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COVER STORY

The impact of a state children's health insurance program on access to dental care

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Inadequate access to dental care for children from low-income families is well-documented.¹⁻⁴ Among the primary reasons for poor utilization of dental services by low-income children are lack of insurance and scarcity of available dentists.¹⁻⁴ Without adequate access to basic preventive and restorative services, children are at risk of developing dental caries and

experiencing unmet dental needs. Left untreated, dental caries can lead to persistent pain, missed school days, inability to eat, compromised nutrition, a swollen face and diminished self-esteem.^{1,5-7} Moreover, lack of access to primary dental care can lead low-income families to seek dental services in hospital emergency departments, resulting in high health care costs that would have been avoidable had treatment been sought earlier.⁶⁻⁸

The State Children's Health Insurance Program, or SCHIP, authorized by Congress in 1997, represents an important opportunity to improve dental

access for some low-income children and reduce oral health disparities.^{1,3,9} A federal-state partnership, SCHIP has expanded health care coverage to millions of children who come from families with incomes that are too high to qualify for Medicaid but too low to afford private insurance. Under the program states can use SCHIP funds to expand Medicaid, create a separate state health insurance program or design a program

North Carolina's innovative program has made a significant impact on access to dental care for school-aged children.

ABSTRACT

Background. Access to dental care for low-income children is limited.

The authors examined the impact of a new state children's health insurance program, or SCHIP, in North Carolina on children's access to dental care.

Methods. Parents of 639 school-aged children responded to two surveys that asked about their child's access to dental services before enrollment and one year after enrollment in the new program. The authors used two-tailed McNemar tests to detect statistically significant changes within subjects.

Results. The percentage of school-aged children with a visit to a dentist in the previous year increased from 48 percent at baseline to 65 percent after one year in the program. Reported unmet dental need decreased from 43 percent at baseline to 18 percent after one year of enrollment. The proportion of children reported to have a usual source of dental care improved after enrollment in the program.

Conclusion. The SCHIP model in North Carolina is an innovative program that has made a significant impact on access to dental care for school-aged children.

Practice Implications. SCHIP dental programs that resemble private insurance models and reimburse dentists at rates close to market rates hold the potential to address problems associated with dental access for low-income children.



that is a combination of expanded Medicaid and a separate state program.

As of July 2001, all states but one had included dental benefits in their SCHIP plans, and of these, 16 have opted to implement separate programs that differ significantly from their existing Medicaid programs.^{9,10} These separate programs often have characteristics that are similar to those of insurance products in the private

market. They generally have administrative requirements similar to those of private insurance and pay dentists at private insurance market rates, which are substantially higher than Medicaid fees.^{3,9} In addition, the dental plans often are administered by private insurers or the state's public employee health insurance.

The SCHIP program in North Carolina, North Carolina Health Choice for Children (hereafter referred to as N.C. Health Choice), was implemented in October 1998. Enrollment was rapid, and by August 1999, the N.C. Health Choice program provided comprehensive health care coverage including dental, vision and hearing services to more than 50,000 children. Since that time, the number of children enrolled in the program has fluctuated between approximately 50,000 and 77,000. N.C. Health Choice, including its dental component, is administered through BlueCross BlueShield of North Carolina. Dental benefits include an array of preventive, diagnostic and restorative services. Exceptions include orthodontic and advanced periodontic services. Patients are not charged copayments for their dental benefits. Dentists are paid exclusively on a fee-for-service basis, generally at 90 to 95 percent of dentists' usual, customary and reasonable, or UCR, fees.⁹

Given the relatively recent implementation of SCHIP, there have been few published studies that shed light on the ability of these programs to improve access to dental care. A study by Almeida and colleagues⁹ looked at utilization rates under separate SCHIP programs in a few states. Their findings, which were based on comparing the number of children who had a dental visit under separate SCHIP programs with the number who had a dental visit under traditional Medicaid, found that children's use of dental services was higher under SCHIP. An assessment of a commercial-style insurance plan for families in western Pennsylvania with low-to-modest incomes found that the percentage of children with a regular source of dental care and with dental visits increased after they enrolled in the program, while the percentage with unmet dental care needs or delayed dental care decreased.¹¹ This finding suggests possible similar positive

effects from SCHIP programs based on the private insurance model.

This article reports and discusses the findings of a study designed to examine the effect of the N.C. Health Choice program on enrolled children's access to dental care. To our knowledge, the study represents the first population-based investigation of access to dental care under SCHIP. Information gained may yield further insights into solving the problem of access to dental care for children from low-income families.

