

# The Role of Race and Ethnicity in the State Children's Health Insurance Program (SCHIP) in Four States: Are There Baseline Disparities, and What Do They Mean for SCHIP?

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**ABSTRACT.** *Background.* Elimination of racial and ethnic disparities in health has become a major national goal. The State Children's Health Insurance Program (SCHIP) has the potential to reduce disparities among the children who enroll if they exhibit the same disparities that have been documented in previous studies of low-income children. To determine the potential impact of SCHIP on racial and ethnic disparities, it is critical to assess baseline levels of health disparities among children enrolling in SCHIP.

*Objective.* To use data from the Child Health Insurance Research Initiative (CHIRI) to 1) describe the sociodemographic profile of new enrollees in SCHIP in Alabama, Florida, Kansas, and New York; 2) determine if there were differences in health insurance and health care experiences among white, black, and Hispanic SCHIP enrollees before enrollment in SCHIP; and 3) explore whether race or ethnicity, controlled for other factors, affected pre-SCHIP access to health coverage and health care.

*Setting.* SCHIP programs in Alabama, Florida, Kansas, and New York, which together include 26% of SCHIP enrollees nationwide.

*Design.* Telephone interview (mailed survey in Alabama) about the child's health, health insurance, and health care experiences conducted shortly after SCHIP enrollment to assess experience during the time period before SCHIP.

*Sample.* New SCHIP enrollees (0–17.9 years old in Alabama, Kansas, and New York and 11.5–17.9 years old in Florida). Stratified sampling was performed in Kansas and New York, with results weighted to reflect statewide populations of new SCHIP enrollees.

*Measures.* Sociodemographic characteristics including income, education, employment, and other characteristics of the child and the family, race and ethnicity (white non-Hispanic, black non-Hispanic, and Hispanic [any race]), prior health insurance, health care access and utilization, and health status.

*Analyses.* Bivariate analyses were used to compare baseline measures upon enrollment for white, black, and Hispanic SCHIP enrollees. Multivariate analyses were performed to assess health status and health care access measures (prior insurance, presence of a usual source of care (USC), and use of preventive care), controlling for demographic factors described above. Weighted analyses (where appropriate) were performed by using SPSS, STATA, or SUDAAN.

*Results.* Racial and ethnic composition varied across the SCHIP cohorts studied, with black and Hispanic children comprising the following proportion of enrollees, respectively: Alabama, 33% and <1%; Florida, 16% and 26%; Kansas, 12% and 15%; and New York, 24% and 36%. Black and Hispanic children were more likely to reside in single-parent and lower-income families. With some variation by state, children from minority groups were more likely to report poorer health status than were white children. Relative to white children, children from minority groups in Florida and New York were more likely to have been uninsured for the entire year before SCHIP enrollment. In all states, children from minority groups who had prior coverage were more likely to have previously been enrolled in Medicaid than in private health insurance and were less likely to have had employer-sponsored coverage compared with white children. Except in Alabama, there was a difference in having a USC, with children from minority groups less likely to have had a USC before SCHIP enrollment compared with white children. No consistent pattern of health care utilization before SCHIP was noted across states with respect to race or ethnicity. Findings from multivariate analyses, controlling for sociodemographic factors, generally confirmed that black and Hispanic children were more likely to have lacked insurance or a USC before enrollment in SCHIP and to have poorer health status compared with white children.

*Conclusions.* SCHIP is enrolling substantial numbers of racial and ethnic minority children. There are baseline racial and ethnic disparities among new enrollees in SCHIP, with black and Hispanic children faring worse than white children on many sociodemographic and health system measures, and there are differences among states in the prevalence and magnitude of these disparities.

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ties. After controlling for sociodemographic factors, these disparities persisted.

**Implications for Monitoring and Improving SCHIP.** SCHIP has the potential to play a critical role in efforts to eliminate racial and ethnic disparities in health among the children it serves. However, study findings indicate that programmatic efforts are necessary to ensure that disparities are not perpetuated. Program effectiveness and outcomes should be monitored by race and ethnicity to ensure equity in access, use, and outcomes across all racial and ethnic groups. Assessing the health characteristics and needs of new SCHIP enrollees can provide a benchmark for evaluating the program's impact on eliminating racial and ethnic disparities in health and inform service delivery enhancements. *Pediatrics* 2003;112:e521–e532. URL: <http://www.pediatrics.org/cgi/content/full/112/6/e521>; *access to health care, health insurance, children, minorities, racial disparities, race, ethnicity, SCHIP, uninsured, State Children's Health Insurance Program*

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ABBREVIATIONS. USC, usual source of care; SCHIP, State Children's Health Insurance Program; CHIRI, Child Health Insurance Research Initiative; ED, emergency department; CSHCN, children with special health care needs; ESHI, employer-sponsored health insurance; FPL, federal poverty level.

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Racial and ethnic disparities in health status and health care have persisted and, in some cases, increased despite overall improvements in minority health.<sup>1,2</sup> Compared with white children, black and Hispanic children are more likely to be uninsured,<sup>3–7</sup> to experience inadequate access to health care,<sup>5,7–13</sup> and to have poorer health status.<sup>5,7–9,14–16</sup> Although racial disparities in health and health care are well-known, our understanding of factors that contribute to health disparities are poorly understood from scientific and policy perspectives.<sup>17</sup> Prior research has examined the possible roles of behavioral, cultural, social, economic, biological, and environmental factors both individually and interactively.<sup>1,2</sup> Some of these factors (eg, age, gender, and socioeconomic status) may predispose children to health disparities, whereas others (eg, health insurance and having a usual source of care [USC]) may enable disparities to exist.<sup>18,19</sup>

The federal government has targeted the elimination of racial and ethnic disparities as a priority issue for health policy. One major effort is the US Department of Health and Human Services' Initiative to Eliminate Racial and Ethnic Disparities in Health, which calls for changes in both research and service provision, to better understand the nature of persistent disparities, and to identify and test potential solutions.<sup>20</sup> A second national effort is Healthy People 2010, which includes the elimination of racial and ethnic disparities as an overarching goal.<sup>21</sup> US Census data suggest that the largest proportionate increases in the population will be among ethnic minority groups,<sup>16</sup> making the reduction of these disparities an even more urgent policy goal.

