Access to dental care for children in the United States

A survey of general practitioners

N. SUE SEALE, D.D.S., M.S.D.;
PAUL S. CASAMASSIMO, D.D.S., M.S.

ABSTRACT

Background. In response to concern that inadequate dental school training may create a barrier to access to care for children, the authors conducted a survey concerning general practitioners' practice patterns involving child patients.

Methods. The authors requested a list of 4,970 randomly chosen general practitioners from the American Dental Association Survey Center. They then sent those dentists a written survey asking whether and in what numbers they treat children; the ages and caries levels of any children they do treat; their perceptions of their educational experiences in pediatric dentistry, and their perceived needs for continuing education in pediatric dentistry. They analyzed data using χ^2.

Results. Ninety-one percent of the general dentists surveyed treated children, but those younger than 4 years of age, with high levels of caries, and whose care is funded by Medicaid were represented in very low numbers. The types of patients treated and procedures performed by the respondents were significantly ($P \leq .05$) associated with the intensity of the respondents' educational experiences, except for the number and types of Medicaid patients they treated.

Conclusions. These data indicate that the vast majority of general practitioners treat children in their practices, but there still are groups of children for whom access to dental care is a problem.

Practice Implications. Very young children, children with high levels of caries and Medicaid-covered children have difficulty finding dental care in the general practice community.

In October 2000, the House of Delegates of the American Dental Association adopted Resolution 59H-2000 at its Annual Session. This resolution stated: "Resolved, that the Board of Trustees recommend that the ADA Commission on Dental Accreditation review the predoctoral education standard 2.25 regarding pediatric dentistry to assure adequate and sufficient clinical skills of graduates."[1]

The vast majority of general practitioners treat children in their practices, but there still are groups of children for whom access to dental care is a problem.

The genesis of this resolution, known as the Texas Resolution because it was first brought forth in 1999 by the Texas Dental Association, was a concern that a perceived barrier to access to dental care for children may exist. The resolution background noted the belief that many practitioners do not feel confident enough or adequately trained to treat the very young and adolescent dental patient.

The problem of access to oral health care, which was highlighted in the U.S. surgeon general's 2000 report on oral health in America, represents dentistry's greatest challenge for the next decade.[2] Children are a major segment of the population lacking access to dental care, and very young children, children with special needs and children from poor families are those who suffer the most.

Looking back over the past decade, indicators could have predicted the eventual necessity of the Texas Resolution, beginning with changes in the American Dental Education Association's annual survey of graduating U.S. fourth-year dental students.[3] Each year, graduating dental students are asked to rate their satisfaction with the time devoted to instruction in different clinical disciplines. Pediatric dentistry had enjoyed ratings in the upper 90s (on a 100-point scale)

until 1993, when satisfaction began to decline.[3] From 1996 to 1998, the level of satisfaction with the adequacy of time devoted to their pediatric dentistry education among graduating fourth-year students fell into the 80s.[3]

Changes in practice patterns of general dentists also may have been an indicator. A 2000 editorial in the New York State Dental Journal focused on two trends the author perceived (on the basis of parental reports in his practice) as constituting alarming professional neglect.[4] The first was that general practitioners were failing to diagnose and treat dental problems in very young children, or to refer parents to pediatric dentists or general dentists who treated young children if they themselves did not. The second was that general practitioners were providing parents with the false or misleading information that primary teeth did not need to be restored.

The surgeon general's report stated that caries in the primary dentition has not decreased in the past 10 years.[2] This is another clear indicator that dentistry is not reaching all young children with the advances in preventive services that the profession's newest technology offers.

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Still another indicator that there may be an access problem is the number of children from poor and underserved families who go without dental care and have disproportionate amounts of dental disease.[5] The lack of access to dental services for indigent and Medicaid patients is well-documented and indications are that it will worsen. A study in the September 2001 issue of the Journal of Dental Education explored a number of issues that will contribute to this expectation for diminished access.[6] Kinlaw[6] anticipated that the dramatic increase in the number of Medicaid-eligible recipients due to changes in state and federal Medicaid legislation would be the single most influential statistic contributing to the access dilemma.