METHODS

This study of dental care was part of a larger project evaluating the effect of the N.C. Health Choice program on children's utilization of health services.¹² The larger project was conducted by the Cecil G. Sheps Center for Health Services Research, The University of North Carolina at Chapel Hill, at the request of the North Carolina Division of Medical Assistance, or DMA, which provided an electronic file of the names and addresses of all children newly enrolled in N.C. Health Choice.

Parents of a stratified random sample of 1,800 children were surveyed by mail in the summer of 1999, within one week after their children had been accepted into N.C. Health Choice. We stratified the sample into three age groups: 0 to 5 years, 6 to 11 years and 12 to 18 years, with equal numbers of children in each age category. Respondents to the first survey were resurveyed by mail after their child had been enrolled in N.C.

Health Choice for 11 months. At the time of the follow-up survey, parents of an additional stratified random sample of 500 children who recently had enrolled in N.C. Health Choice received the baseline questionnaire. We used information from this comparison group to identify any changes in access to health care that might have been attributable to secular trends rather than the effects of N.C. Health Choice. There were no significant differences between the comparison group and the study population at baseline; thus, changes in access over time likely were not due to changes in the dental care environment.

Although the larger project sampling frame was designed to answer questions on both med-

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There were statistically significant decreases in the percentage of parents who reported that their children had an unmet dental care need after enrollment in the North Carolina Health Choice program.

ical and dental care, analyses in this article are limited to responses from parents of only school-aged children aged 6 to 18 years (N = 639). As school-aged children included two of the age groups on which the sample was stratified, we weighted the analyses to reflect the representation of each age group in the overall N.C. Health Choice population. We

excluded responses from parents of children aged 5 years and younger because changes in use of dental services across a year's time for these children are difficult to examine. Changes in dental service use may be due to the increased access afforded by N.C. Health Choice or to the care-seeking behavior of parents who perceive a need for dental care as their children grow older. Details of parental awareness of dental care guidelines and care-seeking behavior were not collected in this study.

We developed the survey instrument in consultation with representatives from DMA. The baseline survey asked for information describing the child's health and access to care before the child's enrollment in N.C. Health Choice. Items related to dental care included time since last visit, usual source of care, and parents' perceptions of unmet dental need and barriers to dental care. The follow-up survey requested similar information to describe experiences during the first year of enrollment in N.C. Health Choice.

We pilot tested the baseline survey with a group of N.C. Health Choice enrollees. For the baseline survey, nonrespondents received a postcard and one additional survey. For the follow-up survey, we mailed two additional surveys to nonrespondents. A \$2 incentive was included with the first mailing each year. A toll-free telephone number was available for parents with questions regarding the mailed surveys. Overall response rates were 75 percent for the baseline survey and 74 percent for the follow-up survey.

TABLE 1

BACKGROUND CHARACTERISTICS OF THE SCHOOL-AGED CHILDREN IN THE SAMPLE.	
CHARACTERISTIC	%
Female	53
White	45
Urban	53
Health status of child before N.C. Health Choice* Enrollment: excellent or good	85
Had Medicaid insurance immediately preceding N.C. Health Choice Enrollment†	60
Mother's educational level: high school or greater	84
Mother's employment status: full time	62

* N.C. Health Choice: North Carolina Health Choice for Children program.
† Time between end of Medicaid coverage and N.C. Health Choice enrollment was ≤ one day.

We structured our analyses of the results as a pretest-posttest evaluation. The longitudinal nature of the survey data permitted an assessment of change in children's reported access to dental care associated with implementation of the new insurance program. Dependent variables used to measure access included whether or not dental services had been used in the previous year, usual source of dental care and perceived unmet dental need. Usual source of dental care was defined by a multiresponse question that asked parents where they usually take their children for dental care. Responses include not only specific types of dental providers (public and private), but also options to report having no usual source of care (including use of the hospital emergency room) or obtaining care wherever possible. We created a usual-source-of-care variable by collapsing three of the responses: private dentist, community health center and public health department. The latter two categories were included as usual sources of care, since increasingly both community health centers and health departments are extending dental care to populations that experience limited access to private dentists.¹³ In addition, we looked separately at change in the percentage of parents who reported private dentists as their children's usual source of care. Unmet need was measured by a question asking whether parents thought their children had needed but had been unable to obtain dental care in the last six months.

