to 100% of the FPL. By July 1, 1991, states were required to cover all children younger than 6 years from families with incomes up to 133% of the FPL (and were allowed to cover those in families with incomes up to 185% of the FPL). Additional coverage requirements included all children up to 19 years of age who were born after September 30, 1983, and whose family incomes were below 100% of the FPL. These changes resulted in an increase in Medicaid enrollments of almost 7 million, or 70%, between 1989 and 1995.[15]

Our sample included children ages 1 to 12 years. We eliminated infants because they were eligible for Medicaid coverage under the expansion thresholds for pregnant women that were more generous than those for children.[16] Moreover, enrollment of infants was facilitated by streamlined administrative procedures such as presumptive eligibility. We excluded children between 13 and 17 years of age because the expansions in Medicaid eligibility applied only to children who were born after September 30, 1983. The initial sample of children ages 1 to 12 years for the years 1989 and 1995 numbered 42 140.

Poverty, Race, and Ethnicity

Given the legislative changes that occurred between 1989 and 1995, the populations that were affected by the Medicaid expansions varied from state to state and year to year. Ultimately, the children who were made newly eligible by the expansions included all those in families with incomes between the existing 1989 AFDC thresholds and 133% of the FPL as well as some children in families with incomes up to 185% of the FPL.

To capture this entire targeted group, we identified as "poor" the families in the NHIS sample that had incomes of <200% of the FPL using the NHIS indicator for poverty (income as a percentage of the FPL). For comparison with the targeted group, we identified nonpoor families that had incomes between 300% and 400% of the FPL. These families were not eligible for Medicaid either before or after the expansions. We eliminated families that had incomes between 200% and 300% of the FPL to avoid misclassification between targeted and comparison groups resulting from misreporting of income. Families with incomes above 400% of the FPL were excluded from the analysis to maintain as much comparability as possible between the targeted populations and the comparison group. We imputed family income for children when this variable was missing ($n = 1598$) and assigned them to the poor or nonpoor category. The combined number of children in the poor and nonpoor categories for the 2 years of the study was 27 246.

We used the NHIS definitions to categorize children by race/ethnicity into 3 groups: non-Hispanic white, non-Hispanic black, and Hispanic. Children who fell into another race/ethnicity category were excluded from the analysis ($n = 1031$). The remaining sample consisted of 26 215 children divided into 3 race/ethnicity categories (white, black, and Hispanic), 2 poverty levels (poor and nonpoor), and 2 years (1989 and 1995).

Health Insurance Coverage

We used reported coverage at the time of interview to categorize children into 3 insurance strata: Medicaid, private insurance, and uninsured. Families that were receiving AFDC were coded as being on Medicaid as were children in the 1989 sample who had any type of public assistance health insurance coverage or for whom the respondent had a current Medicaid card and was not covered through the military. Similar definitions were used for the 1995 sample. Children who had military coverage or who were reported as having both private and Medicaid coverage were classified as private. For 1500 children, the insurance status was missing or unknown. The final sample of children aged 1 to 12 years in the 2 income categories of interest for whom race/ethnicity and insurance status was known numbered 24 118.

Health Care Services Utilization and Health Status

The NHIS contains a variety of measures of utilization and health status. An important distinction in utilization measures concerns the difference between visits that are patient initiated and those that are contingent on a practitioner's decisions.[12] The former often are referred to as measures of "realized access."[10] We used the probability of a doctor visit in the past 12 months as a measure of realized access to care. The measures of utilization contingent on access that we used included number of doctor visits and hospitalizations in the past 12 months. Both of these measures are in common use in previously published cross-sectional analyses of health care service utilization and its relationship to either race and ethnicity[9,11,12,17] or health insurance coverage.[5,10,18,19] Finally, health status measures included a respondent-directed evaluation of the child's health status as excellent, very good, good, fair, or poor and number of restricted-activity days in the previous 2 weeks. In addition to reporting changes in measures of health status, we used self-reported health status to stratify the changes in utilization over time. The 2-week recall period was used for restricted-activity days to enhance recall accuracy.

Statistical Model

Our objective was to measure the differential impact of the Medicaid expansions on the insurance status, service utilization, and health status of different race/ethnicity groups. We therefore used a stratified before-and-after model to compare changes from 1989 to 1995 in these outcomes for whites, blacks, and Hispanics across 2 income brackets.

