Comparison of Children's Medical and Dental Insurance Coverage by Sociodemographic Characteristics, United States, 1995

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Abstract

Background: *Insurance coverage can reduce financial barriers that constitute a significant deterrent to obtaining medical and dental care, especially for children who reside in low-income households. We present baseline information on the codistribution of medical and dental coverage among US children according to sociodemographic characteristics before the enactment of the State Children's Health Insurance Program (SCHIP).* ***Methods:*** *Data for 27,059 children 0–17 years old from the 1995 National Health Interview Survey (NHIS) were analyzed to examine the distribution of medical and dental insurance coverage by sociodemographic characteristics. Prevalence estimates and adjusted odds ratios with 95 percent confidence intervals were calculated using SUDAAN.* ***Results:*** *Overall, 14.1 percent children were uninsured for medical care and 36.4 were uninsured for dental care; thus, there were 2.6 times as many children uninsured for dental than for medical care. Near-poor and Hispanic children were most likely to be without medical or dental coverage. Near-poor children were more likely to be uninsured for dental care than for medical care (43.8% vs 22.5%).* ***Conclusion:*** *Our findings, coupled with previous reports, suggest that the most serious problem concerning lack of dental insurance is among near-poor children. SCHIP has the potential to address dental coverage among near-poor children. [J Public Health Dent 2002;62(1):38-44]*

Key Words: children, medical insurance, dental insurance, NHIS.

In recent years, policy makers and the general public have become increasingly aware of and concerned about the extent and plight of the uninsured. Americans overwhelmingly acknowledge that not having health insurance is a major problem for children, and agree that uninsured children have more problems than insured children receiving dental care (80%), routine medical care (77%), complex medical or surgical care (74%), or emergency care (66%) (1). The public also continues to express broad support for the principle that children have a right to health insurance. Nevertheless, surveys reveal that Americans often are unaware of which problems actually affect the most children or affect them most severely, and do not routinely think about the problems faced by uninsured children (2). Misconceptions about the types of benefits available to children who have "health insurance coverage," that is, those who are eligible and enrolled in an insurance plan, also contribute to the public's lack of appreciation of this important public policy issue. For example, it is often assumed that the term "health insurance" includes coverage for dental care. In fact, medical and dental benefits are usually provided through separate plans or programs, and are not uniformly available to all segments of the population. Accordingly, the US Census Bureau (3) estimates that 11.1 million children under the age of 18 years (15.4 percent) had no health insurance coverage during the entire 1998 calendar year; previously reported data suggest that a considerably larger number lack private coverage for dental services in 1989 (4).

Thus, although it is widely recognized that insurance coverage can reduce financial barriers constituting a significant deterrent to obtaining medical and dental care (4-8), little is known about the codistribution of coverage for medical and dental services among children in the United States or differences in coverage according to sociodemographic characteristics and financing sources. The objectives of this study, therefore, are to present estimates of children's medical and dental insurance coverage by sociodemographic characteristics and to compare children's medical and dental insurance coverage across sociodemographic groups before the enactment of State Children's Health Insurance Program (SCHIP).

Methods

Data Source. We analyzed data from the 1995 National Health Interview Survey (NHIS) to compare the sociodemographic distribution of dental and medical insurance among children. The NHIS, conducted by the Centers for Disease Control and Prevention's National Center for Health Statistics, is a national stratified multistage probability sample of households in the United States, which is collecting data in the field continuously. Data collected each week are representative of the civilian noninstitutionalized United States population.

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The 1995 NHIS sample size consisted of 39,239 households containing 102,467 persons of all ages; the survey design included oversampling of non-Hispanic black persons and persons of Hispanic ancestry to produce reliable estimates for these populations (9). In addition to the core questionnaire used every year, the 1995 NHIS included several special topics: childhood immunizations, disability, family resources, and Year 2000 Healthy People objectives. The family resources supplement collected extensive information on health insurance coverage.