General practitioners represent the greatest work force, yet national data indicate that they do not see Medicaid-eligible children in large numbers or very young children at all.[7] Their participation is critical if we are to meet the needs of this underserved population of children, who have a disproportionate amount of dental disease. Pediatric dentists are too few in number to care for the dental needs of all children. General practitioners must help. If the Texas Resolution is right, ways must be found to increase the numbers of general dentists who will care for all types of children.

To determine how actively general dentists participate in providing dental care to children, we conducted a survey of general practitioners intended to determine whether and in what numbers they treat children; the ages and caries levels of the children they treat; their perceptions of their dental-school educational experiences in pediatric dentistry; and their current needs for continuing education in pediatric dentistry.

MATERIALS AND METHODS

We asked the ADA Survey Center to provide from the ADA's database a random sample of 4,970 general practitioners, representative of the nine regions of the United States; this sample served as the study population. We developed a survey in consultation with the ADA Survey Center and mailed it, along with a cover letter and a stamped self-addressed envelope, to each member of the sample population in July 2001. We sent two additional mailings to nonrespondents, one each in August and September 2001.

The survey was composed of 17 questions. The first section of the survey asked for demographic data. The second section asked whether the practitioner treated children aged birth to 14 years and, if the answer to that was "yes," requested a description of how children were represented in the practitioner's pool of patients by age and levels of caries. A third series of questions inquired about the practitioner's knowledge of and agreement with the recommendation made jointly by the ADA and the American Academy of Pediatric Dentistry, or AAPD, that a child have his or her first dental visit by the age of 12 months. A final series of questions identified a number of procedures performed as a part of providing dental care to children, in the areas of prevention, behavior management, restorative treatment, pulp therapy, trauma, sedation and surgery; it also included questions regarding treatment of Medicaid-covered children by age and degree of caries. The questionnaire asked practitioners to identify whether they performed

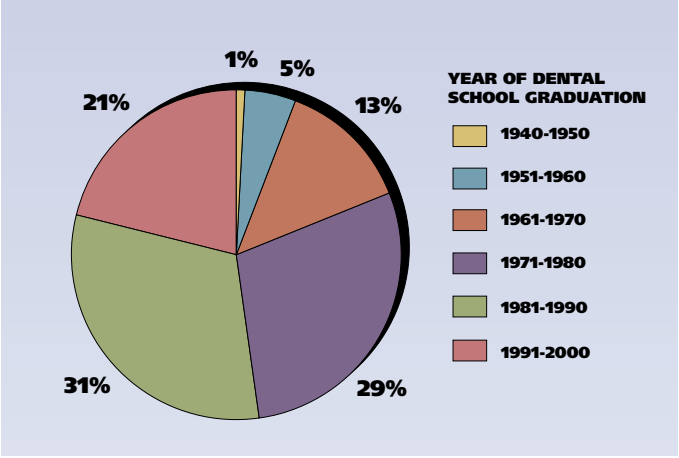

Figure 1. Distribution of respondents by year of graduation from dental school.

each procedure and, if so, how often they performed it; how their dental school education in the procedure was provided; and their attitudes regarding their need for additional training in the procedure. Respondents were asked to choose items from a Likert-type scale that included the choices "very often," "often," "sometimes," "rarely" or "never" for whether they performed the procedures; "hands-on/lecture," "lecture/laboratory only" or "none" for dental school educational experiences; and "very desirable," "desirable," "somewhat desirable" or "not desirable" for their attitudes about their need for additional training.

We hired professional data entry personnel to enter the data from the surveys into a database. We reported the data as percentages and frequency tables and analyzed them using descriptive statistics and χ^2 analyses. We categorized and reported open-ended questions by response.

RESULTS

A total of 1,251 usable written surveys were returned, for an adjusted response rate of 24 percent. A comparison of demographic data available from the ADA database from respondents and nonrespondents indicated no significant differences between the two groups.

Figure 1 presents a summary of the distribution of respondents by year of graduation from dental school. Sixty percent of the respondents graduated from dental school in the two decades between 1971 and 1990. Slightly more than one-fourth (27 percent) of all respondents reported that they had formal training beyond dental school; about two-thirds of these had completed a general practice residency, or GPR, and one-third an advanced education in general dentistry, or AEGD, program. We analyzed responses from dentists who had GPR or AEGD training to determine whether these practitioners would be more likely than would general dentists who had no formal training beyond dental school to see children in general or to see younger children, children with more disease and children whose dental care was covered by Medicaid. We found no significant associations between these two types of advanced training and practitioners' willingness to see the groups of children previously specified.

