

Future directions in graduate pedodontic education*

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Dental manpower is the subject of much discussion at local, state, and national levels. For the past few years I have been interested in this situation and want to present the information I have accumulated as well as offer some suggestions for the future. This paper will explain the present situation in pedodontics, summarize what the experts say about population projections, dental and pedodontic manpower, dental disease prevalence—including caries, periodontal disease, malocclusions, dentistry for the handicapped, examine the future demand for dental care, and offer recommendations.

The Present

The American Dental Association (ADA) lists 65 accredited pedodontic programs that are essentially of two types—either dental school or nondental school. This is clarified further by considering the site at which the program is administered and the source of student funding. Since 1967, 13 nondental school programs and 20 new dental school programs have begun. Six nondental school programs compared to only three dental school programs have been discontinued. There is no reason to expect this stratification of programs to change in the future. Since 1972 the ratio of dental school to nondental school program graduates has remained approximately 3:1.

How adequate is the education provided in these different types of graduate programs? Pedodontic graduates from 1972 to 1978 were surveyed about their level of satisfaction with various components of their education.¹ Results suggested education at the two types of institutions differed significantly only in the areas of hospital dentistry, sedation, and research experience; dental school programs generally provided more satisfactory research experiences and nondental school programs offered more satisfactory hospital dentistry and sedation.

As a consultant to the Commission on Dental Accreditation for the past four years I have visited a number of programs—both dental school and nondental school. From my perspective there are definite differences between the two types. If you will permit generalizations, dental school programs do not have an adequate hospital component, frequently do not have adequate relationships with pediatric departments in medical schools, and some do not have adequate input from practicing pedodontists in the clinical programs.

It should be mentioned that the quantity and quality of applicants to dental school programs have deteriorated significantly. Interest in pedodontic specialization among graduating seniors has declined in recent years. This is being felt first by dental school programs because of inadequate or nonexistent stipends. Dental school-based orthodontic, periodontic, and oral surgery programs receive four to five times more applicants than comparable pedodontic programs.

On the other hand, nondental school programs spend excessive time generating clinic income and not enough time on didactic pedodontic education. The research experience in most cases suffers from insufficient time and faculty supervision. Frequently, full time faculty input is inadequate in nondental school programs.

Obviously this analysis does not apply in every instance to dental school or nondental school programs. There are exceptions in both cases. However, the generic problems between the two types do correlate with the inadequacies mentioned in the survey of program graduates.

To develop fully the picture of the present situation in pedodontics it is important to examine the current practice of pedodontics and general dentistry.

Pedodontics and General Dentistry

In 1980 a detailed office survey of North Carolina pedodontists in private practice was conducted. Data

* Adapted from a presentation at the Michigan Pedodontic Manpower Conference, Detroit, Michigan, May 13, 1983.

received from 31 of 36 practitioners contacted were reported.² Twenty-two per cent of the procedures accomplished in the offices were restorative and occupied 48% the pedodontist's time. Reflecting a significant use of auxiliaries, 36% of the procedures were preventive, but they occupied only 9% of the dentist's time. At the time of this survey only 4% of the office procedures were orthodontic. When the data were shown to the North Carolina Society of Pedodontics in 1982, it was felt that more orthodontics is being done today than was indicated in the 1980 survey.

A 1983 survey of members of the Southeastern Society of Pedodontics examined the prevalence of orthodontics in pedodontic practices. Of the 141 respondents, 59% use full-banded appliances; of those not using such appliances, 18% said they planned to do so in the future. Therefore, 77% of the respondents either currently use full-banded appliances or plan to do so in the future. If this is accurate data and representative of a national trend, then the nature of clinical pedodontics definitely is changing.