Population. The age group selected for this study was 0 to 17 years of age. Unlike most studies of dental insurance coverage, we included children under 2 years of age in the study population because major professional organizations now recommend that a child's first dental visit occur by age 1 (10-11). NHIS 1995 collected data on 29,711 children between 0 and 17 years of age. Participants with data missing for medical or dental insurance coverage (n=2,652) were excluded from this study, for a final sample size of 27,059 children. Excluded children did not differ in age, income category, or level of education of the head of household from children included in the study (P>.05). However, included children were more likely to be non-Hispanic white (P=.007) and to have complete data on family income (P<.001) than excluded children.

Outcome Variables. The outcome variables in this study were medical and dental insurance coverage, each classified according to four mutually exclusive categories listed in hierarchical order: "private," "public," "other," and "uninsured" (5). Public insurance was overwhelmingly Medicaid coverage. Persons with only single-service insurance such as disability, vision care, cancer treatment, accidents, and dental care were considered medically uninsured; however, persons whose single-service insurance covers hospitalization were considered medically insured (5). Military, Indian Health Service, and Medicare are classified as "other insurance"; they are included in totals, but are not presented separately because the percentage of children covered by these types of insurances was too small to produce reliable estimates.

Other Variables. Other variables of interest included in this analysis were self-reported race/ethnicity, recoded as "non-Hispanic white," "non-Hispanic black," "Hispanic," and "other." Income, as a percent of federal poverty level (FPL) threshold, was selected as the main indicator of SES because qualification for most public insurance is based on poverty level. Income level was defined by the ratio of the family income to the federal poverty level threshold; in 1995 the FPL for a family of four was $15,569. For this study income level was classified as: "poor," "near-poor," "middle-income," and "high-income" (12). Poor persons had family incomes below the FPL; near-

TABLE 1
Percentage Distribution of Type of Medical and Dental Insurance Coverage Among Children Aged 0–17 Years, by Income Level and Ethnicity, National Health Interview Survey, 1995

	Private		Public		Uninsured	
	Medical % (SE)	Dental % (SE)	Medical % (SE)	Dental % (SE)	Medical % (SE)	Dental % (SE)
Total	65.3 (1.11)	44.6 (1.10)	18.4 (0.63)	16.9 (0.66)	14.1 (0.63)	36.4 (0.69)
Non-Hispanic white	76.1 (1.05)	50.6 (1.06)	10.7 (0.57)	9.8 (0.51)	11.5 (0.55)	37.7 (0.86)
Non-Hispanic black	43.8 (1.69)	34.4 (1.89)	39.4 (1.85)	35.2 (1.89)	14.5 (0.90)	27.9 (1.14)
Hispanic	40.0 (1.58)	28.6 (1.37)	32.3 (1.71)	30.8 (1.68)	26.3 (1.26)	39.3 (1.26)
Poor	16.6 (0.89)	12.4 (0.81)	60.1 (1.32)	58.1 (1.38)	21.9 (1.12)	28.5 (1.05)
Non-Hispanic white	22.2 (1.75)	15.9 (1.50)	54.2 (2.09)	53.0 (2.08)	22.4 (1.76)	29.9 (1.81)
Non-Hispanic black	14.9 (1.70)	12.7 (1.64)	69.0 (2.21)	64.7 (2.67)	15.0 (1.75)	22.2 (1.90)
Hispanic	12.1 (1.23)	8.5 (1.04)	58.2 (2.27)	57.2 (2.17)	28.9 (1.62)	33.7 (1.74)
Near-poor	56.5 (1.46)	38.1 (1.35)	17.3 (0.93)	14.7 (0.88)	22.5 (1.05)	43.8 (1.22)
Non-Hispanic white	62.3 (1.65)	39.2 (1.71)	13.8 (0.98)	12.2 (0.96)	20.6 (1.13)	45.4 (1.59)
Non-Hispanic black	46.1 (2.46)	37.2 (3.00)	30.5 (2.11)	24.0 (2.10)	19.6 (1.94)	35.0 (2.46)
Hispanic	45.9 (2.09)	35.5 (1.67)	19.4 (1.76)	16.8 (1.58)	33.2 (2.04)	46.0 (2.04)
Middle-income	85.5 (0.82)	57.8 (1.30)	2.9 (0.28)	2.2 (0.24)	8.7 (0.55)	36.9 (1.25)
Non-Hispanic white	87.9 (0.79)	58.1 (1.36)	2.3 (0.29)	1.8 (0.26)	7.8 (0.63)	37.9 (1.36)
Non-Hispanic black	78.5 (2.45)	63.3 (3.24)	5.5 (1.06)	3.1 (0.89)	10.8 (1.48)	26.7 (2.28)
Hispanic	75.5 (2.57)	49.8 (2.40)	6.7 (1.06)	5.1 (0.98)	14.8 (2.07)	42.4 (2.34)
High-income	94.2 (0.50)	65.8 (1.38)	—	—	3.9 (0.38)	32.6 (1.35)
Non-Hispanic white	94.9 (0.52)	65.4 (1.51)	—	—	3.6 (0.36)	33.2 (1.50)
Non-Hispanic black	90.6 (2.26)	74.1 (3.42)	—	—	4.9 (1.40)	22.1 (2.99)
Hispanic	88.7 (1.96)	65.9 (2.75)	—	—	7.9 (1.58)	32.1 (2.71)