Thirty-one percent of the respondents' practices were located in a metropolitan area with a population of more than 500,000 people; 19 percent were located in a metropolitan area with a population between 100,000 and 500,000; 31 percent were located in small cities with a population between 20,000 and 99,999; and 19 percent were located in rural areas (with a population < 20,000).

Ninety-one percent of the respondents reported that they treat children ranging in age from birth to 14 years. The 9 percent who do not treat children were asked to choose from a list of descriptors that best described their reasons for not doing so, and their responses are summarized in Table 1. Respondents could choose more than one answer, and the most frequently chosen answers were "My practice is not geared to children" (44 percent) and "I don't enjoy treating children" (28 percent). Although this survey did not specifically identify "Have an available referral source" as a reason for not treating children, it was the most frequent reason written by the respondents under "Other." Only 13 percent of the respondents stated that they did not "feel adequately trained to treat children," and of those, fewer than one in four reported that additional training would cause them to be more willing to treat children.

On average, 20 percent of the patients treated in the respondents' practices in the last 12 months were children aged 6 months to 14 years. This average is misleading, as it implies that one-fifth of patients seen in general dentists' offices are between the ages of 6 months and 14 years. More accurately, more than one-half (61 percent) of respondents reported that children composed from 1 to 20 percent of their practices, so the real proportion is smaller.

Figure 2 shows the average distribution of children treated in the 12 months preceding the

TABLE 1

RESPONDENTS' REASONS FOR NOT TREATING CHILDREN.*

REASON FOR NOT TREATING CHILDREN	PERCENTAGE CHOOSING THIS REASON†
1. My practice is not geared to children.	44
2. Other (please specify) (sample reasons provided: refer to pediatric dentist/have pediatric dentist associate; practice limited to specific procedures; nearing retirement)	31
3. I don't enjoy treating children.	28
4. Children are disruptive to my practice.	19
5. I don't feel adequately trained.	13
6. My practice is too busy.	11
7. It is not financially rewarding.	7

* Respondents were permitted to choose more than one answer.
† Based on 185 answers circled by 127 respondents who indicated that they did not treat children.

survey in general practitioners' practices in age categories ranging from 6 months to 14 years. Of these children, respondents indicated that, on average, 3 percent were 6 to 18 months of age, and 73 percent of respondents did not treat children 6 to 18 months of age. Twenty-eight percent did not treat children 19 months to 3 years of age at all. Of those who did treat children aged 19 months to 3 years, 78 percent reported that those children made up only 1 to 10 percent of their pediatric patient population. The picture is somewhat brighter for the children 4 to 6 years of age. Only 2 percent of the respondents did not treat children of these ages. Among those who did, 85 percent reported that these children made up 1 to 30 percent of their pediatric patient populations. Ninety-nine percent of the respondents said they treated children aged 7 to 14 years, and 68 percent reported that these children composed 21 to 50 percent of their pediatric patient populations.

Figure 3 shows averaged responses to the request to estimate the levels of active caries represented in the children they treated over the preceding 12 months. On average, 28 percent of the children these general dentists saw had mild caries (one or two teeth involved). However, an analysis of the distribution of responses indicated that according to 63 percent of the respondents, fewer than one in three children they treated had mild caries, and 70 percent reported that fewer than one child in 10 in their practices had severe caries. The majority of children treated by general practitioners either were caries-free or had mild caries.

