Factors Influencing Candidates’ Choice of a Pediatric Dental Residency Program


Abstract: The goal of this study was to identify the factors and program characteristics that influenced the program ranking decisions of applicants to pediatric dentistry residency programs. A questionnaire was sent to the first-year resident class in 2005 with a response rate of 69.2 percent (n=260). Approximately 55 percent were female (104/180) and 61 percent were non-Hispanic white (110/180). The respondents reported that they applied to an average of nine programs, of which five were ranked. Most applicants were interested in a program that had a hospital component with a duration of two years. A program’s ability to prepare the resident for an academic career was a minimal influence for 48.6 percent (87/179), and 57.5 percent (103/179) were not interested in a master’s or Ph.D. degree. Factors associated with program ranking included modern clinical facilities, high ratio of dental assistants and faculty to residents, availability of assistants for sedation and general anesthesia cases, availability of a salary or stipend, and amount of clinical experience. Important non-clinical factors included hospitality during the interview, geographic location, and perceived reputation of the program. Opportunity to speak with the current residents in private, observing the interaction between residents and faculty, and touring the facilities were also highly considered. These findings may help program directors tailor their interviews and programs to suit the needs of applicants.

Pediatric dental residency programs must be able to select candidates for training who will become qualified and dedicated professionals. To facilitate the placement process, the National Resident Matching Program (NRMP) was first established in 1952 to provide a uniform date of appointment to positions in U.S. graduate medical education and eliminate negative effects of competition. The NRMP ensured that all applications were received on a particular date and guaranteed that positions were filled without hasty decisions having to be made by the applicants. In 1985, the Committee on Residency Education and Training of the American Association of Oral and Maxillofacial Surgeons developed and organized the “dental match” program that was at first used only by oral and maxillofacial surgery (OMFS) and advanced education in general dentistry (AEGD) programs. Pediatric dentistry joined the national matching services in 1990.

Studies that have explored candidates’ attitudes toward the dental residency selection experience have involved mainly OMFS and orthodontics, with little information currently available about pediatric dental candidates. In a recent study, Isharani et al. used data obtained from the Postdoctoral Application Support Service to show a 10 percent growth in the number of applicants for pediatric dental residencies as well as an increase in both the grade point average (GPA) and the National Board Dental Examination Part I (NBDE I) scores in a five-year span (1998-2003). Between the years 2001 and 2004, significantly more females sought graduate training in pediatric dentistry although more males were graduated from dental schools than females. A significant increase in the number of male applicants from underrepresented minorities was also observed during this time period. As the interest in the specialty of pediatric dentistry grows and the positions become more com-
petitive, pediatric dental educators devote considerable time to reviewing applicants’ qualifications and conducting interviews in an effort to select the best candidates. It is important that the faculty involved in the candidate screening process understand what makes a training program attractive for candidates and be aware of the preferences and expectations of this generation of young dental professionals so that candidates who are the best fit for their program can be identified. Program characteristics that were important to candidates a decade ago may not be seen as essential or desirable by applicants today. Therefore, the goal of this study was to identify the factors and program characteristics that influenced the ranking decisions of applicants to pediatric dentistry residency programs.

Methods

This study used a mail questionnaire survey to collect data. After the survey was created and pre-tested by a group of pediatric dental residents, adjustments were made and approval was obtained from the University of Michigan’s Institutional Review Board. Surveys were mailed to directors of both match and non-match programs in the United States. The addresses and directors of a few programs could not be verified and were not included in the study. Directors were requested to distribute surveys to their first-year residents (in the year 2005), for a total of 260 possible respondents out of 278 first-year positions available for that year.1 The instrument contained both multiple choice and open-ended questions, grouped in six different sections: 1) candidate’s background, 2) the application process, 3) program characteristics, 4) non-clinical factors, 5) clinical factors, and 6) the interview process. In the latter four sections, respondents were asked to rank the presented factors from “not important” or “no influence” to “critical.”

A self-addressed, stamped envelope was included with each questionnaire, and the return envelope was coded with a number representing a particular program to track responses by program. Students completed and returned the survey, but were not tracked individually to protect confidentiality. Using the number codes, programs failing to return 100 percent of surveys were identified, and new cover letters, together with the instrument, were mailed out to the program directors to distribute to the non-respondents. After the second set of questionnaires were returned, data were entered into Excel 2003 (Microsoft, Seattle, WA) and analyzed using simple descriptive statistics through the Statistical Package for the Social Sciences software (version 11.0, SPSS, Chicago, IL).

