Resident Selection Protocols in Plastic Surgery: A National Survey of Plastic Surgery Program Directors

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Background: With the transition of many plastic surgery training programs from the traditional to the integrated/coordinated model, critical evaluation of the process by which medical students are selected for residency is needed. To increase the understanding of this process and to improve the manner in which candidates are vetted, a survey study was designed.

Methods: A 29-question online survey was designed to discern desired qualities regarding resident selection, interview processes, resident participation, and program director satisfaction with the current process. This survey was sent to all 49 integrated/coordinated program directors in the United States.

Results: Forty-three of 49 program directors (87.8 percent) responded. High-quality letters of recommendation (author and substance) and performance on subinternship rotations and interviews were considered the most important qualities in selecting residents. Candidates' interview performance and rank order list position were considered by many to be indicative of resident quality, but responses varied. Forty-two of 43 program directors reported that their own residents participate in the interview and/or selection process. Overall, only 43.2 percent of respondents found the current process adequate for identifying potential problems. Furthermore, 39.5 percent of programs have dismissed a resident for academic or ethical reasons within the last 10 years.

Conclusions: Residency selection is a relatively subjective, unstandardized process. Because medical school performance is not always indicative of ultimate resident quality, it is imperative that integrated/coordinated plastic surgery training programs improve selection protocols to discern who will most likely become a successful resident. A number of program directors are dissatisfied with the process, and better systems for selection would be beneficial. (*Plast. Reconstr. Surg.* 122: 1929, 2008.)

T he success of the field of plastic surgery depends in large part on the quality of future generations of resident trainees. Selection of these young men and women is vital; thoughtful and thorough processes for vetting and commission of the best candidates should be sought. There are a variety of methods for residency selection, and every training program employs its own mixture. The resident selection process begins with the review of candidates' applications. Whether this process is done in a standardized manner, whether or not "score cut-off" numbers are used, and who is involved with this first portion of the process are relatively unknown. During the second portion of this process—the interview—selected candidates are personally questioned and screened. Which individuals participate in this process, and in what capacity, is another area of variability, and thus, investigation. Finally, the generation of a program's rank order list displays extreme variability and subjectivity. Who has in-

Disclosure: *Neither of the authors has a financial conflict of interest to disclose with regard to the content of this article.*

put? What is valued? Who has the final say? These are questions that interest all of us involved in the process; the answers are probably different for each program. Yet, collectively, the examination of these processes may yield insight concerning improved residency selection. To attain some baseline data concerning the residency selection process across the United States, a survey study was designed and the responses were analyzed.

MATERIALS AND METHODS

A three-page questionnaire was designed with 29 multiple-choice questions devoted to four general areas: (1) candidate qualities looked for with regard to resident selection; (2) interview processes and protocols; (3) resident participation in the interview and rank list generation; and (4) satisfaction/outcomes with the current resident selection processes being used (see Appendix). The survey was placed online using software from Teleforms, Inc. (Winnipeg, Canada). An e-mail with a cover letter was generated and sent to all 49 integrated/coordinated program directors in the United States. The names and addresses of the program directors were obtained from the Association of Academic Chairmen in Plastic Surgery Web site. Statistics were retrieved and tabulated using a Microsoft Excel (Microsoft, Inc. Redmond, Wash.) database, with no personally identifiable data invested within the form.

For outcomes analysis, respondents were stratified into groups based on their satisfaction with the current selection process. This was objectified by their response to question 28, "Please comment on your satisfaction with the current selection process." For nominal "yes" and "no" questions, the nonparametric chi-square test was used to compare the answers among the different satisfaction response groups. For ordinal rank questions, mean ranks were calculated for each satisfaction response group, and the independent groups t test for means was used to examine outcomes.

RESULTS

Response Rate and Respondent Demographics

Forty-three of the 49 program directors responded, for a response rate of 87.8 percent. Twenty-three of the respondents (53.5 percent) were directors of an integrated residency program, and 20 (46.5 percent) were directors of coordinated programs (Appendix, question 1). Twenty of the respondents reported accepting additional residents through the traditional/independent pathway (47.6 percent) (Appendix, question 2). The greatest number of respondents ($n = 16$; 37.2 percent) were from the northeast (Appendix, question 3). Eleven respondents reported accepting one resident per year; the remainder reported accepting two or three residents per year (Appendix, question 4).