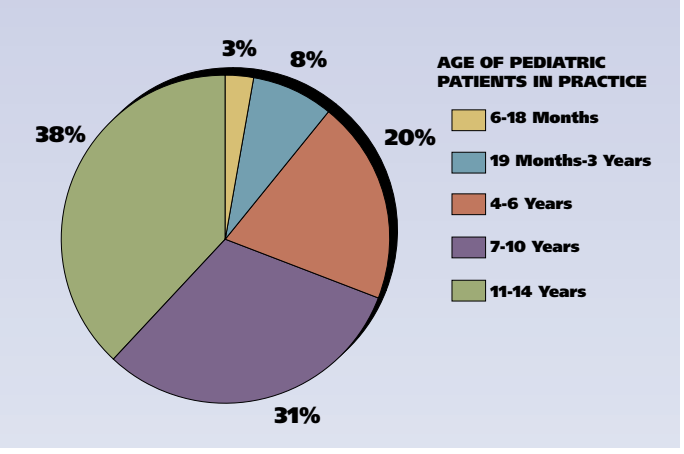

Figure 2. Distribution of children in respondents' practices by age categories ranging from 6 months to 14 years.

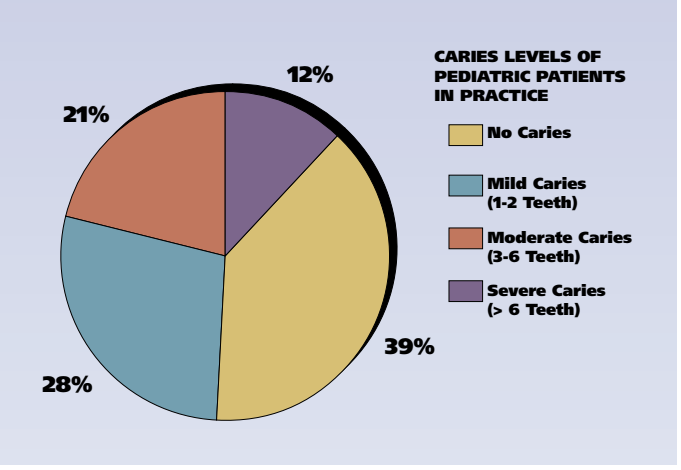

Figure 3. Distribution of levels of active caries in children in respondents' practices during the 12 months preceding the study.

TABLE 2

RESPONSES* REGARDING PREVENTIVE PROCEDURES.

PREVENTIVE PROCEDURE	FREQUENCY OF PERFORMANCE OF THIS PROCEDURE IN PRACTICE			FORMAT OF DENTAL SCHOOL EDUCATION			OPINION REGARDING FURTHER TRAINING		
	Very Often/ Often	Sometimes	Rarely/ Never	Hands-on/ Lecture	Lecture/ Laboratory Only	None	Very Desirable/ Desirable	Somewhat	Not Desirable
Topical Fluoride Administration	84	3	7	85	6	2	17	19	57
Examination of Infants	21	18	54	27	32	35	27	27	39
Examination of Children Aged 1 to 3 Years	46	27	20	48	29	19	29	26	38
Sealants, Primary	22	19	53	44	13	36	21	20	51
Sealants, Permanent	79	9	6	69	8	17	25	20	48
Diet Counseling	41	31	21	40	41	12	35	26	32

* All responses are expressed as percentages. Respondents were permitted to choose more than one answer.

Only slightly more than one-half (53 percent) of the respondents were aware of the ADA and AAPD recommendation that a child's first dental visit should be no later than 12 months. Of those who were aware, 60 percent did not agree with the recommendation. Only 15 percent of the respondents identified 1 year as the appropriate age for the first visit, and 40 percent recommended 30 months or 3 years as the age for a child's first dental visit.

A series of questions asked about a number of dental procedures performed as a part of providing care to children. Three areas were addressed for each procedure:

- when necessary, how often and whether the practitioner himself or herself performed the procedure for children in his or her practice;
- how the practitioner's dental school provided education about the procedure;
- the practitioner's attitude regarding his or her need for additional training in the procedure.

The responses for the procedures associated with prevention, behavior management, restorative treatment and sedation are summarized in Tables 2 through 5.