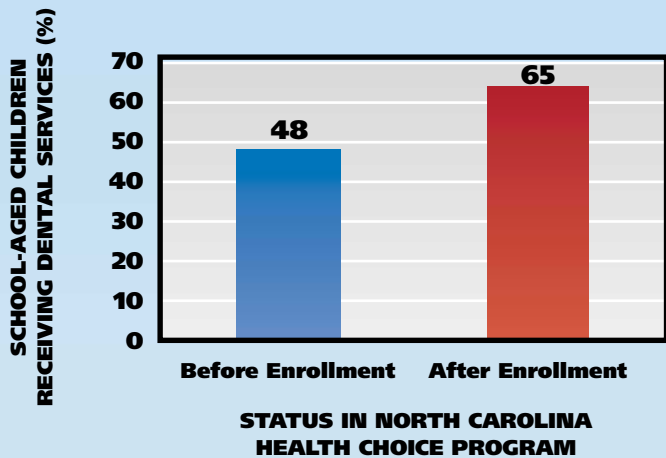


Figure 1. Percentage of school-aged children receiving dental services in the previous year. Difference between services received before and after enrollment in the North Carolina Health Choice for Children program was statistically significant at $P < .0001$.

RESULTS

Use of dental services. The percentage of children who received dental care increased significantly after enrollment in N.C. Health Choice (Figure 1). Before enrollment in the new insurance program, less than one-half (48 percent) of parents reported that their school-aged children had seen a dentist in the previous year. However, in the first year on N.C. Health Choice, 65 percent of school-aged children visited a dentist.

Parents of 13 percent of school-aged children reported that before the children’s enrollment in N.C. Health Choice, they had never been to a dentist (Table 2). Among these children, 46 percent visited a dentist during their first year of program enrollment. We found a similar pattern of improvement with respect to children whose most recent visit to the dentist occurred more than a year before their enrollment in N.C. Health Choice. For the 39 percent of children whose parents indicated that their children’s most recent dental visit before enrollment in N.C. Health Choice had been more than a year before, 52 percent had seen a

dentist during their first year on the program. Forty-eight percent of children had visited a dentist in the year before enrolling in N.C. Health Choice. Most of these children (81 percent) also visited a dentist in their first year on the program. All of the changes were statistically significant at $P < .0001$.

We did not find any significant differences between

TABLE 2

RECEIPT OF DENTAL CARE BY ALL SCHOOL-AGED CHILDREN BEFORE AND AFTER N.C. HEALTH CHOICE* ENROLLMENT.			
DENTAL CARE STATUS	STATUS AT BASELINE (%)	STATUS IN FIRST YEAR IN N.C. HEALTH CHOICE (%)	
		Had a Dental Visit	Had No Dental Visit
Had Never Seen a Dentist	13		
Among these children		46	54
Had Last Dental Visit > 1 Year Before	39		
Among these children		52	48
Had Had Dental Visit in the Previous Year	48		
Among these children		81	19

* N.C. Health Choice: North Carolina Health Choice for Children program.

Descriptive statistics were used to present background characteristics of our sample (Table 1). We used the two-tailed McNemar test to detect statistically significant changes within subjects.¹⁴ We used Stata Statistical Software (Release 7.0. College Station, Texas) for all analyses. We used a P value of .05 as the threshold for statistical significance.

the characteristics of children who used dental services after enrollment in the N.C. Health Choice and the characteristics of those who did not.

Usual source of care. Parents were asked where they usually took their children for dental care. Enrollment in the new insurance program

resulted in a statistically significant increase in the number of children reported to have a regular source of dental care, either public (health departments or community clinics) or private, improving from 77 percent before enrollment in N.C. Health Choice to 90 percent after enrollment (Figure 2). Private dentists accounted for most of the increase, as 64 percent of parents identified private practitioners as their child's regular source of care before enrollment in N.C. Health Choice, while a significantly higher percentage of children (76 percent) were reported to have private practitioners for their regular source of care after enrollment. Among the children who had never visited a dentist before their N.C. Health Choice enrollment, 69 percent of parents reported that they took their children to private dentists after enrolling in N.C. Health Choice.

With respect to the public sector, there was no significant difference between the percentage of parents indicating public health dental clinics as a usual source of dental care before and after enrollment in N.C. Health Choice (13 vs. 14 percent).

