# Pediatric dentists' participation in the North Carolina Medicaid program

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## Abstract

*Data on Medicaid participation by dentists in North Carolina were obtained from the North Carolina Division of Medical Assistance and through a survey of pediatric dentists. As a group, pediatric dentists were the most active participants in the North Carolina Medicaid program during the 1990–91 state fiscal year and provided a disproportionate share of treatment for Medicaid-eligible children. Seventy-five per cent of the pediatric dentists limit their Medicaid participation. Top reasons given for limiting access for new Medicaid patients included low reimbursement rates, broken or canceled appointments, and need for prior authorization of Medicaid treatment plans. This paper explores several critical issues regarding access to dental care for children served by the Medicaid program in North Carolina. (Pediatr Dent 15: 175–81, 1993)*

## Introduction

### Historical background

Medicaid was established in 1965 as Title XIX of the Social Security Act to provide health care to certain low-income individuals. Since its enactment, Medicaid has undergone many changes at the federal level. The most notable example regarding children's services was the 1967 legislation (Public Law 90–248) that created the Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) program. EPSDT, implemented in 1972, mandates that certain services, including dental care, be made available to all Medicaid-eligible children younger than 21. Specific guidelines for the dental component of EPSDT were developed in 1980,[1] eight years after its implementation and 13 years after the passage of the Medicaid legislation.

Each state operates its own Medicaid program within broad federal guidelines. Accordingly from state to state, there are many variations in Medicaid eligibility, expenditures, and covered services.[2] Because of these variations, nationwide Medicaid data are difficult to obtain and interpret, and therefore most Medicaid studies are conducted on the state or regional level.

The Office of Technology Assessment (OTA) of the U.S. Congress published a 1990 report reviewing the Medicaid dental programs in seven states.[3] This study raised serious questions about access to dental care for Medicaid-eligible children. Also, the report questioned the availability of certain federally mandated dental services for children and the lack of federal oversight of the state Medicaid programs. This report has served as the stimulus for several states to examine their Medicaid programs.

Nearly half of all people eligible for Medicaid in North Carolina are younger than 21, which represents a population of roughly 300,000 children.

### Physicians' participation

One persistent barrier to care highlighted by the OTA study is the low rate of participation by health care providers. Many attempts have been made to document and analyze physicians' participation in state Medicaid programs. Davidson[4] noted the dual goals of the Medicaid program: Medicaid was intended not only to increase access for those unable to afford health care, but also to promote delivery of that care in office-based, primary care settings. He also acknowledged that limited-provider participation significantly inhibits achievement of both goals. Davidson[4] categorized obstacles to physician participation in Medicaid as either economic factors or limitations on professional autonomy.

Perloff et al.[5] and Bushman and Passmore[6] studied Medicaid participation by general medical practitioners. Other reports have described Medicaid participation by pediatricians[7–10] as well as by other medical and surgical specialists.[11] Taken together, these studies document a trend of decreasing Medicaid participation by physicians over the past decade. Participating physicians also have tended to place more stringent limits on the extent of their participation. Collectively, the studies of physicians' experiences can be summarized by noting that trends of decreasing participation in Medicaid have been exacerbated by low reimbursement rates and complicated administrative burdens.

### Dentists' participation

Few studies of dentists' participation in Medicaid are available. Lang and Weintraub[12] surveyed general dentists in Michigan to compare Medicaid participants versus nonparticipants. They concluded that the most active

## Participation in the North Carolina Medicaid Program: A Survey of Pediatric Dentists

1 Do you currently accept new Medicaid patients for treatment? yes no

**(If "no", please go directly to question 8.)**

2 Do you accept:

a) all new Medicaid patients? _____
b) a limited number of new Medicaid patients? _____
c) only referred new Medicaid patients? _____
d) only medically healthy new Medicaid patients? _____

3 If you limit acceptance of new Medicaid patients, explain briefly the limitations/guidelines that you have established as policy in your practice. **(If no limitations, go directly to #5.**

_____

_____

_____

4 Referring to question #3, why do you limit acceptance of new Medicaid patients? (Please rank these reasons; #1 is most important; use N/A for not applicable.)

