



# Are general dentists' practice patterns and attitudes about treating Medicaid-enrolled preschool age children related to dental school training?

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## Abstract

**Purpose:** The purposes of this study were to investigate the willingness of general practitioners to provide dental care for preschool-aged children, and to explore the relationship between dental school experiences and practitioners' attitudes about treating Medicaid-enrolled children 3 years of age and younger.

**Methods:** A survey was mailed to 3,559 randomly selected general dentists in Texas. Respondents were asked to answer questions about their willingness to provide specified dental procedures for children of different ages, their dental school experiences with pediatric dentistry and whether these experiences were hands-on, lecture or no training, and their attitudes concerning treating Medicaid-enrolled children 3 years of age or younger. Associations between attitudes about treating Medicaid-enrolled children and dental school experiences were determined.

**Results:** The response rate was 26%. Almost all respondents were willing to provide routine procedures such as an examination (95%) and prophylaxis (94%) for children 5 years or younger. However, as children became younger and procedures more difficult, the number of general dentists willing to provide treatment decreased. The level of dental school training was significantly associated with the attitudes of general dentists about providing dental care for Medicaid-enrolled preschool-aged children ( $P \leq 0.05$ ).

**Conclusion:** Identification of factors associated with general dentists' willingness to see young children may improve access by increasing the number who will provide care for preschool-aged children. (*Pediatr Dent* 23:51-55, 2001)

During recent years, there have been increasing numbers of low-income preschool-aged children unable to obtain dental services.<sup>1-7</sup> This decrease in access may be related to several factors. Experiences with preschool-aged children during dental school training may be one factor associated with general dentists' apparent reluctance to provide services to this age group. Circumstances are further complicated by the perception of general dentists that preschool-aged children are a challenge due to behavior management problems and treatment needs differing from an older population of children. In addition, treatment of this age group may require experience in conscious sedation. McKnight-Hanes reported

that 22% of general dentists reported no children less than 3 years of age receiving treatment in their practices.<sup>8</sup>

A study by Waldman described a continuing decrease in the number of dentists concurrent with a projected increase of 8 million children.<sup>9</sup> Clearly the implications are that for children under 3 years of age, there are greater limitations to access to oral health care, and a number of studies have confirmed that a lack of provider participation in federally funded programs such as Medicaid is one of the primary limiting factors for access to care in this age group.<sup>1-5</sup> The end result has been a decrease in care for preschool-aged children.<sup>1,3</sup> Because there are a relatively small number of pediatric dentists, general dentists willing to treat preschool-aged children will be called upon to fill these provider ranks.

The clustering of dental disease into a smaller, high-risk group of children makes it difficult for dental educators to provide dental students with adequate training experiences in pediatric restorative and behavior management techniques.<sup>10</sup> In an effort to "protect" dental students from young, potentially uncooperative patients, these children are often referred to graduate programs. This may be doing the dental student a disservice. It is clear that pediatric dental educators should evaluate and coordinate dental school and graduate programs to reflect both the changing needs of children and the realities of the professional marketplace.<sup>10</sup>

The dental profession faces the burden of providing treatment for these young patients. Information concerning availability of providers for preschool-aged children and the relevance of dental school training to that availability is important in future planning for effective, efficient management of preschool-aged children.

The purpose of this study was to investigate the willingness of general practitioners to provide dental care for preschool-aged children, and to explore the relationship between dental school experiences and practitioners' attitudes about treating Medicaid-enrolled children 3 years of age and younger.

## Methods

A 48-item survey was designed with the objective of obtaining information about dental practitioners' perceptions about the Texas Medicaid Program, their dental school educational ex-

**Table 1. Percentage (by Age and Complexity of Procedure) of General Dentists Who Will Treat Children**

Procedures (n)=Total responses	≤ 1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs	> 5 Yrs
Examination (833)	18%	46%	83%	91%	94%	99%
Prophylaxis (849)	4%	28%	72%	87%	93%	99%
Sealants (843)	0%	5%	19%	32%	49%	98%
Restorative with local anesthetic (833)	0%	7%	34%	59%	74%	98%

periences and their attitudes about treating preschool-aged children. Twenty-two of the questions were designed to acquire information specific for the purpose of this study. Three types of questions were used: open ended, fill-in-the-blank, and questions requiring a response on a five-point Likert Scale.

