OPTIMIZING THE FIT BETWEEN PEDIATRIC DENTISTRY TRAINING PROGRAMS AND APPLICANTS

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ABSTRACT

Kevin Shaun Ricker: Optimizing the Fit Between Pediatric Dentistry Training Programs and
Applicants
(Under the direction of Kimon Divaris)

BACKGROUND: The dental postdoctoral application and matching process is a high-stakes and

resource-intensive process but little is known regarding its underlying subjective and objective

decision-driving influences. This study sought to offer a qualitative insight into the stakeholders'

experiences and views on the matching process.

METHODS: Interviews with 10 program directors (PD) and 10 recent applicants (RAs) to

pediatric dentistry programs in the U.S. were recorded and transcribed *verbatim*. ATLAS.ti 7.0

software was used for coding and thematic analysis.

RESULTS: Both parties appreciated the current process' uniformity; however, they raised issues

related to "veracity" and "need for more information". PDs valued "teachability" and "self-

motivation" as desirable applicant characteristics. RAs relied on subjective information sources

for programs, and prioritized location and financial factors for their rankings.

CONCLUSIONS: These results shed light on the postdoctoral matching process in pediatric

dentistry and can serve as basis for improving and refining the matching process.

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LIST OF ABBREVIATIONS

AAPD   American Academy of Pediatric Dentistry

ADEA   American Dental Education Association

GPA   Grade point average

NBDE   National Board Dental Examination

PASS   Post-doctoral Application Support Service

PD   Program director

PPI   Personal Potential Index

RA   Recent applicant

INTRODUCTION

The dental postdoctoral application and matching process is a high-stakes and resource-intensive process for graduate program directors and applicants. Both sides have a vested interest in making the best choice based on available information and creating an "ideal match." From a program's perspective, selecting candidates for advanced dental education is arduous and challenging process, reflecting a complex interplay between applicants, their applications, program faculty, current and prospective residents, and the program environments.

Pediatric Dentistry is one of the most sought-after dental specialty areas in the United States, with the numbers of applicants and residency positions offered increasing steadily over the last 6 years (Figures 1 and 2).[1] A 2006 review of the profile and demographics of applicants to pediatric dentistry residency programs reported significant increases in grade point average (GPA) and National Dental Board Exam (NBDE) scores, as well as an increase in the proportion of female applicants.[2] Moreover, the latest data indicate that the number of applications has increased by over 55% since 2005.[1] These facts highlight both the increasing need for and interest in postdoctoral training programs in pediatric dentistry. Additionally, they illustrate the potential challenges in managing a constantly growing applicant pool while maintaining a quality, fair and streamlined application process. The challenge of managing an influx of applications is further exacerbated considering the diminishing dental academic workforce;[3] with fewer people considering an increased number of applications, program directors and admissions committee members may be hard pressed to effectively evaluate candidates.

Although there has been no published quantitative evaluation of the current application and selection process for pediatric dentistry residency programs, it can be argued that the existing system is not ideal. Great efforts and strides have been made to create a uniform and fair application process, which can capture and represent an applicant's credentials, academic performance and career goals. However, the current system appears insufficient in capturing salient aspects of an applicant's personal character, such as their ability to relate to children, response to criticism, and work ethic.[4] Moreover, the changes to pass/fail scoring of the NBDE, a trend towards pass/fail grades in dental education programs, and variance in reporting class rank have made objective comparisons of applicants even more difficult. The implications of a suboptimal application, evaluation and selection process can potentially reduce the ability to successfully 'match' applicants and programs. This issue is compounded by the inherent "noise" of the application and evaluation process, as well as competition for limited positions. Importantly, this issue is relevant not only to pediatric dentistry, but to other dental and medical postdoctoral training application processes.

