Factors neurosurgery candidates use when choosing a residency program

Clinical article

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Object. Many factors affect an applicant’s decision when selecting a residency program. While some issues are likely important to all applicants, others may be specific to, or weighed differently by, those applying to certain specialties. In an effort to better understand how applicants to neurosurgery programs make decisions about relative rank, the authors created a survey to identify the program characteristics thought most important by applicants.

Methods. An electronic survey was created and posted to the neurosurgery residency coordinator’s forum. Coordinators throughout the country were asked to send the survey link to students who were scheduled to begin as first-year residents in July of 2012. A paper copy of the survey was also distributed at the Society of Neurological Surgeons intern boot camp in Atlanta, Georgia, in July of 2012.

Results. One hundred ninety-six students obtained a neurosurgical postgraduate year 1 position in the 2011–2012 match; 40 survey responses were received (response rate 20.4%). The factors cited as being most important in selecting a residency were the residents currently in the program, team camaraderie, and the number of operative cases performed. The interview day, specifically the opportunity to talk to the residents, was also thought to be important, as was the knowledge that the applicant would likely be ranked by the program.

Conclusions. Applicants for neurosurgical training choose a program for reasons similar to those given by applicants to other specialties. Neurosurgery applicants seem marginally more interested in an emphasis on academics and research and slightly less concerned with a program’s location, but overall, the differences appear minimal. The interview process is very important, and contact by a representative after the interview also seems significant in applicants’ decision making. By recognizing what applicants think is important in choosing a residency, programs can more effectively recruit residents and more efficiently use faculty time and department resources.

Key Words • neurosurgery resident • neurosurgery program • program selection

The choice of a training program is one of the most important decisions a physician will make. Despite the significance of the choice, relatively little is known about how students select a residency. The information that is available indicates that the most important drivers of the decision are the satisfaction of the current residents, the perceived quality of the faculty and clinical experience, and the location of the training facility. However, some have suggested that these factors vary with the characteristics of the applicant and the specialty of interest.

Neurosurgery is a small, competitive specialty. While there is literature that applies to other specialties, there is no information available about program selection that is specific to neurosurgical applicants and, consequently, no way to know whether their motivations differ from those applying in other fields. By better understanding how applicants rank neurosurgery programs, it may be possible to increase the efficiency of the match, help programs successfully tailor the interview experience, and ultimately, increase the success of the trainees.

Methods

An electronic survey was developed using Survey Monkey. The survey included 23 multiple-choice and 9 open-ended questions. The first question was structured to define the relative importance of 25 listed factors in determining how applicants rank residency programs. The 25 factors reflected discussions with applicants and a review of the available literature. Participants were asked to choose which factors were “most important,” “important,” “slightly important,” “least important,” or “not important” in selecting a program. The choices were then
assigned a numerical value: 5 for “most important,” 4 for “important,” 3 for “slightly important,” 2 for “least important,” and 1 for “not important.” Those with the highest average ratings were considered most important. Since there was no limit to how many factors one could mark as “most important,” we asked participants in an open-ended question to name the single most important factor influencing their rank list. This allowed differentiation of the variables in cases in which several choices were characterized as “most important.” Multiple-choice questions focused on the interview experience, including the number of choices of interview location, satisfaction with the process, and the importance of various parts of the interview day. Responses to all of the open-ended questions were grouped according to common themes, and the most common answers were used to identify the issues about which the applicants felt strongly.

A link to the survey was posted to the neurosurgery residency coordinator’s forum. Residency coordinators were asked to send the survey link to the students who had matched into the 2012 first-year slots at their respective programs. Additionally, a paper copy of the survey was handed out to first-year neurosurgery residents at the Society of Neurological Surgeons intern boot camp in Atlanta, Georgia (July 2012). The survey results contained no personal identifiers. Results from the online survey were combined with those obtained from the participants in Atlanta. All first-year neurosurgery residents were given the opportunity to participate in the study through their program coordinators to account for any potential selection bias.

Results

One hundred ninety-six positions were offered in the 2012 match: 194 were filled initially, and the other 2 were filled through the Supplemental Offer and Acceptance Program process.17 Forty of the first-year residents responded to the study survey, giving an overall response rate of 20.4% (40 of 196).