The State Children's Health Insurance Program (SCHIP), passed in 1997 as Title XXI of the Social Security Act, provides health insurance to low-income uninsured children who do not qualify for Medicaid.<sup>6</sup> Reduction of racial and ethnic disparities

was not an explicit goal of SCHIP legislation as enacted by Congress.<sup>22</sup> In the early years of the program, however, state and federal SCHIP leaders became increasingly interested in whether the program's impact on access to care and health outcomes is similar for enrollees of different racial and ethnic groups (C. Mann, JD, C. Brach, MPP, and L. P. Shore, MSW, written communication, April, 2003). When final SCHIP regulations were released >2 years after passage of enacting legislation, explicit racial/ethnic data collection and reporting requirements were included.<sup>23</sup>

Baseline measurement to document whether disparities exist among new SCHIP enrollees is essential to understanding what happens after children enroll in SCHIP. It is possible that SCHIP enrollees do not exhibit the racial and ethnic disparities documented in studies of other low-income populations. SCHIP enrollees may be a relatively homogeneous group because family incomes must fall within a narrow range in order for children to be eligible for SCHIP. Furthermore, not all eligible families enroll their children. Children from families that decide to enroll and successfully complete the application process may possess common traits and may have had prior experiences that differ from the experiences of children who do not enroll.

The current study provides baseline information about SCHIP enrollees, measuring their levels of experience with health insurance, health status, and access to and use of care before SCHIP. These data can be used later to measure changes that may occur during SCHIP enrollment.

#### STUDY AIMS

This study is part of the Child Health Insurance Research Initiative (CHIRI), funded by the Agency for Health care Research and Quality, The David and Lucile Packard Foundation, and the Health Resources and Services Administration.<sup>24</sup> We use CHIRI data from surveys of new SCHIP enrollees in 4 states to compare characteristics of white, black, and Hispanic enrollees in each state's SCHIP program to provide baseline measures of health status, health insurance coverage, access to care, and health services utilization before SCHIP enrollment and then to compare patterns across states. Specific study aims were to 1) describe the socioeconomic and demographic profile of SCHIP enrollees; 2) examine whether white, black, and Hispanic children had different experiences with health insurance and the health care system before enrolling in SCHIP; and 3) explore whether, after controlling for other factors, race and/or ethnicity independently affected pre-SCHIP health status, access to health insurance coverage, and health care. We hypothesized that black and Hispanic children would have poorer health status than white children before SCHIP enrollment, would be more likely than white children to have been uninsured or on Medicaid before SCHIP, and would have poorer access to care, defined as not having a USC and lower rates of service utilization before SCHIP.

This study is the first multistate investigation of

racial and ethnic disparities among new SCHIP enrollees. The 4 states that participated (Alabama, Florida, Kansas, and New York), which together comprised >1.2 million (26%) of the total 4.6 million children enrolled in SCHIP in 2001,<sup>25</sup> vary in the characteristics of their health care systems and SCHIP program policies, size, and maturity.<sup>24</sup> The study establishes a baseline of SCHIP enrollees' experience with health insurance, health status, and access to and use of care before SCHIP that can be used later to measure changes that may occur during SCHIP enrollment and, ultimately, to assess the impact of SCHIP.

## METHODS

### Setting

We studied SCHIP programs in 4 states: Alabama, Florida, Kansas, and New York (Table 1). Florida and New York had state-funded child health insurance programs that were implemented in the early 1990s. After the passage of Title XXI of the Social Security Act, these precursor efforts became SCHIP programs, which are now large and mature.<sup>26–29</sup> The Alabama and Kansas programs were created in response to the passage of SCHIP and implemented in 1998 and 1999, respectively.<sup>30</sup>

### Sample (Table 1)

The study states' program descriptions and survey methods are described in detail in other articles in this supplement<sup>24,29,31,32</sup> (also B. Mulvihill, PhD, J. Bronstein, PhD, F. Mulvihill, PhD, A. Jackson, BA, C. Caldwell, MPH, and A. Alvord, MPH, unpublished data, 2003). In all states, study teams obtained a list of new SCHIP enrollees from state SCHIP program offices. Each state used slightly different sampling methods (Table 1). Alabama and Florida selected random samples of new SCHIP enrollees; Alabama included children of all ages, whereas Florida's adolescent-focused study was limited to teens who were 11.5 to 17.9 years old. Kansas and New York used stratified samples and weighted the results to reflect the overall population of new SCHIP enrollees in their respective states. The New York sample was stratified by race and ethnicity and excluded other racial groups from sampling specifically to assure that analyses of disparities could be conducted with sufficient statistical power for each of the 3 racial/ethnic groups described here.

### Survey Instrument Design

CHIRI investigators collaborated to establish a set of common core questions, based on validated national survey instruments, that was included in each state's interview to ensure comparability of data across states for basic descriptive and outcome measures.<sup>24</sup> Surveys were used to collect demographic information, prior insurance, health status, access to health care, use of care, and quality of care during a time period before enrollment in SCHIP. Alabama researchers conducted a customized mail survey that was funded separately by the State of Alabama and fielded before the common core questions were finalized. Therefore, some data that are available for the other 3 study states are missing from Alabama.

### Data Collection (Table 1)

In Florida, Kansas, and New York, telephone interviews were performed between 2 and 7 months after enrollment in SCHIP. Interviewers spoke with the adult in the household (a parent in 95% of cases) who was the most knowledgeable about the index child's health insurance and medical care. Calls were made at varying times of the day and days of the week. In Alabama, surveys were mailed 9 to 11 months after enrollment.

### Race and Ethnicity

Race and ethnicity data were collected by using the methodology and wording recommended in *OMB Directive No. 15*.<sup>33</sup> The sample of Hispanic children in Alabama (0.9%) was too small to analyze; therefore, only data regarding white and black children

are reported for Alabama. In the other 3 states, children were grouped into 3 mutually exclusive categories: white non-Hispanic (white), black non-Hispanic (black), and Hispanic. Children who were "other" races were excluded from analyses in Alabama, Florida, and Kansas and were excluded from sampling in New York.