_____ reimbursement rate
_____ timeliness of reimbursement
_____ prior authorization
_____ other _____
_____ patient behavior
_____ broken/cancelled appointments
_____ health status of patients

5 When considering the amount of revenue you received from Medicaid in your last fiscal year, do you feel that this revenue resulted in:

a) a net profit _____ b) breaking even _____ c) a net loss _____

6 Of all patients referred to you by other dental practitioners within the past 12 months, what percentage would you estimate are Medicaid patients? _____ %

7 Currently, what percentage of your patient population is Medicaid?

a) 0 %
b) 1-9 %
c) 10-19 %
d) 20-29 %
e) 30-39 %
f) 40-49 %
g) 50 % +

**(If you answered questions #2-7, please go directly to question #11.)**

8 Have you ever accepted Medicaid patients? yes no

9 In what year did you discontinue accepting Medicaid patients? _____

10 Please rank these reasons for you discontinuing to accept Medicaid patients. (#1 signifies most important; use N/A for not applicable.)

_____ reimbursement rate
_____ timeliness of reimbursement
_____ prior authorization
_____ other _____
_____ patient behavior
_____ broken/cancelled appointments
_____ health status of patients

11 In what year did you enter private practice as a Pediatric Dentist? _____

12 If you could suggest changes in the Medicaid Program, what would you suggest? Please explain on the back of this page.

No. _____

**Fig 1. Survey form mailed to 41 North Carolina pediatric dentists.**

participants share certain unique characteristics, such as young age and relative inexperience in practice. Damiano et al.[13] reported factors affecting Medicaid participation among California general dentists. Participating and nonparticipating dentists were remarkable in their similarities. Factors such as low reimbursement rates, confusing paperwork, and limitations of covered services were noted to be significant problems by participants and nonparticipants alike. Capilouto[14] used decision analysis to study issues related to a general dentist's decision to treat Medicaid patients, and his findings highlight the financial advantages of the privately funded dental care market as compared to the government-funded market.

There are no published data that address participation by pediatric dentists in a state Medicaid program. Considering the number of Medicaid-eligible children and the pediatric dentist's important role as a primary care provider, we undertook this study to document pediatric dentists' participation in Medicaid. The specific purposes of this study were to: 1) compare the level of participation of general dentists and pediatric dentists in the North Carolina Medicaid program, and 2) examine issues related to pediatric dentists' participation in the North Carolina Medicaid program.

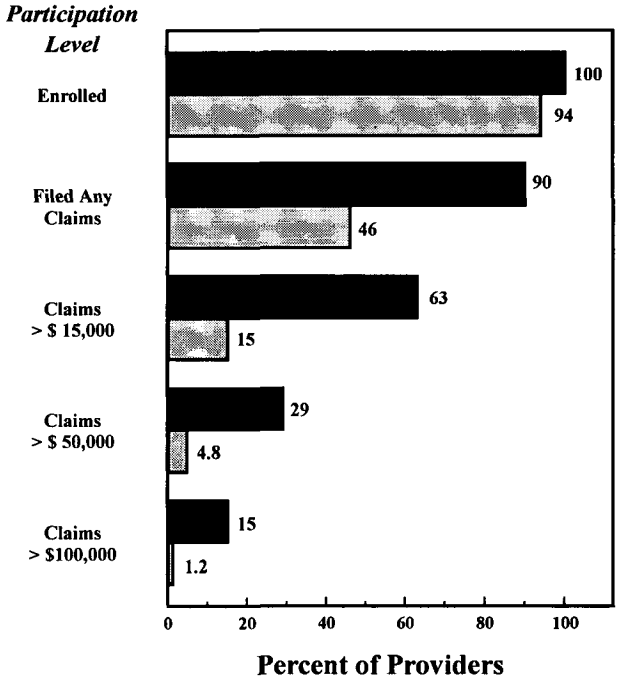


**Fig 2. Participation of dentists in the North Carolina Medicaid program at various levels during the 1990–91 state fiscal year. The percentages of all dentists (gray bars) and pediatric dentists (black bars) participating at each level are compared. The two distributions are significantly different as determined by the chi-square test ($X^2 = 35.9$, $P < 0.001$) (Source: North Carolina Division of Medical Assistance.)**