Because the survey was clearly aimed at issues related to Medicaid and it was believed that only about 20% of general dentists in Texas participate in Medicaid,<sup>11</sup> the response rate was expected to be low. Therefore, in order to secure sufficient responses to allow meaningful statistical analysis of results, surveys were sent in December of 1998 to 3,559 general dentists randomly selected from the 7,387 actively licensed general dentists registered by the State Board of Dental Examiners. A second survey was mailed 5 weeks after the initial mailing to non-respondents. Each survey respondent was guaranteed anonymity. To ensure anonymity of the respondents, an employee of Baylor College of Dentistry, who was not involved with the data analysis, opened the returned surveys, separated them from the coded envelopes, and removed the names from the second mailing list.

General dentists were asked to respond to questions designed to determine their willingness to treat young children, including the age at which the respondents believed a child should make his or her first dental visit. The respondents were asked the youngest age child they would see for different procedures such as an examination, prophylaxis, sealants, restorative treatment with local anesthetic and questions concerning both pharmacologic and non-pharmacologic behavior management techniques they were prepared to use.

In an effort to describe the dentists who expressed willingness to provide restorative care to children 3 years and younger, respondents were asked to answer 8 questions describing their educational experiences with and about children while in dental school. These questions addressed topics in 3 areas of the pediatric dentistry curriculum: 1) restoration of caries for the child with extensive disease; 2) behavior management (both pharmacologic and nonpharmacologic); and 3) infant oral health/treatment of very young children. The questions dealing with pharmacologic and nonpharmacologic behavior management specified exposure to behavior management techniques beyond tell-show-do and training in the use of nitrous-oxide, conscious sedation, and general anesthesia. The final questions addressed curricular issues associated with very young children, specifically infant oral health, early childhood caries/baby bottle tooth decay, and experience providing care to children less than 3 years of age. For each question concerning dental school education, the respondents were asked whether they had hands-on training, lectures, or no training.

A series of questions was asked to determine practitioners' attitudes about treating Medicaid-enrolled children under age

3. Specifically, they were asked about their comfort level with managing the behavior of these young children, whether their offices were equipped to provide care, and whether they believed it was cost effective to treat Medicaid-enrolled children under age 3. Educational experiences were compared to practitioners' attitudes.

Nine-hundred-forty-five returned surveys were determined to be usable and were mailed overnight to Data Tran Inc. for data entry. The data was double entered into SAS (SAS Institute Inc., NC). Questions left blank on the instrument were not coded.

Univariate and bivariate analyses were completed. Descriptive statistics were performed on the demographic data to determine numbers, percentages, and means of the variables. A frequency table was constructed to summarize the demographic data collected from the returned surveys. Chi-square tests were utilized to determine whether there was a significant relationship between dentists' dental school experiences and current practice patterns related to willingness to provide treatment for very young children. The determination of the level of significance for this sample was placed at  $P < 0.05$ .

## Results

One-thousand-eight of the 3,559 surveys were returned, for a response rate of 28%. Sixty-three were not usable, of which 49 were returned unanswered and 14 were received after data analysis was completed. An effective survey response of 945 (26%) was utilized for data analysis. Thirty-five percent of the respondents were Medicaid providers, while 65% were not accepting Medicaid patients.

When asked at what age dentists believe children should make their first visit to the dentist, answers ranged from 1-6 years. Figure 1 shows that almost all (90%) believed first visits should be at 3 years of age or younger; however, almost half (44%) of those respondents believed it should be at age 3.

Table 1 describes the responses to questions concerning the youngest age of a child whom practitioners were willing to treat for different dental procedures varying in complexity from examinations to restorative treatments requiring local anesthesia. Almost all respondents were willing to provide routine procedures to young children. However, as children got younger and procedures more difficult, the number of general dentists willing to provide treatment declined (Table 1).

Respondents answered a series of questions about the youngest and oldest age child for whom they were willing to use both pharmacologic and nonpharmacologic behavior management techniques. General dentists as a group expressed varying degrees of willingness to use behavior management techniques. Overall, the nonpharmacological techniques of tell-show-do (94%) and firm voice control (84%) had high percentages of dentists willing to use them for preschool-age children. However, as the age of the child decreased, fewer responded affirmatively, with 3 in 4 (73%) willing to use tell-show-do and slightly more than half (54%) willing to use firm voice control on children 3 years of age or younger. General dentists rarely use restraints for any age child, as only 34 individuals (4%) responded that they use this method of nonpharmacological behavior management regardless of patient age. Forty percent of the respondents (303) agreed that they were willing to use the pharmacological behavior management technique of conscious sedation for children 5 years of age or younger, and

one-half (46%) of these said they would use it for children 3 years of age or younger. This high percentage could be explained by the use of nitrous-oxide, which is a form of conscious sedation. However, general dentists, regardless of the child's age, rarely use stronger methods of pharmacological behavior management, including IV sedation (3%) and general anesthesia (7%).

