



## Infant oral health education in U.S. dental school curricula

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### Abstract

**Purpose:** This study was performed to determine didactic and clinical curricular content about infant oral health in predoctoral pediatric dentistry programs.

**Methods:** 54 dental school departments of pediatric dentistry were surveyed about: 1) curricular content devoted to teaching infant oral health (IOH) and age of first dental visit; 2) methods used to teach IOH and hours dedicated to each method; and 3) whether students receive hands-on experiences with infants.

**Results:** Eighty-six percent of programs teach students to see infants at 12 months of age or younger. Curricular time ranged from 15 minutes to 13 hours (mean = 2 hrs, 20 min, median = 1hr, 45 min). All programs used lectures; other formats included handouts, demonstration and small group seminar. Fifty percent provide clinical experiences, albeit they are not uniform for all students. One-fourth provides uniform, clinical hands-on experiences with infant oral examinations.

**Conclusions:** The findings indicate varying degrees of acceptance about teaching infant oral health in our dental schools. (*Pediatr Dent* 23: 407-409, 2001)

The American Academy of Pediatric Dentistry (AAPD) developed new guidelines in 1985 which changed the recommendation for a child's first dental visit from three years to "within six months of the eruption of the first primary tooth and no later than 12 months of age," and created guidelines for infant oral health (IOH).<sup>1</sup>

Even though there are no scientific investigations which support the 12-month visit, the rationale is based primarily on the possibility for prevention of oral disease. While few infants younger than one year have oral problems that require intervention, almost all have an oral environment at risk for oral disease.<sup>2</sup> Nowak describes that the goal of the first oral supervision visit is to assess the risk for dental disease, initiate a preventive program, provide anticipatory guidance and decide on the periodicity of subsequent visits.<sup>2</sup>

These recommendations have recently been the topic of much discussion between the AAPD and the American Academy of Pediatrics (AAP). The AAP has been reluctant to endorse the first visit at 12 months and has given as one reason inadequate numbers of dentists who are willing to see a 12-month-old child for a dental examination.<sup>3</sup> Whether this concern is valid is unknown; however, simple arithmetic based on birthrates in the United States would indicate that the current shortage of pediatric dentists precludes the possibility that pediatric dentists would be able to meet the demand if all infants were referred at 12 months. A large burden for care would

fall with the general dental practitioner. For general dental practitioners to be comfortable and feel prepared to see infants, they must have had some educational experiences in infant oral health, preferably as a part of their dental school curriculum.

Several institutions have well-established programs which provide dental students with in-depth experiences working with mothers and infants. New York University has had the Samuel D. Harris Infant Dental Education Area (IDEA) since 1993; in this program dental students interact with parents and infants to provide infant oral health education and perform infant examinations.<sup>4</sup> Wandera, et al described a predoctoral clinical infant oral health program introduced in 1994 at the University of Michigan and evaluated the effect of the program on the preparation and beliefs of graduating dentists.<sup>5</sup> Their program involved small groups, seminars, demonstrations and examination of four infants by each student. They reported that course participants felt better prepared to address oral hygiene, dietary issues and caries risk assessment in children 36 months and younger. They also reported that participants' beliefs regarding age for the first dental visit differed significantly from practitioners who had not attended the program. The educational value of these clinical experiences with parents and infants cannot be over emphasized.

Anecdotal accounts indicate that infant oral health has been incorporated into most of the pediatric predoctoral programs in dental schools around the nation. However, there has been no formal attempt to gather information about the numbers of schools which have specific curriculum devoted to teaching dental students about infant oral health, the extent of this curriculum, or the types of experiences dental students are having with performing infant oral examinations. Therefore, the purpose of this study was to survey predoctoral pediatric dental program directors about what and how they were teaching their dental students about infant oral health.

### Methods

A survey instrument was designed requesting information about: 1) what the predoctoral programs were teaching concerning the age at which children should have their first dental visit; 2) whether the programs had formal curriculum devoted to infant oral health; 3) the methods used to teach IOH and the numbers of hours dedicated to each method; and finally 4) whether the programs were providing hands-on experiences for students in performing examinations on infants 12 months-old or younger.

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**Table 1. Patient Age Dental Schools Teach for First Dental Exam (n=43)**

Patient age	% dental schools
6 months	12%
6-12 months	16%
12 months	58%
12-18 months	9%
36 months	5%

**Table 2A. Methods Used to Teach Infant Oral Health by Dental Schools (n=41)\***

Lecture	100%
Handout	66%
Demonstration	30%
Assigned clinic/patient care	28%
Small group seminar	21%
Video presentation	16%

**Table 2B. Materials Used to Teach Infant Oral Health by Dental Schools (n=41)\***

Department handouts	78%
Textbooks	66%
AAPD materials	32%
Journal articles	20%
Other	15%

\*Totals are > 100% because respondents could choose more than one choice

Surveys were sent in November of 1999 to predoctoral pediatric dentistry program directors of all 54 U.S. dental schools. The survey instrument was not intended to be anonymous and program directors were asked for a contact person and permission for follow-up calls if the investigators had questions about their responses.

## Results

Forty-three completed surveys were returned for a response rate of 80%. Forty schools teach their predoctoral students that they should see infants when they graduate and three do not. Eighty-six percent of the programs responding are teaching their dental students to see infants at 12 months of age or younger. Approximately one-third of these is recommending a first visit at either 6 months or 6 to 12 months. Only 5% of the programs are still teaching the previous recommendation of three years for first visit. Respondents answered this open-ended question in increments of six months or as ranges and their responses are summarized in Table 1.