Programs seek the most qualified candidates, while applicants strive to be competitive, in order to be accepted by a desirable program. Applicants are often limited in their ability to obtain critical programmatic information including the curricular profile, mission, values, strengths and weaknesses. In addition, in spite of the fact that the majority of advanced education programs utilize the American Dental Education Association (ADEA) Postdoctoral Application Support Service (PASS) as a single point of application, each program has specific application requirements. Individual program websites and the American Academy of Pediatric Dentistry (AAPD) program listings do not necessarily portray a program's distinctive elements.[5] Applicants also often weigh non-curricular factors in their decision making, including stipend

support, tuition, facilities, program length, and location.[6] However, evidence documenting pediatric dentistry applicants' experiences and views of the application and matching process is lacking.

Programs have a vested interest in selecting the most qualified applicants. However, it is unclear what attributes are the most valid predictors of resident success. According to a 2007 survey by Majewski *et al.*,[7] pediatric program directors consider NBDE scores, clinical grades, dental school class rank, and dental school GPA as critical elements of an application. However, these quantifiable measures are gradually being replaced by less objective methods of evaluation, whereas evidence from medicine suggests that these even objective metrics are limited in their ability to predict success in a residency program.[4] Programs also rely on letters of recommendation and personal statements, however these may not reflect a candidate's true character and values.[8,9] Similarly, the interview has questionable value in predicting resident success.[10] The Personal Potential Index (PPI) as part of the PASS application was introduced to assist programs in evaluating non-cognitive factors such as resilience and integrity, but there are currently no published data regarding its acceptance and effectiveness in the selection process.

Given the shortcomings and knowledge gaps regarding the current applicant and program evaluation processes, our study provided a qualitative description of stakeholders' views of the postdoctoral pediatric dentistry application and matching process, with the ultimate goal of improving the process for both applicants and programs.

METHODS

A qualitative study was conducted by performing in-depth interviews with U.S. pediatric dentistry graduate program directors and recent applicants (current residents) to gain insight into their experiences with the current matching process, including recommendations on how to improve it. The study was approved by the University of North Carolina-Chapel Hill Institutional Review Board (#13-2008) and was partially supported by University of North Carolina-Chapel Hill School of Dentistry Graduate Research support fund.

Study population

A sampling frame reflecting the five AAPD (geographic) regions and pediatric dentistry programs' type (hospital-based, university-based, or combined) was created to guide recruitment of potential study participants and enhance the diversity of participating programs and applicants. Eligible participants were randomly selected from 10 strata representing combinations of the above factors (AAPD district and program type) and invited to participate in the study. The final sample size was determined taking into consideration both representation of all strata and descriptive saturation (non-emergence of new themes) during the qualitative data analysis. Thus, our study sample comprised 10 program directors (PD) and 10 recent applicants (RA; first-year residents), each representing one sampling stratum. All participants provided written consent prior to participation.

Interviews

Sixty minute semi-structured interviews were conducted either in-person or via telephone by a study investigator (KR) under the guidance of a qualitative research expert (PM). A detailed interview guide was formed to serve as the basis of the interviews. The interview guide was constructed using information from a literature review and was supplemented by feedback elicited from an expert committee of five full-time faculty members at UNC-Chapel Hill School of Dentistry with experience in serving on postdoctoral selection committees. The interview guide was further revised after a pilot interview with a former UNC-Chapel Hill program director and was continually refined as new themes emerged during the interview process. For PDs, emphasis was placed on selection factors, definitions of resident success, and the success of their program in obtaining ideal matches. For RAs, the interview revolved around their views of the application and matching process, the quality of the match, and their perceived expectations versus their actual experiences in their program. All participants were queried to provide recommendations to improve the current process.

Data synthesis and analysis

Interviews were recorded and transcribed *verbatim* and subsequently coded line-by-line using ATLAS.ti software version 7.0 (ATLAS.ti GmbH., Berlin, Germany). A qualitative description[11,12] framework was used to form inquiry and guide qualitative data analysis. Interpretation of data was based on the generation of first- and higher-order codes subsequently categorized to represent themes. Results were based on code co-occurrences, primary themes, and insightful quotations.