Table 2 describes the educational format utilized with different dental school experiences. Approximately 2 in 5 reported they had hands-on experience with nitrous oxide (43%) and with restorative techniques on children with extensive disease (41%), while only 1 in 3 (36%) learned hands-on behavior management techniques beyond tell-show-do. More than half (53%) stated they had no training experiences, either hands-on or lecture, for children under age 3 while attending dental school, and only 6% reported hands-on experience with infant oral health.

The answers dentists gave to the questions describing their dental school experiences were compared with their answers to questions about their attitudes concerning treatment of Medicaid-enrolled children 3 years of age or younger, and only the hands-on experiences revealed significant associations. Analysis of associations between attitudes and hands-on curriculum about behavior management, both pharmacologic and nonpharmacologic, yielded the following significant associations. Hands-on educational experiences with behavior management training beyond tell-show-do resulted in practitioners who said they were comfortable managing the behavior of young children and believed it was cost effective to do so ( $P=0.01$ ). Practitioners with hands-on educational experiences with conscious sedation were significantly more likely to enjoy treating these young children ( $P=0.001$ ) and to agree that their offices had equipment and supplies to provide routine care for them ( $P=0.01$ ). Hands-on educational experiences with general anesthesia were associated with practitioners who claimed to be comfortable managing the behavior of young children ( $P=0.02$ ) to enjoy treating them ( $P=0.01$ ).

The most consistent and highly significant associations between attitudes and educational experiences were found for dental school curriculum associated with hands-on educational experiences with very young children. Respondents reporting hands-on educational experiences providing care to children younger than 3 years of age were significantly more likely to be comfortable managing the behavior of, to believe it was cost effective, and to enjoy treating Medicaid-enrolled children 3 years of age or younger ( $P=0.001$ ). Additionally, they were more likely to agree that their offices had equipment and supplies to provide routine care for these children ( $P<0.005$ ). Similar results were identified with hands-on dental school experiences in infant oral health. General dentists with hands-on training in infant oral health were comfortable managing the behavior of and enjoyed treating young children ( $P=0.001$ ), in addition to having offices with equipment and supplies to provide treatment ( $P=0.01$ ). Practitioners reporting educational experiences with early childhood caries/baby bottles tooth decay were more likely to be comfortable managing the behavior of young children and to enjoy treating them ( $P=0.01$ ).

## Discussion

Numerous studies have shown a discrepancy in access to dental care between preschool and school-aged children.<sup>4,7,12-15</sup> Two

**Table 2. Percentage of Dentists Receiving Various Types of Educational Experience**

Pediatric experiences (n)	Hands-on	Lectures	No training
<b>Behavior management</b>			
Nitrous Oxide (804)	43%	22%	35%
Conscious sedation (799)	16%	42%	42%
Beyond T-S-D (804)	36%	42%	22%
<b>Restorative</b>			
Children with Extensive Disease (798)	41%	38%	21%
<b>Very young children</b>			
Treating children < 3 (803)	13%	34%	53%
Infant oral health (803)	6%	56%	38%
ECC / BBTD (804)	22%	68%	10%

of the more important issues which determine access to oral health care for children are the age of the child seeking treatment and the number of providers available. This study explored the willingness of general dentists to provide specified procedures to preschool-aged children in general, and inquired about their educational experiences in dental school concerning specific aspects of the pediatric dentistry curriculum. It also queried general dentists' attitudes about treating Medicaid-enrolled children 3 years of age or younger and determined the relationship between their recollected dental school educational experiences and these attitudes. It is important to distinguish the implications of these results as they apply to two populations of children—young children in general and Medicaid-enrolled children 3 years of age or younger.

Analysis of the questions about providing specified procedures to young children in general yielded interesting and surprising results. Ninety-four percent of the general dentists responding to this survey were willing to treat children 5 years of age and younger. One explanation could be sample bias, considering the low response rate of 26%. The survey was clearly aimed at issues related to Medicaid. In Texas, Medicaid only provides dental care to children; therefore, practitioners who do not see children or are non-participants of Title XIX, may have chosen not to respond. The sample may disproportionately represent general practitioners who treat children.