Selection Processes

Twenty-one respondents reported using a minimum step 1 cut-off score to prescreen applicants (48.8 percent) (Appendix, question 5). The respondents reported using minimum cut-off scores from as low as 190 to 199 to as high as 240 or higher. The mode response for the minimum cut-off score was 220 to 229, and the average rank was between 210 to 219 and 220 to 229 (Appendix, question 6). Residency directors were most often reported to be the ones to make this initial cut (Appendix, question 7).

Most respondents agreed that the reputation of a candidate's medical school was an important tool in the residency selection process (Appendix, question 10). Twenty respondents agreed that a visiting subinternship at their institution is very important for an applicant to be considered for a position on their rank list (45.4 percent), while 17 respondents did not feel that this was important (38.6 percent) (Appendix, question 12). Seventeen respondents (39.5 percent) reported the utilization of group interviews in the selection process (Appendix, question 14), with the majority of these using a 2:1 faculty-to-candidate ratio (Appendix, question 15). One respondent reported using surgical skills testing during the interview process (2.3 percent) (Appendix, question 16). One respondent reported using art/sculpting tests during the interview process (2.3 percent) (Appendix, question 17).

Qualities Valued by Respondents

There were 18 "superlative" qualities divided into "academic" and "subjective" categories, which respondents ranked in order of importance when choosing candidates for interviews (Appendix, questions 8 and 9). Letters of recommendation were ranked as very important, with "What letters of recommendation say" and "Who says it" ranked highest among "academic criteria." Dean's letter strength was considered the least important academic criterion (Appendix, question 8). Performance on subinternship rotation and performance on interview were considered the most important "subjective" criteria. Candidate appearance was considered the least important of the subjective criteria (Appendix, question 9). The average ranks associated with the sets of "aca-

demic" and "subjective" qualities lent themselves to easy division into different tiers of rank strength (Table 1).

Respondents who were "very satisfied" with their current resident selection process placed less value on the traditional reputation of the applicant's medical school ($p < 0.005$) (Table 2). They also placed a higher value on applicants' "leadership potential" ($p < 0.002$) (Table 3). No other statistical correlations could be made between respondent satisfaction and characteristic rank.

Resident Participation in the Process

The vast majority of respondents reported that residents take part in the interviewing process ($n =$

Table 1. Rank Strength

Quality	Average Rank
"Academic" quality rank	
Tier 1	
"What letters of recommendation say"	3.81
"Who says it"	4.31
AOA membership	4.60
USMLE step 1 score	4.63
Clinical grades	4.83
Tier 2	
Letters from plastic surgeons (vs. general surgery, and so on)	5.74
Research experience	6.44
USMLE step 2 score	6.80
Medical school reputation	6.98
Tier 3	
Dean's letter strength	8.73
"Subjective" quality rank	
Tier 1	
Performance on away/subinternship rotation	2.29
Performance on interview	3.34
Personality	4.03
Maturity	4.07
Leadership potential	4.23
Tier 2	
Research experience	6.00
Interest in academics	6.20
Publications	6.46
Tier 3	
Appearance	8.13

AOA, Alpha Omega Alpha; USMLE, United States Medical Licensing Examination.

Table 2. Respondent Satisfaction Correlated with Value Placed on Applicant Medical School*

	"Very Satisfied"	"Somewhat Satisfied," "Neutral," and "Somewhat Dissatisfied"
Average rank	9.1	6.14
SD	2.12	2.84

*Respondents who were "very satisfied" placed significantly less value on the subjective reputation of applicants' medical schools. Independent groups t test for means revealed a t value of 3.009, with 37 degrees of freedom, for a p value of less than 0.005.

Table 3. Respondent Satisfaction Correlated with Value Placed on "Leadership Potential"*

	"Very Satisfied"	"Somewhat Satisfied," "Neutral," and "Somewhat Dissatisfied"
Average rank	3.6	6.22
SD	2.01	2.2

*Respondents who were "very satisfied" placed a significantly higher value on applicants' subjective "leadership potential." Independent groups t test for means revealed a t value of 3.359, with 37 degrees of freedom, for a p value of less than 0.002.

42; 97.7 percent) (Appendix, question 18). Resident participation was most often in the form of giving tours and attending social functions, while 79.5 percent of respondents ($n = 35$) reported that their residents give significant input for rank order list generation (Appendix, question 19).