Results

Of 260 surveys distributed, 180 were returned completed (first mailing response rate: 50 percent, final combined rate: 69.2 percent), but some residents did not answer all questions. The mean age of the respondents was 28.8 years, with 104 (57.8 percent) females and seventy-six males (42.2 percent). Most (61.4 percent) were white/non-Hispanic, 6.1 percent were black/non-Hispanic, 18.4 percent were Asian or Pacific Islander, 7.3 percent were Hispanic, and 6.8 percent reported to be of a race and ethnic origin not listed. There were no Native American respondents. Before starting their residency, 15.7 percent did a general practice residency, 9.6 percent completed advanced education in general dentistry, 3.4 percent completed other dental specialty training, and 2.2 percent reported that they received training or careers in another health care profession. One third practiced general dentistry for an average of 2.8 years before applying to pediatric dentistry. When asked in which American Academy of Pediatric Dentistry district their program was located, forty-three (24.4 percent) reported to be located in District 1, twenty-eight (15.9 percent) in District 2, twenty-eight (15.9 percent) in District 3, forty-two (22.7 percent) in District 4, twenty-one (11.4 percent) in District 5, and seventeen (9.7 percent) in District 6 (Table 1). The residents were also asked the U.S. state or country location of their dental school. Twenty-eight (15.7 percent) received their dental degree from a school in District 1, twenty-four (13.4 percent) in District 2, thirty-nine (21.9 percent) in District 3, twenty-eight (15.7 percent) in District 4, twenty-seven (15.2 percent) in District 5, and nineteen (10.7 percent) in District 6. Thirteen (7.4 percent) completed their degrees outside the United States.

The respondents indicated that they applied to a mean number of nine pediatric dental programs, with a reported maximum of twenty-seven. The mean number of interview invitations received was six, and the mean number of interviews attended was five, with a maximum of fourteen. Questionnaire respondents ranked a mean of five programs in the National Match, with a maximum of twenty reported (Table 2). In relation to expenses incurred during the interview process, 27.6 percent reported to have spent between

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$0 and $200 per interview attended, 32.2 percent between $201 and $400, 27.1 percent between $401 and $600, 6.3 percent between $601 and $800, and 6.8 percent over $800 per interview. When asked about how they ranked their current program in the match, the majority (73.7 percent) reported to have ranked it as number 1. Only 14.6 percent reported to have ranked their current program as second, 4.8 percent ranked it as third, and 4.2 percent ranked it as fourth. Only four respondents reported that they were participating in a residency program that they ranked fifth or higher, with the maximum match ranking being ninth.

The majority of respondents felt a hospital-based (107/60.8 percent) or university/hospital mixed (95/55.2 percent) program was either important or critical when ranking programs (Table 3). Less importance was placed on programs that were strictly university-based. More than half (103/57.5 percent) felt that the opportunity to complete a master’s or Ph.D. degree in conjunction with their certificate was not an important characteristic to consider in a program. Over 80 percent reported that shorter length (two years vs. three years) was either an important or critical characteristic. A program’s ability to prepare one for an academic career was either important or critical for forty-one residents (22.9 percent). Table 4 shows program characteristics related to facilities and staff and indicates how much they influenced the candidates in their final decision. The most important to critical factors were modern clinical facilities, high ratio of dental assistants and faculty per resident, and availability of dental assistants for conscious sedation and general anesthesia cases. Board certification status of the faculty was not an important consideration. A salary or stipend was reported to be important for 41.2 percent and critical for 30.5 percent of the respondents. The majority (74 percent) also felt that having tuition included in the stipend was an important or critical factor. More than half (55 percent) considered paying tuition out-of-pocket as a negative factor in a program.

Non-clinical factors that most influenced the candidate’s decision when ranking programs were hospitality during interview, geographic location of the program, and perceived reputation of the program (Table 5). More than half (55.6 percent) reported that their family or partners had an important or critical influence in their final ranking. A large proportion of respondents (42.7 percent) stated that a program having an affiliation with the dental school from which they graduated had no influence on their decision. The amount of clinical experience a program offered was important for 28.2 percent and critical for 67.2 percent (Table 6). Operating room and conscious sedation experience was also considered either important or critical by more than 80 percent, while orthodontic experience was important for 41 percent.
and critical for 14.6 percent. The amount of special health care patient experience was considered important by 45.5 percent and critical by 26.4 percent, and the amount of didactic experience during residency was important for 37.3 percent and critical for 16.9 percent. The amount of teaching experience offered during the program had little or no importance for almost a third of the residents (31.6 percent). When asked about how many days per month they would prefer to be assigned to after-hours on-call coverage, a majority felt that two to four days per month (37 percent) and five to seven days per month (38.2 percent) were the most desirable. Only 15.4 percent preferred one day or less per month, and 8.4 percent stated they would prefer greater than seven days per month of on-call coverage.
Having the opportunity to speak in private with the current residents during the interview was an essential experience for most of the candidates (Table 7). Touring the program facilities was also highly ranked as well as observing the interaction between current residents and faculty. When residents were asked how much time, on average, they spent interviewing individually with each faculty member or group of faculty, thirty-three (18.5 percent) responded they spent less than fifteen minutes, 129 (72.5 percent) fifteen to thirty minutes, and sixteen (9 percent) reported to have spent over thirty minutes per interview. Most (91 percent) considered that the amount of time spent in the interview was adequate.