### Sociodemographic and Health Status Measures

The sociodemographic and health status measures included health status, age group, gender, household composition, family income, urbanicity, education, and employment status. Place of residence was categorized as rural or urban based on rural urban commuting areas codes developed by the Economic Research Service, United States Department of Agriculture.<sup>34</sup> Rural urban commuting area categories were collapsed into 3 levels to reflect metropolitan, large-town, and small-town/rural areas.

### Access and Utilization Measures

We compared white, black and Hispanic enrollees within each state for prior insurance experiences (number of months uninsured before SCHIP and type of prior insurance, if any); access to care (having a USC and type of USC place); continuity and ease of use (percent who saw the same provider during visits to USC place, difficulty getting appointments, and evening/weekend hours at USC); and service use by type (emergency department [ED], mental health, specialty, acute, and preventive care) during the period preceding SCHIP enrollment. All measures for Florida, Kansas, and New York asked about the time of SCHIP enrollment and the year preceding enrollment in SCHIP. Alabama measures asked more generally about the period before SCHIP enrollment with no time qualifier.

### Analyses

We performed bivariate analyses to describe each of the socio-demographic, health care access, use, and outcomes measures by race/ethnicity and to determine if white, black, and Hispanic children had different experiences with health insurance and the health care system before enrolling in SCHIP. We used  $\chi^2$  analyses to test the equivalence of estimates by race within each state.

We then used multivariate analyses to control for potential causes of disparity other than race and ethnicity and assess whether race and ethnicity independently affected pre-SCHIP health status, access to health coverage, and access to and use of health care. Adjusted estimates were calculated for each of the 3 racial/ethnic groups by predicting the outcome for all children in the sample after setting the race/ethnicity variables first to white, then to black, and finally to Hispanic. Resulting differences in the adjusted estimates between racial/ethnic groups reflect the remaining differences in those outcomes that are not explained by the other factors in the model and therefore may be attributed to race/ethnicity alone.

Interaction effects are commonly included in analyses of racial and ethnic disparities because of the ways race and ethnicity are believed to interact with education, income, urbanicity, and other factors to influence health and health care. Not all states were able to include interactions<sup>‡‡</sup>, however, and models that include different components are difficult to compare. For ease of interpretation, all 4 states ran the models with no interaction terms by using the following specifications:

$$y = f [\text{race (white, black, Hispanic); age (0–2.9 years, 3–5.9 years, 6–11.9 years, 12–18.9 years); gender (male/female); maximum [parent] education (< high school, = high school, > high school); maximum [parent] employment (< 35 h/wk, 35+ h/wk, self-employed<sup>‡‡</sup>, not working); household size (1–2, 3–4, 5+); single parent household (yes/no); urbanicity (metropolitan, large town, small town/rural); income (unknown,  $\leq$  150% FPL,$$

<sup>‡‡</sup> Self-employed status was assessed in Kansas only.

<sup>§§</sup> Interacted models were inappropriate in some states because of small subgroup cell sizes. Test models were run in the states where sample sizes were adequate by using standard model-building methods to find the best-fit interacted model within each state. Models differed slightly from one another across states but confirmed that results of interacted models compared to main-effects models within states were highly similar.

TABLE 1. Study Samples and Methods by State

	Alabama	Florida	Kansas	New York
Program name	ALL Kids Combination*	Healthy Kids Combination†	HealthWave Separate SCHIP	Child Health Plus Combination‡
Program structure	1998	1992‡	1999	1991‡
Year implemented	68 179	298 705	34 241	872 949
Ever enrolled during 2001 <sup>25</sup>	Enrolled in SCHIP between 10/98 and 9/99	Enrolled in SCHIP for <3 months with new enrollment occurring between 7/1/00 and 12/31/00	Enrolled in SCHIP between 9/1/00 and 12/31/00	Enrolled in SCHIP between 11/1/00 and 3/31/01; no SCHIP enrollment in prior 24 months
Sampling frame	Random; one unique child per family	Random; one unique child per family	Random; one unique child per family	Random; one unique child per family
Sampling method	None	None	Age, urbanicity	Age, race/ethnicity, geographic region
Stratification	None	Yes	Yes	Yes
Results weighted	No	SUDAAN (8.0.1)	SUDAAN (8.0.1)	STATA (7.0)
Analytic software	SPSS (10.0)	11.5–17.9 years	0–17.9 years	0–17.9 years
Age range	0–17.9 years	1/8/01–8/1/01	10/9/00–4/29/01	3/15/01–9/18/01¶
Surveys completed between	9/99–6/00	1824	767	2644
No. of cases	3740	55.6% (SE 1.2%)	65.6% (SE 2.1%)	21.1% (SE 1.4%)
Race/ethnicity	White non-Hispanic	15.8% (SE 0.9%)	11.5% (SE 1.4%)	24.1% (SE 1.8%)
	Black non-Hispanic	0.9% (SE 0.2%)	15.0% (SE 1.6%)	36.3% (SE 2.0%)
	Hispanic	2.0% (SE 0.2%)	7.9% (SE 1.2%)	18.5% (SE 1.5%)
	Other			

SE indicates standard error of the mean.

\* Alabama's Medicaid expansion covered children 14–18 up to 100% of the FPL who were not otherwise eligible for Medicaid.

† Florida's Medicaid expansion covered children under 1 and 17–18 to 100% of FPL who were not otherwise eligible for Medicaid.

‡ New York's Medicaid expansion covered children 15–18 to 100% FPL who were not otherwise eligible for Medicaid.

§ Florida and New York had state-specific SCHIP precursor programs, which became their respective SCHIP programs after the passage of Title XXI of the Social Security Act.

|| States that produced weighted results used either SUDAAN or STATA analytic software packages, which have been shown to produce very similar results.<sup>57</sup>

¶ Fewer than 20 interviews were completed after 9/11/01; all others were completed prior to that date.