## Methods and materials

### Phase I

To address our first goal of comparing Medicaid participation by general dentists and pediatric dentists, we relied upon data for the 1990–91 state fiscal year (July 1, 1990 through June 30, 1991). These data were obtained from the Division of Medical Assistance (DMA) of the North Carolina Department of Human Resources, the agency that administers the North Carolina Medicaid program. Data were analyzed using descriptive statistics and the chi-square test with the Instat® personal computer software package (GraphPad, San Diego, CA).

### Phase II

To address our second goal of examining issues related to Medicaid participation by pediatric dentists, we conducted a mail survey of all North Carolina pediatric dentists who were active in private practice for the entire 1990–91 state fiscal year. The survey form is illustrated in Fig 1. Survey question number 7 was worded specifically to facilitate comparison to a 1989 survey of North Carolina pediatric dentists conducted by Dilley and Fields.[15]

The survey and a cover letter were mailed to 41 pediatric dentists with a return-addressed, stamped envelope. Follow-up surveys were mailed to nonrespondents six weeks after the initial mailing. Survey data were analyzed using descriptive statistics, the chi-square test, and Fisher's exact test.

## Results

### Phase I

Fig 2 compares participation rates at successive levels of the North Carolina Medicaid program for all dentists versus pediatric dentists. Nearly all dentists in North Carolina are enrolled as Medicaid providers, but fewer than half filed a Medicaid claim during the 1990–91 state fiscal year. By comparison, more than 90% of the pediatric dentists filed Medicaid claims. The distinction between all dentists and pediatric dentists is striking at all levels of reimbursement, and the distributions of all dentists versus pediatric dentists are significantly different ($X^2 = 35.9$, $P < 0.001$).

Several studies of physicians have used an arbitrary definition of active Medicaid participation based on 10% or more of a practice being devoted to Medicaid patients. However, our data cannot be analyzed using this definition. If we select $15,000 of Medicaid reimbursement as an arbitrary baseline for active participation, the contrast between all dentists and pediatric dentists is sharpened drastically. Pediatric dentists are four times more likely to participate above the $15,000-level.

In summary, pediatric dentists comprise approximately 2% of all practicing dentists in the state* however, they accounted for roughly 8% of Medicaid expenditures in the 1990-91 SFY.

* Lockwood, C., NC State Board of Dental Examiners: Personal Communication, 1992.

Fig 3 depicts the mean 1990–91 Medicaid expenditures in dollars received by general dentists or specialists in one of five groups. Pediatric dentists received approximately three times the Medicaid reimbursement received by general dentists. The mean value for all dentists approximates closely that for general dentists. Reimbursement levels for orthodontists, endodontists, and periodontists were low because Medicaid reimbursement for the services of these specialists is limited in North Carolina.

Tables 1 and 2 illustrate data on the five dental procedures reimbursed most commonly by Medicaid for pediatric dentists (Table 1) and general dentists (Table 2). For each procedure, the average submitted fee and the average Medicaid fee (actual amount reimbursed) are compared to calculate a reimbursement percentage for each procedure. To calculate a slightly different reimbursement percentage, the Medicaid fee is compared also to the mean fee from the recently released 1990 ADA Survey of Dental Fees.[16] In addition, the total expenditures for each dental procedure are tabulated.