**Discussion**

The number of applications to pediatric dentistry residency programs increased dramatically in the 1990s (119 percent growth) as demonstrated by the fact that more than 22 percent of 2004 senior dental students in the United States applied for positions in pediatric dentistry. As a consequence, the quality of the candidates and the competition to
secure positions in postgraduate programs have also grown. There was a significant increase in the GPA and NBDE I scores of applicants from 1998 to 2003, a trend that will probably continue. In order to meet the demand, the number of available first-year positions expanded by 53 percent from 1997 to 2005, to an estimated total of 278.

The good response rate of 69.2 percent in this study was probably due to the strategy of having the program directors distribute the surveys and encourage the residents to complete them. Although a few programs did not receive the survey, the high number of residents reached represents a national sample of recent applicants with responses coming from all AAPD districts. The gender distribution of the respondents (57.8 percent females and 42.2 percent males) reflected the current gender profile of pediatric dentistry programs. The ethnic distribution of the respondents also closely mirrored that of the U.S. dental school population and of pediatric dental residency programs in 2004, including a higher number of African Americans and Hispanics in pediatric dental graduate training than in dental schools. It is known that pediatric dental applicants have the most varied demographic characteristics, including a high percentage of non-U.S. citizens. However, applications submitted by non-U.S. citizens have decreased in recent years possibly due to increased domestic interest in the specialty and licensing/funding issues for foreign-trained dentists. Although only 7.4 percent of respondents to this questionnaire reported that they completed their dental degrees outside the United States, the actual number of non-U.S. citizens in the sample could be higher, considering that some may have received a degree from an American dental school. Our survey did not specifically inquire about citizenship status.

Almost one third of the residents completed another dental residency or had a different career prior to entering their graduate program. Another third had practiced dentistry outside a training program for an average of 2.8 years before going into pediatric dentistry. That is in contrast to Isharani et al. who found that 48 percent of the applicants in 2003 had already practiced dentistry although the authors could not verify the nature of the dental practice, which may have included previous dental residencies. Their data, however, are similar to other dental specialties. In orthodontics, 45 percent of the residents completed a residency before entering their graduate training, probably because they felt it would give them an advantage (“more experience”) or they believed they could not get accepted on their first attempt. The same may be true for OMFS applicants. In contrast, only 28.7 percent of the respondents to our survey completed another residency prior to entering graduate education. It will be interesting to see if that number grows over the years because of the increasing competition for a position in pediatric dentistry. Respondents applied to an average of nine programs, received six invitations for interviews, accepted five of them, and ranked five programs. One orthodontic study showed that residents applied to an average of thirteen programs and ranked five, while in OMFS the number of applications increased from ten programs in 1977 to twenty in 2003. The cost of traveling is a limiting factor to accepting more invitations to visit programs for an on-site interview. Almost 60 percent of the respondents in our study spent between $200 and $600 per interview. A 1994

### Table 7. Interview factors

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Not Important</th>
<th>Somewhat Important</th>
<th>Neutral</th>
<th>Important</th>
<th>Critical</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opportunity to speak in private with the current residents about the program</td>
<td>0 (0%)</td>
<td>1 (0.6%)</td>
<td>8 (4.5%)</td>
<td>78 (43.8%)</td>
<td>91 (51.1%)</td>
<td>178</td>
</tr>
<tr>
<td>Opportunity to observe the interaction between faculty and residents</td>
<td>1 (0.6%)</td>
<td>3 (1.7%)</td>
<td>28 (15.7%)</td>
<td>80 (44.9%)</td>
<td>66 (37.1%)</td>
<td>178</td>
</tr>
<tr>
<td>Opportunity to observe the interaction between staff and residents</td>
<td>3 (1.7%)</td>
<td>8 (4.5%)</td>
<td>31 (17.4%)</td>
<td>82 (46.1%)</td>
<td>54 (30.3%)</td>
<td>178</td>
</tr>
<tr>
<td>Opportunity to tour the facilities</td>
<td>0 (0%)</td>
<td>4 (2.2%)</td>
<td>9 (5.1%)</td>
<td>81 (45.5%)</td>
<td>84 (47.2%)</td>
<td>178</td>
</tr>
<tr>
<td>Opportunity to tour the city/community</td>
<td>11 (6.2%)</td>
<td>11 (6.2%)</td>
<td>42 (23.6%)</td>
<td>80 (44.9%)</td>
<td>34 (19.1%)</td>
<td>178</td>
</tr>
</tbody>
</table>