Unmet dental care need. Parents were asked whether their children had needed dental care in the previous six months but were unable to have it. There were statistically significant decreases in the percentage of parents who reported that their children had an unmet dental care need after enrollment in N.C. Health Choice, dropping from 43 percent before enrollment to just 18 percent after a year in the program (Figure 3). Parents who reported an unmet need for care were asked about reasons their children could not get dental care. At baseline, the most commonly cited barriers were lack of sufficient money to pay for needed dental care (cited by 68 percent of those who reported a problem), lack of dental insurance (cited by 63 percent) and inability to get an appointment for their children (cited by 29 percent). Among the 18 percent of parents who reported an unmet need for dental care after enrollment, the most commonly cited barriers to care were N.C. Health Choice's refusal to pay for the care needed (44 percent), lack of money to pay for needed care (31 percent) and inability to get an appointment (36 percent).

Parents who reported unmet dental need also were asked to list the type of dental care their children needed but could not get. Typically, the care needed but not obtained was orthodontic

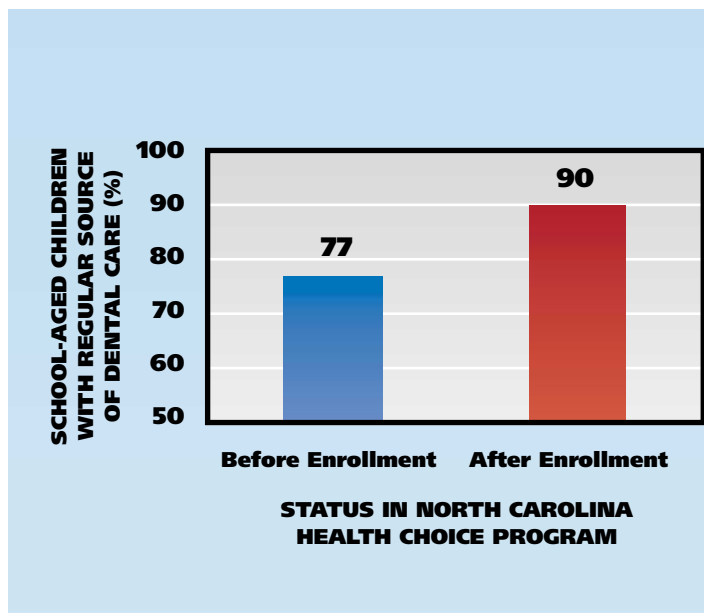


Figure 2. Percentage of school-aged children reported to have a usual source of dental care. Difference between status before and after enrollment in the North Carolina Health Choice for Children program was statistically significant at $P < .0001$.

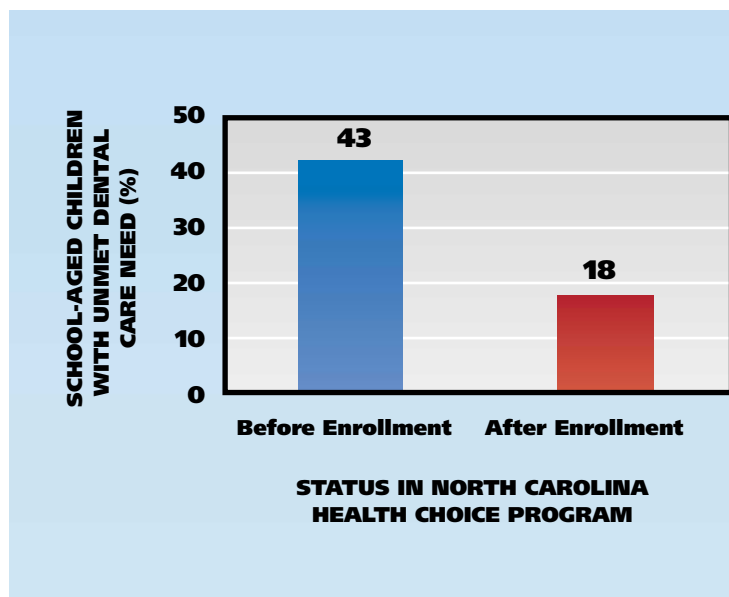


Figure 3. Percentage of school-aged children who needed but could not get dental care in the previous six months. Difference between status before and after enrollment in the North Carolina Health Choice for Children program and after enrollment was statistically significant at $P < .0001$.

care, which is not covered by N.C. Health Choice.