Rank Order List Generation

Program directors reported a wide variety of methods for generating the rank order list. The majority reported that they were the primary list generators ($n = 21$; 47.7 percent), with chairman being the second most common primary rank order list generator ($n = 16$, 36.4 percent) (Appendix, question 20). As indicated above, 74.5 percent of respondents indicated that their residents gave significant input in the generation of the rank list. Rank order lists were most commonly longer than 16 candidates (Appendix, question 21).

Outcomes

A small majority of program directors responded in agreement that a candidate's interview performance was indicative of his or her residency performance ($n = 24$; 54.6 percent) (Appendix, question 11). Thirty-one respondents (72.1 percent) agreed that the ultimate quality of their residents was consistently well predicted by their rank order list position, while eight (18.6 percent) disagreed with this statement (Appendix, question 13). Only two respondents had a residency spot go unfilled in the last 10 years (Appendix, question 22). Twenty-six of the respondents (60.5 percent) reported having placed a resident on probation for academic or ethical reasons within the last 10 years (Appendix, question 23). Seventeen of the program directors reported having dismissed a resident within the last 10 years (39.5 percent) (Appendix, question 24). Thirteen respondents reported having had a resident quit within the last 10 years (30.2 percent) (Appendix, question 25).

Respondent Satisfaction

Ten respondents said that they were "very satisfied" with the current residency selection process. More than half of the respondents ($n = 22$; 51.2 percent) reported that they were "somewhat satisfied" with the current process. Ten respondents (23.3 percent) reported that they were less than satisfied with the process (Appendix, question 27).

Respondents who were "very satisfied" or "somewhat satisfied" with the current processes were statistically less likely to have placed a resident on probation for academic or ethical reasons within the past 10 years when compared with other respondents (Tables 4 and 5).

Program director satisfaction with the current process appeared to be positively correlated with the director's feeling about the ability of the current process to identify potential resident issues before matriculation. Respondents who were "very satisfied" or "somewhat satisfied" were more likely to feel that the current selection process is adequate for determining potential issues when compared with other respondents (Appendix, question 26) (Tables 6 and 7).

Program director satisfaction also appeared to be statistically correlated with accepting integrated/coordinated residents only. Two of the 10

Table 4. Frequency of Resident Probation between "Very Satisfied" Respondents and All Other Respondents*

	"Very Satisfied"	Other Respondents
Placed resident on probation within past 10 years	2 (20.0%)	24 (75.0%)
Have not placed resident on probation within past 10 years	8 (80.0%)	8 (25.0%)

*Chi-square analysis revealed that respondents who were "very satisfied" with the current processes were statistically less likely to have placed a resident on probation in the past 10 years when compared with other respondents ($\chi^2 = 9.773$; DF = 1; $p < 0.002$)

Table 5. Frequency of Resident Probation between "Somewhat Satisfied" Respondents and Less-Satisfied Respondents*

	"Somewhat Satisfied"	"Neutral" and "Somewhat Dissatisfied"
Placed resident on probation within past 10 years	14 (63.6%)	10 (100.0%)
Have not placed resident on probation within past 10 years	8 (36.4%)	0 (0.0%)

*Chi-square analysis revealed that respondents who were "somewhat satisfied" with the current processes were statistically less likely to have placed a resident on probation for academic or ethical reasons within the past 10 years when compared with less-satisfied respondents ($\chi^2 = 4.848$; DF = 1; $p < 0.03$).

Table 6. Relationship between Respondent Satisfaction and Belief That Current Process Is Adequate*

	"Very Satisfied"	All Others
"Yes," current process is adequate to determine potential issues	10 (100.0%)	8 (25.8%)
"No," current process is not adequate to determine potential issues	0 (0.0%)	23 (74.2%)

*Chi-square analysis revealed that respondents who were "very satisfied" with the current processes were statistically more likely to feel that the process is adequate to determine potential issues when compared with less-satisfied respondents ($\chi^2 = 16.990$; DF = 1; $p < 0.0001$).

Table 7. Relationship between Respondent Satisfaction and Belief That Current Process Is Adequate*

	"Somewhat Satisfied"	"Less Satisfied"
"Yes," current process is adequate to determine potential issues	8 (38.1%)	0 (0.0%)
"No," current process is not adequate to determine potential issues	13 (61.9%)	10 (100.02%)

*Chi-square analysis revealed that respondents who were "somewhat satisfied" with the current processes were statistically more likely to feel that the process is adequate to determine potential issues when compared with less-satisfied respondents ($\chi^2 = 5.135$; DF = 1; $p < 0.03$).