As noted in the tables, the top five procedures for pediatric dentists accounted for 41.9% of all dollars reimbursed to pediatric dentists by the North Carolina Medicaid program. For general dentists, the top five pro-

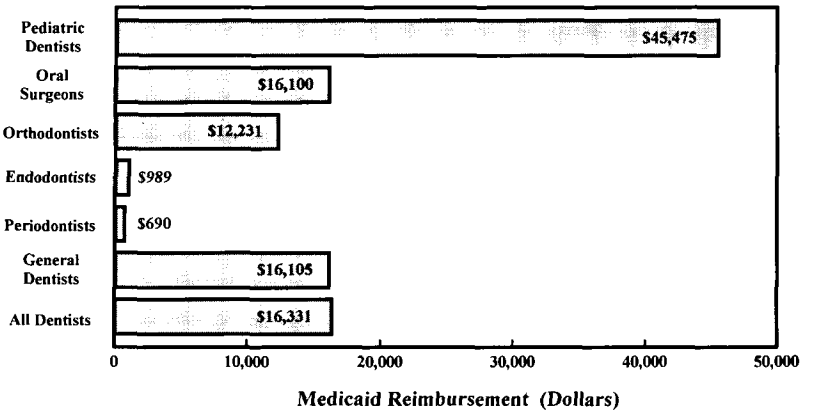


**Fig 3. Mean medicaid reimbursement in dollars for the 1990–91 state fiscal year for general dentists and dentists in various specialty groups (Source: North Carolina Division of Medical Assistance.)**

**Table 1. Most frequent Medicaid procedures (pediatric dentists)**

| *Procedure (ADA code)* | *Total Expenditures* | *Per cent* Weight* | *Medicaid† Fee* | *Submitted‡ Fee* | *Per cent§ Reimbursed* | *Mean‖ ADA Fee* | *Per cent# Reimbursed* |
|---|---|---|---|---|---|---|---|
| Prophylaxis/APF (1201) | $164,581 | 12.7 | **$20.78** | $27.16 | 76.5 | $36.97 | 56.2 |
| Stainless steel crown (2930) | 156,369 | 12.1 | **52.83** | 95.40 | 55.4 | 100.70 | 52.5 |
| Periodic exam (0120) | 85,230 | 6.6 | **11.54** | 14.31 | 80.6 | 16.56 | 69.7 |
| Initial exam (0110) | 68,947 | 5.3 | **15.89** | 18.46 | 86.1 | 22.74 | 69.9 |
| 2 surface alloy, primary (2120) | $67,850 | 5.2 | **$24.14** | $40.43 | 59.7 | $50.53 | 47.8 |
| | | 41.9 | | | **70.2%**** | | **57.9%**** |

* Per cent of total expenditures for the indicated procedure. †Fee actually reimbursed by Medicaid for each procedure. ‡Average fee submitted for each procedure. §Medicaid fee as a percentage of submitted fee. ‖Mean fee for each procedure as reported in the ADA's 1990 Survey of Dental Fees. #Medicaid fee as a percentage of mean ADA fee. **Weighted average reimbursement based on performing the above procedures in the proportions indicated by per cent weight. Medicaid fee and expenditure data was obtained from the NC Division of Medical Assistance.

**Table 2. Most frequent Medicaid procedures (general dentists)**

| *Procedure (ADA code)* | *Total Expenditures* | *Per cent* Weight* | *Medicaid† Fee* | *Submitted‡ Fee* | *Per cent§ Reimbursed* | *Mean‖ ADA Fee* | *Per cent# Reimbursed* |
|---|---|---|---|---|---|---|---|
| Complete denture, max. (5110) | $881,962 | 5.3 | **$245.60** | $352.58 | 69.7 | $531.20 | 46.2 |
| Initial exam (0110) | 869,286 | 5.2 | **14.47** | 18.69 | 77.4 | 19.59 | 73.9 |
| 2 surface alloy, perm. (2150) | 815,099 | 4.9 | **25.64** | 41.68 | 61.5 | 47.45 | 54.0 |
| Adult prophylaxis (1110) | 756,334 | 4.6 | **17.45** | 28.48 | 61.3 | 32.22 | 54.2 |
| 1 surface alloy, perm. (2140) | $730,960 | 4.4 | **$17.05** | $30.93 | 55.1 | $35.13 | 48.5 |
| | | 24.4 | | | **65.5%**** | | **55.6%**** |

* Per cent of total expenditures for the indicated procedure. †Fee actually reimbursed by Medicaid for each procedure. ‡Average fee submitted for each procedure. §Medicaid fee as a percentage of submitted fee. ‖Mean fee for each procedure as reported in the ADA's 1990 Survey of Dental Fees. #Medicaid fee as a percentage of mean ADA fee. **Weighted average reimbursement based on performing the above procedures in the proportions indicated by per cent weight. Medicaid fee and expenditure data was obtained from the NC Division of Medical Assistance.