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orthodontic study revealed an average cost of $1300 for both preliminary visits to schools and interviews.\textsuperscript{5} In OMFS, 51 percent of the applicants spent at least $2000 visiting programs in 2003.\textsuperscript{9}

Definite trends were observed about program characteristics. Respondents clearly expressed interest in programs that had a hospital component. Much less importance was placed on strictly university-based programs possibly because more than half of the respondents (57.5 percent) did not consider it important to obtain an advanced degree (master’s or Ph.D.), which is not usually offered by hospital programs. Less than 4 percent felt that an advanced degree was critical for their education; in fact, 48.6 percent stated that a program’s ability to prepare residents for an academic career was either not important or only somewhat important, suggesting a strong financial enticement of private practice over academics. A 1997 study of factors that affected professional choices of pediatric dental residents showed financial opportunity as the most important element in choosing a career.\textsuperscript{10} U.S. citizens enrolled in pediatric dental programs reported a significant preference for private practice.\textsuperscript{11} Certainly, the heavy debt with which residents leave their training plays an important role in the decision to follow one path or another. One has to speculate if programs have also changed their approach to mentoring graduate students toward teaching and research, placing less emphasis on those areas and focusing more on clinical skills. That issue was discussed as early as 1975 in a survey of pediatric dental residents’ interests.\textsuperscript{12} Notably, that study also revealed that only ten out of 214 respondents indicated a desire for private practice exclusively, whereas 80 percent were willing to seriously consider a full-time teaching career. A 2004 study on research in pediatric dentistry training programs showed that program activities devoted to the process and mechanisms of research activities remained minimal.\textsuperscript{13} Some of the main obstacles for more research in programs included time away from clinical activities affecting revenue; lack of faculty time, understanding, or interest in research; and lack of resident interest. The latter was also evident in OMFS and orthodontics studies.\textsuperscript{5,6,8,14} Roberts et al.\textsuperscript{10,11} showed that foreign graduate students were more interested in research and teaching than were U.S. citizens. The reason could be dual-fold: licensure issues may make access to private practice opportunities more difficult, and international students may see teaching and research as more prestigious positions that may enjoy a higher reputation and distinction in their own societies of origin.

Although our survey did not inquire about the residents’ career plans, one can infer from their responses that most will not consider a full-time academic position, which puts pressure on an already difficult situation. Casamassimo et al. examined the U.S. pediatric dental workforce from 1995 to 2002 and found that one third of the programs were using general dentists to teach pediatric dentistry, while programs using internationally trained faculty had increased from 4 percent to 13 percent.\textsuperscript{15} With an aging workforce approaching retirement, legal restrictions on foreign-trained pediatric dentists and only 2 percent of full-time faculty between twenty-five and twenty-nine years of age, the future of pediatric dental education appears dismal if nothing is done quickly to reverse the problem. Faculty are not being adequately replaced in numbers to maintain a system that is already understaffed. However, Roberts et al.\textsuperscript{11} thought the picture was more encouraging in pediatric dentistry when they observed the residents’ preference for a part-time faculty position and the strong enticement of academics for non-U.S. trained dentists. In orthodontics, the residents’ perspectives about career choice are very similar to pediatric dentistry. In 1994, Keith and Proffit showed that 6.8 percent of residents were interested in a full-time academic career.\textsuperscript{6} Approximately ten years later, only 3.4 percent of orthodontic residents were planning to go into full-time academics although 40 percent said they could be lured into full-time teaching if the income were improved.\textsuperscript{5} A large percentage (63 percent) stated that their educational debt restricted them from pursuing full-time academic positions.