>150% FPL); health status (excellent/very good/good versus fair/poor); prior insurance (none, Medicaid, private)]

For the 3 dichotomous outcomes, we estimated multivariate logistic regression to identify the independent association of race/ethnicity with each outcome, controlling for the other factors in the model. Identical models (as shown above) were run for the first 2 outcomes, "had USC before SCHIP" and "used preventive care before SCHIP." Model specifications were the same for the outcome "health status fair/poor" except that the health status covariate was dropped from the model.

For "prior health insurance," which has 3 outcome levels, we used multinomial logit models following the specifications discussed above and dropping the prior health insurance covariate from the model. We used *f* tests of significance to detect the presence of overall statistically significant differences across all levels of the prior insurance outcome.

## Institutional Review

Each study received approval from human subjects committees.

## RESULTS

### Bivariate Analyses

#### *Race and Ethnicity (Table 1)*

The overall racial composition of new enrollees varied across states. Although consistently more than half of all children were white in 3 of the 4 states, substantial proportions of enrollees in all states (and the majority in New York) were black or Hispanic.

#### *Demographics: Health Status (Table 2)*

Tables 2 through 6 show baseline characteristics of children in each state grouped by white (W), black (B), Hispanic (H), and total (T). Although ~10% of enrollees overall (T) reported that their health before SCHIP was fair or poor, there were large and consistent differences by race and state, ranging from 3% to 17%. Except in Kansas, minority children, particularly Hispanic children, were reported to have poorer health status than white children. Minimal racial and ethnic disparities were found within states in the prevalence of children with special health care needs (CSHCN). The proportion of children who were reported to be in fair or poor health, however, was smaller overall than the proportion reported to be CSHCN.

#### *Demographics: Household Composition, Education, and Employment (Table 2)*

Minority children were more likely than white children to live in households that had lower income (even within the limited range of SCHIP eligibility), were larger, and were headed by a single parent or nonparent. Patterns in parent (or adult) education varied by race and state, although parents of Hispanic children reported lower levels of education than did parents of white children in all states, and parents of black children in Alabama generally reported higher levels of education than parents of white children. Baseline levels of full-time employment were higher in Florida than in other states for all racial groups, although minority children in all states were generally more likely than white children to live in households where parents or adults were working part-time or not working.

#### *Prior Insurance (Table 3)*

Prior insurance varied by both race/ethnicity and state. A high percentage of children were uninsured for the entire year preceding enrollment in SCHIP in New York (62%) and Florida (73%). In contrast, fewer children (32%) in Kansas were uninsured the entire year before SCHIP enrollment. Black children in New York and Hispanic children in New York and Florida were significantly more likely to have been uninsured for the entire year before SCHIP enrollment than were white children in those states. For children who were insured at some time before SCHIP, the type of coverage varied by state, with employer-sponsored health insurance (ESHI) predominating in Florida and Medicaid predominating in Kansas, whereas both types were equally common in New York and Alabama. A fairly consistent result across the states was that black and Hispanic children were less likely to have had ESHI before enrollment in SCHIP than were white children.

#### *Prior USC (Table 4)*

Overall, most children ( $\geq 75\%$ ) were reported to have had a USC during the year before SCHIP. The greatest within-state racial/ethnic variation (14 percentage points) was found in New York, where both black and Hispanic children were significantly less likely than were white children to have had a USC before SCHIP. The least variation was in Alabama, where there was no difference between black and white children. Patterns in Florida and Kansas were similar to but less pronounced than in New York.

For children living in Florida and Kansas, private doctors' offices were the predominant type of place reported to be the USC before enrollment in SCHIP. In New York, outpatient clinics (both hospital and nonhospital) were almost as likely as private doctors' offices to be the USC. Hospital EDs were not a prevalent USC in any state. However, with some variation across states, minority children in several states were more likely to report the ED and clinics as the USC or more likely to report difficulty getting appointments at the USC.

#### *Prior Utilization (Table 5)*

A large proportion of children reportedly received health care services in the year before SCHIP enrollment. A high proportion had ED visits, and at least 66% of all children had preventive care visits. The pattern of health care utilization varied across states for ED and mental health services, with high ED use in Alabama and high mental health service use in New York. Some disparities were noted by race/ethnicity in most types of service use except for ED use; however, no consistent patterns emerged.

### Multivariate Analyses

Table 6 contains adjusted rates based on multivariate model estimates of prior health insurance, having a USC before SCHIP, prior use of preventive care, and health status. First, bivariate findings of racial and ethnic disparities in prior insurance status were largely confirmed by multivariate analyses. Alabama