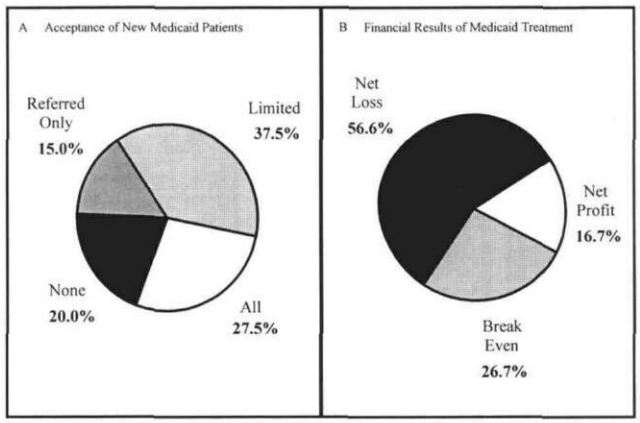


**Fig 4. Selected survey responses by North Carolina pediatric dentists. A) Percentage of NC pediatric dentists who accept all, limited, or no new Medicaid patients (N = 40 respondents). B) Estimates by North Carolina pediatric dentists of the financial results of treating Medicaid patients. (N = 32 respondents who continue to accept new Medicaid patients).**

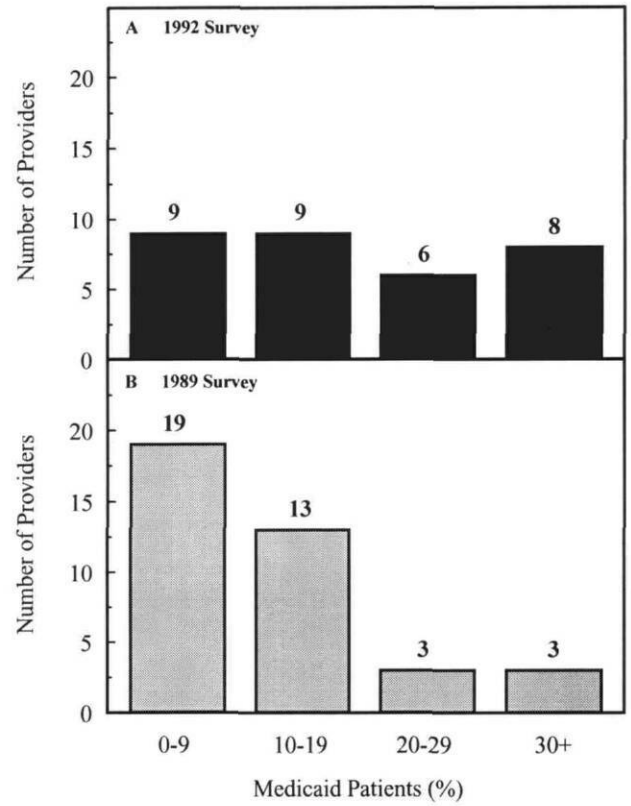


**Fig 5. Estimates by North Carolina pediatric dentists of the percentage of Medicaid patients in their practices. A) Data from the current survey. B) Data from a 1989 survey by Dilley and Fields.[15] The distributions from the two surveys are significantly different as determined by the chi-square test ($X^2 = 7.04$, $P = 0.03$).**

cedures accounted for 24.4% of all reimbursements. A weighted-average reimbursement rate for these top five procedures was calculated, based on the individual reimbursement rate for each procedure and the per cent of total expenditures accounted for by that procedure. By comparing the analogous weighted averages, it was determined that the five most common procedures performed by pediatric dentists are reimbursed at a slightly higher rate than are the most common procedures performed by general dentists.

