

# An Evaluation of Plastic Surgery Resident Selection Factors

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**OBJECTIVE:** Our purpose was to provide a metric by which evaluation criteria are prioritized during resident selection. In this study, we assessed which residency applicant qualities are deemed important by members of the American Association of Plastic Surgeons (AAPS).

**METHODS:** A survey was distributed to all 580 AAPS members, and 295 responded to rate the importance of resident metrics, including measures of competency and personal characteristics. Demographic information, background training, and interaction with residents were also noted. Using SAS v9.2 (SAS Institute, Cary, NC), outcomes were analyzed across demographic groups with column trend exact (CTE) test for ordinal variables, Mantel-Haenszel trend test for interval variables, and Fisher exact test for discrete variables.

**RESULTS:** Regarding competency metrics, letters of recommendation from known sources is the most important factor, whereas letters from unknown sources ranks the lowest. Character evaluations identified honesty as the most desirable trait; dishonesty was the most despised. Across demographic groups, academic surgeons and program directors value letters from known sources more than nonacademicians or nonprogram directors (CTE  $p = 0.005$  and  $0.002$ , respectively). Academicians and current program directors regard research more highly than their counterparts do (CTE  $p = 0.022$  and  $0.022$ , respectively). Currently, practicing surgeons, academicians, and program directors value hard work more than others (CTE  $p = 0.008$ ,  $0.033$ , and  $0.029$ , respectively). Program directors emphasize maturity and patient commitment and are less

tolerant of narcissism (CTE  $p = 0.002$ ,  $0.005$ , and  $0.003$ , respectively). Lastly, academic surgeons and program directors look more favorably upon strong team players (CTE  $p < 0.00001$  and  $p = 0.008$ , respectively), but less so over time (Mantel-Haenszel trend  $p = 0.006$ ).

**CONCLUSIONS:** We have examined applicant metrics that were deemed important by AAPS members and assessed their demographic interpretation. We hope this article provides a framework for plastic surgery resident selection and a guide for applicants to ascertain which qualities are highly regarded by programs. Although these attributes are highly desirable, future studies could identify if they are predictive of successful and productive plastic surgery residencies and careers. (J Surg 72:8-15. © 2014 Association of Program Directors in Surgery. Published by Elsevier Inc. All rights reserved.)

**KEY WORDS:** plastic surgery, residency application, surgical education

**COMPETENCIES:** Professionalism, Interpersonal and Communication Skills, Practice-Based Learning and Improvement, Systems-Based Practice

## INTRODUCTION

Selection of plastic surgery-integrated and combined program residents through the National Residency Matching Program (NRMP), and independent residents through the San Francisco Matching Program, consumes substantial time and energy from the program staff, given the plethora of highly qualified applicants and limited availability of positions. According to 2011 NRMP data, plastic surgery resident applicants boast the highest average Step 1 United States Medical Licensing Examination (USMLE) scores.

This paper is dedicated to Dr. Robert M. Goldwyn, whose insights and enthusiasm made this project possible.

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These applicants are the most academically productive, as assessed by the number of abstracts, publications, and presentations. A large number also belong to Alpha Omega Alpha (AOA). Furthermore, integrated plastic surgery programs offered only 108 positions in 2011, the smallest number of positions offered by a single specialty in the NRMP. With 1.8 applicants for each available residency position, the highest ratio in the NRMP, integrated plastic surgery was the most competitive residency in 2011. Ultimately, 43% of US senior applicants were accepted to integrated plastic surgery programs. The second most competitive specialty was orthopedic surgery, with a 77% acceptance rate.<sup>1</sup>

Given the competitive nature of the plastic surgery residency application—and to create a fair and reliable process for selecting candidates with the most potential for future success—it is imperative that programs apply a standardized methodology of evaluating plastic surgery applicants. Additionally, the recent transition by many institutions toward *integrated* program models has necessitated a fresh approach for assessing applicants who are applying while finishing medical school, as opposed to the traditional vetting of residents with several years of prerequisite surgical training. The ultimate goal of these efforts will be to provide a foundation for a fair and consistent selection, by standardizing quantitative and qualitative metrics.

Few studies have identified which characteristics are the most valued in residents from the perspective of mature and distinguished plastic surgeons. The aim of this study was to assess which plastic surgery resident attributes and qualifications are deemed most important by members of the American Association of Plastic Surgeons (AAPS), who are notably successful plastic surgeons and leading educators of plastic surgery residents. Therefore, we value their opinion and expertise in the assessment of these resident metrics. Our analysis also sought to identify potential response bias and provide a quantitative metric by which evaluation criteria are prioritized.

## METHODS

A survey was designed with input from the senior authors of this article and electronically distributed to all 580 members of the AAPS in 2008. Respondents were given a month to return the survey. In addition to questions regarding candidate qualities, nonidentifiable demographic data were collected including sex, length and nature of practice, training background, degree of interaction with residents, involvement in the interview process, current practicing status, and experience as a program director (Appendix).

In addition, the responders rated the importance of various resident metrics, which could be broadly classified as (1) traditional measures of competency including

intelligence, dexterity, letters of recommendation, USMLE scores, school pedigree, and medical school grades; (2) routinely valued personal characteristics, including honesty, hardworking nature, and compassion; and (3) generally avoided personal flaws, including arrogance, dishonesty, and laziness (Appendix). It is noteworthy that responders were not required to rank the attributes in any particular order, but were asked to select among categories of “irrelevant,” “not important,” “neutral,” “important,” and “very important” for each of the metrics. Each category was converted to an ordinal number scale for statistical analysis, where “irrelevant” was assigned a value of 1 and “very important” a value of 5.

The survey outcomes were analyzed across demographic groups using the column trend exact (CTE) test for ordinal variables, Mantel-Haenszel trend (MHT) test for interval variables, and Fisher exact test for discrete variables. All the tests were performed with SAS v9.2 (SAS Institute, Cary, NC). Statistical significance was defined as  $p < 0.05$  (2 tailed).

## RESULTS

### Response Rates and Respondent Demographics

In total, 295 AAPS members (51% response rate) returned completed surveys. Overall, 271 (92%) of responders were men. Many responders either were current program directors (66) or had been at some point in the past (98). Most survey participants reported affiliation with academic practices (134), vs private (54) or combined academic/private practices (94, including partial academic practices). Most responders (232) reported that they had frequent interaction with residents, 34 occasional interaction, and 21 rare or no interaction. In addition, 205 survey participants reported frequently interviewing residency applicants, whereas 39 infrequently and 45 never interviewed applicants. Most of the responding surgeons noted training in general surgery (256), followed by otolaryngology (11), other (10), oral-maxillofacial surgery (4), orthopedics (3), and neurosurgery (1). The distribution of the number of years the responders had been in practice followed a gaussian distribution, with a mode of 21-30 years. Most surgeons (238) were still practicing, whereas 51 were retired.

### Rank Order List of Important Resident Metrics

Of all the performance metrics assessed, a strong letter of recommendation from a known recommender had the most influence ( $u = 0.57$ ,  $SD = 0.70$ ), followed by applicant intelligence ( $u = 4.22$ ,  $SD = 0.53$ ) and dexterity ( $u = 4.21$ ,  $SD = 0.61$ ). Attributes with the lowest score were artistic sense ( $u = 3.26$ ,  $SD = 0.89$ ) and a strong letter of

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