Other characteristics that were high on the residents’ criteria for ranking a program were modern clinical facilities, a high ratio of faculty and dental assistants to residents, and availability of assistants for sedation and operating room cases. Most were neutral about board certification status of the faculty, maybe reflecting a lack of understanding about its importance. Over two-thirds of the respondents (71.7 percent) thought that the availability of a salary or stipend was important or critical in a program as well as the inclusion of tuition in the stipend, which helps relieve the financial burden. In contrast, OMFS residents did not rate salary and ability to “moonlight” as highly in their final choice of a program, placing more importance on the quality of the training instead.\textsuperscript{7,9,14}

Several non-clinical factors played important roles in the candidates’ decisions. The influence of family and partners was categorized as heavy or
critical by 55.6 percent, an issue that the faculty must scrutinize carefully during the interview. However, the geographic location of the program was more influential for 82 percent of the residents, which was in agreement with orthodontics studies but in contrast with OMFS surveys. A noteworthy finding was that only 54.2 percent of the residents thought that the amount of didactic exposure was relevant in a program despite the fact that 95.4 percent considered the amount of clinical experience important or critical. This may be a reflection of the generation Y students who seem to have shorter attention spans, resist memorization and busy work, and prefer action to observation. Exposure to special health care needs patients was relevant for 72 percent, possibly reflecting the more humanistic nature of pediatric dentists. Regarding orthodontic training in the pediatric dental program, the residents were almost evenly divided between it being important or critical and not important to neutral. An anecdotal observation, based on our collective experiences, is that the current classes of pediatric dental residents seem less interested in providing orthodontic care than those of a few years ago. However, a survey of pediatric dental program directors showed that they did not anticipate a decrease in the didactic or clinical orthodontic components in the next few years despite great variations among programs in the amount of actual clinical orthodontic experience.

Lifestyle issues have become a common consideration for medical students when choosing a residency. The current generation of medical school graduates appears to be choosing careers that provide large income relative to the length of their training and preparation, a position that our respondents seemed to share—with over 80 percent preferring a training program of shorter duration. Medical specialties that provide a controllable lifestyle have become increasingly popular among senior medical students when choosing a residency. Other factors that have traditionally influenced medical students’ choices of careers (specialty content, prestige, financial remuneration) are now being replaced by considerations of the length of training, the number of hours on call, the likelihood of litigation, and the expectant control they will have as practitioners over their occupational work hours. Perceived threats to lifestyle remain an important factor influencing the career choice of medical students, and the same issue may be happening for candidates in pediatric dental programs. The residents who completed our survey did not find a heavy didactic load nor an advanced degree appealing; both of these program characteristics require extra work for evenings and weekends. Regarding after-hours emergencies, only 8.4 percent preferred more than seven days a month on call. In orthodontics, working after hours was clearly one of the two least desirable program characteristics cited by applicants. It seems that, in light of an attractive private practice market, residents may feel they do not have to work hard because they know they will be able to secure a profitable position in the near future, thus putting more emphasis on lifestyle issues during the residency than past generations did.

Along with hospitality during the interview, the opportunity to speak privately with the current program residents was considered important or critical. They also considered the opportunity to observe the interaction among residents, staff, and faculty relevant. This is similar to other studies that found the personal qualities of the residents and attending staff and satisfaction of current residents were very important in selecting a program to attend. An interview that conveys a different atmosphere from the day-to-day work environment can lead to an unhappy match; thus candidates must have a chance to interact with the faculty, residents, and staff during the interview. A residency that conveys a friendly atmosphere, favorable interpersonal skills of enrolled residents, appealing personalities of the faculty, and faculty and residents who are enthusiastic about their work provide a positive program milieu. Programs that have a modern facility to show off during interviews clearly are at an advantage. With the aging of today’s dental schools, attracting students may be difficult. Similar anecdotes have appeared related to modern computerized manikin preclinical laboratories in predoctoral education.

Weaknesses of this study include the questionnaire’s limitations in interpretation, the inability to verify accuracy of the answers, and the possible recall bias of respondents. It could be also that the residents now enrolled in a particular program, with specific characteristics, were biased in certain responses. Previous reports and to some extent the findings of this study indicated that candidates tend to select...
programs largely based on subjective impressions from the interview day, including friendliness, environment, the interview itself, academics, and location. Therefore, programs may enhance the selection process by focusing on these factors. Understanding the candidates’ perceptions of an optimal work environment can help educators effectively structure their program to provide the most efficient balance among education, patient care, and residents’ well-being. Educators and program directors must comprehend the characteristics of this generation Y of dentists entering pediatric dental residency programs and how it is shaping their choice of training: they expect immediate gratification, have shorter attention spans and a low threshold for boredom, often desire support and feedback, but detest authoritative control. Understanding the trends in the specialty and their meaning for the future of the profession is a must for all faculty involved in dental graduate training.

REFERENCES