



Original Contribution

Reliability of a faculty evaluated scoring system for anesthesiology resident applicants (Original Investigation) ☆, ☆ ☆



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Abstract

Study Objective: To assess reliability and reproducibility of a recently instituted anesthesiology resident applicant interview scoring system at our own institution.

Design: Retrospective evaluation of 2 years of interview data with a newly implemented scoring system using randomly assigned interviewing faculty.

Setting: Interview scoring evaluations were completed as standard practice in a large academic anesthesiology department.

Subjects: All anesthesiology resident applicants interviewed over the 2013/14 and 2014/15 seasons by a stable cohort of faculty interviewers. Data collection blinded for both interviewers and interviewees.

Interventions: None for purposes of study – collation of blinded data already used as standard practice during interview process and analysis.

Measurements: None specific to study.

Main Results: Good inter-rater faculty reliability of interview scoring (day-of) and excellent inter-faculty reliability of application review (pre-interview).

Conclusions: Development of a department-specific interview scoring system including many elements beyond traditional standardized tests shows good-excellent reliability of faculty scoring of both the interview itself (including non-technical skills) and the application resume.

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1. Introduction

Strong evidence to guide departmental recruitment strategy into postgraduate medical residency training remains elusive [1]. While applicants to anesthesiology residency programs have become increasingly competitive,

selection criteria have often been based on subjective criteria during the interview process [2,3]. Recent initiatives acknowledge this reliance on traditional interviews with risk of subjectivity, as well as committee decisions rather than independent faculty scoring. For some centers, evaluation of traits leading to successful matching within their program without demographic subjectivity have been described [3] and others have incorporated models to evaluate non-technical skills of anesthetists in the United Kingdom [4].

Faced with these dilemmas and coincident with the appointment of a new anesthesiology residency program director (PD), we reorganized and formalized our interview and review process in 2014. This included a consistent cohort of faculty members on the residency application review team. With the first 2 years (2014-2015) of resident applicant data, we describe our process and the evaluation of reproducibility and reliability of this interview scoring process. The initial goal of evaluation was to assure that our results were objectively and statistically validated.

2. Methods

Prior efforts in our department had accentuated academic achievement in the application process. These are determining factors associated with a successful match and admission to a US anesthesiology residency [5] and standardized pre-residency test scores are moderate – strong predictors of subsequent performance on Anesthesiology residency in-training and written board examinations [6]. Without losing that focus, we acknowledged that other factors were desired by the residency program (e.g., research interest or pedigree) along with non-technical aspects of the interview process, including presentation, communication and elements of team-work through a structured interview day. This represents an important component of assessing applicant characteristics, personality and potential integration into a department's specific culture and function and aligns with recent efforts to measure aspects of emotional intelligence in anesthesia residents [7]. However, performance on several non-technical aspects in the simulation center during the interview day was not scored in this initial experience. Two scoring sheets were used:

- A. The interview template score sheet (Fig. 1) incorporated 5 domains: general impression (communication, presentation, and attitude), letters of recommendation, personal statement, motivation to be in our program and commitment to anesthesiology as a career, with a 5-point Likert scoring system (scale of –0.5 to 2 for each domain). At each margin of the scale, descriptors are added as a guide to faculty reviewers. Maximum total score was 10 points.
- B. The applicant file summary submission (Fig. 2) was numerically evaluated in six major categories, includ-

ing USMLE step scores (step 1 raw score/10) with bonus points for significant step 2 achievements, medical school transcript (pre-clinical and clinical years – maximum 5), third year shelf scores (maximum 5: if not provided, reviewer would trend towards average or estimate from specific comments in the resume and final rotation evaluation), post-graduate research (maximum 5 – participation, scholarly productivity, NIH grants), extra-curricular activities (maximum 5 – e.g., athletic, altruistic, administrative) and the dean's medical student performance evaluation letter (maximum 5). At each margin of the scale, brief descriptors are added as a guide to faculty reviewers. Scores varied with the descriptors as above, with a theoretical maximum in the upper 50s.

Each faculty reviewer was independently assigned applicants by administrative staff and there was no faculty choice or influence by the PD unless there was a predetermined conflict, eg, applicant had completed a research rotation with faculty member. All files were reviewed prior to the interview day, an expectation of the department. Neither the interview or application file score was revealed until the post-interview group faculty meeting, when applicant scoring was revealed and discussed within the interview team.

With use of blinded faculty scoring (for faculty and interview candidates) and a description of current educational procedures within the department, the institution's institutional review board approved without a formal submission.

Interview and application file sheet scores are presented as mean \pm SD (Table 1). Reliability and consistency of faculty scores was assessed using the intraclass coefficient one-way random effects model with score averaging (ICC) [8]. The ICC is a measure of the reliability of measurements or ratings where two or more raters rate a number of study subjects and has been increasingly used in the anesthesia literature for assessment of reliability of educational and assessment tools [9–11]. The ICC determines scores of <0.4 as poor, 0.4-0.59 as fair, 0.6-0.74 as good and >0.75 as excellent agreement (Table 1).

3. Results

Four hundred thirty-five residency applicant interviews for the 2013/2014 and 2014/2015 season were each scored by 2 randomly selected faculty interviewers. Faculty each interviewed 36.3 applicants (mean, range 19-72). This was unequal based on assigned tasks during the interview day and the vagaries of the operating room schedule. Interviewer mean scores were 7.95 ± 1.15 and 7.95 ± 1.11 (Table 1). Agreement between interviewers was good with a narrow confidence interval (CI) (Table 1).

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