Children missing data for ethnicity and income level and children with other insurances are included in totals, but are not shown separately.

poor persons had family incomes between 100 and 199 percent of the FPL; middle-income persons have family incomes at least 200 percent of the FPL, but less than $50,000; and high-income persons had family incomes at least 200 percent of the FPL and at least $50,000. Limitations in data collection required the classification of the group with incomes at least 200 percent of poverty to be based on family income rather than on percent of poverty level (12). Children with missing data for family income were classified as "unknown." Analyses using education of the head of household instead of income level were consistent with those presented here. Other variables included in the analysis to account for geographic differences in insurance coverage were U.S. region of residence and urban residence, which was classified as central city, outside central city, and nonmetropolitan area.

Statistical Analyses. We calculated the percentage of children covered by the different types of medical and dental insurance and their combinations by ethnicity and income level. Statistical significance of differences between groups were approximated using 95 percent confidence intervals (CI), calculated with the formula: 95 percent CI=estimate +/- (1.96 * standard error, or SE). The relative likelihood of having medical and dental insurance was determined with logistic regression models. Separate models with medical and dental insurance coverage as the dependent variables were fitted; the covariates included in the models were ethnicity, age, income level, region, and urban residence. Interaction of age with income level was tested and found significant ($P<.001$); therefore, to facilitate the interpretation of results, the model was fitted separately for each of three age groups: 0–5, 6–12, and 13–17 years of age. All analyses included sample weights to provide estimates representative of the U.S. population aged 0 to 17 years and to account for oversampling and nonresponse. Analyses were conducted using the SUDAAN statistical software package (13) to account for design effects associated with the survey's complex sampling design in the calculation of standard errors.

Results

Table 1 presents the distribution of types of medical and dental insurance coverage or enrollment (public vs private) by income level and race/ethnicity. Overall, 14.1 percent children were uninsured for medical care and 36.4 percent were uninsured for dental care; thus, there were 2.6 times as many children who were uninsured for dental services compared to the number who were uninsured for medical care. Similar percentages of children had public medical and dental coverage (18.4% and 16.9%, respectively); however, a higher percentage of children were covered by private medical insurance (65.3%) than by private dental insurance (44.6%).