Our approach began by calculating 1995 − 1989 differences in coverage, utilization, and health status outcomes for nonpoor children by race/ethnicity to establish underlying trends in these variables independent of the impact of Medicaid expansions because nonpoor children were, by definition, ineligible for Medicaid in either year. We next calculated similar 1995 − 1989 differences for poor children. Subtracting the nonpoor trends from those of the poor children revealed the impact of Medicaid expansions on poor children by race/ethnicity. The assumption underlying this approach is that the time trends observed among the nonpoor indicate the experience also that would have occurred among the poor had there been no expansions in Medicaid during this period. In a final step, we compared these Medicaid effects across race/ethnicity groups to identify the differential impact of the Medicaid expansions.

Stratification of the analysis by race/ethnicity and income explicitly controlled for the effects of these factors on the outcome variables of interest. The before-and-after design controlled for the influence of unobservable characteristics of the stratified groups that were presumed not to change over time (eg, aggregate health endowments, distances to providers, other health-promoting or health-impairing behaviors). Because many of these unobservable characteristics are associated not only with the outcome variables but also with the likelihood of obtaining Medicaid coverage, they represent potential confounders for any cross-sectional analysis. In a before-and-after design, however, comparisons are made not between levels of Medicaid coverage and outcome variables but between changes in levels of Medicaid coverage and outcome variables over time. The presumption that unobservable characteristics such as health endowment, behaviors, distances to providers, and so forth do not change in the aggregate suggests that their effects on outcome variables are the same in the earlier time period and in the later time period. They do not, therefore, confound the analysis. This feature of the before-and-after analysis represents a crucial design advantage over the single cross-sectional approach in addressing the issue of selection bias.

For bivariate comparisons within income group strata, we used Student's t tests to compare the magnitude of changes in the outcome variables. The data were analyzed with the use of SAS version 8.0 and Stata Release 6.0 (Stata Corp., College Station, TX) to generate means and standard errors accounting for the clustering sample design of NHIS data.

RESULTS

Table 1 depicts the numbers of observations in the 1989 and 1995 NHIS samples of 1- to 12-year-old children by income level, race/ethnicity, and insurance status. When correctly weighted, these observations represent more than 50 000 000 children throughout the United States in the 2 years of study.

Insurance Coverage

Tables 2 and 3 summarize the experience of children from poor and nonpoor white, black, and Hispanic families during the period 1989 to 1995 with respect to their health insurance coverage. Before the Medicaid expansions in 1989, minority children had

TABLE 2. Uninsured Rates and Medicaid Rates by Income Group* and Race/Ethnicity, 1989 to 1995

Parameter	1989	1995	Change
Uninsured rates			
Poor			
White	0.23	0.19	−0.04†
Black	0.25	0.14	−0.11‡
Hispanic	0.46	0.28	−0.19‡
Nonpoor			
White	0.04	0.03	−0.01
Black	0.04	0.03	0.00
Hispanic	0.05	0.09	0.04
Medicaid rates			
Poor			
White	0.17	0.33	0.16†
Black	0.40	0.62	0.22‡
Hispanic	0.25	0.48	0.23‡
Nonpoor			
White	0.00	0.01	0.01†
Black	0.03	0.07	0.04
Hispanic	0.01	0.03	0.02

* Poor = family income <200% of FPL; nonpoor = 300% to 400% of FPL.
† 1989–1995 difference significant at $P < .05$.
‡ 1989–1995 difference significant at $P < .001$.

higher rates of being uninsured than did their white counterparts, and Hispanics had higher rates of being uninsured than did blacks. From 1989 to 1995, significant declines in rates of being uninsured were registered for all poor children. For nonpoor children, there were no significant changes in the likelihood of being uninsured.

Evidence that the Medicaid expansions reached their intended targets also is illustrated in the results (Table 2). Large increases in Medicaid coverage are documented among poor children from all race/ethnicity groups during this period with increases reaching as high as 23 percentage points for poor Hispanics. That Medicaid rates increased more than the observed declines in uninsured rates suggests that some poor or near-poor families were losing private insurance as time went on, perhaps because of an explicit substitution of Medicaid for the more costly private insurance. The small but significant levels of Medicaid receipt among the nonpoor shown in Table 2 reflect the presence of a population of children who are eligible for Medicaid independent of their family income (medically needy) as well as some children from families with income-reporting inaccuracies.