RESULTS

Both PD and RA were forthright about their experiences with regards to the application and matching process. Interviews coalesced around a single point: everyone wants more information. PDs would like to have objective ways to evaluate applicants (e.g., GPA and class rank) because those data points are comparable and immutable, and they collectively show some degree of suspicion of the subjective aspects of the application. Similarly, RAs reported that they would prefer to have more accurate information about programs. They reported that the application process is onerous due to each program's unique supplemental application, undercutting the major strength of the PASS application: its uniformity across programs. Four major themes emerged from the qualitative analysis: veracity, concerns regarding data sources, identifying residents who are equipped to succeed, and balancing personal needs and professional goals.

Veracity

According to both PDs and RAs, the biggest challenge in the application process involves questions of veracity. This concern was a consistent theme across virtually all interviews. For PDs, questions of the veracity of numerical scores reported in the PPI were frequently mentioned, as were letters of recommendation, which were criticized for having insufficient depth of commentary, relying on implication and "reading between the lines" rather than "direct honest assessment".

PD: "Let me tell you, people that turn out to be shady - you can never figure it out from their application, because they're good at covering it up."

RAs were concerned about programs portraying themselves inaccurately prior to and during the interview process. They relied on current residents, dental students, and other applicants to reveal the "truth" about programs.

Concerns regarding data sources

PDs evaluate applicants based on their credentials, which include both self-reported information on activities, work history, research efforts, and a personal statement, as well as third-party evaluations of applicants via the PPI and formal letters of evaluation. PDs also value third-party objective information, such as class rank or NBDE scores. These are typically reported by the applicant's dental school. PDs appear to struggle in evaluating and comparing applicants from institutions providing measures of relative academic performance (*e.g.*, class rank or grade point averages) with those from institutions which simply report pass/fail.

KR: "How do you compare folks from a pass/fail institution *versus* ones with letter grades or GPAs or ranks?"
PD: (Chuckles) "That's the million dollar question. I don't know how to compare them."

All program directors interviewed lamented the loss of primary sources of evaluating the relative academic achievement of candidates. A high value was placed on the objective sources, at least to some degree correlating with their described concerns about subjective sources. These concerns were typically related to both the PPI and formal letters of recommendation, with both the apparent lack of calibration among evaluators and a perceived conflict of interest between

evaluators trying to offer fair appraisals of applicants while simultaneously getting them accepted into programs.

> *PD*: "I try sometimes to read between the lines, but it's very difficult to gauge from that. Everybody seems to be the top 5% of anyone they've ever worked with."

> *PD*: "I think… is this person really that good of a person, or… is this just someone who didn't put a lot of time into this and they're just kind of blowing smoke at it?"

RAs, however, rely on subjective word of mouth for the majority of their information related to programs, in no small part from senior dental students and residents. They often use the AAPD website to formulate their initial lists and then begin to decide where to apply based on conversations with people that they know: faculty, current residents, or friends who applied in previous years.

> *RA*: "Are they doing IV (sedation)? Are they doing oral (sedation)? How many GA (general anesthesia) cases are you doing? You don't really get that information… on the internet anywhere. That really comes from the residents."

Lack of available information from primary sources appears to be the issue. PDs routinely reported that they "sell" their programs to applicants via word of mouth and the interview process. This challenges applicants to develop their own opinion of programs prior to investing the hundreds of dollars, time away from school or work, and potentially other missed interviews associated with attending a specific program interview. In general, interviewed PDs appear to take little interest in "selling" their program via the AAPD website or their own website.

PD: "Our websites are all pretty lame."

PD: "Frankly, on a website, you can't really tell what … we actually do here."

Interviews are used by PDs to evaluate qualitative aspects of an applicant's character and develop a sense of their ability to work with children. Current residents are typically evaluating applicants throughout the interview process as well, including the pre-interview social evening hosted by many programs, with a focus on determining their potential "fit." Applicants view the resident interactions similarly. The interview is also used by PDs to allow the applicants to interact with current residents, so that the current residents can accurately portray the program. For applicants, the interview is viewed as a preview of how they would be treated if enrolled in the program, although one could surmise that programs are on their "best behavior" for interviews.