## Phase II

Within six weeks of the initial mailing, 35 completed surveys were received. The follow-up mailing elicited five additional responses to give a total of 40 responses (98%). The mean private practice experience of respondents was 15 ± 8 (SD) years in pediatric dentistry.

Fig 4 illustrates survey data on accepting new Medicaid patients. Adding the percentages of pediatric dentists who accept none, referred only, or limited new Medicaid patients, 72.5% of all North Carolina pediatric dentists place some limits on access for new Medicaid patients. Data are shown also for predicting financial outcome of Medicaid participation. These financial predictions are from only those pediatric dentists (N = 32) who continue to accept at least some new Medicaid patients. Fifty-seven per cent believe that treatment rendered to Medicaid patients resulted in a net loss of income.

The data in Fig 5 indicate the proportion of Medicaid patients in each pediatric dentist's patient population. Data in the upper panel are from our study. The lower panel depicts 1989 survey data of Dilley and Fields.[15] These distributions are significantly different ($X^2 = 7.04$, $P = 0.03$).

Table 3 includes results of contingency tests for associations between various survey responses. The data are expressed as responses that associated with the likelihood of a pediatric dentist accepting all new Medicaid patients. The associations were tested using the chi-square test or Fisher's exact test as appropriate and the level of significance is il-

**Table 3. Results of contingency tests**

| *Condition* | *Times More Likely** | *Significance Level†* |
|---|---|---|
| A North Carolina pediatric dentist is more likely to accept all new medicaid patients if he/she: | | |
| Has ≥ 20% medicaid patients in practice | 4.6x | $P < 0.01$ |
| Considers medicaid treatment profitable | 4.4x | $P < 0.05$ |
| Has practiced pediatric dentistry > 15 years | 2.4x | $P < 0.10$ |
| Practices in a large city | 1.4x | ns |

* *The ratio of number of providers accepting "all" vs. "a limited number" of new medicaid patients across the test condition.* †Significance was determined by the chi-square test or the Fisher's exact test. N = 32 pediatric dentists who accepted new medicaid patients during the survey period.

lustrated in the table. The factor associated most strongly with accepting all new Medicaid patients was the percentage of Medicaid patients already in the pediatric dentist's practice. Pediatric dentists reporting 20% or more Medicaid patients in their practices were nearly five times more likely to accept all new Medicaid patients than were other pediatric dentists. Nearly as strong an association (4.4 times) was the acceptance of all new Medicaid patients by those pediatric dentists who consider Medicaid treatment a profitable venture. Other factors listed in Table 3 indicated trends toward significant associations but were not statistically significant.

Twenty-five respondents provided an unequivocal rank ordering of their reasons for limiting access for Medicaid patients. Ninety-two per cent of these respondents listed reimbursement rates as one of the three most important reasons to limit access. Fear of broken/canceled appointments was the second strongest reason to limit Medicaid participation, ranked in the top three by 84% of respondents. Forty per cent ranked the need for prior authorization among the top three problems with Medicaid.

## Discussion

It is evident from the data that, as a group, pediatric dentists are the most active dental care providers in the North Carolina Medicaid program. They are more likely to participate in Medicaid, and are likely to participate more actively than other dentists. Nearly half the respondents reported that Medicaid patients comprise 20% or more of their practice populations. The proportion of North Carolina pediatric dentists reporting ≥ 20% Medicaid patients has nearly tripled since 1989 (Fig 5).

Subjective reports of percentage of Medicaid patients in a practice were not validated by collecting objective data; therefore, it is impossible to determine whether the changes over the past three years reflect an actual increase in practice share devoted to Medicaid or over-reporting due to feeling overwhelmed by Medicaid patients.