Table 3 shows adjusted changes between 1989 and

TABLE 1. Numbers of 1 to 12-Year-Old Children in NHIS Sample by Income, Race/Ethnicity, and Insurance Status, 1989 and 1995

Income*	Race/Ethnicity	Insurance Status					
		Medicaid		Uninsured		Private and Other Public	
		1989	1995	1989	1995	1989	1995
Poor	White	653	987	1041	650	2836	1771
	Black	990	1112	592	262	877	568
	Hispanic	382	1627	686	1031	520	984
Nonpoor	White	7	16	111	67	3358	1976
	Black	9	12	15	7	298	173
	Hispanic	1	6	11	26	192	264

* Poor = family income <200% of FPL; nonpoor = 300% to 400% of FPL.

TABLE 3. Relative Changes in Uninsured Rates and Medicaid Rates for Poor Children by Race/Ethnicity, Controlling for Trends Among the Nonpoor, 1989 to 1995

Parameter (Poor/Nonpoor Differential)	Relative Change in Rate*	95% CI
Uninsured rates		
White	−0.03	−0.07, 0.00
Black	−0.11	−0.16, −0.06
Hispanic	−0.23	−0.32, −0.13
Medicaid rates		
White	0.15	0.12, 0.19
Black	0.18	0.11, 0.25
Hispanic	0.21	0.15, 0.27

CI indicates confidence interval.
* Relative changes are calculated as the difference in 1989 to 1995 changes for the poor relative to changes for the nonpoor as depicted in column 3 of Table 2. For example, the white poor/nonpoor differential in uninsured rates would be −0.04 [the 1989 to 1995 change for poor whites] — (−0.01) [the 1989 to 1995 change for nonpoor whites] = −0.03.

1995 for poor children. To adjust for unmeasured trends unrelated to Medicaid expansions, we subtracted the changes between 1989 and 1995 among the nonpoor from the changes between 1989 and 1995 among the poor. The uninsured rates among poor whites controlling for underlying trends observed among the nonpoor declined by 3 percentage points. By contrast, poor blacks experienced a decline of 11 percentage points and poor Hispanics experienced a decline of 23 percentage points in their rates of being uninsured compared with the nonpoor.

Poor families from all race/ethnicity groups recorded significant increases in Medicaid coverage, controlling for trends among the nonpoor, but only a modest differential impact by race/ethnicity was discernible (Table 3). Increases in Medicaid uptake ranged from 15 percentage points among whites to 18 and 21 percentage points among black and Hispanic families, respectively. These data may represent 2 distinct trends that have coincided. On the one hand, minority children seemed to be gaining Medicaid eligibility and shifting out of uninsured status; on the other hand, children from many white families may have been gaining Medicaid coverage through substitution of private insurance as changes in the eligibility rules allowed them this option for the first time or because of loss of private coverage for other reasons.

Utilization

The experience by income and race/ethnicity with regard to changes over time in various measures of utilization is summarized in Tables 4 through 7. These measures include the likelihood of having a visit to a physician in the previous year, the number of physician visits per year (contingent on having visited the doctor), and the probability of hospitalization during the year. Tables 4 and 5 summarize data for children who were characterized as being in good, fair, or poor health, and Tables 6 and 7 contain data for children who were characterized as being in very good or excellent health.

TABLE 4. Utilization Measures for Children in Good, Fair, or Poor Health by Income Group* and Race/Ethnicity, 1989 to 1995

Parameter	1989	1995	Change
Probability of a physician visit/y			
Poor			
White	0.85	0.86	0.01
Black	0.77	0.84	0.07†
Hispanic	0.74	0.81	0.07†
Nonpoor			
White	0.90	0.95	0.05†
Black	0.87	0.87	0.00
Hispanic	0.89	0.86	−0.03
Number of physician visits/y			
Poor			
White	6.17	6.51	0.34
Black	3.64	4.42	0.78
Hispanic	4.99	5.12	0.13
Nonpoor			
White	7.34	8.76	1.42
Black	6.02	5.15	−0.87
Hispanic	4.80	6.19	1.39
Probability of a hospitalization/y			
Poor			
White	0.08	0.09	0.01
Black	0.06	0.07	0.01
Hispanic	0.08	0.04	−0.04†
Nonpoor			
White	0.07	0.08	0.01
Black	0.10	0.00	−0.10‡
Hispanic	0.05	0.06	0.01

* Poor = family income <200% of FPL; nonpoor = 300% to 400% of FPL.
† 1989 to 1995 difference significant at $P < .05$.
‡ 1989 to 1995 difference significant at $P = .01$.