Identifying residents who are equipped to succeed

PDs look for a specific set of attributes in applicants. They favor applicants that can work effectively with people, in terms of teamwork, work ethic, interpersonal skills, and "teachability." They prefer candidates who have gone above and beyond the standard dental school curriculum in terms of obtaining pediatric dentistry experience. They want someone who is mature – someone who can think critically and work independently. Research experience is viewed positively. They typically cite highly motivated students as those who rise beyond expectations to become exceptional residents. When combined with the aforementioned preference for objective measures of a candidate's relative academic performance, it is clear that program directors are looking for someone who has also concretely demonstrated some degree of

academic success as a dental student. In evaluating this degree of academic achievement, program directors value some dental schools above others in terms of rigor and reputation.

> *KR*: "What is it that makes a successful resident?
>
> *PD*: "Willingness to learn… willingness to work hard… someone mature enough to be a self-learner."

> *PD*: "If there's someone who, in comparison to their peers, academically performed poorly, that makes them less competitive unless there's an extenuating circumstance."

> *PD*: "Everybody probably has in their mind a list of the better dental schools out there. I'd rather take a person from this school with this GPA, than a person from that school with that GPA."

Hospital program directors placed a higher priority on applicants' self-motivation and prior clinical exposure to pediatric dentistry. Several stated their preference for applicants with a solid foundation of pediatric dentistry didactic knowledge, and some even give knowledge-based exams to applicants during the application process.

> *PD*: "We have to have residents who can sort of hit the ground running… I don't necessarily want to be teaching them Pediatric Dentistry 101. "

On the other hand, University-affiliated PDs placed a higher value on the "teachability" of residents, looking for residents who were intellectually curious and demonstrated a willingness to learn. These PDs were focused less on previous clinical experience in pediatric dentistry, but showed a stronger interest in selecting applicants who had research experience.

> *PD*: "Number one: be willing to learn from every single person, be it your co-resident, your second year, your assistants, everybody."

Balancing personal needs and professional goals

Residents want and seek programs that actively support them and help them develop excellence in clinical pediatric dentistry. All RAs mentioned program location as something they considered in their decision-making process, with many saying it was their most important selection factor. Financial concerns were important to the majority of RAs and most stated that it was important that their residency experience resulted in a net financial benefit. RAs who matched to hospital-based programs were more concerned with their program type compared to their university-based program counterparts,who were more concerned with degree options. Both groups of residents took into account the needs of their significant others when selecting programs.

PDs expressed some concern with candidates' stated expected ranking of the program versus their actual ranking.

> *PD*: "Every year there's always a student that sits there and lies to you in the interview and says, 'You're my number one choice,' and clearly you weren't, when you get your (match)."

Both PDs and RAs were happy overall with the match process, acknowledging that it seemed the fairest way to place applicants in programs. PDs indicated that they would benefit from removing the quantitative evaluation from the PPI altogether because of inconsistency between reviewers and suggested that, instead, the content of the PPI (targeted, direct questions to evaluators about aspects of the applicant's character) could replace the formal letters of evaluation. This would ensure that the desired domains of evaluation are addressed. Furthermore, evaluations should be completed by someone who has observed them in various settings and should not require specific roles (*e.g.*, program director, department chair). According to PDs, it

may be helpful for dental schools to evaluate and compare their applicants collectively and provide a summative evaluation generated by the school's pediatric dentistry faculty. This evaluation would replace the Dean's Letter. A 2x2 photo was requested by many PDs, and could be made mandatory for the PASS application. All supplemental materials from individual schools should be removed from the application process.

RAs indicated that they would benefit from program transparency, i.e. the program information provided at interviews should be made available to applicants on either the school's or AAPD website. Information regarding numbers of clinical procedures, typical schedules, clinical rotations, research experiences, call schedules, and financial conditions (stipend and tuition) should be accessible via the AAPD's program listing. Programs electing to charge a supplemental application fee should clearly state this on the AAPD website. They should also list the a contact person who is available to answer questions.

