

General Surgery Residents can Be a Reliable Resource in the Evaluation of Residency Applications

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OBJECTIVE: Surgical residents' ability to screen general surgery (GS) applicants has not been previously investigated. The objective of this study was to compare surgical residents' evaluation of Electronic Residency Application Service (ERAS) applicants to that of faculty using a standardized assessment instrument.

DESIGN: A prospective analysis of ERAS applications using a standardized assessment tool.

SETTING: A university-affiliated, academic, county GS residency program.

PARTICIPANTS: Before the interview day, 51 ERAS (2013-2014) applications were reviewed by 10 different assessors (6 GS faculty, including the program director, and 4 GS residents), who evaluated applicants on 10 characteristics (subjective and objective) using a 5-point Likert scale, a total score, and a Global Rating Scale that ranked candidates into deciles.

RESULTS: There were a total of 510 assessments. In 8 of 10 individual domains the interrater reliability (IRR) between residents and faculty was good. The IRRs of the total score and global score were excellent. The Spearman ρ between the total score and final rank list were similar for faculty (-0.558) and residents (-0.592).

CONCLUSIONS: The excellent IRR score between the total and global scores of faculty and residents demonstrates the reliability of GS residents in evaluating ERAS applications. The low correlations between the total score and final rank are consistent with those in previous studies, in which the interview has been demonstrated to be the most important factor in determining final selection. (J Surg Ed 72:e172-e176. © 2015 Association of Program

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KEY WORDS: assessment, electronic residency application Service (ERAS), surgical residency, residents

COMPETENCIES: Patient Care, Medical Knowledge, Practice-Based Learning and Improvement, Systems-Based Practice, Professionalism, Interpersonal Skills and Communication Skills, Interpersonal and Communication Skills

INTRODUCTION

The residency selection process can be a time-consuming and arduous task, which usually begins with an initial screening and assessment of applicants' surgery residency applications via the Electronic Residency Application Service (ERAS). The primary goals of this process are to identify applicants who are likely to succeed in the transition from medical school to residency and to select the most academically qualified individuals who eventually graduate to become safe and competent surgeons.

Previous studies have examined application variables that may be predictive of future success in surgery residency.¹⁻⁸ These include objective measures such as United States Medical Licensing Examination (USMLE) Step 1 and 2 scores, medical school performance, and Alpha Omega Alpha (AOA) membership, as well as more subjective criteria such as letters of recommendations (LOR) and personal statements (PS). In an effort to decrease subjectivity and improve the overall application assessment process, various programs have developed and use assessment tools to assist in the resident selection and ranking process.

Assessment of ERAS applications is most often performed solely by program directors (PDs), with or without the use of prespecified selection criteria.⁹ To date, little is known regarding the reliability of residents' assessments of prospective residents' ERAS applications. In an effort to more

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evenly distribute the demands of the resident selection process and include residents in this critical task, we sought to compare surgical residents' evaluation of ERAS applicants with faculty using a pilot assessment instrument. We hypothesized that residents would be a reliable resource in the evaluation of ERAS applications.

MATERIALS AND METHODS

We performed a prospective analysis of ERAS applications during the 2013-2014 application cycle to a single, university-affiliated general surgery (GS) residency program at a county hospital. There are 6 categorical positions available at the postgraduate year 1 level. All assessments were performed before applicant interviews. Applicants who had performed GS rotations, including subinternships, at our hospital were excluded from the study so as to eliminate the potential for bias. Before the 2013-2014 application cycle, all ERAS applications were assessed solely by the PD. The pilot assessment instrument used in this study was developed by the PD and used in the assessment of ERAS applications in the 2 cycles before the current study (2011-2012 and 2012-2013).

A convenience sample of surgery faculty ($n = 6$), one of whom was the PD, and residents ($n = 4$) were invited to voluntarily participate in this study. All participating residents had completed their third clinical year and were in their research year during the study. Faculty were randomly selected after being solicited to voluntarily participate in the study (Table 1). Before the start of this study, the assessment instrument was reviewed with the participating faculty and residents ($n = 10$), who underwent a 2-hour training session that involved an explanation of the background for the study and a detailed analysis of the domains assessed and the individual components that comprised each domain. The evaluators then assessed 2 to 3 ERAS applications from the previous application year and were encouraged to ask questions regarding the pilot assessment instrument (Table 2). Criteria assessed included objective measures such as academic credentials (USMLE scores [Steps 1 and 2], AOA membership, grade in surgery, and honors during clerkship), Dean's letter (unique or distinguishing characteristics, overall class rank, and absence of adverse educational actions) and research experience, as well as subjective measures such as academic potential, PS, and

TABLE 1. Characteristics of Participating Faculty

Faculty	Sex	Years in Practice	Specialty
1	Male	20	Vascular surgery
2	Male	2	Trauma surgery
3	Male	8	Trauma surgery
4	Male	3	Surgical critical care
5	Female	1	Surgical oncology
6	Male	30	General surgery

TABLE 2. Characteristics Evaluated Using Standardized Assessment Instrument

Application Variables	
Objective	Subjective
1. Academic credentials	1. Academic potential
2. Research experience	2. Personal statement
3. Dean's letter	3. Letters of recommendation
	4. Communication
	5. Personal qualities
	6. Leadership
	7. Overall fit for the program

LOR. All variables were measured using a 5-point Likert scale and a total score was calculated on the basis of the sum of the individual scores. A Global Rating Scale (GRS) was also used to place applicants into deciles. Before any evaluation, the assessment instrument and specific criteria used in the assessment of each applicant characteristic were explained and reviewed with study personnel.

Additionally, individual applicant characteristics were ranked on a 4-point Likert scale (1—not important to 4—very important) and study participants were surveyed regarding the top 3 most important applicant characteristics of desirable candidates.

STATISTICAL ANALYSIS

Interrater reliability (IRR) was used to assess the degree to which the faculty and the residents provided consistency in their ratings of the 10 assessment tool variables across applicants. IRR was assessed using a 2-way (same raters across subjects), mixed (raters not randomly sampled), consistency (correlation in scores across raters), average-measure (all subjects rated by multiple raters) interclass correlation for ordinal variables (Cronbach's α statistics).¹⁰ The IRR was considered poor for Cronbach's $\alpha < 0.40$, fair for 0.40 to 0.59, good for 0.60 to 0.74, and excellent for 0.75 to 1.0. IRR was calculated among the faculty, among the residents, and between faculty and residents each as a group using the median score for their representative category. In addition, total scores were compared to the actual final rank list of applicants using Spearman's Rank Correlation. IBM SPSS Statistics for Windows, V22 (IBM Corp, Armonk, NY) was used for statistical analysis. A $p < 0.05$ was considered significant.

RESULTS

A total of 510 assessments were performed. Among faculty, IRR was good regarding research experience, Dean's letter, academic potential, and leadership. IRR for overall fit for the program was poor. For residents, the IRR for research experience was excellent, whereas academic credentials and potential, LOR, and Dean's letter demonstrated good IRR

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