A disappointing finding was that only 14% of general dentists believed the first visit to the dentist should be at 1 year of age. This corresponds to the 11% previously reported by Kanellis et al.<sup>16</sup> These percentages may be low because general dentists are not aware that it is the recommendation of almost all recognized authorities, including the AAPD, the American Dental Association, the Bright Futures Coalition, the American Public Health Association, the Bureau of Maternal and Child Health of the Department of Health and Human Services and Federal Medicaid Guidelines under Title XIX Early Periodic Screening, Diagnosis, and Treatment (EPSDT) provisions that the first dental visit should be no later than 12 months. This is particularly worrisome because Texas is one of only a few states in which Medicaid pays for the first visit at 12 months. On the other hand, general dentists may simply be reluctant to see children so young because they perceive them to be difficult to examine. Further, they may not know what to do if, during the examination, it is discovered that the child will require further treatment. Educational programs aimed at general practitioners about the importance of this early first visit need to be developed.

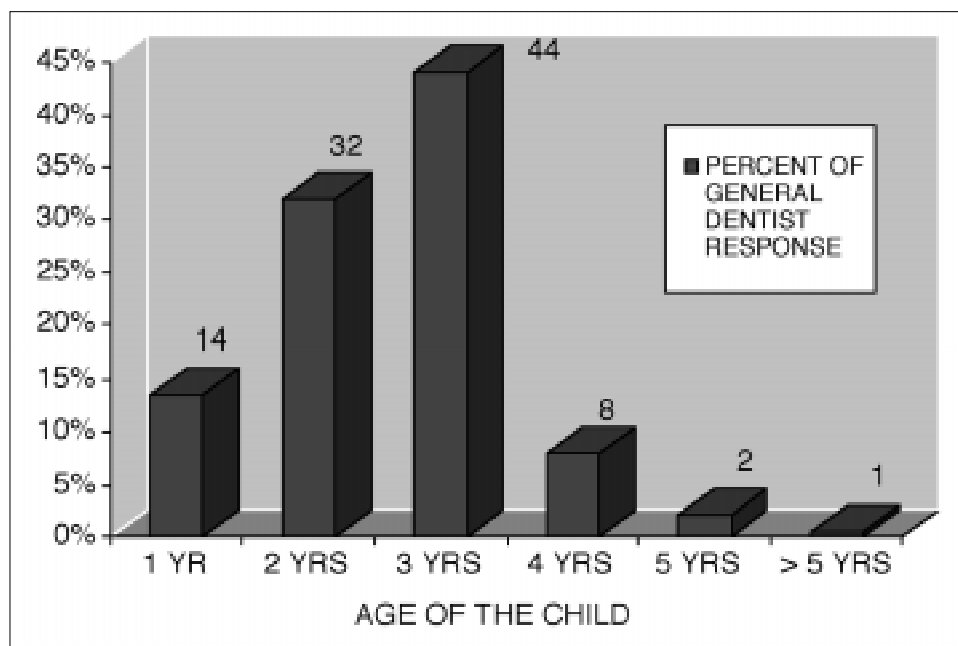


Fig 1. Recommendations for age of first dental visit.

Some of the most revealing information offering explanations for the general dentists' willingness to see young children in general can be found in their answers to questions concerning their dental school educational experiences with children. Because only 6% of respondents had hands-on experience with infants, it is easy to understand why the vast majority would be hesitant to perform an examination on a 12-month-old child. Of particular interest was the small percentage of dentists (13%) who reported hands-on training in treating children under age 3. Clearly a lack of both knowledge and experience relevant to children under age 3 appears to be evident in our respondents. It seems logical that dental students who have treated children this age are more likely to allow them into their practices.

Other very interesting findings in this study were the strong associations between the attitudes of general dentists concerning treating Medicaid-enrolled children 3 years of age and younger and the level of dental school training in various aspects of dental care for preschool-aged children. Both the level of training and the curricular content have an impact. Only hands-on experiences were found to significantly affect attitudes, and hands-on training in dental school with children less than 3 years of age and infant oral health had the strongest association with practitioners' attitudes about providing treatment to Medicaid-enrolled children 3 years of age or younger. Those dentists who had dental school experiences with children less than 3 years old were significantly more likely to be comfortable with and to enjoy treating these children, as well as to believe treatment was cost effective. They were also more likely to indicate their offices had the equipment and supplies available to treat these children.