Poor children were as likely as near-poor children to lack medical insurance; and both were more likely to be medically uninsured than middle- and high-income children (Table 1). As expected, with higher income levels, the percentages of children with private

TABLE 2
Percentage of Children Aged 0–17 Years with Medical and Dental Insurance Coverage, by Age Group and Sociodemographic Characteristics, National Health Interview Survey, 1995

	Medical Insurance			Dental Insurance		
	0–5 Years % (95% CI)	6–12 Years % (95% CI)	13–17 Years % (95% CI)	0–5 Years % (95% CI)	6–12 Years % (95% CI)	13–17 Years % (95% CI)
Total	87.6 (86.4, 88.8)	87.5 (84.3, 87.1)	83.9 (82.2, 85.5)	66.8 (65.3, 68.3)	63.2 (61.4, 64.9)	60.2 (58.2, 62.1)
Sex						
Male	87.4 (85.9, 88.8)	86.2 (84.6, 87.7)	84.3 (82.3, 86.3)	65.9 (63.9, 67.8)	63.8 (61.9, 65.7)	60.5 (58.1, 62.8)
Female	87.8 (86.4, 89.2)	85.2 (83.6, 86.8)	83.4 (81.6, 85.2)	67.8 (66.1, 69.5)	62.5 (60.6, 64.5)	59.9 (57.7, 62.1)
Race/ethnicity						
Non-Hisp. white	89.7 (88.4, 91.0)	88.2 (87.0, 89.4)	87.7 (86.1, 89.2)	64.2 (62.0, 66.3)	61.9 (59.8, 64.0)	60.6 (58.3, 62.8)
Non-Hisp. black	87.8 (85.9, 89.7)	85.7 (83.2, 88.3)	82.1 (79.0, 85.2)	77.5 (74.7, 80.3)	71.1 (67.7, 74.4)	66.1 (62.1, 70.0)
Hispanic	78.9 (76.8, 81.0)	73.3 (69.9, 76.6)	65.5 (61.7, 69.4)	67.2 (64.8, 69.6)	59.6 (55.6, 63.5)	51.3 (47.7, 54.9)
Income level						
Poor	84.0 (81.9, 86.1)	77.7 (74.8, 80.6)	68.1 (64.4, 71.8)	79.6 (77.3, 91.8)	70.6 (67.9, 73.4)	58.7 (54.9, 62.5)
Near-poor	80.8 (78.5, 83.1)	77.4 (74.8, 80.0)	72.6 (69.0, 76.1)	61.5 (58.8, 64.2)	54.0 (51.0, 57.1)	52.0 (48.2, 55.8)
Middle income	91.0 (89.4, 92.5)	91.4 (90.0, 92.8)	91.6 (89.8, 93.3)	62.7(59.6, 65.7)	64.3 (61.1, 67.5)	61.9 (58.5, 65.3)
High income	95.9 (94.9, 96.9)	96.2 (95.2, 97.1)	96.1 (94.9, 97.2)	66.3 (62.9, 69.7)	67.3 (63.8, 70.8)	68.6 (65.7, 71.4)
US region of residence						
Northeast	89.8 (87.6, 92.0)	88.4 (86.0, 90.7)	88.8 (85.6, 92.1)	63.6 (60.2, 67.0)	62.2 (59.8, 64.6)	59.9 (55.4, 64.3)
Midwest	90.5 (88.7, 92.4)	90.0 (88.2, 91.8)	88.8 (86.5, 91.0)	66.9 (63.6, 70.3)	64.0 (60.7, 67.2)	63.9 (60.1, 67.8)
South	85.1 (83.1, 87.2)	81.4 (79.3, 83.6)	77.9 (75.0, 80.7)	67.9 (65.5, 70.3)	62.0 (58.6, 65.3)	56.4 (52.9, 60.0)
West	86.2 (83.7, 88.6)	85.2 (81.1, 89.3)	83.8 (79.2, 88.4)	67.8 (65.0, 70.7)	64.9 (60.5, 69.3)	62.5 (57.7, 67.2)

coverage for both medical and dental care increased, and the percentages of children with public medical and dental insurance coverage decreased. The majority of poor children (60.1%) were covered by public medical insurance; and the majority of near-poor children (56.5%) were covered by private medical insurance. The percentage of dentally uninsured children was highest among those living in near-poor families (43.8%) and lowest for those living in poor and high-income families (28.5% and 32.6%, respectively).