"very satisfied" respondents accept additional residents through the traditional/independent fellowship pathway. Eighteen of 32 of the "somewhat satisfied," "neutral," and "somewhat dissatisfied" respondents (56.3 percent) accept additional residents through the traditional pathway. This difference was statistically significant (Table 8).

Program director satisfaction was unrelated to whether or not the program the director ran was "integrated" ($n = 23$) or "coordinated" ($n = 20$).

Table 8. Satisfaction Rate Correlated with Program Directors Acceptance of Additional Residents through Independent/Traditional Pathway as Well as Integrated/Coordinated Pathway*

	"Very Satisfied"	"Somewhat Satisfied" or Less	Total
Integrated/coordinated residents only	8 (80.0%)	14 (43.8%)	22
Independent/traditional residents also	2 (20.0%)	18 (56.3%)	20
Total	10	32	42

*Chi-square analysis indicated a significantly higher number of programs accepting residents through the traditional pathway among the less-satisfied respondents ($\chi^2 = 4.014$; DF = 1; $p < 0.05$).

Sixteen of the integrated program directors were either "very satisfied" or "somewhat satisfied" (69.6 percent) with the current process (Appendix, question 27). Sixteen of the combined program directors were also either "very satisfied" or "somewhat satisfied" (80.0 percent). There was no statistical difference between these rates ($p = 0.67$). Directors of integrated programs had an average satisfaction response rate of 2.10, whereas directors of coordinated programs had an average satisfaction response rate of 2.18 (numerical mean along the Likert scale, where 1 = "very satisfied," 2 = "somewhat satisfied," 3 = "neutral," and so on) ($p = 1.00$).

Respondents who were "somewhat satisfied" or greater were significantly more likely to feel that a candidate's performance during the interview process was going to be indicative of the candidate's performance during residency when compared with less-satisfied respondents (Fig. 1).

When compared with less-satisfied program directors, the "very satisfied" respondents were significantly more likely to use a minimum cut-off score (90 percent versus 58.1 percent; $\chi^2 = 7.961$; DF = 1; $p < 0.005$) (Table 9).

Utilizing group interviews in screening candidates was associated with less satisfaction concerning the resident selection process. One out of the 10 respondents who were "very satisfied" utilizes group interviews in screening candidates. Fifteen of 32 respondents (46.9 percent) in the "somewhat satisfied," "neutral," and "somewhat dissatisfied" groups utilize group interviews. This difference was statistically significant ($\chi^2 = 4.393$; DF = 1; $p < 0.04$).

DISCUSSION

The history of formal organized plastic surgery training is relatively short. Within the last 15 years

Table 9. Satisfaction Rate Compared to Respondents' Use of Minimum Cut-Off Score*

	"Very Satisfied"	"Somewhat Satisfied" or Less	Total
Use of minimum cut-off score	9 (90.0%)	12 (38.7%)	21
No minimum cut-off score used	1 (10.0%)	19 (61.3%)	20
Total	10	31	41

*Chi-square analysis indicated a significantly higher number of programs using minimum cut-off scores among the more-satisfied respondents ($p < 0.05$).

it has undergone a revolution of sorts, with the integration of many positions combining general surgery and plastic surgery training into a 5- to 7-year residency model. Many believe that the success of the integrated training model is very important to the future of plastic surgery.[1,2]

The integrated/coordinated model has met with mixed reviews—four programs have stopped taking residents through the integrated model within the last 10 years. Focused examination of the processes used to select candidates for the integrated model may yield insight into which practices are most effective, and may underscore the difficulty in selecting applicants who can make the successful transition from medical school to a plastic surgery residency.

Given the exponential increase in the breadth and basic knowledge within the field, it has become even more important to find the most efficient and effective method to train the next generation of plastic surgeons.[3] Selecting this next generation of plastic surgeons straight from the ranks of medical school, rather than from a categorical general surgery residency, presents intrinsic challenges to the programs across the coun-
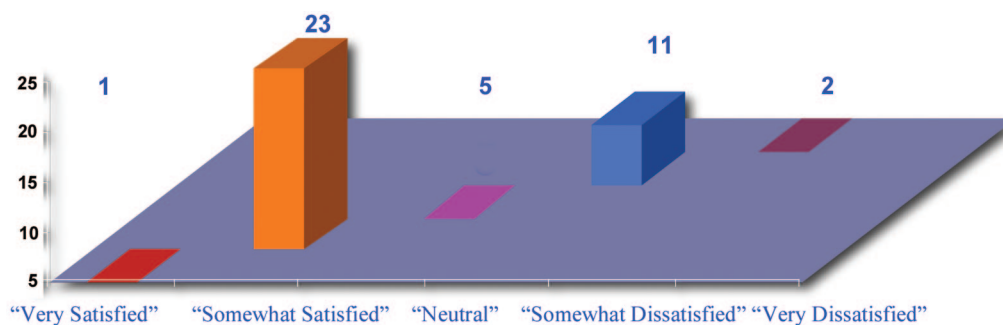