Willingness of dentists to accept N.C. Health Choice. In the follow-up survey, parents were asked about dentists' willingness to accept

N.C. Health Choice. Most parents reported that they could find dentists who accepted N.C. Health Choice. More than one-half (53 percent) of parents reported that any dentist they wanted for their children took N.C. Health Choice; 22 percent of parents reported that some dentists accepted N.C. Health Choice, while some did not. Seventeen percent had not tried to find a dentist since their children had been enrolled in the N.C. Health Choice program. Approximately 8 percent of parents reported not being able to find a dentist who accepted N.C. Health Choice.

DISCUSSION

Our findings, which are similar to those of Lave and colleagues,¹¹ consistently point in one direction: coverage with a new insurance program based on a private insurance model improved access to dental services for significant numbers of low-income children. The increased access might be explained by several interrelated factors that include the role of dental insurance in promoting care, the design of an insurance plan for low-income children that closely resembles private plans and the willingness of dentists to accept the insurance.

It has long been recognized that dental insurance coverage is a necessary first step toward improving children's access to dental services.¹ Expanding coverage to uninsured children, particularly those from economically disadvantaged families, helps reduce a family's burden of paying for care out of pocket. In an open-ended question on our survey, many parents expressed the sentiment, "N.C. Health Choice pays for things I couldn't afford."

However, even when low-income children have public insurance coverage, a principal factor that historically has contributed to the poor use of dental services among low-income children has been the limited number of dentists willing to treat children covered by Medicaid. In North Carolina, only about 20 percent of dentists see 40 or more children covered by Medicaid each year.¹⁵ Like their counterparts in other states, dentists in North Carolina have cited poor payment fees, which are well below dentists' UCR fees, and cumbersome administrative procedures as reasons for not treating Medicaid patients.⁶

It appears that increased access to dental ser-

vices after enrollment in N.C. Health Choice might be due partly to the increased number of dentists willing to treat children insured by the program. This is supported in part by the finding that a large amount of increase in respondents having a usual source of care was explained by the number of parents reporting private dentists as their children's usual source of dental care. It is worth noting that N.C. Health Choice differs significantly from Medicaid in one critical regard: namely, payment levels. It stands to reason that competitive reimbursement rates designed to encourage dentists' participation are in fact en-

couraging dentists to care for some well-insured low-income children.

This explanation is supported by a 1996 survey of dentists showing that 56 percent of dentists in the state would be willing to treat more Medicaid patients if reimbursement levels were increased to 80 percent of UCR rates.⁶

What are the broader implications of our study? Given the benefits associated with dental insur-

ance coverage as part of a separate SCHIP program, we believe that more dentists would be willing to see children under such programs. Marketing and educational efforts to increase dentists' knowledge of and participation in SCHIP programs are important. Efforts to familiarize dentists with SCHIP might be carried out by local and state dental societies in partnership with SCHIP program administrators.

As for policy implications, our study shows that a separate SCHIP dental program with competitive payment rates improves access to dental services for low-income children. Our findings are consistent with those of other studies showing that programs for low-income children that differ from a traditional Medicaid model result in improved dental access.^{3,9} These studies suggest that states can improve access to dental services for low-income children by paying dentists at levels close to market levels, as well as by reducing administrative barriers. What is unclear is whether states could accomplish these same results in their Medicaid programs by modeling these programs after private dental insurance with higher reimbursement rates. Aside from low reimbursement rates, North Carolina dentists also complain about the high rates of no-shows among Medicaid recipients.⁶ Some studies have

States can improve access to dental services for low-income children by paying dentists at levels close to market levels.

suggested that increasing Medicaid dental rates leads to increased dental care participation and improved dental care access.^{3,15} However, states also may need to couple increased provider payments and reduced administrative barriers with recipient outreach and educational efforts to increase dentists' participation and improve access in their Medicaid programs.

Another policy implication worth noting concerns the potential negative effect of SCHIP on dental access for children covered by Medicaid. Although the success of N.C. Health Choice may spur policy improvements in Medicaid, it may have an untoward effect as well. It is possible that dentists who previously served Medicaid children are replacing those children with children covered by SCHIP. This issue requires the attention of all those concerned with improving children's access to dental care.