The percentage of Hispanic children who were medically uninsured (26.3%) was nearly twice that for non-Hispanic white or non-Hispanic black children (11.5% and 14.5%, respectively). The percentages of Hispanic and non-Hispanic white children who lacked dental insurance were similar (39.3% and 37.7%, respectively), but were considerably higher than the corresponding figures for those who lack medical coverage (Table 1). Overall, the percentage of children who lacked dental insurance was lower among non-Hispanic black children (27.9%) than among non-Hispanic whites (37.7%) and Hispanic children (39.3%); the same pattern held within each income category.

Table 2 shows the percent of children with medical and dental insurance coverage according to age and sociodemographic characteristics. A greater percentage of children had medical insurance than dental insurance in each age group and for every sociodemographic characteristic; this difference was statistically significant for all groups with the exception of the youngest group of poor children. Overall, slightly higher percentages of younger children than older children tended to be covered by medical insurance and dental insurance. This tendency was more pronounced in Hispanic children for both medical and dental insurance, and among low-income, non-Hispanic black children, and children living in the South for dental insurance.

The likelihood of having insurance coverage by race/ethnicity and income level was determined with age group-specific logistic models (0–5, 6–12, 13–17 years of age) because of the significant interaction effect of age with income level (Table 3). In addition to race/ethnicity and income levels, all models included age in years, sex, region of residence, and urban status. Within all three age groups, holding sociodemographic factors constant, high- and middle-income children were more likely than poor children to have medical insurance. Near-poor children were less likely to have medical insurance than poor children in the youngest age group. There was no difference in medical insurance coverage between near-poor and poor children in the other age groups.

Controlling for the other factors included in the models, Hispanic children were less likely than non-Hispanic white children to be insured for medical care; however, there was no difference in medical insurance coverage between non-Hispanic black and non-Hispanic white children. Nevertheless, non-Hispanic black children were more likely to have dental insurance than non-Hispanic white children; and Hispanic children were as likely to be insured for dental care as non-Hispanic white children.

Holding constant the other variables in the models, region of residence was a significant correlate of having medical but not dental insurance coverage. Children residing in the South were less likely to have medical insurance than their counter-

TABLE 3

Adjusted Odds Ratios of Having Medical and Dental Insurance Among Children Aged 0–17 Years, by Sociodemographic Characteristics, National Health Interview Survey, 1995

	0–5 Years (*n*=7,836)		6–12 Years (*n*=9,340)		13–17 Years (*n*=6,084)	
	Medical aOR (95% CI)	Denta aOR (95% CI)l	Medical aOR (95% CI)	Dental aOR (95% CI)	Medical OR (95% CI)	Dental OR (95% CI))
Ethnicity						
Non-Hispanic black	1.2 (0.9, 1.6)	1.7 (1.4, 2.1)	1.3 (0.9, 1.7)	1.6 (1.3, 1.9)	1.3 (1.0, 1.7)	1.5 (1.2, 1.8)
Hispanic	0.6 (0.5, 0.7)	0.9 (0.8, 1.1)	0.5 (0.5, 0.7)	0.9 (0.7, 1.1)	0.5 (0.3, 0.6)	0.7 (0.6, 0.9)
Non-Hispanic white	Reference	Reference	Reference	Reference	Reference	Reference
Income level						
High-income	3.8 (2.7, 5.3)	0.5 (0.4, 0.7)	6.9 (5.0, 9.4)	1.0 (0.8, 1.2)	10.1 (6.7, 15.0)	1.7 (1.3, 2.1)
Middle-income	1.7 (1.3, 2.2)	0.5 (0.4, 0.6)	3.0 (2.3, 3.8)	0.8 (0.7, 1.0)	4.5 (3.4, 6.1)	1.2 (0.9, 1.5)
Near-poor	0.7 (0.6, 0.9)	0.4 (0.4, 0.5)	1.0 (0.8, 1.2)	0.5 (0.4, 0.6)	1.2 (0.9, 1.6)	0.8 (0.6, 1.0)
Poor	Reference	Reference	Reference	Reference	Reference	Reference
Region						
Northeast	1.4 (1.0, 1.9)	0.8 (0.7, 1.0)	1.5 (1.1, 2.0)	1.0 (0.8, 1.2)	2.3 (1.6, 3.2)	1.1 (0.8, 1.3)
Midwest	1.6 (1.2, 2.1)	1.0 (0.8, 1.2)	1.8 (1.4, 2.4)	1.1 (0.9, 1.3)	1.9 (1.4, 2.5)	1.3 (1.0, 1.6)
West	1.2 (0.9, 1.6)	1.1 (0.9, 1.3)	1.5 (1.1, 1.8)	1.2 (0.9, 1.5)	2.1 (1.6, 2.8)	1.5 (1.2, 1.9)
South	Reference	Reference	Reference	Reference	Reference	Reference