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The North Carolina pedodontists also were asked how busy they were and 58% (18) responded "not busy enough." Sixty-five per cent could schedule an appointment for a patient of record or see a new patient with less than a one-week wait. A national sample of pedodontists found similar busyness data.³

The present situation in general dentistry is difficult to document accurately. There is some ADA data on busyness in general practice similar to the data on pedodontic practices. Other information corroborating the trend in general dentistry is the increased number of secondary practice locations, the decreasing number of dental graduates entering private practice, and the increase in advertising. As far as busyness is concerned, the situation in general practitioners' offices parallels what we know is happening in pedodontic offices.

What about the situation in general dentistry as it relates to dentistry for children? The literature states that the total number of dental visits by children younger than 17 years of age has not increased since 1973 or 1974.⁴ Even though there are fewer children

in this age range, this figure has remained high largely due to increased frequency of dental visits for available children.

These data are relevant to pedodontics because 80-90% of children's dentistry in this country is performed by general dentists. The fact that so much children's dentistry is accomplished in general practice is the result of our dental education system. Pedodontics has been very successful in training general dentists to treat children.

Let me summarize my view on the overall present situation:

1. There are 65 graduate programs in pedodontics—37 dental school and 28 nondental school.
2. Differences exist between the two program types, but both produce private practitioners of traditional pedodontics.
3. Most of today's pedodontic practices are predominantly restorative/preventive.
4. There is an increasing interest in orthodontics by pedodontists.
5. Most dentistry for children is and will continue to be accomplished by general practitioners.
6. Most pedodontists and general dentists are not busy enough.

The Future

Population projections for the next 30 years are encouraging for pedodontics. It looks as though a "mini-baby boom" is coming, and although the total number of children in the United States will increase, there will be no change in the percentage of children in the total population. This population factor should not be considered solely, but is encouraging, nevertheless.

Predictions about the number of dentists we will have in the next 30 years have changed significantly in the last 3 years. Whereas the number of first-year enrollments in dental schools reached 6,300 in 1978, they dropped to 5,200 in 1983. This trend is expected to continue throughout the 1980s and level out between 4,000 and 5,000 by 1990.

In spite of this decline in enrollment, the number of practicing dentists will continue to grow—from 123,500 in 1979 to 183,000 in the year 2000. The reason for this is that there are so many young dentists currently in practice; 42% of the practicing dentists are younger than 40 years old. This growth in the supply of dentists is expected to exceed the growth of the population, thereby increasing the dentist-to-patient ratio.

The proportion of dental specialists has increased from 3% in 1955 to 13% today. The largest growth in number of specialists has been in orthodontics. They increased from 1,367 in 1955 to 6,437 in 1979, an in-

crease of more than 5,000. The number of pedodontists increased from 138 to 1,987 in the same 24-year span. This is an increase of about 1,850 pedodontists—an increase of 1,340%, the largest percentage increase of any dental specialty over that period.

What about the future as it relates to pedodontic manpower? In a presentation to the American Academy of Pedodontics (AAP) in 1980, Dr. Larry Meskin predicted that if the present graduation rate of 152 pedodontists continues annually for the next two decades there will be 4,000 active pedodontists by the year 2000.⁵ Even when taking into account expected retirements and deaths, this is about double the 1980 figure.

A 1982 update of the manpower situation suggests that Meskin's data may be conservative.⁴ Instead of 150 graduates per year, the actual figure is 160-165.

There is no doubt that the prevalence of dental caries in children is decreasing. I am reminded of it every time I visit elementary schools during National Children's Dental Health Month. When I visited the classroom of my eldest child four years ago, about 20 per cent of the children exhibited untreated dental caries; this year I visited the room of my second child and could find no obvious untreated dental caries in any of the children!

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National data on dental caries prevalence show a considerable reduction for both the 6-11 and 12-17 age groups from 1971 to 1979.⁶ There is also a dramatic increase in the number of caries-free children. Another national survey funded by the Robert Wood Johnson Foundation and directed by Dr. Harry Bohannon shows even more dramatic reductions in dental caries. Clearly, with respect to caries, the dental health of the nation's children is improving dramatically. There is every reason to believe this trend will continue in the future.