**TABLE 2.** Baseline Characteristics of New SCHIP Enrollees by State and Race/Ethnicity

	Alabama						Florida						Kansas						New York															
	W		B		T		W		B		H		T		W		B		H		T		W		B		H		T					
	W	B	W	B	T	W	B	H	T	W	B	H	T	W	B	H	T	W	B	H	T	W	B	H	T	W	B	H	T					
Fair or poor health	3.2%	7.0%	4.5%***	3.0%	6.9%**	10.5%***	15.4%*	5.7%***	18.2%*	8.5%	1.3%***	9.8%	7.9%***	24.8%*	3.8%	8.0%*	17.2%***	11.1%***																
CSHCN	—	—	—	20.3%	15.8%	15.4%*	—	—	—	26.7%	18.6%	16.9%*	—	—	19.7%	16.0%	15.1%	16.5%																
Age (years)																																		
0-2.9	8.9%	5.4%	7.7%	—	—	—	—	—	—	12.5%	10.1%	25.0%*	14.7%*	21.0%	16.5%	21.7%	19.9%																	
3-5.9	10.4%	7.2%	9.3%	—	—	—	—	—	—	16.6%	8.2%*	14.9%	15.7%	18.2%	19.1%	16.7%	17.8%																	
6-11.9	44.2%	44.6%	44.3%	—	—	—	—	—	—	39.7%	55.1%*	33.9%	39.7%*	33.3%	35.2%	33.1%	33.8%																	
12-18.9	36.5%	42.8%	38.6%	55.6%	15.8%	25.9%	100%	—	—	31.3%	26.6%	26.3%	29.9%	27.5%	29.1%	28.5%	28.5%																	
Male	52.5%	49.8%	51.6%	49.4%	49.8%	51.8%	50.1%	50.1%	50.1%	51.5%	48.3%	57.8%	52.2%	50.6%	39.8%*	53.7%	48.7%*																	
Living in single-parent household	—	—	—	42.1%	66.8%***	31.1%***	43.2%***	40.1%	40.1%	40.1%	76.0%***	35.9%	44.4%***	36.3%	67.3%***	47.7%*	50.9%***																	
Mean household size	—	—	—	3.8%	3.8%	4.1%***	3.9%***	4.0%	4.0%	4.0%	3.4%**	4.3%	4.0%**	4.1%	4.2%	4.4%*	4.3%																	
Family income >150% FPL	41.5%	30.8%	37.9%***	42.1%	24.2%***	27.7%***	35.1%***	35.9%	35.1%***	35.9%	21.9%*	22.4%*	32.2%*	38.0%	15.5%***	15.9%***	21.2%***																	
Residence																																		
Metropolitan	49.7%	61.0%	53.5%	89.2%	93.4%*	97.4%***	92.0%***	33.9%	81.2%***	33.9%	16.1%	54.2%***	43.1%***	77.6%	97.3%***	97.9%***	92.3%***																	
Large town	18.3%	13.6%	16.8%	9.0%	5.5%	3.0%***	6.9%***	33.4%	16.1%	33.4%	16.1%	28.2%	30.4%**	6.4%	2.0%***	0.5%***	2.4%***																	
Small town/rural	32.0%	25.4%	29.8%	1.8%	1.0%	0.0%**	1.2%*	32.7%	2.7%***	32.7%	2.7%***	17.6%***	26.5%***	16.0%	0.7%***	1.7%***	4.9%***																	
Maximum education of respondent/household†																																		
<High school	21.9%	17.5%	27.2%***	11.3%	11.2%	25.1%***	14.9%***	6.2%	6.2%	6.2%	6.2%	8.6%	6.2%	4.5%	16.0%***	40.3%***	24.0%***																	
High school grad or GED	44.8%	38.7%	42.7%	39.7%	40.8%	32.3%	37.9%**	52.9%	65.0%	52.9%	65.0%	70.8%**	57.7%†	40.1%	40.3%	31.9%	36.5%																	
Technical/vocational	—	—	—	4.5%	3.5%	4.7%	4.4%	—	—	—	—	—	—	2.2%	0.5%**	0.5%**	0.9%***																	
Some college	28.2%	39.5%	32.0%	25.1%	25.8%	16.8%	23.0%***	24.4%	22.2%	24.4%	22.2%	12.1%**	2.0%*	30.6%	33.3%	13.5%	23.7%***																	
College grad+	5.0%	7.8%	6.0%	19.5%	18.8%	21.1%	19.8%	16.5%	6.7%**	16.5%	6.7%**	8.5%*	14.0%†	22.6%	10.0%***	13.8%*	14.9%***																	
Maximum employment in household (respondent, parent, household‡)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—																
Full-time	—	—	—	75.5%	70.6%	72.2%	73.8%	71.5%	65.6%	71.5%	65.6%	53.0%**	67.7%**	72.4%	52.8%***	63.6%	62.5%**																	
Part-time	—	—	—	6.1%	7.6%	7.6%	6.7%	9.4%	1.1%***	9.4%	1.1%***	8.5%	8.2%**	15.2%	23.8%	15.6%	18.0%																	
Not working (includes home, school or other)	—	—	—	18.5%	21.8%	20.3%	19.5%	9.9%	30.3%***	9.9%	30.3%***	14.3%	13.1%*	12.4%	23.4%***	20.7%*	19.5%*																	
Self-employed§	—	—	—	—	—	—	—	9.3%	3.0%	9.3%	3.0%	24.2%†	11.0%†	—	—	—	—																	

W indicates white; B, black; H, Hispanic, T, total. Symbols denote statistically significant difference from white children (in race group columns) or among all 3 groups (in total column).

\*  $P \leq .05$ ; \*\*  $P \leq .01$ ; \*\*\*  $P \leq .001$ .

† Florida and New York: maximum education of respondent, parent, or household; Kansas: education of household.

‡ Florida and New York: maximum employment of respondent, parent, or household; Kansas: employment of household.

§ Self-employed status was assessed in Kansas only.

**TABLE 3.** Prior Insurance Experience by State and Race/Ethnicity

	Alabama			Florida			Kansas			New York				
	W	B	T	W	B	H	W	B	H	W	B	H	T	
	No. of months insured in year before SCHIP†	—	—	—	4.4%	6.0%	4.3%	4.6%	44.4%	54.8%	39.8%	44.0%	29.8%	18.1%*
Insured all 12 months	—	—	—	70.0%	72.5%	78.5%***	72.6%**	30.9%	26.9%	33.1%	31.7%	48.6%	68.7%***	61.9%**
Uninsured all year	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Prior insurance type‡	46.6%	30.7%	41.3%***	64.4%	59.3%	48.1%**	60.0%*	23.5%	13.1%	13.4%	19.8%	68.7%	54.2%	47.3%***
Private ESHI	6.0%	3.8%	5.3%*	10.1%	2.5%*	15.1%	9.9%*	0.9%	0.0%*	0.0%*	0.6%	4.2%	0.5%***	1.3%*
Private self-pay (not ESHI)	49.7%	59.2%	52.9%***	15.1%	29.6%***	23.6%*	19.4%**	51.2%	53.4%	70.7%**	55.1%*	23.3%	33.7%	42.6%***
Any Medicaid	11.4%	17.2%	13.3%***	5.7%	3.7%	7.6%	5.8%	24.1%	32.5%	11.1%**	23.2%*	10.7%	13.1%	14.1%
Other	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Prior insurance (aggregate)§	49.7%	54.2%	52.9%***	5.5%	10.5%**	6.2%	6.5%**	35.5%	40.5%	50.9%*	38.6%	11.0%	12.4%	16.0%*
Medicaid	52.6%	34.5%	46.6%***	24.0%	17.5%*	16.2%***	20.9%***	35.1%	34.6%*	17.7%***	32.2%**	40.4%	24.8%**	10.4%***
Private/other	—	—	—	70.5%	72.0%	77.7%**	72.6%*	29.4%	24.9%	31.5%	29.2%	48.6%	62.8%*	68.4%**
None	—	—	—	—	—	—	—	—	—	—	—	—	—	—

W indicates white; B, black; H, Hispanic; T, total. Symbols denote statistically significant difference from white children (in race group columns) or among all 3 groups (total) (\*  $P \leq .05$ ; \*\*  $P \leq .01$ ; \*\*\*  $P \leq .001$ ).