All models control for single years of age, sex, and urbanization in addition to race/ethnicity, income level, and US region of residence. Children of "other" racial/ethnic groups or with missing data for income level are not included in the models.

aOR=adjusted odds ratios.

CI=confidence intervals.

parts in other regions.

Approximately 15.5 million children aged 0–17 years (28.2%) who were covered by some type of medical insurance lacked dental insurance coverage (Table 4). Among children with medical insurance coverage living above the poverty level, the percentage of children without dental insurance was consistent across income levels (31.9%, 33.2%, and 31.2% for near-poor, middle-income, and high-income, respectively). Overall, among children with any type of medical insurance, the percentage of non-Hispanic black children without dental insurance coverage was lower than the percentage of non-Hispanic white children without dental insurance. This trend held across income levels except among poor children, where there was no difference in lack of dental insurance by race/ethnicity. Analyses by age (not shown) indicate that among poor children with medical insurance, those aged 12 years and younger were less likely to be uninsured for dental care (7.0% [CI=5.5%, 8.5%] for 0–5-year-olds and 10.2% [CI=8.2%, 12.1%] for 6–12-year-olds) than those aged 13 years and older (15.8% [CI=12.5%, 19.2%]). There were no differences by age group within the other income groups.

TABLE 4
Percentage and Number of Medically Insured Children Aged 0–17 Years Who Did Not Have Dental Insurance, by Income and Ethnicity, National Health Interview Survey, 1995

	Percent (95% CI)	Number (in 1,000s)
Total*	28.2 (27.0, 29.4)	15,559
Non-Hispanic white	31.8 (30.2, 33.4)	12,051
Non-Hispanic black	18.6 (16.4, 20.8)	1,507
Hispanic	20.6 (18.6, 22.6)	1,384
Poor	9.9 (8.1, 11.7)	934
Non-Hispanic white	11.6 (9.1, 14.1)	413
Non-Hispanic black	9.8 (7.1, 12.5)	289
Hispanic	8.0 (5.5, 10.5)	197
Near-poor	31.9 (29.2, 34.6)	3,612
Non-Hispanic white	35.3 (31.8, 38.8)	2,621
Non-Hispanic black	24.3 (19.6, 29.0)	432
Hispanic	25.3 (21.0, 29.6)	401
Middle-income	33.2 (30.7, 35.7)	4,447
Non-Hispanic white	34.6 (31.9, 37.3)	3,717
Non-Hispanic black	22.9 (18.2, 27.6)	278
Hispanic	35.1 (29.8, 40.4)	335
High-income	31.2 (28.7, 33.7)	4,899
Non-Hispanic white	32.0 (29.1, 34.9)	4,185
Non-Hispanic black	19.9 (14.2, 25.6)	184
Hispanic	28.2 (23.1, 33.3)	271

*Total includes children with missing data for income level and children from other racial/ethnic groups.

Discussion

Our findings indicate that across all sociodemographic groups, a higher percentage of children were covered by medical insurance than by dental insurance. For every child who was uninsured for medical care, there were 2.6 children uninsured for dental care. Consistent with this finding, the percentage of children who do not get needed dental care has been reported to be more than three times the percentage of children who do not get needed medical care (6.2% vs 1.9%) (5).