TABLE 5. Relative Changes* in Utilization Measures for Poor Children in Good, Fair, or Poor Health by Race/Ethnicity, Controlling for Trends Among the Nonpoor, 1989 to 1995

Parameter (Poor/Nonpoor Differential)	Relative Change in Visits or Probability	95% CI
Probability of a physician visit/y		
White	−0.05	−0.11, 0.01
Black	0.07	−0.10, 0.24
Hispanic	0.11	−0.03, 0.26
Number of physician visits/y		
White	−1.07	−3.04, 0.90
Black	1.66	−2.64, 5.95
Hispanic	−1.25	−5.19, 2.69
Probability of a hospitalization/y		
White	0.00	−0.06, 0.07
Black	0.11	0.03, 0.20
Hispanic	−0.05	−0.18, 0.07

* Relative changes are calculated as the difference in 1989 to 1995 changes for the poor relative to changes for the nonpoor as depicted in column 3 of Table 4. For example, the black poor/nonpoor differential in probability of a physician visit/year would be 0.07 [the 1989 to 1995 change for poor blacks] — (0.0) [the 1989 to 1995 change for nonpoor blacks] = 0.07.

As would be expected, for all 3 measures, children who were in good, fair, or poor health regardless of race/ethnicity, income level, or year had higher rates of utilization than did children who were in excellent or very good health. In addition, white children were reported to have more doctor visits than minority children regardless of income group, health status, or year.

TABLE 6. Utilization Measures for Children in Excellent or Very Good Health by Income Group* and Race/Ethnicity, 1989 to 1995

Parameter	1989	1995	Δ
Probability of a physician visit/y			
Poor			
White	0.76	0.77	0.01
Black	0.72	0.79	0.07†
Hispanic	0.72	0.75	0.03
Nonpoor			
White	0.87	0.88	0.01
Black	0.87	0.89	0.02
Hispanic	0.84	0.90	0.06
Number of physician visits/y			
Poor			
White	3.15	3.25	0.10
Black	2.41	2.58	0.17
Hispanic	2.53	3.14	0.61†
Nonpoor			
White	3.53	3.63	0.10
Black	2.56	2.71	0.15
Hispanic	3.29	2.94	−0.35
Probability of a hospitalization/y			
Poor			
White	0.03	0.02	−0.01
Black	0.02	0.02	0.00
Hispanic	0.03	0.02	−0.01
Nonpoor			
White	0.02	0.01	−0.01
Black	0.02	0.00	−0.02
Hispanic	0.02	0.02	0.00

* Poor = family income <200% of FPL; nonpoor = 300% to 400% of FPL.
† 1989 to 1995 difference significant at $P = .01$.

TABLE 7. Relative Changes* in Utilization Measures for Poor Children in Excellent or Very Good Health by Race/Ethnicity, Controlling for Trends Among the Nonpoor, 1989 to 1995

Parameter (Poor/Nonpoor Differential)	Relative Change in Visits or Probability	95% CI
Probability of a physician visit/y		
White	0.00	−0.04, 0.03
Black	0.05	−0.03, 0.14
Hispanic	−0.03	−0.13, 0.07
Number of physician visits/y		
White	0.00	−0.41, 0.41
Black	0.02	−0.66, 0.69
Hispanic	0.96	−0.30, 2.23
Probability of a hospitalization/y		
White	0.00	−0.01, 0.01
Black	0.02	0.00, 0.04
Hispanic	0.00	−0.04, 0.03

CI indicates confidence interval.
* Relative changes are calculated as the difference in 1989 to 1995 changes for the poor relative to changes for the nonpoor as depicted in column 3 of Table 6. For example, the black poor/nonpoor differential in probability of a physician visit/year would be 0.07 [the 1989 to 1995 change for poor blacks] — (0.2) [the 1989 to 1995 change for nonpoor blacks] = 0.05.

During the course of the Medicaid expansions, all poor children increased the probability of visiting a physician. For poor black children, regardless of health status, the increase in this measure of 7 percentage points was statistically significant, as it was for poor Hispanic children who were in good, fair, or poor health (Table 4). Poor white children showed almost no increase in this measure of realized access from 1989 to 1995. During the same period of time, however, nonpoor children also were recording increases in the probability of visiting a physician. Once these underlying trends are accounted for (Tables 5 and 7), poor minority children who were in good, fair, or poor health experienced an increase in the likelihood of seeing a physician relative to nonpoor minority children, although these increases did not reach the level of statistical significance.