Reports from various foreign countries estimate that gingivitis is present in from 3 to 100% of the child population. The U.S. National Health Survey estimates that 14% of children ages 6-11 and 32% ages 12-17 have gingivitis. In addition to gingivitis there is a small number of children who demonstrate severe periodontal destruction, either localized or gen-

eralized. Some of these cases are associated with systemic diseases such as hypophosphatasia and syndromes such as Papillon-Lefèvre syndrome.

To put the periodontal situation into perspective it must be recognized that practicing pedodontists see few severe periodontal problems. The gingivitis that does exist can be reversed by improvement in personal hygiene and dietary habits with minimal professional care.

In contrast to dental caries and periodontal disease, there are countless untreated malocclusions in this country. The National Health Survey data on orthodontic needs of 6- to 11-year-olds suggest that 76% have some manifestation of malocclusion.⁷ The same survey on 12- to 17-year-olds shows even greater needs with 89% needing orthodontic treatment. The number of children being treated has grown considerably in the past decade but there is still a tremendous unmet need for orthodontic care.⁸

Treatment of the Disabled

In addition to examining the future need for treating dental disease in the overall population, it is relevant to examine the future of dental treatment for the disabled because pedodontics always has been associated closely with this aspect of dentistry. Dr. Alfred Healy, a pediatrician at the University of Iowa and director of its Division of Developmental Disabilities, has projected the needs of the disabled by 1990. He projects a continuing need for dental treatment in this population, but few, if any, new public laws to help defray treatment expenses. In spite of the increased number of hospital-trained dentists, it seems likely that pedodontists will need to continue their leadership role in providing services for the disabled.

Need versus Demand

We have looked at the future *need* for dental care with respect to caries, periodontal disease, malocclusion, and dentistry for the disabled. However, the future *demand* for dental care occurs only when a child or parent seeks it. The number of persons covered by dental benefit plans reached 87 million in 1981 and the ADA has projected that this number will reach 100 million by 1985. Many economists suggest this will be the maximum number we can expect, even with the best circumstances.

In recent years the dental profession has explored ways to convert *need* to effective *demand* with various marketing programs and access initiatives. The AAP also has devoted considerable time and money to this. Effects of these activities are difficult to assess, but if the profession somehow could increase demand, then our problems would diminish and at the same time

the oral health of the nation's children would improve.

Finally, it must be remembered that if demand for dental care cannot be increased, then there will be an inevitable increase in competition between dentists; this could have positive and negative effects for patients and the dental profession.

To summarize my analysis of the future:

1. There will be an increase in the number of children ages 0-14 for the next 20 years as part of an overall increase in the population of the United States.
2. There will be a decreasing need for dental care in the areas of dentistry which constitute the major portion of today's pedodontic practice—caries and prevention.
3. There will continue to be an increase in the dentist-to-population ratio in the next 20 years.
4. Unless there are changes, the number of pedodontists will double in the next 20 years to 4,000.
5. With an increase in the supply of dental manpower, the most desirable future trend would be to increase the effective demand for dental care.
6. Without a significant increase in demand, competition among dentists will grow.

Recommendations

Based on this assessment of the present and the future, it is clear that there needs to be a change in both the number and the type of pedodontists being graduated from advanced education programs. My suggestion is consistent with the ADA Committee on the Future of Dentistry's strategic plan. Basically, this Committee endorses the 1980 recommendations of the Task Force on Advanced Dental Education of the American Association of Dental Schools (AADS); their recommendation is that the total number of first-year clinical specialty positions be reduced.

Now, if I were judicious I would do as the Task Force did and leave it for others to develop specific recommendations to reduce class size in graduate programs. By itself, this recommendation sounds final and simple, but it is anything but that when one considers the specific circumstances and conditions involved. Is the enrollment cut to be a reduction in the size of existing programs or elimination of a few? What type of programs should be cut or eliminated? Should the direction of remaining programs be altered?