Differences in the extent of medical and dental insurance coverage might be a reflection of crucial differences between the two types of insurance. The need for medical insurance arose early in the 20th century, when the cost and complexity of medical care started to increase notably, and began to consume a larger percentage of family income (14). Although the costs and technological complexity of dental care also have increased over the past several decades, the cost impact has not been of the same magnitude as those that have accompanied advances in medical care. Consequently, the technological and economic forces that have driven expansions in medical insurance have not driven concomitant expansions in dental insurance. As noted below, political attitudes regarding medical and dental services also have contributed to differences in the extent of coverage among various segments of the population.

There are also other fundamental differences in these two types of benefits. As with other forms of casualty insurance, Medical insurance traditionally has worked by spreading the risk of large expenditures faced by a relatively small number of individuals in a large group over the entire group. In contrast, because virtually the entire population needs some level of dental care on a regular and recurring basis, the concept of spreading the financial risks of the few over the entire group does not apply to dental insurance to the same degree. Moreover, unlike many medical problems, which can be catastrophic and expensive to treat, dental problems are rarely life threatening and comparatively less expensive to treat.

Medical and dental insurance characteristics vary accordingly. Dental insurance covers routine, relatively inexpensive, and predictable care; medical insurance, on the other hand, generally covers catastrophic care and, increasingly, routine care. In addition, while a typical medical insurance policy could be expected to cover most medically necessary procedures, a typical dental insurance policy is likely to cover only certain services, often fully covering diagnostic and preventive services, for example, but providing only partial payment—often less than 50 percent—for more expensive services such as orthodontic treatment or crowns (15). Hence, dental insurance reduces, but does not eliminate, the price barrier (16). This is particularly true for low-income children because the burden of dental expenditures associated with copayments and limited coverage is proportionally greater for low-income

families than for their higher-income counterparts. Even though out-of-pocket expenditures are prohibited in Medicaid and severely curtailed in SCHIP, enrolled children still have to face costs associated with the dental visit (e.g., transportation, child care, and loss of work). Despite its intrinsic limitations, dental insurance has been found to be an enabling factor for children to receive preventive and early intervention (17), and has been associated with increased dental care utilization and reduced unmet needs (7). In addition, the availability of free dental insurance has been associated with better oral health outcomes among children (reduction in decayed and missing teeth), especially low-income children, when compared with plans requiring copayments (18). The importance of health insurance is related to the fact that professional medical and dental care are necessary to obtain the benefits of certain procedures that will improve health status, such as preventive measures (e.g., immunizations and dental sealants) and early detection and treatment of disease. Dental insurance is particularly critical to oral health because most oral conditions are preventable or respond well to early intervention.

Our analyses of data from the 1995 NHIS indicate that medical and dental insurance coverage varied significantly by sociodemographic characteristics. For example, among poor, near-poor, and racial/ethnic minority children, younger children were more likely to be insured than older children in part because of public insurance programs that targeted those in the youngest age groups. Similarly, dental insurance coverage among younger children living in poverty was higher than among younger children in the other income levels. We also found that non-Hispanic black children were more likely to have dental insurance than non-Hispanic white children, overall and at every income level (Table 1). Hispanic children, on the other hand, were twice as likely as non-Hispanic white children to be uninsured for medical care, even after controlling for sociodemographic factors (Tables 1 and 3). This low coverage among Hispanic children reflects the strong association between insurance and employment. Hispanics are more likely to hold low-paying jobs that do not provide medical insurance (19) or dental insurance.

Differences also existed in the codistribution of medical and dental insurance coverage by income status. Children from middle- and high-income families were the most likely to have medical insurance, but not the most likely to have dental insurance. Perhaps more importantly, because near-poor children tend to have high levels of dental caries and unmet treatment needs (20), over 40 percent of near-poor children lack dental insurance coverage, roughly twice the percentage without medical coverage (Table 1). Because upper-income children generally face fewer access barriers and the ratio of their dental expenses to family income is likely to be considerably lower than for children from poor and near-poor families, their lack of dental coverage is much less likely to result in lack of access to dental care. Instead, it is more likely that upper-income families simply pay for their children's dental services out-of-pocket.

