

Program Factors That Influence American Board of Surgery In-Training Examination Performance: A Multi-Institutional Study

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OBJECTIVE: To determine the influence of program strategies, such as program directors' (PD) attitudes about the American Board of Surgery In-Training Examination (ABSITE) and approach to ABSITE preparation, on residents' ABSITE performance.

DESIGN: A 17-item questionnaire was sent to PDs at surgical residency programs. The questions were designed to elicit information regarding the educational curriculum, remediation protocols, and opinions relating to the ABSITE. Main outcome measure was categorical resident ABSITE percentile scores from the January 2014 examination. Statistical analysis was performed using the Student *t*-test, analysis of variance, and linear regression as appropriate.

SETTING: The study was carried out at general surgery residency programs across the country.

PARTICIPANTS: In total, 15 general surgery residency PDs participated in the study.

RESULTS: The PD response rate was 100%. All 460 resident ABSITE scores from the 15 programs were obtained. In total, 10 programs (67%) identified as university affiliated, 4 programs (27%) as independent academic, and 1 program (7%) as hybrid. The mean number of residents per program was 30.7 (range: 15-57). In total, 14 PDs (93%) indicated that an ABSITE review curriculum was in place and 13 PDs (87%) indicated they had a remediation protocol for residents with low ABSITE scores (with differing thresholds of <30th, <35th, and <40th percentile). The median overall ABSITE score for all residents was 61st percentile (interquartile range = 39.5). The mean ABSITE score for each program ranged from 39th to 75th percentile. Program factors associated with higher ABSITE scores included tracking resident reading throughout the year (median 63rd percentile with tracking vs 59th percentile without, $p = 0.040$) and the type of remediation (by PD: 77th percentile, by PD and faculty: 57th percentile, faculty only: 64th percentile, with Surgical Education and Self-Assessment Program (SESAP): 63rd

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percentile, outside review course: 43rd percentile; $p < 0.001$). Programs with a remediation protocol trended toward higher ABSITE scores compared with programs without remediation protocols (median 61st percentile vs 53rd percentile, $p = 0.098$). Factors not significantly associated with ABSITE performance included number of structured educational hours per week and frequency of ABSITE review sessions.

CONCLUSIONS: Program factors appear to significantly influence ABSITE performance. Programs where the PD was actively involved in remediation mentorship and the tracking of resident reading achieved higher ABSITE percentile scores on the January 2014 examination. Counterintuitively, residents from programs with a lower ABSITE threshold for remediation performed better on the examination. (J Surg Ed 72:e236-e242. © 2015 Association of Program Directors in Surgery. Published by Elsevier Inc. All rights reserved.)

KEY WORDS: ABSITE, program director, surgical education, surgery residency

COMPETENCIES: Patient Care, Medical Knowledge, Practice-Based Learning and Improvement, Systems-Based Practice

INTRODUCTION

The American Board of Surgery In-Training Examination (ABSITE) was first administered to general surgery residents in 1975 to assess basic surgical knowledge.¹ The results of the ABSITE were intended to be used within individual programs for introspection and quality improvement on both the resident and the program level. However, the scores have been increasingly used for applications beyond surgical residency: as predictors of future board examination performance and as evaluation tools during selection of fellowship candidates.²

Given the importance of the ABSITE, prior studies have examined program level factors in an attempt to identify strategies associated with higher ABSITE performance.³⁻⁵ Specific interventions and educational strategies employed by program directors (PDs) have been reported, with varying effects on ABSITE scores.⁶ However, most studies have been conducted within single institutions where various cultural and programmatic factors may have represented significant confounders. The aim of our study was to evaluate ABSITE curricula, remediation strategies, and PD attitudes at multiple institutions to identify factors associated with higher ABSITE scores.

MATERIALS AND METHODS

The study was approved by the Human Subjects Institutional Review Board at the Los Angeles Biomedical Research Institute at Harbor-UCLA before initiation of the research.

A 17-item questionnaire was developed for administration to PDs at 15 different general surgery residencies across the country. These PDs from the 15 residencies were contacted about involvement in the study before the distribution of the surveys. [Figure 1](#) shows the entire survey that was administered. The survey collected background information about the program (program affiliation with a university and number of categorical residents) and asked about strategies used to help prepare residents for the January 2014 ABSITE (weekly didactic hours, presence and frequency of ABSITE review, primary study source provided by the program, and protected study time). Additionally, PDs were asked about their involvement in resident education (tracking of resident reading throughout the year and presence and nature of remediation protocols for poor ABSITE scores). Finally, PDs were asked to rate their agreement (on a Likert scale) to the following statements: (a) ABSITE results have a correlation with resident level of knowledge, (b) ABSITE results have a correlation with overall resident progression toward becoming a competent surgeon, (c) doing well on the ABSITE is important for residents to achieving future career goals, and (d) residents' ABSITE scores are an important tool in evaluating our educational curriculum.

Surveys were uploaded on SurveyMonkey (www.surveymonkey.com) and distributed to PDs via e-mail. After all survey responses were received, PDs were then asked to provide a list of de-identified individual percentile ABSITE scores obtained by each of their categorical general surgery residents on the January 2014 examination.

Data management of survey responses and ABSITE scores was performed using Microsoft Excel 2007 (Redmond, WA). All statistical analyses were performed with IBM SPSS version 19 (Armonk, NY). Descriptive statistics as well as statistical comparisons were performed. Univariate analysis was performed using the Mann-Whitney U test, Kruskal-Wallis test, and linear regression as appropriate. All ABSITE scores were entered into statistical analyses as the dependent variable. Program factors were entered as the independent variables. Medians with interquartile range were used to report the data. A $p < 0.05$ was considered statistically significant.

RESULTS

All 15 PDs who were contacted about involvement in the study agreed to participate. Surveys were completed by all 15 PDs. January 2014 ABSITE scores from all 460 categorical residents at the 15 programs were also obtained for analysis.

Program demographics and resident education strategies

Baseline information for participating programs is shown in [Table 1](#). In total, 10 programs (67%) self-identified as

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