† Columns do not sum to 100% because some children (<25% of all children in any state) had coverage for part but not all of the year prior to SCHIP. Alabama survey asked whether children were previously insured and reports insurance type for those children, but did not ask whether child was previously uninsured.

‡ Includes only children who had prior health insurance. In Alabama a child could have had prior insurance any time before SCHIP enrollment, but for Florida, Kansas, and New York prior insurance refers to insurance a child had in the 12 months prior to SCHIP enrollment. Alabama and New York allowed more than one response, and therefore percentages in those states do not sum to 100.

§ Aggregated variable combines the concepts presented in number of months insured and type of last insurance to create a single outcome variable for use in multivariate analyses.

**TABLE 4.** Prior USC, Type of USC Place, and Ease of Use of USC by State and Race/Ethnicity

	Alabama			Florida			Kansas			New York				
	W	B	T	W	B	H	W	B	H	W	B	H	T	
	Had USC before SCHIP†	75.3%	75.0%	75.2%	84.4%	81.9%	72.7%***	80.9%***	91.0%	87.7%	86.0%	90.2%	95.1%	86.9%**
Type of USC place before SCHIP	—	—	—	69.8%	56.0%***	61.5%**	65.7%***	82.4%	66.0%*	62.8%**	77.4%**	75.7%	35.0%***	29.7%***
Doctor's office incl. HMO	—	—	—	3.3%	8.4%***	2.6%	3.9%***	0.5%	1.1%	0.0%	0.5%	1.2%	4.6%*	4.8%*
Hospital ED	—	—	—	13.7%	19.4%*	26.9%***	17.7%***	7.5%	15.9%	14.4%	9.6%	20.8%	46.7%***	49.3%***
Clinic or hospital outpatient	—	—	—	13.2%	16.3%	9.0%*	12.8%*	9.7%	17.0%	22.8%*	12.6%*	2.4%	13.5%***	10.5%*
Some other place	—	—	—	—	—	—	—	68.1%	52.8%	69.3%	66.5%	81.0%	79.9%	69.7%***
Children who usually saw same doctor or provider at USC	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ease of use of USC	—	—	—	15.5%	21.3%	24.9%**	18.6%**	17.2%	21.1%	28.1%	19.2%	10.4%	17.5%	24.8%***
Reported difficult or sometimes/never got appointment when you wanted or within 2 days	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Reported USC had evening/weekend hours	—	—	—	—	—	—	—	41.5%	43.6%	23.4%**	39.5%*	71.3%	72.9%	46.9%***

W indicates white; B, black; H, Hispanic; T, total. Symbols denote statistically significant difference from white children (in race group columns) or among all 3 groups (total) (\*  $P \leq .05$ ; \*\*  $P \leq .01$ ; \*\*\*  $P \leq .001$ ).

† In Florida, Kansas, and New York the term "before SCHIP" was defined as the 12 months prior to SCHIP enrollment. In Alabama, no time frame qualifiers were used to constrain the time period "before SCHIP."

**TABLE 5.** Percent of Children Who Had Any Service Use Before SCHIP by Service Type, State, and Race/Ethnicity

	Alabama			Florida			Kansas			New York			
	W	B	T	W	B	H	W	B	H	W	B	H	T
	Hospital ED	60.8%	60.3%	60.6%	28.1%	27.1%	26.3%	32.9%	35.1%	38.7%	34.6%	27.6%	22.8%
Mental health	—	—	—	—	—	—	10.4%	6.4%	9.2%	9.4%	23.2%	12.7%*	20.8%***
Specialty care	—	—	—	18.1%	12.8%*	18.4%	—	—	—	—	19.7%	13.4%	14.7%
Any acute visit	—	—	—	38.3%	28.1%**	23.3%***	—	—	—	—	42.1%	24.6%***	28.8%***
Any doctor's visit	86.2%	82.8%	85.1%*	—	—	—	93.4%	92.7%	92.0%	93.0%	—	—	—
Any preventive visit	65.1%	72.0%	67.4%***	71.7%	66.8%	63.1%***	67.1%	69.3%	68.4%	67.3%	71.8%	72.0%	73.4%

In Florida, Kansas, and New York the term "before SCHIP" was defined as the 12 months prior to SCHIP enrollment. In Alabama, no time-frame qualifiers were used to constrain the time period "before SCHIP."

W indicates white; B, black; H, Hispanic; T, total. Symbols denote statistically significant difference from white children (in race group columns) or among all 3 groups (total) (\*  $P \leq .05$ ; \*\*  $P \leq .01$ ; \*\*\*  $P \leq .001$ ).

**TABLE 6.** Adjusted Estimates of Racial/Ethnic Differences Among SCHIP Enrollees

	Alabama			Florida			Kansas			New York				
	W	B	P	W	B	H	W	B	H	W	B	H	P	
	Prior insurance status	36%	44%	.054	7%	10%	7%	NS	37%	38%	47%	11%	13%	21%
Medicaid/public	37%	28%	.002	21%	19%	17%	NS	34%	35%	22%	33%	24%	13%	
Any private	—	—	—	72%	71%	76%	NS	29%	26%	32%	56%	62%	66%	
None	75%	76%	NS	83%	82%	75%**	.0003	91%	89%	89%	94%	86%***	83%***	.000
Had USC before SCHIP	65%	73%	.00	71%	68%	64%**	.0002	69%	71%	64%	67%	78%*	73%	NS
Used preventive care before SCHIP	3%	7%	.000	3%	7%*	9%***	<.001	8%	0.6%*	11%	7%	8%	14%*	.03
Fair or poor health														

W indicates white; B, black; H, Hispanic; T, total. Symbols denote statistically significant difference from white children (in race group columns) or among all 3 groups (total) (\*  $P \leq .05$ ; \*\*  $P \leq .01$ ; \*\*\*  $P \leq .001$ ).