Several methodological aspects of our study deserve mention. First, the survey did not inquire about the number of dental care visits the child received or whether dental visits were for preventive services or acute care. Despite the limited detail of the inquiry, we find that far more parents reported their children's having received dental care after enrollment in the N.C. Health Choice than before enrollment. Moreover, a significant percentage of children who before their N.C. Health Choice enrollment received no dental care or, at best, infrequent care—that is, dental care more than a year before—were reported to have visited the dentist after enrollment in N.C. Health Choice. Consistent with those of Lave and colleagues,¹¹ our findings suggest that there was some degree of pent-up demand for care that existed before children's enrollment in the new insurance program. This might be explained, in part, by the fact that before N.C. Health Choice coverage, children were either receiving Medicaid or were uninsured and, thus, may have had problems accessing dental services. It would be useful to follow our sample longitudinally to see if N.C. Health Choice participants continue to seek dental services and have high service utilization rates.

Our finding regarding the identification of a



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usual source of care does not and should not imply that the source was regularly sought. Yet, it is reasonable to assume that children with a reported regular source of care are more likely to have appropriate preventive visits and to make fewer visits to the emergency room.^{11,16} Finally, because our findings are based on parents' self-reports and were not confirmed by contacting dental providers, the data are subject to potential response bias.

CONCLUSION

Dental care is an essential health service. The SCHIP model in North Carolina is an innovative program that has provided poor working families with access to dental care for their children. Our findings suggest that SCHIP dental programs that resemble private insurance models and reimburse dentists at rates close to market rates hold the potential to address problems associated with dental access for low-income children. Further investigations are needed, however, to better understand the relative contributions of factors such as program structure and reimbursement levels to dentists' willingness to serve low-income children insured by SCHIP. ■

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1. U.S. Department of Health and Human Services. Oral health in America: A report of the Surgeon General. Rockville, Md.: U.S. Department of Health and Human Services; 2000. National Institutes of Health publication 00-4713.

2. U.S. General Accounting Office. Oral health: Dental disease is a chronic problem among low-income populations. Washington: U.S. General Accounting Office; 2000. GAO publication GAO/Health, Education and Human Services—00-72.

3. U.S. General Accounting Office. Oral health: Factors contributing to low use of dental services by low-income populations. Washington: U.S. General Accounting Office; 2000. GAO/Health, Education and Human Services publication 00-149.
4. Brown JG. Children's dental services under Medicaid: Access and utilization. Washington: U.S. Department of Health and Human Services, Office of the Inspector General; 1996. Report OEI-09-93-00240.
5. Gift HC, Reisine ST, Larach DC. The social impact of dental problems and visits. *Am J Public Health* 1992;82:1663-8.
6. North Carolina Institute of Medicine, Task Force on Dental Care Access. Report to the North Carolina General Assembly and to the Secretary of the North Carolina Department of Health and Human Services. Raleigh, N.C.: North Carolina Institute of Medicine; 1999.
7. Edelstein BL. Crises in care: The facts behind children's lack of access to Medicaid dental care. Arlington, Va.: National Center for Education in Maternal and Child Health; 1998.
8. Edelstein BL. The cost of caring: Emergency oral health services. Arlington, Va.: National Center for Education in Maternal and Child Health; 1998.
9. Almeida RA, Hill I, Kenney GM. Does SCHIP spell better dental care access for children? An early look at new initiatives. Washington: The Urban Institute; 2001.
10. Cox L, Ross DC. Making it simple: Medicaid for children and CHIP income eligibility guidelines and enrollment procedures:—findings from a 50-state survey. Washington: Center on Budget Policy and Priorities; 2000.
11. Lave JR, Keane CR, Lin CJ, Ricci EM, Amersbach G, LaVallee CP. Impact of a children's health insurance program on newly enrolled children. *JAMA* 1998;279:1820-5.
12. Slifkin RT, Freeman V, Silberman P, Schwartz B. Assessing the effects of the North Carolina Health Choice program on beneficiary access to care: Final report submitted to the North Carolina division of medical assistance. Raleigh, N.C.: Division of Medical Assistance; 2001.
13. U.S. Department of Health and Human Services. Healthy People 2010, conference edition. Washington: U.S. DHHS; 2000.
14. Siegel S. Nonparametric statistics for the behavioral sciences. New York: McGraw-Hill; 1965.
15. Mayer ML, Stearns SC, Norton EC, Rozier RG. The effects of Medicaid expansions and reimbursement increases on dentists' participation. *Inquiry* 2000;37:33-44.
16. Kogan MD, Alexander GR, Teitelbaum MA, Jack BW, Kotelchuck M, Pappas G. The effect of gaps in health insurance on continuity of a regular source of care among preschool-aged children in the United States. *JAMA* 1995;274:1429-35.