Only about one in five of the respondents indicated that they very often or often performed infant oral examinations, and less than one-half very often or often performed examinations on children 1 to 3 years old (Table 2). With the exception of applying sealants to primary teeth, most of the responses for performing the procedures associated with prevention appear to parallel the respondents' recollections of hands-on and lecture educational experiences with the procedure in dental school. In fact, χ^2 analysis of their answers indicates that those who had had hands-on and lecture educational experiences in dental school with infant oral examination and examination of children aged 1 to 3 years in dental school were significantly more likely ($P < .0001$) to very often or often treat these children, compared with those who had lecture/laboratory-only or no education in these preventive procedures. A comparison of responses about awareness of the ADA/AAPD guidelines for age of first dental visit with responses about willingness to perform procedures on young children indicated that general practitioners who were aware of the ADA/AAPD guidelines for first visit at or before 12 months of age were significantly more likely ($P < .0001$) to perform infant oral examinations very often or often. Responses about behavior management techniques used (Table 3) indicated that the majority of practitioners used the "tell-show-do" method with children in their practices, and more than three-quarters used voice control. As the behavior management procedures listed on the survey became more aggressive, the practitioners' use decreased. General

TABLE 3

RESPONSES* REGARDING BEHAVIOR MANAGEMENT PROCEDURES.

BEHAVIOR MANAGEMENT PROCEDURE	FREQUENCY OF PERFORMANCE OF THIS PROCEDURE IN PRACTICE			FORMAT OF DENTAL SCHOOL EDUCATION			OPINION REGARDING FURTHER TRAINING		
	Very Often/ Often	Sometimes	Rarely/ Never	Hands-on/ Lecture	Lecture/ Laboratory Only	None	Very Desirable/ Desirable	Somewhat	Not Desirable
Tell-Show-Do	86	6	1	75	13	5	34	17	42
Voice Control	60	21	13	56	27	11	33	19	41
Parent Present	52	28	3	30	23	41	24	19	50
Hand-Over-Mouth Exercise	2	4	88	31	36	27	12	14	67
Use of Immobilization Device	1	2	90	21	39	33	12	15	66

* All responses are expressed as percentages. Respondents were permitted to choose more than one answer.

TABLE 4

RESPONSES* REGARDING RESTORATIVE PROCEDURES.

RESTORATIVE PROCEDURE	FREQUENCY OF PERFORMANCE OF THIS PROCEDURE IN PRACTICE			FORMAT OF DENTAL SCHOOL EDUCATION			OPINION REGARDING FURTHER TRAINING		
	Very Often/ Often	Sometimes	Rarely/ Never	Hands-on/ Lecture	Lecture/ Laboratory Only	None	Very Desirable/ Desirable	Somewhat	Not Desirable
Placement of Restoration in Child Aged 1 to 3 Years	17	26	50	45	29	18	30	21	42
Placement of Amalgam in Primary Tooth	55	15	23	87	6	1	24	19	50
Placement of Resin-Based Composite Restoration in Primary Tooth	51	25	17	44	13	36	34	21	38
Placement of Preventive Resin-Based Composite Restoration	44	21	28	41	14	37	36	20	37
Use of Atraumatic Restorative Technique	44	23	28	36	19	38	40	16	32
Placement of Stainless Steel Crown	17	28	48	80	12	2	33	20	39

* All responses are expressed as percentages. Respondents were permitted to choose more than one answer.

practitioners, according to our findings, are not using restraints and have no desire to learn about them. One-third of these respondents were interested or very interested in receiving more education about the behavior management techniques of "tell-show-do" and voice control.

Responses for the procedures associated with restorative treatment in children (Table 4) indicated that only 17 percent very often or often performed restorations on children 1 to 3 years of age. Only one-half of practitioners performed Class II amalgam or composite restorations in

TABLE 5

RESPONSES* REGARDING PROCEDURES COVERED BY MEDICAID.

MEDICAID-COVERED PROCEDURE	FREQUENCY OF PERFORMANCE OF THIS PROCEDURE IN PRACTICE			FORMAT OF DENTAL SCHOOL EDUCATION			OPINION REGARDING FURTHER TRAINING		
	Very Often/ Often	Sometimes	Rarely/ Never	Hands-on/ Lecture	Lecture/ Laboratory Only	None	Very Desirable/ Desirable	Somewhat	Not Desirable
Child Aged 6 Months to 3 Years	7	8	76	31	23	33	15	15	57
Child Aged 4 to 6 Years	16	12	61	50	13	25	18	15	55
Child Aged > 6 and < 15 Years	21	10	60	53	11	24	17	15	56
Mild Caries (1-2 teeth)	20	11	59	52	10	24	17	14	56
Moderate Caries (3-6 teeth)	20	11	59	52	11	24	17	15	55
Severe Caries (> 6 teeth)	15	10	65	46	16	25	18	14	55