As with the probability of seeing a physician during the course of the year, all poor children recorded increases in annual numbers of visits to the doctor during the time of the Medicaid expansions. This trend reached statistical significance, however, only for Hispanic children who were in excellent or very good health (Table 6). Many nonpoor children also experienced increases in number of doctor visits during the same period (Tables 4 and 6). Once the underlying trend among nonpoor children is taken into account (Tables 5 and 7), none of the increases in annual numbers of doctor visits among poor children was found to be significant.

Similar trends can be seen in the change in hospitalization rates over time. The only group of poor children to experience a significant decrease in the probability of being hospitalized was Hispanic children who were in good, fair, or poor health. Their rate of hospitalization fell from 8% to 4% during the period of the Medicaid expansions (Table 4). Among nonpoor children, the rate of hospitalization declined 10 percentage points among blacks during the same period. Tables 5 and 7 indicate that, controlling for trends among the nonpoor, poor black children who were in good, fair, or poor health experienced an increase in their use of the hospital during the period of Medicaid expansions, unlike their white and Hispanic counterparts. These findings among black chil-

TABLE 8. Restricted-Activity Days in the Past 2 Weeks for Children by Income Group* and Race/Ethnicity, 1989 to 1995

Parameter	1989	1995	Δ
Restricted-activity d/2 wk for children in good, fair or poor health			
Poor			
White	0.92	0.73	−0.19
Black	0.72	0.46	−0.26
Hispanic	0.69	0.68	−0.01
Nonpoor			
White	0.84	0.65	−0.19
Black	0.53	0.04	−0.49
Hispanic	0.70	0.55	−0.15
Restricted-activity d/2 wk for children in excellent or very good health			
Poor			
White	0.31	0.34	0.03
Black	0.28	0.26	−0.02
Hispanic	0.34	0.23	−0.11
Nonpoor			
White	0.34	0.29	−0.04
Black	0.16	0.18	0.02
Hispanic	0.21	0.54	0.34†

* Poor = family income <200% of FPL; nonpoor = 300% to 400% of FPL.
† 1989 to 1995 difference significant at $P = .01$.

TABLE 9. Relative Changes* in Restricted-Activity Days for Poor Children, Controlling for Trends Among the Nonpoor, 1989 to 1995

Parameter (Poor/Nonpoor Differential)	Relative Change in Restricted Days	95% CI
Restricted-activity d/2 wk for children in good, fair, or poor health		
White	−0.01	−0.43, 0.41
Black	0.23	−0.41, 0.87
Hispanic	0.14	−0.92, 1.20
Restricted-activity d/2 wk for children in excellent or very good health		
White	0.07	−0.04, 0.18
Black	−0.04	−0.31, 0.22
Hispanic	−0.45	−0.80, −0.09

CI indicates confidence interval.
* Relative changes are calculated as the difference in 1989 to 1995 changes for the poor relative to changes for the nonpoor as depicted in column 3 of Table 8. For example, the black poor/nonpoor differential in restricted-activity days/2 wk would be −0.26 [the 1989 to 1995 change for poor blacks] — (−0.49) [the 1989 to 1995 change for nonpoor blacks] = 0.23.

dren are driven by the decrease in hospitalization rates among nonpoor members of this ethnic group rather than by large, absolute increases among the poor.

Health Status

Tables 8 and 9 present changes in the numbers of restricted-activity days that children experienced in the previous 2 weeks stratified by self-reported health status. Children who were reported to be in good, fair, or poor health experienced greater numbers of restricted-activity days regardless of income level than did children whose health was reported as being excellent or very good. In addition, poor children from each race/ethnicity group (with few exceptions) had more restricted-activity days than their nonpoor counterparts. Although the numbers of restricted-activity days generally decreased between 1989 and 1995 among children who were in good, fair, or poor health, none of the changes for any race/ethnicity group reached statistical significance. Among children who were in excellent or very good health, nonpoor Hispanic children recorded increases in the number of restricted-activity days during the study period. When trends among the nonpoor are controlled for as shown in Table 9, poor Hispanic children who were in excellent or very good health demonstrated significant decreases in the numbers of restricted-activity days experienced during the course of the Medicaid expansions. For all other race/ethnicity groups in either health status stratum, adjusted changes in this measure of health status did not reach statistical significance. Regarding self-reported health status, no significant change in percentage of children classified as being in excellent or very good health is detectable for any group during the period of the Medicaid expansions (data not shown).