Roughly 15% of the population in North Carolina younger than 21 is eligible for Medicaid benefits. This suggests that Medicaid recipients may be more likely to be treated by pediatric dentists. Many factors could account for this uneven distribution of the Medicaid population. One factor is the striking lack of participation in Medicaid by the majority of general dentists. It is also possible that the Medicaid-eligible children who seek dental care have more serious needs or less cooperative behavior than the average non-Medicaid patient, which may warrant referral to a pediatric dentist. Clarifying the relative importance of these and other possible explanations is beyond the scope of this paper.

The survey used in this study is the first of its kind in North Carolina, so it is impossible to identify trends of increasing or decreasing participation in Medicaid based on our survey. It is noteworthy, however, that nearly 75% of pediatric dentists place some limit on access to their practices for Medicaid patients. The limitations include age restrictions, geographic limitations, accepting referrals only, accepting of only certain types of patients, establishing a waiting list, and scheduling Medicaid patients only at designated times.

The three strongest reasons given for limiting Medicaid patients—low reimbursement rates, broken/canceled appointments, and need for prior authorization—are similar to reasons given by pediatricians[4,7–10] and general dentists[12–14] who limit their Medicaid participation. Capilouto[14] provided an interesting decision analysis that highlighted the consequences of scheduling a Medicaid patient. He concluded that increased demand by non-Medicaid dental patients is a significant influence for dentists limiting Medicaid participation. The fact that some North Carolina pediatric dentists reported being too busy to see more Medicaid patients reflects these economic realities.[14]

Table 3 should be interpreted cautiously because it is based on a relatively small sample size (N = 32); however, it reveals some interesting findings. It was encouraging to note that more than 25% of NC pediatric dentists accept all Medicaid patients. This group is more likely to have a large proportion of Medicaid patients in their practices already. They are also more likely to report that they generate a net profit from treating Medicaid patients.

Lang and Weintraub[12] found that Medicaid providers were younger and had fewer years of practice experience than nonproviders. This contrasted with our finding (Table 3) that pediatric dentists with more than 15 years of practice experience were 2.4 times more likely to accept all new Medicaid patients. Our survey responses concur with Lang and Weintraub[12] that an important factor limiting access for Medicaid patients is a dentist who is too busy.

Newacheck et al.[17] concluded that the likelihood of school-aged children receiving preventive dental versus medical care was highly dependent on socioeconomic status. The same report demonstrated that Medicaid increased the use of preventive dental services by the study population. Other reports have indicated that Medicaid increases the likelihood that poor individuals will receive an initial dental examination.[18–20]

Lack of participation in Medicaid by health care providers has long been recognized as a major problem. While pediatric dentists are participating heavily in the North Carolina Medicaid program, our results indicate that inadequate reimbursement is the primary obstacle to greater pediatric dentist participation. Evidence indicates that more competitive Medicaid fees encourage health care providers to treat Medicaid patients.[10,11,21] The most common suggestion given by the survey respondents was to increase Medicaid reimbursement rate. Fee increases alone are not likely to solve the problem of limited provider participation. Respondents to our survey frequently suggested altering the scope of covered services and simplifying of eligibility and payment systems.

Our results echo previous research that points to additional barriers to Medicaid participation. Davidson[4] categorized such barriers in two broad categories—economic

factors and limitations of professional autonomy. Our study suggests that the two most important barriers (inadequate reimbursement and broken/canceled appointments) are economic in nature. Yet, our survey population listed the need for prior authorization, a factor affecting professional autonomy, as a significant barrier to Medicaid participation.

## Summary

1. During the 1990–91 state fiscal year, pediatric dentists as a group, were more likely to participate in the North Carolina Medicaid program and participated to a greater extent than other dentists.
2. The percentage of North Carolina pediatric dentists reporting ≥ 20% Medicaid patients in their practices has nearly tripled since 1989.
3. Nearly 75% of all North Carolina pediatric dentists limit acceptance of new Medicaid patients.
4. The most important reasons for pediatric dentists to limit access for Medicaid patients were low reimbursement rates, broken/canceled appointments, and need for prior authorization of treatment plans for Medicaid patients.

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