Fig. 1. "A candidate's interview performance is indicative of his or her performance during residency." Respondents who were "somewhat satisfied" or greater were significantly more likely to feel that a candidate's performance during the interview process was indicative of his or her performance during residency ($n = 24$; average rank = 2.53; SD = 0.87), when compared with less-satisfied respondents ($n = 13$; average rank = 3.6; SD = 1.2) ($t = 3.095$; DF = 40; $p < 0.004$).

try that have embraced this paradigm. It is imperative that the best candidates are selected, necessitating a greater understanding of the processes used for resident selection. Authors in other fields within the house of medicine have attempted to discern what applicant qualities can be looked to as predictors of future success. These reviews have given mixed results. Some in pediatrics have demonstrated that there is no correlation between Alpha Omega Alpha membership, medical school grades, standardized test scores, interview performance, and rank list order.[4] However, some authors in orthopedic surgery have demonstrated that there are some academic factors that can serve as effective predictors of residency performance. For instance, Dirschl et al.[5] showed that number of clinical honors during third year in medical school, Alpha Omega Alpha membership, and participation in psychomotor activities (i.e., athletics, carpentry, automobile repair, woodworking, and so on) were good predictors of clinical success during residency. Turner et al.[6] demonstrated that number of clinical honors during the third year of medical school was predictive of clinical performance during residency. They also demonstrated that their own objective composite score, made up of scores for medical school reputation, United States Medical Licensing Examination scores, grades, Alpha Omega Alpha status, research, and letters of recommendation, was effective in predicting resident success. In the field of otolaryngology, authors have demonstrated a positive correlation between excellent academic achievement in medical school,[7] Alpha Omega Alpha membership,[8] and clinical success in residency.

Parallel to this discussion in other fields, there has been a similar discussion of residency training in plastic surgery. In 1989, the Association of Program Directors in Surgery and the Association of Academic Chairmen of Plastic Surgery held a meeting where the "combined" or "coordinated" training model was first instituted.[2,9,10] This was done because of plastic surgery program directors' interest in shortening and focusing plastic surgery training, and because of general surgery program directors' interest in allowing upper-level, complex cases to be handled by residents who were planning on going into general surgery and not "wasted" on trainees entering plastic surgery.[10]

A recent survey demonstrated that there is a clear-cut dichotomy between program directors who run integrated/coordinated programs and those who direct independent/traditional models.[11] The former felt that, in general, "short-track" residents were not hampered by their lack of extra general surgery training, while the latter felt that fully trained, traditional residents were clinically superior. This underscores the fact that no ideal training model currently exists.

While the discussion of training models has continued to evolve, there is sparse published literature regarding the residency selection process. The Plastic Surgery Educational Foundation began an applicant study, examining plastic surgery residents with a 10-year follow-up.[12] Unfortunately, this 10-year follow-up was not completed. In 2006, Zook penned an editorial in *Plastic and Reconstructive Surgery* in which he detailed a review of the residents in plastic surgery and orthopedic surgery at Southern Illinois University.[12] It was found that residents in orthopedic surgery were more likely to have participated in team sports in high school or college. The relevance of this was felt to be that plastic surgeons may be less likely to enter group practices, as evidenced by the high number of plastic surgeons in solo practice. Because group practices are likely to provide better coverage for emergency rooms and the overall community, plastic surgeons may consider the implications of such high rates of solo practitioners. In 2003, the group from the University of California, Los Angeles reported on their long-term follow-up of the career decisions of residents over an 11-year period.[13] They found that there were two predictive factors for residents going on to enter an academic practice: (1) years taken off for research before entering plastic surgery residency and (2) having children. For the continuing growth of the field of plastic surgery, a number of graduates each year need to commit themselves to an academic career. Because the continuation of our specialty should be an important goal for every plastic surgeon, it may behoove program directors to look at these factors when choosing applicants. Both of these studies demonstrate the necessity for this sort of investigation. The results demonstrate that there are factors which may not be intuitive at first glance, and that we may be missing out on in our "classic" resident selection models.