DISCUSSION

We characterized by race and ethnicity changes in insurance coverage, health care service utilization, and health status experienced by poor and nonpoor children from 1989 to 1995 during the course of expansions in the Medicaid program. We found that changes in the probability of having health insurance varied significantly by race/ethnicity, whereas changes in utilization and health status did not.

The race/ethnicity differential changes in the probability of having health insurance indicate that the Medicaid expansions not only increased the number of poor children with health insurance coverage but also decreased racial disparities with respect to coverage. Poor black and Hispanic children who had worse health insurance coverage at the beginning of the period studied achieved greater reductions in uninsured rates than did their poor white counterparts. The white/Hispanic uninsured rate differential of 23 percentage points that existed in 1989 was cut by more than half during the subsequent 7 years. The white/black uninsured rate differential was reversed: by 1995, there were fewer uninsured poor black children than poor white children.

Increases in Medicaid coverage rates exceeded the uninsured rate declines among the poor during the same period for all 3 race/ethnicity groups. New Medicaid enrollees originate either from the pool of uninsured or from those losing private insurance. Medicaid increases above uninsured rate declines suggest, therefore, that some families came into the Medicaid program between 1989 and 1995 from those with private insurance before the expansions occurred. How much of this shift from private to Medicaid enrollment represents "crowd-out" and how much represents families opting for Medicaid after losing private insurance is an important question. Recent studies investigated the magnitude of the crowd-out effect of the Medicaid expansions.[20–22] One study indicated that only 15% of the shift from private to Medicaid coverage was attributable to crowd-out; the rest came from families who lost private insurance for a variety of reasons.[23] Others have pointed to such reasons as the recession of the early 1990s, increases in the price of medical care, and shifts away from manufacturing jobs as explanations for the net decline in employer coverage rates independent of expansions in the Medicaid program.[24]

Shifts to Medicaid from private insurance would be expected to occur more frequently in populations with higher private coverage (and therefore more opportunity to either lose or substitute private insurance) at the beginning of the period of Medicaid expansions. The race/ethnicity differentials seen in our study confirm this pattern. Poor black and white families with higher initial coverage took up Medicaid at rates that were 11 and 12 percentage points higher than the rate at which their being uninsured declined. By contrast, poor Hispanic families with less initial coverage experienced Medicaid take-up rates only 4 percentage points higher than the declines that they experienced in uninsured rates. Po-

tential explanations for this pattern beyond simply the differences in the opportunity for substitution warrant additional scrutiny.

When we considered changes in health service utilization, race/ethnicity differentials were most discernible among children who were in good, fair, or poor health. In this group, poor minority children experienced greater increases in the probability of seeing a doctor than did their poor white counterparts. The differential of 11 percentage points in the probability of whites/Hispanics seeing a doctor that existed in 1989 among these less healthy children was halved by 1995, and the differential of 8 percentage points in whites/blacks was reduced to 2 percentage points. The gains experienced by poor black and Hispanic children in the probability of seeing a doctor outstripped those of nonpoor minority children by 7 and 12 percentage points, respectively. During the same period, poor white children were falling further behind their nonpoor counterparts in this measure of realized access. Such trends are additional evidence of the differential impact that Medicaid expansions seemed to have had on the utilization patterns of minority children. Conversely, no race/ethnicity differential changes were discernible in other measures of utilization or in measures of health status.

Why did the substantial race/ethnicity differential changes in health insurance coverage induced by the Medicaid expansions of 1989 to 1995 not translate into larger, more consistent differential changes in service utilization or health status? Economic theory and empirical observation suggest that if individuals are supplied with free access to medical care, then they should use more of it. Other things being equal, this increased utilization might be expected to improve health. Because poor black and Hispanic children experienced greater increases in coverage than poor whites after the Medicaid expansions, an inability to document more consistent utilization increases and improved health status among these children is anomalous. Either race/ethnicity differential changes in utilization and health status were as limited as they seem, or the full magnitude of the actual changes was obscured by elements of the study's design or the available data.

Design elements that may have had an impact on the ability to detect actual differences include the decision to stratify the analysis, the decision to analyze the outcomes on the basis of income class, and the choice of outcome variables to consider.