* All responses are expressed as percentages. Respondents were permitted to choose more than one answer.

children of all ages up to 14 years. These responses differed from groups of procedures described earlier, in that the association between hands-on/lecture educational experiences and willingness to very often or often perform procedures held true for only some of these restorative procedures. Even though 80 percent remembered having had hands-on/lecture experiences with placing stainless steel crowns in dental school, only 17 percent indicated that they performed this procedure in private practice very often or often. Responses about desirability of additional training indicated that about one-third were interested in learning more about primary tooth resin-based composite restorations, preventive resin-based composite restorations and stainless steel crowns. Forty percent reported that continuing education about atraumatic restorative technique would be very desirable or desirable.

Responses for the procedures associated with sedation of children indicated that less than one-third of the general practitioners used nitrous oxide:oxygen analgesia, and very few performed sedation on the children they treated. Not many remembered having had hands-on educational experiences with sedation. They indicated a great desire for additional training in the areas of oral sedation and combined nitrous oxide and sedation. More than 40 percent rated further education in these two procedures as very desirable or desirable.

A series of questions asked whether the respondents treated children covered by Medicaid. The questions identified children by different age groups and different levels of caries, and the same three areas used for previous procedures were addressed for each age group and level of caries. Table 5 summarizes responses associated with treating patients covered by Medicaid. Respondents' answers to questions about how often they treated patients with Medicaid coverage were disappointing. Only a few (7 percent) indicated that they treated very young (aged 6 months-3 years) patients with Medicaid coverage very often or often. More than 50 percent of the respondents indicated that they never saw patients with Medicaid coverage aged 4 to 15 years. More than one-half (59 percent) never treated children with Medicaid coverage who had even mild caries (in one or two teeth). Responses about the desirability of additional training in treating Medicaid-covered children indicated low levels of interest.

About one-half of the respondents reported having had hands-on educational experiences with Medicaid-covered children. Using χ^2 analyses, we compared practitioners' responses about

their willingness to see Medicaid-eligible children of different ages and with different degrees of caries with their responses regarding how or whether they were trained in dental school to treat Medicaid-covered children in these age groups. The outcome indicated a difference between the group of dentists who were willing to treat these children and those who indicated that they rarely or never treated these children. For the practitioners who indicated that they "very often or often" or "sometimes" treated Medicaid-covered children, there was a positive correlation ($P < .0001$) (either by age or by degree of caries) between the intensity of training and their willingness to treat these children. The more training the practitioners had, the more likely they were to treat such children. However, for the practitioners who indicated that they rarely or never treated Medicaid-covered children, there was no correlation (either by age or by degree of caries) between their willingness to treat these children and whether they had educational experiences with Medicaid-covered children or the intensity of their education. An additional finding from these analyses was that practitioners who reported having had no training in treating Medicaid-covered children were significantly ($P < .0001$) less likely to see pediatric patients covered by Medicaid.

We compared the responses about Medicaid-covered patients with the responses to other questions in the survey to determine whether there were associations. χ^2 analysis, using year of graduation from dental school, indicated that practitioners who graduated after 1990 were significantly more likely ($P < .05$) to report that they treated Medicaid-covered children (of all ages and with all degrees of caries) very often or often than were practitioners who graduated in 1990 or before. Additionally, χ^2 analysis, using responses about primary practice location, identified several significant associations. Dentists who practiced in towns with a population of less than 20,000 (identified as a rural location) were significantly more likely to very often or often treat Medicaid-covered children aged 6 months to 3 years ($P < .05$) and four to more than 15 years ($P < .0001$), as well as Medicaid-covered children with all levels of caries ($P < .0001$). We found no other significant associations.

The finding that 91 percent of our respondents treated children was unexpected and encouraging.

DISCUSSION

We intended this survey to determine what general practitioners were doing to provide dental care to pediatric patients. The finding that 91 percent of our respondents treated children was unexpected and encouraging. It appears that those who did not treat children in their practices would not be persuaded to do so; fortunately, their numbers were small. Their reasons for not treating children were not that they were not trained to feel confident to do so, but rather that their practices are not geared to pediatric patients, they have adequate referral sources or they simply do not like to treat children.