When choosing from a list of 25 options, most of the respondents (52.8%) selected the current residents as the most important factor in choosing a residency. Team camaraderie, program faculty, the number of operative cases, and an emphasis on academics were also consequential in program selection (Fig. 1). When an open-ended question was asked, applicants again identified the residents in the program and team camaraderie as the most important factors in selecting a program (43.6%). Interestingly, when the question was asked in this format, 25% of participants listed location as the most important variable in choosing a program. Operative autonomy of the residents was the third most common response (20.5%). The idea of operative autonomy was recognized to be distinct from that of case volume. Over half of the applicants did a subspecialty rotation at the program that became their first choice (57.5%). This group identified team camaraderie and faculty/resident interactions as the most important reasons for ranking the program. Operative volume was the next significant driver.

The first step in the application process involves selecting where to apply. While program reputation and geographical location were uniformly used to narrow the possibilities, 90% of respondents also employed websites to gather information that they then used to decide whether to apply to a program. The most commonly consulted websites included the National Resident Matching Program website, program-specific websites, and commercial sites like uncleharvey.com. Half of those surveyed said that these websites affected which programs they chose to visit and to rank.

When asked why applicants declined an invitation to interview, the most common responses were a scheduling conflict and/or that the applicant already had enough interviews scheduled (Fig. 2). Most applicants (53.8%) had no preference regarding which day of the week an interview was held, but of those applicants who did have a preference, 17.9% preferred Friday; 12.8%, Saturday; and 10.3%, Thursday. Reasons given for these preferences included increased travel flexibility and less time away from required rotations. Almost all applicants (88%) agreed that interview order had no influence on their rank list. The interns surveyed interviewed at an average of 13 institutions and ranked an average of 12 programs. The most common reasons an applicant chose not to rank a program were the program’s reputation and location.

Most applicants stated that their favorite part of the interview process was the opportunity to meet other applicants. The expense involved was troublesome and limited the ability of some applicants to travel to selected programs. About a third of applicants said that at least 1 program paid for their lodging; however, only 1 applicant noted that this affected his or her rank list. Similarly, while the majority of programs provided transportation to either the interview site or to dinner, this had no influence on program ranking. Dinner with the residents the night before the interview was common and seemed to be valued by the applicants. Most would prefer that the dinner not be held at the home of one of the faculty or residents. The most valuable part of the evening was thought to be the opportunity to interact with the residents in a setting away from the hospital.

Almost all applicants (90%) reported that the interview day greatly influenced their rank order list. They found 2 things most important: the belief that the interviewer had reviewed their application and personal statement in advance, and having the chance to talk to the residents throughout the day. Most applicants (62.5%) preferred a formal introduction of the program given by the program director or chairman, 45% favored having one of the residents give a presentation on the program, and 37.5% wanted to attend grand rounds (Fig. 3). A significant majority of applicants (70%) preferred one-on-one interviews, but 25% preferred 2 faculty members per interviewee (Fig. 4). Almost all of the applicants (87%) preferred to interview only with the faculty (Fig. 5). For most applicants, the questions asked were of little account, but 10% reported that knowledge-based interview questions or being asked to perform tests of dexterity caused them to place a program lower on their rank list.

Essentially all applicants (97.5%) sent thank-you notes to someone (for example, coordinator, interviewer, or resident) from the programs at which they interviewed. In most cases (66.7%), they received a response, but only
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31% said this correspondence affected their rank order. Most applicants (89.7%) reported that representatives from 1 or more programs contacted them before the rank lists were due, by email (76.6%), phone call (64.7%), or letter (58.8%). Of those who were contacted, the majority (69.4%) stated that this had an impact on their rank order. Most (74.3%) of those who were contacted by a representative from 1 or more programs prior to submitting their match list matched at 1 of the programs that had contacted them.

### Discussion

The process of selecting a residency is long and costly. A substantial amount of time is required to evaluate programs, and the requisite travel can be expensive. Scheduling a series of interviews is difficult, and the time spent away from medical school is, at best, inconvenient. However, for most students, it seems to be a useful investment since the consequences of the choice of residency program, both during and after the period of training, are tremendous.