The number of observations in the NHIS data from the targeted and comparison populations for the 2 years of this study totaled 24 118. For many purposes, this number was sufficient to generate precise estimates of outcome measures of interest. Stratification of the sample by race/ethnicity, income, year, and health status, however, generated smaller cells with less power to detect actual differences that might exist. The relatively wide confidence intervals illustrate this difficulty (Table 5). Despite this limitation in the precision of some of the estimates, however, the NHIS data set remains the most comprehensive representative sample of the noninstitutionalized US population with which to evaluate the effects of the Medicaid expansions by race/ethnicity.

A second decision—to use income class as the level of analysis—also had important implications for how the outcomes would be viewed. Cross-sectional analysis of Medicaid's effect on utilization and health status cannot distinguish between the respective effects of health insurance coverage and those of unobservable characteristics of individuals. To the extent that families with less healthy children are more likely both to obtain insurance coverage and to use services than are families with healthier children, cross-sectional comparisons of utilization attribute to insurance coverage (whether public or private) effects that derive from characteristics of the children. An important strength of the before-and-after comparison that we conducted on the basis of the outcomes measured at the level of the entire income class is that it avoids this self-selection bias under the reasonable assumption that the unobservable characteristics of the entire income class in aggregate are invariant over time. If these characteristics do not change for the class as a whole, then comparing the outcomes of interest across 2 time periods will isolate the effects of the expansions in Medicaid eligibility.

The use of income class as the level of analysis avoids selection bias, but it does so at a cost. It does not permit the analysis to show the actual effect on an individual of acquiring health insurance. Consider, as an outcome, the likelihood of seeing a physician. For any income class in a given year, this outcome will be the sum of 2 products: 1) the percentage of children with health insurance in the class multiplied by the probability that insured children will see a physician plus 2) the percentage of children without health insurance in that class multiplied by the probability that uninsured children will see a physician.

We recorded changes in the percentage of covered children and changes in the outcome. From these observations, it is possible to infer how the probability of seeing a physician varies by insurance status. If the probabilities by insurance status remain constant over time, then modest increases in aggregate coverage may result in modest increases in the aggregate probability of seeing a physician even if the probability varies widely by insurance status. Consider poor Hispanics who were in good, fair, or poor health. Their coverage increased by 19 percentage points from 1989 to 1995, and their likelihood of seeing a physician increased by 7 percentage points. This suggests that there was a difference of 37 percentage points between the likelihood of seeing a physician among the insured compared with the uninsured [(0.19)*(0.37) = 0.07]. Our findings that Medicaid expansions resulted in relatively modest increases in utilization at the level of the income class should be viewed in this context. The aggregate effects at the class level do not fully capture the impact that gaining insurance coverage had on any given individual.

A second limitation of the NHIS data for the years that we compared concerns the available measures of

utilization and health status. The probability of visiting a physician, the number of physician visits contingent on any visits, and the likelihood of hospitalization all are useful measures of utilization. Additional comparisons of changes in access measures, in the inability to obtain needed care, in the type of practitioner, or in the site of visit over time would have enriched this aspect of the analysis. Other studies have documented that children who receive publicly financed health insurance use less ambulatory care, dental, vision, and prescription services when compared with children who are privately insured.[25] Moreover, those who are covered by Medicaid are half as likely to report having a regular source of care.[26] Unfortunately, the NHIS data do not contain these elements for either 1989 or 1995, so these comparisons were unavailable to us. In addition, although self-reported health status and restricted-activity days are widely accepted measures of health status, they do not capture the full range of this elusive metric.

Beyond the methodological considerations outlined above lies an equally important substantive issue. It can be argued that the lack of findings with respect to increased utilization and improved health status after the Medicaid expansions is not simply an inability to discern changes that actually occurred but accurately reflects the modest changes induced by this policy shift. Under this interpretation, most children were receiving needed care even before the expansions occurred. What improved Medicaid eligibility accomplished was to provide a financing mechanism to allow a greater percentage of these families to have the government pay for care that otherwise would have gone unreimbursed. If this were the case, then it would not be surprising to find little change in health status and only modest changes in utilization. Although increased coverage may be a necessary condition to improve utilization and health status, it may not be sufficient. Future changes in supply-side issues—who provides Medicaid patients with services, in what settings, and with what quality of care—may be at least as necessary to change utilization patterns and health status as improving coverage.

The Medicaid expansions in the late 1980s and early 1990s had a beneficial impact on minority children by increasing disproportionately their access to health insurance coverage. Additional studies will help to determine what future policy initiatives ought to be considered to build on these achievements.