The encouraging news about high numbers of general practitioners providing care to children is tempered by their descriptions (by age and level of caries) of children treated in their offices and offered some insight into the problems of access for children who are very young, who have high levels of caries or whose care is funded by Medicaid. Practitioners' responses describing their pediatric patients indicated that they primarily were seeing children 4 years of age and older who were caries-free or had low levels of caries. Children between birth and 14 years of age make up approximately 21 percent of the total U.S. population,[8] and only about one-third (39 percent) of our sample indicated that children were similarly represented in their patient populations.

Additionally, practitioners' responses describing the children they treated in their practices were consistent with their responses about the pediatric dentistry procedures they performed, both preventive and restorative, and the behavior management techniques they used. The small number who performed infant oral examinations and examinations on very young children parallels the low representation of the very young child in their practices. The moderate use of posterior amalgams and resin-based composites and very low levels of use of stainless steel crowns appear to correspond with the low levels of caries these respondents reported in their practices. Using the type of behavior management reported in these respondents' answers as an indicator of the difficulty of behavior management encountered in their patients, it is clear that these gen-

eral practitioners were seeing well-behaved children.

The good news is that, according to our findings, large numbers of general practitioners are seeing children in their practices. The bad news is that they are not seeing children who are younger than 4 years of age, children with high levels of caries and children covered by Medicaid.

There were highly significant associations between the types of educational experiences the practitioners reported remembering from dental school and their willingness to perform many of the procedures reported here. The intensity of a practitioner's educational experiences affected whether he or she performed the procedure. The practitioners who reported having dental school educational experiences that involved both hands-on procedures and lecture were significantly more likely to perform those procedures than practitioners who had lecture/laboratory-only or no educational experiences.

The bad news is that general practitioners are not seeing children who are younger than 4 years of age, children with high levels of caries and children covered by Medicaid.

One of the most interesting findings from these data requires a comparison with the data obtained from a concurrent survey of academic predoctoral program directors about their programs' curricula and types of clinical experiences.[9] The degree of agreement between the practitioners' recollections of their educational experiences in dental school and the educational experiences included in the curricula reported by the program directors is striking. The fact that less than one-half of the respondents remembered having had hands-on educational experiences with the examination of a child aged 1 year to 3 years is verified by the results reported in the survey directed at academic programs. Patient populations treated in predoctoral dental school programs generally do not include children in this age range. Practitioners' low recollection of having had hands-on experiences in infant examination in dental school is consistent with the findings of the academicians' survey—and this is not surprising, considering how slow dental school pediatric dentistry programs have been to develop such experiences. A recent publication reported that only one-fourth of the predoctoral programs in the United States uniformly provide clinical hands-on experiences with infant oral examinations.[10] Additionally, the finding that practitioners were not treating children who required more difficult behavior management or who had high levels of caries that necessitated more complex restorative treatment is in agreement with the findings of the survey of predoctoral academic programs. Dental school patient populations generally do not include patients with complicated behavior management or restorative challenges. The practitioners appeared to be seeing the same types of patients in their practices that they treated when they were in dental school. Dental school programs must increase their students' numbers and types of experiences with young patients and patients who have more complicated treatment challenges if we hope to develop a pool of providers who will treat similar children.

We intentionally included questions about education beyond dental school because AEGD programs are required to provide experiences with children, and many GPRs also include children in the patient experiences. It was anticipated that practitioners who had had these training experiences would be more likely to treat all types of children, including those who are younger and have higher levels of caries. The fact that we found no associations within their responses was disappointing, but perhaps not surprising. Recent surveys of postdoctoral general dentistry program directors regarding their opinions on the competency of their graduates found that managing complicated pediatric patients was one of the areas in which they scored their graduates lowest.[11,12] Those who oversee AEGD and GPR programs need to be encouraged to increase the numbers of experiences involving young children with more complex behavioral and restorative needs.