Prior to the recent enactment of the State Children's Health Insurance Program or SCHIP (which occurred subsequent to collection of the data reported here), most children from near-poor families were ineligible for public health insurance. Consequently, because such families are less likely to have employment-based coverage, it is likely that many either had to strain the family budget to pay for private coverage or remain uninsured (Table 1). SCHIP has the potential to expand both medical and dental coverage to many previously uninsured children from near-poor families, either through expansion of existing state Medicaid programs, implementation of new insurance programs, or combinations of these two options. Therefore, SCHIP should help reduce at least the financial barriers to health care faced by children from near-poor families.

However, SCHIP's potential impact on improving access to dental services may be limited for at least two reasons. First, children who are otherwise eligible for SCHIP and have medical insurance, but lack dental insurance coverage (i.e., children who are "underinsured for dental") are not eligible for SCHIP under current law. Second, for states that elect Medicaid expansions to implement their SCHIP programs, access is likely to be limited by other barriers including chronic low reimbursement levels, incentives for underutilization in managed care plans, lack of sufficient providers (in particular, pediatric dentists), and saturation of existing networks of dentists willing to accept Medicaid, other low-income patients, and very young children into their practices. Given that fewer than one in five Medicaid-eligible children receive even a single preventive dental service annually (21), further program enhancements likely will be required to ensure that additional coverage results in increased access to and appropriate utilization of dental services.

Approximately 60 percent of children from families living below the FPL have publicly financed dental and medical coverage, reflecting the mandate of the federal Early and Periodic Screening, Diagnostic, and Treatment (EPSDT) program to include comprehensive coverage for dental services for children who are Medicaid beneficiaries (22). Despite this statutory mandate, however, Medicaid-eligible children do not receive the amount or quality of dental care services that they are able to obtain for their medical care needs. In addition, because eligibility for Medicaid is intermittent, the opportunity to obtain needed services is also intermittent. Thus, among poor children, even having dental insurance does not guarantee access to and utilization of dental care.

Medicaid, through the scope of coverage outlined in the EPSDT program, has at least taken the first step toward assuring relatively comprehensive coverage for children's oral health services. What is needed now are programs that address the barriers to children's utilization of dental services, including increased reimbursement and other incentives to generate greater participation by dental providers, provision of dental services in places that facilitate greater access to dental services, increased involvement by various types of primary health care providers (e.g., physicians, physicians assistants, and nurse practitioners), and education on appropriate, nonepisodic use of dental services. For example, a study that compared Medicaid programs from three states found that the greatest participation was in Florida's program, which included providing a "medical home," educating members on adequate use of emergency rooms (ER), and offering

after-hours services in alternative settings (23). The Access to Baby and Child Dentistry (ABCD) program in Spokane, Washington, demonstrated that it is possible to address the concerns of dentists regarding fees, patient behavior, and clinical skills (24). After more than five years of operation, Medicaid children enrolled in the ABCD program were more than seven times as likely to have had a dental visit than those not enrolled in the program.

Our findings demonstrate uneven distribution in insurance coverage for medical and dental care, with variation by income status, among other factors. Our findings, coupled with previous reports, suggest that the most serious problem concerning lack of oral health coverage for children is among near-poor children. The near-poor group has the highest percentage of dentally uninsured children, and the greatest need for dental care as reflected by unmet needs (5) and untreated dental caries (20).

Slowly, but increasingly, oral health is coming to be viewed as an integral and essential component of overall health. Acceptance of this concept suggests several corollaries: dental services should be an integral and essential component of health services, dental insurance coverage should be an integral and essential component of health care coverage, and dental services should be provided at the same level and quality as other health care services for children.

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