Also significantly associated with dentists' attitudes, but to a lesser degree, was experience in behavior management techniques beyond tell-show-do. Those dentists who had training in behavior management techniques beyond tell-show-do were more likely to be comfortable with Medicaid-eligible children under 3 years of age. The survey questions did not define "behavior management beyond tell, show and do" so it is not possible to make precise recommendations about specific behavior management techniques. However, it appears that active

involvement with children using a variety of behavior management techniques is a necessary key to overcoming apprehension and improving confidence in a provider. The association between dental school experiences with young children and the belief that it was cost effective to treat Medicaid-eligible children under 3 years of age is harder to explain. This analysis did not attempt to factor in respondents' answers about known financial deterrents such as low reimbursement rates, unkept appointments, paperwork, etc.

These findings call for recommendations to dental educators to make changes in their pediatric dental curricula. Infant oral health and experiences with oral examination of infants should be a mandatory component of the dental school pediatric dental curriculum. Educators need to stress the recognized recommendations for a first dental visit at age 1 (or with the eruption of the first tooth). Far too many practicing dentists still believe first visits should be at age 3, and for high-risk children, a first visit at age 3 may be too late to prevent dental disease.

Some dental schools in the United States are having problems finding sufficient numbers of pediatric patients with caries to provide uniform educational experiences for their dental students. This lack of experience with young children may be further complicated in schools with pediatric residencies, where the more difficult to manage children are referred to the residents. Program directors have traditionally believed a frightened young child with extensive caries was not a good match for a frightened, inexperienced dental student. Reevaluation of these traditional methods of training is important in planning for increased numbers of providers comfortable in managing the increasing numbers of preschool children requiring access to dental services.

An association between dental school experiences and self reported positive attitudes about treating Medicaid-enrolled children 3 years of age or younger is strongly demonstrated by the data collected in this study. However, how these findings translate into willingness to provide care for Medicaid-enrolled children 3 years of age or younger is less clear. Nearly two-thirds of the respondents were not Medicaid providers, and it is unclear whether their responses indicate a willingness to treat

“Medicaid-enrolled children 3 or younger.” Efforts should be made to inform dental educators about these findings in hope that they will provide more in-depth, hands-on experiences with preschool-aged children, especially children under 3 years of age, for their dental students.

One limitation of this study is the fact that it depends upon dentists’ recollections of their training experiences, not upon an actual determination of their dental school curriculum. Almost three-quarters of the respondents were at least 15 to 20 years out of training, which may cast some doubt on the accuracy of their memory, especially considering the level of detail requested in the questionnaire. This is an unavoidable weakness in this type of study, and it does not invalidate the results.

An additional limitation of this study is the relatively low response rate which compromises the ability to generalize the findings to the population in general in Texas. Testing for non-response bias would have helped, but this was not possible due to the anonymous nature of the survey. When the study was designed, the investigators believed that assuring the respondents’ anonymity was critical to obtaining honest answers and ensuring that the respondents would return the survey.

It is clear that the amount and quality of educational experience in dental school with children is only one issue affecting whether general dentists treat children in their practice, including underserved children. Issues, such as personal preferences for areas of dentistry that do not primarily involve the treatment of children (e.g., prosthodontics or esthetics), and the fact that some people simply don’t like to work with children, no matter how many experiences are provided, greatly influence the amount and type of care a general practitioner provides to children in their practice.

It is clear that children under age 3 are less likely to find a dentist willing to provide treatment than are older children. This makes preschool children more vulnerable to the damage, both physical and emotional, which can occur with dental disease. In light of the growing number of underserved preschool-aged children, it is imperative to increase the number of general dentists who are comfortable accepting and providing treatment to children in this age group. This survey attempted to identify practice patterns and attitudes of general dentists and to explore the role of dental school training in the expressed attitudes about the willingness of respondents to provide treatment to Medicaid-enrolled preschool-aged children. It was hoped that by identifying pediatric dental school experiences that might contribute to increased willingness of general dentists to treat preschool aged children, recommendations could be made to modify dental school curricula to encourage general dentists to provide treatment to preschool-aged children.

## Conclusions

1. Almost all respondents were willing to provide routine procedures such as examination (94%) and prophylaxis (93%) for children 5 years or younger. However, as children became younger and procedures more difficult, the number of general dentists willing to provide treatment decreased.
2. Hands-on educational experiences in a dental school pediatric dentistry curriculum with children less than 3 years of age and concerning infant oral health, ECC/BBTD, behavior management beyond tell, show, do, conscious sedation, and general anesthesia were significantly associated with positive attitudes of general dentists about

providing dental care for Medicaid-enrolled, preschool-aged children.

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