†  $f$  tests of significance were performed to determine statistical significance of differences between 3 insurance conditions in multinomial logit analyses in Florida, Kansas, and New York. Data on prior uninsurance were not available for Alabama; therefore, multinomial logit models were not necessary to generate the adjusted predictions shown here. NS indicates not significant.



and New York showed higher rates of private insurance for white children than minority children. In New York, minority children were more likely than white children to have been uninsured before SCHIP, and Hispanic children were more likely than black or white children to have had Medicaid coverage before SCHIP. Second, where bivariate analyses showed racial and ethnic differences in having a USC and in perceived health status before enrollment in SCHIP, these differences were also observed in multivariate analyses. Third, the lower use of preventive care before SCHIP among white children in Alabama and Hispanic children in Florida, along with the absence of differences between groups in New York, were also confirmed by multivariate analyses. In total, these results suggest that these characteristics may be independently associated with race or ethnicity rather than with other factors that differed across racial and ethnic groups.

## DISCUSSION

### Variations in Racial and Ethnic Disparities

Prior studies have found that no single factor accounts for racial disparities in health and health care among children. Instead, a variety of simultaneous interactions that are dynamic, variable, and contextual exert differential effects on individuals and groups. Likewise, the results of the current study underscore the complexities of the role of race and ethnicity in SCHIP. First, our study findings confirm our hypotheses that there are differences in sociodemographic characteristics and health care experience among new enrollees in SCHIP that are associated with race/ethnicity despite the narrow income band of SCHIP eligibility. Black and Hispanic children in all 4 states more frequently came from poorer, less-educated, or single-parent families; had poorer reported health status; or had poorer access to health insurance and health care during the period before SCHIP.

Second, patterns of racial and ethnic disparities varied across states. These findings might represent different fundamental characteristics of populations between states including country of origin and duration of residence, primary language, level of acculturation, and social, cultural, political, and health system factors. In addition, factors such as program maturity, temporal differences in eligible populations studied here, and differences in outreach efforts may account for some of the observed variation in patterns of minority enrollment in SCHIP. Although this study cannot determine the causes of variation, it is clear that disparities in sociodemographic characteristics, health status, and experiences with the health care system before enrollment in SCHIP among white, black, and Hispanic children vary depending on where one resides.

Another important finding is that, in general, minority children were more likely to be reported as having fair or poor health, but white children were more likely to be identified as CSHCN. These apparently contradictory results are consistent with prior research. Studies have shown that parents of minor-

ity children are more likely to report their child's health status as fair or poor than are parents of white children.<sup>7,35</sup> Prior studies have also shown that multi-item health status screening instruments function differently for different racial and ethnic groups,<sup>36</sup> and that statements about health status of Hispanics relative to non-Hispanics are one-dimensional unless they include details about the condition(s) in question and account for differences in sociodemographic characteristics between the groups being compared.<sup>37</sup> Prior studies have also shown that parents of CSHCN report their child's health to be excellent or good even when children face severe chronic disabilities (R. E. Stein, personal communication, 2003). These results highlight the importance of using multiple instruments, understanding differences in the way instruments function for different racial/ethnic groups, and repeating the same measures at different points in time to ensure that health status is accurately measured and monitored for all racial groups and to ensure that changes in outcomes (positive or negative) are not distorted by changes in methods of measurement.

Our findings only partially confirm an independent effect of race and ethnicity. Race and ethnicity had an independent effect on having a USC and on health status before enrollment. In other words, even if minority children had the same sociodemographic characteristics and insurance status as white children, they would still have been less likely to have had a USC and more likely to have been in poor health. The effect of being black or Hispanic reduced the probability of using preventive care in Florida and for Hispanic children in Kansas but increased the probability for minority children in Alabama and New York and for blacks in Kansas.

### Policy Implications

Substantial proportions of SCHIP enrollees are black and Hispanic, and racial and ethnic disparities are present among new enrollees in SCHIP, a population of children who may have been assumed to be homogeneous because of their economic similarities. This means that SCHIP has the potential to reduce or eliminate disparities among the children it serves. Enrollment of children in SCHIP in and of itself might be expected to result in some reduction of disparities, because black and Hispanic children are less likely to have health insurance,<sup>5,6,15</sup> and insurance is associated with better access to care, greater use of care, and better health outcomes.<sup>38-40</sup> However, insurance alone does not eliminate disparities.<sup>41,42</sup> Our finding that there was an independent effect of race and ethnicity on some variables confirms that merely providing insurance will not be sufficient to eliminate disparities among enrollees. Many SCHIP programs use delivery systems that served these children before enrollment either through Medicaid or safety-net providers. SCHIP administrators therefore must initiate programmatic efforts to ensure that the disparities children experienced before enrollment are not perpetuated. True inroads on reducing disparities will rely on linking newly enrolled children with a medical home, mon-

itoring service use, and identifying and reducing nonfinancial barriers to care.

Data collection is critical in addressing disparities. States that have not collected baseline data on SCHIP enrollees will find it difficult to understand whether any disparities in health care utilization or health outcomes observed among children who have been enrolled in SCHIP were caused, perpetuated, or lessened by SCHIP. Measuring health care needs at program entry also provides SCHIP administrators with information that they can use to tailor services to address those needs, ensure culturally appropriate services, and consider targeted interventions.

Data collection will present a variety of challenges. Estimates of enrollee health status may vary dramatically depending on the measurement tools used. The fact that the 2 measurements of health status used in this study, the self-report overall assessment of health status and the CSHCN screener, yielded different results illustrates the challenges in measuring disparities by using different tools. Estimates of changes in health status during program participation are likely to be distorted if measurement tools are changed from baseline to follow-up. Using multiple instruments and repeating the same measures at different points in time are necessary to measure the health status of SCHIP enrollees accurately over time. This will require resisting pressure to streamline assessment efforts in light of time and resource constraints.