This survey generated a very high response rate (87.8 percent), which probably represents the high level of interest in this topic. With the high reported incidence of resident probation, resident dismissal, and resignation, it is apparent that all program directors are interested in improving the methods by which their trainees are selected.

Program directors had varied responses in terms of their overall satisfaction with the selection process. Interestingly, fewer than a quarter of the

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respondents reported that they were "very satisfied" with the current resident selection process. The more satisfied respondents were also more likely to feel that the current processes are adequate to have identified applicant problems before matriculation to residency. All of the respondents who were either "neutral" or "somewhat dissatisfied" with the current process responded that the process is inadequate for the recognition of problems. None of these findings are unexpected, as program respondents who are more satisfied with the process should be expected to have had greater success with the residents chosen through this process. A closer examination of the differences between the processes used by these more satisfied respondents is warranted.

There were statistically significant differences between those who were satisfied with the residency selection process versus those who were not. Respondents who utilized cut-off scores were more satisfied, but there was no relationship between the specific cut-off score used and satisfaction.

When ranking the importance of academic and subjective superlatives, the most satisfied program directors placed less emphasis on candidates' traditional medical school reputation and higher emphasis on "leadership potential." The numerical averages for these superlatives were readily divided in a subjective manner into different tiers, for ease of reference (Table 1).

Notably, respondents who accepted additional residents through the traditional (independent) pathway were less satisfied with the selection processes for selecting medical students for matriculation through the integrated/coordinated pathway. It is possible that these respondents were less satisfied with the integrated selection process because they compared younger applicants who may have been less mature and unproven with older residents who may have been more mature and fully trained in general surgery, oral and maxillofacial surgery, or otolaryngology. It is reasonable to assume that doctors who have completed a full surgical residency are more seasoned, surgically facile, and better able to take care of complex patients when compared with their less-experienced peers.

Success in medical school depends in large part on the ability to rapidly assimilate a great deal of information. While memorization skills most certainly play a role in being a competent physician, success in residency depends on a number of other factors: the clinical application of medical information from textbooks and journals; facility in the operating room (which is a mixture of fo-cused practice, hand-eye coordination, experience, and the ability to organize one's thinking in a procedural manner); and the ability to adapt to and incorporate new techniques and technologies through the course of one's practice. The ideal residency selection process would appropriately vet candidates and discern which of these medical students have the tools to make the successful transition from medical school to residency. Clearly, the methods currently used are only partially effective. Although the attrition rate among integrated plastic surgery programs is unknown, our respondents reported a 31.7 percent rate of having had a resident quit within the last 10 years; 41.9 percent reported having dismissed a resident within the past 10 years. This is comparable to the rates of attrition and dismissal seen in other specialties. In a recent survey report, 68 percent of general surgery programs had at least one resident drop out over the 2-year academic period from July of 2003 to June of 2005.[14]

In the field of obstetrics and gynecology, a recent report demonstrated that 79 percent of programs had at least one resident drop out or be dismissed between the years 1997 and 2001.[15] In terms of overall attrition rates, the general surgery literature has reported rates to be from 12 to 23 percent.[16–20] The attrition rate in plastic surgery is currently unknown and is an area of further study.

The data uncovered in this project demonstrate that the current models for residency selection are less than ideal; they also demonstrate that not much has changed over the past few years concerning the methods for residency selection. The process remains relatively subjective, with the most valued criterion for residency selection being letters of recommendation, with regard to both what is said and who the writer is. Clinical grades, Alpha Omega Alpha membership, and United States Medical Licensing Examination scores are also highly valued. Because these are the most readily accessible pieces of information about the applicants, and because they can be used to make comparisons among them, they remain the benchmark criteria by which applicants are judged. Although there is a generally good level of satisfaction with the process, the attrition rate remains unacceptably high. The possibility exists that overall satisfaction could be increased with the objectification of the residency selection process.