Respondents were asked to provide a rationale for the age at which they taught first visit to the dentist. The most frequently given response was "education of parents" (n=21) followed by "AAPD guidelines" (n=11) and "prevention" (n=10).

All but two of the programs responding to the survey have formal, designated time in their curriculum for teaching infant oral health. The curricular time devoted to this topic, excluding patient contact time, ranged from 15 minutes to 13 hours. The median time was 1 hour and 45 minutes and the average time was 2 hours and 20 minutes. The two schools reporting no curricular time indicated that they plan to create programs in the near future.

Respondents were asked to check all that applied from a list of teaching formats, and the results summarized in Table 2A indicate that a wide variety of methods are used. All programs use lecture formats for part of their teaching. Other formats identified included handouts, demonstrations, clinic assignments for patient care and small group seminars. Another

question asked respondents to check all that applied from a list of teaching materials, and their responses are summarized in Table 2B. Departmental handouts were the most frequently cited, followed by textbooks and AAPD materials.

Several questions dealt specifically with clinic assignments, patient contact time and opportunities to perform infant oral examinations by dental students. One-half of the respondents had no opportunities for actual infant contact for students to perform examinations. About one-quarter of the programs reported variable opportunities, and said they were not uniform, meaning only a few students might have a chance to see an infant. Others reported that these clinical, hands-on experiences were based on selectives or electives and again were not consistent among the students within a class. However, nearly a quarter of the programs do have clinical experiences and reported either one to two examinations or three to four examinations of infants by each student. These results are summarized in Table 3. For those programs which have hands-on clinical experiences (n=22), nearly three-quarters provide the experiences in the dental schools. The 28% which had off-site experiences listed WIC clinics, hospital clinics, Headstart centers and community health centers or mobile vans as patient sources.

## Discussion

In spite of the fact that most schools are teaching first visit at 12 months or younger, only half are providing actual examination experiences with infants. These results seem to indicate that, even in 2000, there is not uniformity among schools about teaching a guideline which was established in 1985. While it is encouraging that nearly nine out of 10 graduating dental students have been exposed to the concept of early dental examination of infants, only one in four have had consistent hands-on experiences with the procedure. Cotton, et al concluded that hands-on educational experiences in a dental school pediatric dentistry curriculum concerning infant oral health with children less than three years of age were significantly associated with positive attitudes of general dentists about providing dental care for Medicaid-eligible preschool age children.<sup>6</sup>

If we expect the general dentists to be major contributors to caring for children by implementing the first visit at or before one year of age, we as dental educators must do a better job of providing hands-on experiences with this procedure. The willingness of general dentists to see very young children is a crucial aspect of increasing access to care and thereby preventing dental disease in underserved populations.

**Table 3. Dental School Clinical Hands-on Experiences Available in Infant Oral Health Examinations (n=43)**

Clinical hands-on experience in IOH	Dental schools
No experiences for students	51%
Variable experiences for students	21%
All students have experiences (1-4 exp)	28%

The finding that the majority of those schools providing hands-on clinical experiences with infants did so in the dental school was somewhat surprising. More information is needed about how this was arranged. How did the parents know to bring their infant to a dental school? Are pediatricians recommending it? Are the schools soliciting these parents? Are Medicaid caseworkers recommending it? Maybe some schools are hesitant to implement clinical experiences because they think they have to transport students to off-site clinics to provide the hands-on experiences. The findings from this survey indicate that some schools have been able to convince parents to bring their infants to the schools and facilitate the provision of these clinical experiences for their dental students. As parents become more familiar with the concept of the early oral exam for infants, it will be easier to provide infant patient populations so that all dental students can have uniform clinical experiences with them.

In summary, the findings from this survey indicate that there are varying degrees of acceptance about teaching infant oral health in our dental schools. The variety of experiences range from none to lecture only to limited hands-on experiences to consistent experiences for all students. If we are going to provide the workforce necessary to meet the AAP challenge to see their referrals at one year of age, we need to reach a consensus about what kinds of educational experiences constitute competency in this skill set. We need to develop a curricular guideline in infant oral health education for predoctoral dental students. However, before specific guidelines for the curricular content of these programs can be made, more outcome data is needed regarding the effectiveness of different

types of educational experiences in preparing a confident general practitioner who is willing to see infants for oral exams. More studies, such as Wandera, *et al*, evaluating the effectiveness of existing programs are needed.

## Conclusions

Even though most programs have some predoctoral curriculum devoted to infant oral health, only one in four students receive predictable hands-on clinical experience with infant patient examinations.

## References

1. Infant Oral Health Care. AAPD Reference Manual 1999-2000. *Pediatr Dent* 22:77, 2000.
2. Nowak A. Rationale for the timing for the first oral evaluation. *Pediatr Dent* 19:8-11, 1997.
3. Personal communication. Paul Casamassimo, DDS. OSU/Children's Hospital, 700 Children's Drive, Columbus, OH 43205.
4. Herman NG. An idea that works. NYU Harris Infant Dental Education Area. *NY State Dent J* 61:26-29, 1995.
5. Wandera A, Feigal RJ, Green T. Preparation and beliefs of graduates of a predoctoral infant oral health clinical program. *Pediatr Dent* 20: 331-335, 1998.
6. Cotton KT, Seale NS, Kanellis MJ, Damiano PC, Bidaut-Russell M, McWhorter AG. Are general dentists' practice patterns and attitudes about treating Medicaid-enrolled preschool age children related to dental school training? *Pediatr Dent* 23:51-55, 2001.