This study found that new enrollees in SCHIP differ by state. Although states can continue to look to each other for ideas, collaborating to share information, alternatives, and possible solutions, it is clear that strategies to reduce disparities must be state-specific. This makes collection of state-specific baseline data even more important in informing states' policy choices.

SCHIP clearly has the potential to play a critical role in efforts to eliminate racial and ethnic disparities in health among enrollees. State SCHIP policies could include measuring and understanding health care needs at program entry, tailoring services to address those needs, ensuring culturally appropriate services, considering targeted interventions, and measuring and reporting both process and health outcomes by race and ethnicity. These activities can advance our understanding of the impact of program changes both at inception and on an ongoing basis.

Although funding for SCHIP programs remained largely intact for fiscal year 2002, continued economic decline and sustained state budget challenges raise the real possibility of reductions in future years.<sup>43</sup> Data presented here suggest that black and Hispanic children could be hit the hardest by the most frequently discussed program cutbacks: benefit-package reductions, increased cost sharing, and capped enrollment.<sup>44</sup> Reductions in the nature or scope of covered benefits could compromise the health of the SCHIP enrollees in the poorest health, who are more likely to be black or Hispanic. Furthermore, increases in cost sharing might deter the poorest families from accessing health services, families who are more likely to be black or Hispanic.

As the overall proportion of the US population who are identified as members of racial and ethnic minority groups continues to grow,<sup>16</sup> children denied coverage because of cutbacks in overall program capacity or limits on the numbers of children enrolled are increasingly likely to be black and Hispanic children. Furthermore, the lower rates of ESHI coverage for black and Hispanic children even among working families illustrates the role that job segmentation may have on health coverage and highlights the importance of public coverage for children whose parents do not have access to or cannot afford contributions toward private insurance options. The cost of family contributions for the average employment-based health plan would consume 20% of income for a family living at 200% of the federal poverty level (FPL) and 40% of income for a family living at 100% of the FPL.<sup>45</sup> Compared with white children, black and Hispanic children are both less likely to have ESHI and more likely to be lower-income. Policy makers should think carefully about the effects of policy decisions on equity in access, use, and health outcomes among all racial and ethnic groups.

### Strengths and Limitations

Although multiple studies have examined racial and ethnic disparities in general,<sup>46</sup> this study is unique in focusing on the characteristics of new enrollees in SCHIP. Among evaluations of SCHIP, it is also unique in applying common questions across states to examine racial and ethnic disparities. Because we found that statistically significant and substantively important differences by race and ethnicity are present, these results provide a baseline against which to measure subsequent impact of SCHIP programs on racial and ethnic disparities. By studying several states, including programs of different size and maturity, we were able to examine racial and ethnic differences in a variety of settings and to begin to estimate the possible role of SCHIP programs in working toward the national goal of eliminating racial and ethnic disparities in health.

The study has a number of limitations. Regarding external validity, the findings can only be generalized to the population of new enrollees in SCHIP in each state. We excluded other racial groups, did not examine language differences, and did not focus on immigrant populations, although some study respondents were immigrants and had other sociocultural differences. Although the 4 states comprise 25% of all SCHIP enrollees nationally, the variations in findings across states demonstrate that extrapolation to SCHIP programs in other states should be undertaken with caution.

Our methods for assessing and classifying race/ethnicity follow federal guidelines and conventional practice, but prior research has also challenged the appropriateness of common grouping schemes due to the wide variation that is present within each of the common racial categories<sup>17,47,48</sup> and has challenged common methods used to describe racial disparities in health. There exists no "gold standard" for comparison of groups; thus, other groups have typ-

ically been compared with whites as the "benchmark population."<sup>47,49</sup> In the absence of an accepted standard, the current study is similarly limited.

Minority children in all the states generally lived in metropolitan areas. Although the collinearity of minority race with residence in metropolitan areas prevents us from disentangling the effects of these factors within states, it holds that just as state level factors may be a source of cross-state differences in public health insurance program participation,<sup>50</sup> state-level factors may be driving some of the geographic variation reported here.

A number of limitations to internal validity exist. Although many survey questions were constructed jointly, variations across states existed in some questions, making it more difficult to compare some findings among the states. The main comparisons, however, were among the 3 racial and ethnic groups within states, which should not be affected by differences in questions across states. Second, 3 states used "most knowledgeable adult" telephone interviews shortly after enrollment from samples of children who enrolled primarily in 2000, whereas Alabama used a retrospective, mailed survey of children who enrolled primarily in 1999. Any dissimilarities observed when comparing Alabama to the other 3 may be due to these methodological differences. Third, although a number of factors were accounted for in the multivariate analyses, unmeasured environmental factors undoubtedly play substantially different roles for the 3 racial and ethnic groups, as do more complex interactions of race with other factors. We used main effects models to preserve consistent model specifications across states, thereby limiting our ability to understand the nature and scope of these interactions within each state. Fourth, some of the outcomes (such as utilization of services) may be subject to recall error. Although there are known differences in the perception of health status,<sup>7,36,37,51</sup> accessibility of services and perceived or actual quality of care received,<sup>52-54</sup> it is not clear that there would be systematic bias by racial or ethnic group in the ability to recall events or in the way that instruments function within states.

## CONCLUSIONS

We conclude that 1) SCHIP is enrolling a substantial number of racial and ethnic minority children; 2) there are baseline racial and ethnic disparities among new enrollees in SCHIP, with black and Hispanic children faring worse than white children on many sociodemographic and health system measures; 3) there are differences between states in the prevalence and magnitude of these disparities; and 4) health status measurement instruments must be selected carefully to ensure that health status is accurately measured and monitored for SCHIP enrollees of all racial/ethnic backgrounds over time. As a result, SCHIP has the potential to improve the overall quality of care among racial and ethnic minority children and contribute toward the national goal of eliminating disparities in health.

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