The goal of the residency selection process should be to select residents who will ultimately complete the training program, practice plastic surgery in a safe and effective manner, and continue the advancement of the specialty. These data

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demonstrate that a number of program directors are dissatisfied with their current selection process. The process of resident selection varied greatly among institutions. Those who were most pleased with the process were not comparing their residents to independent fellows who have completed training in another field. They reported using a minimum United States Medical Licensing Examination step 1 cut-off score to reduce the overall number of applicants. These respondents did not use group interviews, placed less emphasis on the medical school that a candidate was from, and placed a higher emphasis on leadership ability. Although this review of survey data gives a basis for future studies, more investigations are needed to make the next step toward the delineation of the ideal process. A number of investigations into the predictors of successful residency performance have been performed by authors in other specialties. Investigations of the same type need to be done in the field of plastic surgery. Specifically, long-term retrospective and prospective studies that correlate applicant attributes and superlatives to final resident performance should be undertaken by interested program directors and academic plastic surgeons around the country.

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APPENDIX: RESIDENCY SELECTION CRITERIA QUESTIONNAIRE 2007

1. Type of program:

   Integrated: $n = 23$; 53.5 percent
   Coordinated: $n = 20$; 46.5 percent

2. Does your program also take residents in the traditional pathway?

   Yes: $n = 20$; 47.6 percent
   No: $n = 22$; 52.4 percent

3. Program location:

   Northeast (Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, and Maryland)
   Midwest (Ohio, Indiana, Michigan, Illinois, Wisconsin, and Minnesota)
   Southeast (Virginia, West Virginia, North Carolina, South Carolina, Kentucky, Tennessee, Georgia, Florida, Alabama, Mississippi, Louisiana, and Arkansas)
   Central/West (North Dakota, South Dakota, Iowa, Nebraska, Kansas, Missouri, Oklahoma, Texas, New Mexico, Arizona, Colorado, Utah, Wyoming, Montana, Idaho, and Nevada)
   West Coast (California, Oregon, Washington, Hawaii, and Alaska)
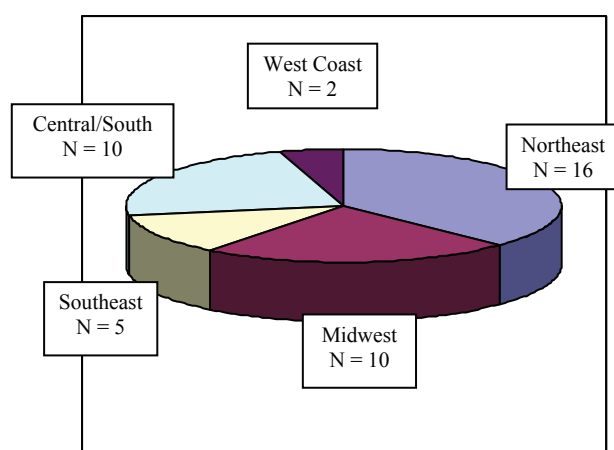
4. Number of applicants accepted per year:

   1: $n = 11$; 39.3 percent
   2: $n = 10$; 35.7 percent
   3: $n = 7$; 25.0 percent

5. Do you have a minimum acceptable cut-off score for interviewees based on United States Medical Licensing Examination scores?

   Yes: $n = 22$; 52.4 percent
   No: $n = 20$; 47.6 percent

6. If "Yes" to the above, at which score range do you set the minimum acceptable score?

   190 to 199: $n = 1$; 4.5 percent
   200 to 209: $n = 4$; 18.2 percent
   210 to 219: $n = 2$; 9.1 percent
   220 to 229: $n = 10$; 45.5 percent
   230 to 239: $n = 4$; 18.2 percent
   Greater than 240: $n = 1$; 4.5 percent

7. If "Yes" to question 5, who makes the first cut?

   Residency coordinator: $n = 7$; 29.2 percent
   Residency director: $n = 14$; 58.4 percent
   Administrative assistant: $n = 2$; 8.3 percent
   Other: $n = 1$; 4.2 percent

8. Please rank the following academic criteria in order of importance when selecting potential resident candidates, with "1" being the most important and no ties:

Quality	Average Rank
"What letters of recommendation say"	3.81
"Who says it"	4.31
AOA membership	4.60
USMLE step 1 score	4.63
Clinical grades	4.83
Letters from plastic surgeons (vs. general surgery, and so on)	5.74
Research experience	6.44
USMLE step 2 score	6.80
Medical school reputation	6.98
Dean's letter strength	8.73

AOA, Alpha Omega Alpha; USMLE, United States Medical Licensing Examination.