DISCUSSION

The results of our qualitative study among a diverse sample of pediatric dentistry graduate program directors and recent applicants provides novel insights into the stakeholders' views and experiences with the pediatric dentistry postdoctoral application and matching process, including specific recommendations on how to improve it. Our findings shed light into the actual decision-making processes for both parties. For example, both sides desire more and higher-quality information to support their decision-making. We found that program directors feel struggled with the decreasing amount of objective academic information available for candidates and thus desire meaningful and accurate letters of recommendation, authentic and revelatory personal statements, and interviews focused on gaining understanding of a candidates' ability to learn, be a team member, self-motivate, and deliver clinical care. RAs reported the lack of uniform and up-to-date program information. For example, specific descriptions of clinical and didactic experiences provided by a program are not typically available. Discrepancies between the AAPD program listing site, the ADEA/PASS Search Engine, and individual program websites abound and present obstacles to completing successful applications.

Our findings are consistent with published results on PDs' and RAs' views and preferences. Participating PDs suggested that certain character traits, including a willingness and an eagerness to learn, self-motivation, and the ability to work well with others stood out as being particularly valuable in applicants' evaluation, lending credence to the identification of the interview as a critical aspect of applicant evaluation by Majewski *et al.*[7] Participating RAs cited

two critical non-curricular factors: the program's location and the financial arrangements for residents, which is aligned with the report of da Fonseca *et al.*[6] Residents from both university and hospital-based programs stated that they did not consider programs that showed a net negative financial impact (*i.e.*, a program's tuition exceeds its stipend, or the program offers no stipend at all). According to 2014 data of the AAPD program listing and available program websites, there is vast range of tuition/fees and resident stipends: $71,524 annual tuition and fees at Boston University to a $65,000 tuition-free stipend at Staten Island University Hospital.[5]

Applicants relying on second-hand sources of information would benefit from the clear distillation of programs' clinical and didactic characteristics prior to the interview. With finances so clearly at the forefront of decision-making, it seems insensitive to withhold available program information until the interview. The AAPD program listing, which acts as the de-facto clearinghouse for information regarding programs, could require yearly programmatic updates as a condition of accreditation. More robust information regarding specifics of training, perhaps as granular as number of operating room cases, sedation regimens used, etc. could be provided as a part of a summative table of most salient program characteristics. The AAPD program listing's long-form text section should be a forum for programs to offer straightforward descriptions of strengths and weaknesses.
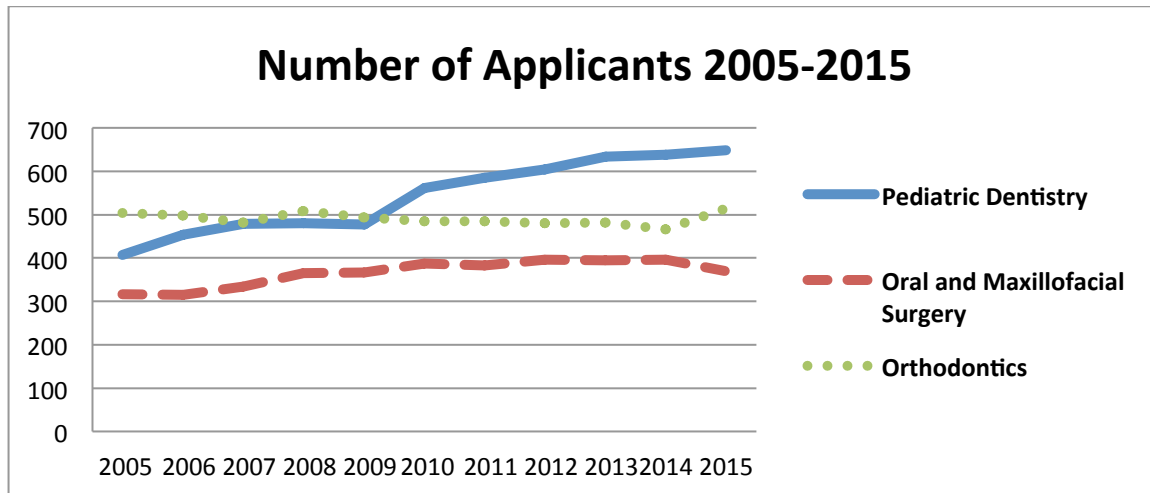
Stakeholders' views converged on the effectiveness of the current PASS application in collating applicants' academic and work history. The PPI attempts to provide targeted evaluations of knowledge, creativity, teamwork, resilience, planning, organization, ethics, and integrity, and the professional evaluations allow an evaluator to provide insight into an applicant's character and qualifications. The personal statement allows applicants to provide a narrative directly to programs.