In my opinion, pedodontics should reduce first-year enrollment by at least one-third. Further, the programs that remain should be of only two basic types: (1) hospital-based residencies that have a significant relationship with medical pediatrics, and (2) combined orthodontic-pedodontic programs whose

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graduates are board-eligible in both pedodontics and orthodontics.

The reductions should be accomplished by eliminating the traditional dental school-based programs. The traditional pedodontist will be trained in hospital-based programs. Several programs are needed to train academic pedodontists who will be the teachers and researchers at our dental schools and graduate programs; two to three such training programs should come from existing dental school programs. The other dental school programs either will convert to the new types mentioned above or be terminated.

I say this for the following reasons. The one-third reduction is the amount recommended by the AADS Task Force. It recommends all specialties reduce by this amount and, after analyzing the manpower data, I believe we can reduce *at least* that much and maybe more. It is unlikely that dental school programs can convert to hospital residencies, so we would see a significant drop in the total number of graduate programs as dental school programs are eliminated.

If pedodontics reduced by this amount there would be about 100-110 graduates per year. Of this number I estimate 70-80 would be traditional pedodontists from the new hospital programs and 20-30 would have joint degrees.

My reasons for emphasizing hospital-based programs:

1. There are not many significant differences between graduates of dental school and nondental school programs; the differences that do exist can be rectified. I am not suggesting that the typical current hospital program should be the model for the future. Basically, I believe the problems in current hospital programs are easier to fix than problems in dental school programs.
2. Hospital-based programs have better resources for clinical training and student compensation.
3. The best referral source for practicing pedodontists is the pediatrician, not general dentists or any other dental specialists.
4. Hospital-based programs can provide training for treating the normal children who constitute most private pedodontic patients, as well as the best exposure to special patients unique to pedodontics.

My reasons for emphasizing the joint program:

1. The changing nature of dental diseases makes it unnecessary to have a large number of traditional pedodontists. The caries prevention needs of most children will be met by general practitioners.
2. The large unmet need in the area of malocclusions is best treated by one pediatric dental specialist who can manage all the patient's needs.
3. The best orthodontic care will be delivered by fully trained orthodontists.

What about the needs of existing pedodontists? I have not addressed the need to provide continuing education in orthodontics for practitioners, but that is an area in which dental schools and the AAP must become more involved.

Even if these recommendations were accepted today—and I do not expect that to happen—I am not prepared to suggest how to implement them. The dynamics of dental education are complicated and it is not clear who should begin the change process. However, doing nothing is the worst possible approach and the problems we face simply will not disappear.

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Quotable quote: chronic illness in children

Children who suffer from severe, chronic illness are a neglected group in our society. Their suffering, the heavy burdens they and their families bear, the human resources lost to us all are matters largely unknown to the general public. Chronically ill children live their lives in a twilight zone of public understanding. As a consequence, our nation, ordinarily attentive to problems of children and families, has lagged in its response to the urgent needs of children with chronic illnesses.

Eleven diseases representative of the severe chronic illnesses of childhood have been examined closely: juvenile-onset diabetes, muscular dystrophy, cystic fibrosis, spina bifida, sickle cell anemia, congenital heart disease, chronic kidney disease, hemophilia, leukemia, cleft palate, and severe asthma. These conditions serve as "marker" diseases; that is, they have characteristics that make them representative of the total range of such illnesses. Considered separately, each disease is relatively rare and occurs in a small percentage of the child population. Taken together, however, perhaps a million children are involved severely and another nine million have less severe chronic illnesses. In considering a million children with severe chronic illnesses, we also refer indirectly to at least three million family members burdened with caring responsibilities, affected by anxiety and sometimes guilt, strapped by unpredicted expenses and possibly economic ruin, and facing an uncertain future that often includes the premature death of the child.

From: Hobbs, N. et al. Vanderbilt Institute for Public Policy, Nashville, TN, 1983