There is misunderstanding among general practitioners about the most current guidelines for timing of the first visit, and there is frank disagreement with the guidelines among many. Only 15 percent of the respondents identified the age of 1 year as the appropriate age for the first visit, and 40 percent recommended 30 months or 3 years for the first visit. Again, a great deal of education is needed if the general practitioner is to help create access to care for the very young child. In view of physicians' inability to address

oral health care needs of children from birth to 3 years of age, the survey's finding of only about 20 percent of practitioners willing to treat very young children is a significant predicament that may be a factor in a stagnant primary caries rate change. Additionally, these findings have strong implications for the efforts currently under way by the AAPD to convince the American Academy of Pediatrics to refer infants to dentists for dental examinations at 12 months of age. These efforts could be completely undermined by lack of compliance on the part of general dental practitioners who refuse to treat these infants. Because the general practitioners in our survey who were aware of the AAPD guidelines recommending a child's first dental visit at or before 12 months of age were significantly more likely to perform infant oral examinations, it appears that the first step is to make the practicing community aware of the guidelines.

The relationship between educational experiences and willingness to perform procedures and see patients was less clear-cut with Medicaid-covered patients. Willingness to treat Medicaid-covered pediatric patients and educational experience with Medicaid-covered children is not a linear relationship. There is a dichotomy apparent in the effect that training and intensity of training has in willingness to treat. For the respondents who indicated that they treated these patients, their willingness to do so seems to be related to the intensity of their training. For those who rarely treated them, training does not seem to be a factor. Only 7 percent treated very young (aged 6 months-3 years) Medicaid-covered patients, and these answers were consistent with their responses about treating very young non–Medicaid-covered patients. However, their answers about treating Medicaid-covered children aged 4 to 6 years and between 6 and 15 years are very different from their answers about treating non–Medicaid-covered children. Fifty percent of the respondents indicated that they never treated Medicaid patients in these age ranges, compared with only 9 percent who indicated that they did not treat children in these age ranges in general. Dental disease is concentrated in poor children,[2] and it may be a chicken-or-egg issue as to why the general dentists in our survey indicated that they did not treat them. It could be because they did not treat children with severe levels of caries and that is what these children have—or it could be that they did not treat children with severe levels of caries simply because they did not treat Medicaid-covered children. However, their responses indicate that one-half never treat Medicaid-covered children with even just mild caries. If Medicaid remains the predominant vehicle for dental care financing for low-income, high–caries-risk patients, we may never see an amelioration of disparities in care, unless this situation changes.

Our findings that practitioners in rural locations were significantly more likely to treat Medicaid-covered patients may be explained by the fact that in more rural locations, the general practitioners had no pediatric dentists available for referrals and had to care for the children themselves. The finding that younger practitioners are more likely to see Medicaid patients has been reported previously[13] and may reflect the need for beginning providers to build their practices, thus including Medicaid-covered children. As their practices become busier, it is likely that they focus more on the procedures they enjoy and reduce the numbers of children in their practices.

Practitioners' responses about desirability of additional training in pediatric dental procedures generally revealed low levels of interest, with a few exceptions. The practitioners had a great desire for additional training in the areas of oral sedation, combined nitrous oxide and sedation and atraumatic restorative technique. More than 40 percent rated further education in these three procedures as very desirable or desirable. About one-third were interested in learning more about primary tooth resin-based composite restorations, preventive resin-based composite restorations and stainless steel crowns.

CONCLUSIONS

More than 90 percent of general practitioners see children in their dental practices, but they see children younger than 4 years of age, children with high levels of caries and children covered by Medicaid only in very low numbers. Many general practitioners do not know about and do not agree with the ADA/AAPD guidelines for a child's first dental visit and do not perform infant oral examinations.

General practitioners' recollections of their educational experiences parallel findings of a survey of academicians regarding what they are teaching in predoctoral pediatric dentistry programs.

Dr. Seale is Regents Professor and chair, Department of Pediatric Dentistry, Baylor College of Dentistry, P.O. Box 660677, Dallas, Texas 75266-0677, e-mail "sseale@tambcd.edu". Address reprint requests to Dr. Seale.

Dr. Casamassimo is professor and chair, Section of Pediatric Dentistry, The Ohio State University College of Dentistry, Columbus.

Finally, with the exception of providing care to Medicaid-covered patients, general practitioners are significantly more likely to accommodate their practices to their hands-on educational experiences in dental school, both in terms of the procedures they perform and the types of patients to whom they provide care. ■

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