Our findings should be viewed in light of the study's limitations, including reliance on forthrightness of interviewees and the inability to make generalizable inferences for the entire population of PDs and RAs in the US, or other countries. However, our study benefits from a diverse sample covering all AAPD districts, including both university-based and hospital-based programs, as well as PDs and RAs. Moreover, the rigorous qualitative methodology employed allowed for an in-depth exploration of processes, notions and emotions that are categorically challenging to capture via surveys and quantitative methods.
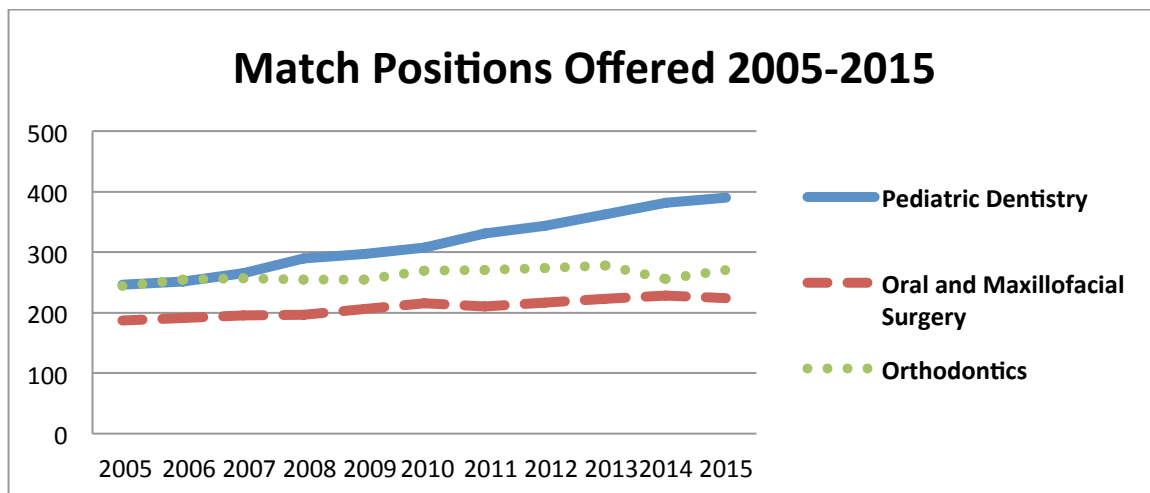
CONCLUSION

As the numbers of applicants and available positions continue to rise, obtaining the best possible match for both programs and applicants becomes more challenging. Applicants may have to consider casting a wider net in application to guarantee a match, and programs may feel increased pressure in making themselves the top choice for the most competitive applicants. Our findings indicate that for both programs and applicants, transparency and complete information should lead to the most informed decision-making possible, and thus the best possible match for both parties. This report should offer insight into other match and non-match dental specialty selection processes as well, particularly those that utilize the PASS application and an interview. Future studies should examine how to best present and communicate this information and determine if and which measurable factors exist during applications to validly and reliably predict "success in residency."

FIGURE 1

Number of Applicants 2005-2015

- Pediatric Dentistry
- Oral and Maxillofacial Surgery
- Orthodontics

FIGURE 2

Match Positions Offered 2005-2015

- Pediatric Dentistry
- Oral and Maxillofacial Surgery
- Orthodontics

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