Some information related to how applicants decide where to train is available. In most studies, the dominant factors in choosing a program are the characteristics of the workplace environment and the location. Applicants also give consideration to a program’s academic accomplishments and reputation, patient volume and diversity, and interview experience. Salary, student interactions, and research opportunities have, in general, been less important in making a decision.

The factors considered in selecting a program seem to vary, to some degree, with the characteristics of the applicant. Personality type likely plays a role in selecting a training program, as do gender and minority status. Applicants in different specialties seem to weigh the characteristics of the program differently. Interestingly, the deciding factors may be changing over time. Many of

![Fig. 1. Factors affecting a neurosurgery applicant's ranking of residency programs. Applicants rated each factor as being not important in their decision (1), least important (2), slightly important (3), important (4), or most important (5). OR = operating room; PGY-1 = postgraduate year 1.](image-url)
the more recent reports suggest that students place an increased emphasis on the work environment and are less concerned with the academic reputation of a program than they once were.

The concerns of applicants to neurosurgery programs are, for the most part, similar to those of applicants to other specialties. Applicants to neurosurgery programs are focused on the current residents and their interactions with each other and with the faculty, plus the quality of the faculty and operative volume. Neurosurgical applicants seem marginally more interested in a program’s emphasis on academics and, in particular, some opportunities in research than are applicants to other programs. When placed in an ordinal rank format, a program’s location seems slightly less important than other factors, but it is interesting that, when asked in an open-ended question, 25% of applicants identified location as the most important variable in selecting a program. It is also important to recognize that location and reputation are the most important factors in deciding where to interview. It seems likely that programs in unacceptable settings have been eliminated prior to interviewing, so that relative advantages of one or another location appear less important in the ranking process.

The interview process is also likely more important than is suggested by the ordinal question format. Nearly all applicants (90%) identified the interview day as being extremely significant in their evaluation of programs. For some, it provides the only opportunity to meet and talk to the residents and faculty and, consequently, is a primary factor in an applicant’s assessment of these groups. Beyond that, applicants value the impression that their application has been reviewed prior to the interview. Apparently, with rare exceptions, what is actually discussed in the interview is of little consequence. A formal introduction to the program is also appreciated, and the applicants would, in general, prefer it be given by the program director or chairman.
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It is interesting how often communication after the interview affects an applicant’s rank list. Apparently, this type of communication is very common: nearly 90% of applicants reported that they were contacted by a representative from 1 or more of the programs at which they had interviewed. It isn’t clear what information was passed on nor is it known whether it was accurate. Nonetheless, a significant majority of applicants (69%) said that they changed their rank list because of the contact, which is slightly higher than reported for other specialties. Ultimately, nearly three-quarters of applicants who were contacted matched at 1 of the programs that had contacted them.

While some aspects of a program, such as its location, cannot be changed, there are opportunities to make a residency more attractive to applicants. Since most applicants make their initial decisions about where to apply based, in part, on their review of websites, it seems reasonable to manage a program’s web presence. In addition, the interview day can be scheduled to allow as much time as possible for the applicants to speak to the current residents, and the faculty should be encouraged to review the applications prior to the interviews. It also seems useful to contact the most competitive applicants to express the program’s interest within the guidelines of the National Resident Matching Program.

The principle limitations of this study are the relatively small number of respondents and the possibility that they may not be representative of the larger pool of applicants. Since the response rate was markedly higher among participants at the Neurosurgery Boot Camp, and since nearly all first-year neurosurgery residents now attend Boot Camp, it seems possible to address both issues by distributing future surveys at each Boot Camp session.

Conclusions

Applicants for neurosurgical training select a residency for reasons similar to those given by applicants to other specialties. They are marginally more interested in the program’s academic and research opportunities and slightly less concerned with location than are applicants to other specialties. For nearly all applicants, the impressions formed during the interview process are of primary importance in ranking a program. It is surprising how often applicants revise their rank lists in response to some expression of interest by a program representative.

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Disclosure

The authors report no conflict of interest concerning the materials or methods used in this study or the findings specified in this paper.

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References

1. Aagaard EM, Julian K, Dedier J, Soloman I, Tillisch J, Pérez-


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