9. Please rank the following subjective criteria in order of importance when selecting potential resident candidates, with "1" being the most important and no ties:

Quality	Response (average rank)
Performance on away/subinternship rotation	2.29
Performance on interview	3.34
Personality	4.03
Maturity	4.07
Leadership potential	4.23
Research experience	6.00
Interest in academics	6.20
Appearance	8.13

10. The reputation of the medical school that a student attends is important for our selection process.

    Strongly agree: $n = 7$; 16.3 percent
    Somewhat agree: $n = 27$; 62.8 percent
    No opinion: $n = 3$; 7.0 percent
    Somewhat disagree: $n = 5$; 11.6 percent
    Strongly disagree: $n = 1$; 2.3 percent

11. A candidate's performance during our interview process is indicative of his or her performance during residency.

    Strongly agree: $n = 1$; 2.3 percent
    Somewhat agree: $n = 23$; 52.3 percent
    No opinion: $n = 5$; 11.4 percent
    Somewhat disagree: $n = 11$; 25.1 percent
    Strongly disagree: $n = 3$; 6.8 percent

12. A visiting rotation/subinternship at our institution is very important for an applicant to be considered for a position on our rank list.

    Strongly agree: $n = 2$; 4.5 percent
    Somewhat agree: $n = 18$; 40.9 percent
    No opinion: $n = 6$; 13.6 percent
    Somewhat disagree: $n = 14$; 31.8 percent
    Strongly disagree: $n = 3$; 6.8 percent

13. The ultimate quality of our residents has consistently been predicted by their position on the rank order list submitted for the match.

    Strongly agree: $n = 15$; 34.1 percent
    Somewhat agree: $n = 16$; 36.4 percent
    No opinion: $n = 4$; 9.1 percent
    Somewhat disagree: $n = 5$; 11.4 percent
    Strongly disagree: $n = 3$; 6.8 percent

14. We utilize group interviews in screening candidates.

    Yes: $n = 17$; 39.5 percent No: $n = 26$; 60.5 percent

15. If "Yes" to the above, what is the ratio of interviewers to interviewees?

    2:1: $n = 12$
    3:1: $n = 4$
    4:1: $n = 1$
    >4:1: $n = 0$

16. We utilize surgical skills testing during our interview process to screen candidates.

    Yes: $n = 1$; 2.3 percent
    No: $n = 42$; 97.7

17. We utilize art/sculpting tests during our interview process to screen candidates.

    Yes: $n = 1$; 2.3 percent
    No: $n = 42$; 97.7 percent

18. Do residents take part in your interview process?

    Yes: $n = 42$; 97.7 percent No: $n = 1$; 2.3 percent

19. If "Yes" to question 18, in what capacity do they participate? Please mark all that apply.

    Conducting interviews: $n = 35$; 79.5 percent
    Attending social functions: $n = 42$; 97.7 percent
    Giving tours: $n = 42$; 97.7 percent
    Conducting skills laboratories: $n = 1$; 2.3 percent
    Giving significant input for rank order list generation: $n = 35$; 79.5 percent

20. Our rank order list is generated by (please mark all that apply):

    Chairman: $n = 16$; 36.4 percent
    Program director: $n = 21$; 47.7 percent
    Committee composed of core faculty: $n = 15$; 34.1 percent
    Committee composed of all faculty (full-time and clinical): $n = 12$; 27.3 percent
    Committee composed of faculty and residents: $n = 18$; 40.9 percent
    A standardized attempt to objectively stratify candidates with no one person deciding on the final rank order list: $n = 4$; 9.1 percent

21. In general, how long is your rank order list?

    1 to 4 candidates: $n = 0$
    5 to 8 candidates: $n = 4$

9 to 12 candidates: $n = 9$
13 to 16 candidates: $n = 12$
>16 candidates: $n = 18$

22. Have you had a spot go unfilled in the match in the past 10 years?

    Yes: $n = 2$; 4.7 percent
    No: $n = 41$; 95.3 percent

23. Have you placed a resident on probation for academic or ethical reasons within the past 10 years?

    Yes: $n = 26$; 60.5 percent
    No: $n = 17$; 39.5 percent

24. Have you dismissed a resident for academic or ethical reasons within the past 10 years?

    Yes: $n = 17$; 39.5 percent
    No: $n = 26$; 60.5 percent

25. Have you had a resident quit your program in the past 10 years?

    Yes: $n = 13$; 30.2 percent
    No: $n = 30$; 69.8 percent

26. Do you feel that the current selection process is adequate to have determined potential resident issues before matriculation into your program?

    Yes: $n = 19$; 45.2 percent
    No: $n = 23$; 54.8 percent

27. Please comment on your satisfaction with the current selection process.