REFERENCES

1. US Dept of Health and Human Services. *Health Care Financing Review: Medicare and Medicaid Statistical Supplement, 1997.* Baltimore, MD: US Department of Health and Human Services; 1997:191. Publ. No. 03399
2. St. Peter RF, Newacheck PW, Halfon N. Access to care for poor children: separate and unequal? *JAMA.* 1992;267:2760–2764
3. Freeman HE, Corey CR. Insurance status and access to health services among poor persons. *Health Serv Res.* 1993;28:531–541
4. Currie J, Thomas D. Medical care for children: public insurance, private insurance and racial differences in utilization. *J Hum Res.* 1995;30:135–162
5. Marquis MS, Long SH. Reconsidering the effect of Medicaid on health care services use. *Health Serv Res.* 1996;30:791–808
6. Keane CR, Lave JR, Ricci EM, LaVallee CP. The impact of a children's health insurance program by age. *Pediatrics.* 1999;104:1051–1058
7. Newacheck PW, Stoddard JJ, Hughes DC, Pearl M. Health insurance and access to primary care for children. *N Engl J Med.* 1998;338:513–519
8. Stoddard JJ, St. Peter RF, Newacheck PW. Health insurance status and ambulatory care for children. *N Engl J Med.* 1994;330:1421–1425
9. Newacheck PW, Hughes DC, Stoddard JJ. Children's access to primary care: differences by race, income and insurance status. *Pediatrics.* 1996;97:26–32
10. Newacheck PW, Stoddard JJ, Hughes DC, Pearl M. Children's access to health care: the role of social and economic factors. In: Stein REK, ed. *Health Care for Children.* New York, NY: United Hospital Fund of New York; 1997:53–76
11. Lieu TA, Newacheck PW, McManus MA. Race, ethnicity, and access to ambulatory care among US adolescents. *Am J Public Health.* 1993;83:960–965
12. Guendelman S, Schwalbe J. Medical care utilization by Hispanic children: how does it differ from black and white peers? *Med Care.* 1986;24:925–940
13. Weinick RM, Weigers ME, Cohen JW. Children's health insurance, access to care, and health status: new findings. *Health Aff.* 1998;17:127–136
14. National Center for Health Statistics (Producer). *Public Use Data Tape Documentation: Part I. National Health Interview Survey, 1989 and 1995.* Springfield, VA: National Technical Information Service, US Department of Commerce; 1994, 1998
15. US Department of Health and Human Services. *Health Care Financing Review: Medicare and Medicaid Statistical Supplement, 1977.* Baltimore, MD: US Department of Health and Human Services; 1977. Publ. No. 03399
16. US General Accounting Office. *Health Insurance for Children: Private Insurance Coverage Continues to Deteriorate.* Washington, DC: US General Accounting Office; 1996 Health Education and Human Services Division. Publ. No. GAO/HEHS-96-129
17. Weitzman M, Byrd RS, Auinger P. Black and white middle class children who have private health insurance in the United States. *Pediatrics.* 1999;104:151–156
18. Currie J, Gruber J. Health Insurance eligibility, utilization of medical care, and child health. *Q J Econ.* 1996;111:431–466
19. Rosenbach ML, Irvin C, Coulam RF. Access for low-income children: is health insurance enough? *Pediatrics.* 1999;103:1167–1174
20. Cutler DM, Gruber J. Does public insurance crowd out private insurance? *Q J Econ.* 1996;111:391–429
21. Dubay L, Kenney G. Did Medicaid expansions for pregnant women crowd out private coverage? *Health Aff.* 1997;16:185–193
22. Shenkman E, Bucciarelli R, Wegener DH, Naff R, Freedman S. Crowd out: evidence from the Florida Healthy Kids Program. *Pediatrics.* 1999;104:507–513
23. Yazici E, Kaestner R. Medicaid expansions and the crowding out of health insurance. *Inquiry.* 2000;37:23–32
24. Newacheck PW, Hughes DC, Cisternas M. Children and health insurance: an overview of recent trends. *Health Aff.* 1995;14:244–254
25. Lefkowitz DC, Monheit AC. *Health Insurance, Use of Health Services and Health Care Expenditures. National Medical Expenditure Survey Research Findings 12.* Rockville, MD: AHCPR; 1991. Publ. No. 92-0017
26. Wood DL, Hayward RA, Corey CR, Freeman HE, Shapiro MF. Access to medical care for children and adolescents in the United States. *Pediatrics.* 1990;86:666–673

Differential Impact of Recent Medicaid Expansions by Race and Ethnicity

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