



Applicant Familiarity Becomes Most Important Evaluation Factor in USMLE Step I Conversion to Pass/Fail: A Survey of Plastic Surgery Program Directors

Malke Asaad, MD,* Brian C. Drolet, MD, FACS,[†] Jeffrey E. Janis, MD, FACS,[‡] and Giorgio Giatsidis, MD, PhD[§]

*Department of Plastic Surgery, MD Anderson Cancer Center, Houston, Texas; [†]Department of Plastic Surgery, Vanderbilt University Medical Center, Nashville, Tennessee; [‡]Department of Plastic Surgery, The Ohio State University Wexner Medical Center, Columbus, Ohio; and [§]Division of Plastic Surgery, University of Massachusetts, Worcester, Massachusetts

BACKGROUND: In 2020, Step 1 of the United States Medical Licensing Examination (USMLE) changed to a pass/fail reporting. Step 1 has been one of the main factors for both inviting applicants for interviews and for ranking in Plastic Surgery. Due to this change, we hypothesize that Step 2 CK – currently the only remaining, universal quantitative metric – will become the main factor in the residency selection process.

METHODS: A survey-based cross-sectional study of United States (US) integrated plastic surgery program directors (PSPDs) investigated the factors that would assume importance following the change in the reporting pattern.

RESULTS: Respondents reported that personal prior knowledge of the applicant, Letters of recommendation (LORs), Step 2 CK scores, and away rotation at the institution of interest would become the most important factors (median ratings of 5, 4.5, 4.5, 4.5, respectively on a 5-point Likert scale). Eighty-three percent of respondents were strongly dissatisfied with the conversion to pass/fail reporting. LOR's received the highest ranking (median, 1; IQR, 1-2) as the component used for offering away rotations after the implementation of the pass/fail reporting, followed by the applicant's medical school (median, 3; IQR, 3-4), and grades obtained during medical school (median, 3; IQR, 1.75-4). Standardized assessment during rotations are recommended by 67% of PSPDs.

CONCLUSIONS: Future emphasis will be placed primarily on subjective metrics, including applicant familiarity. Step 2 CK, LORs, and away rotation at the institution of interest are other factors of importance. PSPDs welcome the adoption of objective assessments of patient care and medical knowledge to improve the current selection process. (J Surg Ed 78:1406–1412. © 2021 Association of Program Directors in Surgery. Published by Elsevier Inc. All rights reserved.)

KEY WORDS: USMLE Step 1, score, residents, medical student, surgery, surgical education, exam, test

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

INTRODUCTION

In February 2020, the Federation of State Medical Boards (FSMB) and the National Board of Medical Examiners (NBME) decided to change the reporting pattern for the United States Medical Licensing Examination (USMLE) Step 1 from a numeric 3-digit score to a pass/fail reporting.¹⁻³ Step 1 has historically been a major factor in selecting applicants for residency interviews.⁴ The National Resident Matching Program (NRMP) data shows that 86% of plastic surgery program directors (PSPDs) reported an average rating of 4.1 (where 1 being not at all important and 5 being very important) when assessing factors in selecting applicants for an interview.⁵ The data comparing the characteristics of applicants who

Correspondence: Inquiries to Giorgio Giatsidis, MD, PhD, Department of Plastic Surgery, University of Massachusetts, 55 North Lake Avenue, Worcester, MA 01655; e-mail: giorgio.giatsidis@umassmed.edu

matched to those who did not match also reflect the value placed on Step 1 in residency selection – allopathic senior students who matched into plastic surgery had higher Step 1 scores compared to their unmatched counterparts (249 vs. 239).³

The lack of the objective metric represented by a Step 1 score might make it more difficult for PDs to compare applicants following the pass/fail reporting. The resultant change in the selection criteria for screening applicants following the pass/fail reporting is worth investigating to provide guidance to future applicants on the preferences of PDs and on how to prepare best for the selection process.

We hypothesize that Step 2 CK – the only remaining, universal objective metric – will replace Step 1 as the outcome valued in the residency selection process (including invitation for away rotations or interviews, and residency application scoring).⁶ In this study, we aimed to test this hypothesis and further explore the factors that would assume importance following the change in the reporting pattern for Step 1.

METHODS

A survey-based cross-sectional study of integrated PSPDs in the United States was conducted. The survey questions were developed based on a literature review of pertinent topics, NRMP program director survey question items, and discussions with experts in medical education.^{2,5, 7-9} The following areas were investigated: satisfaction with conversion to pass/fail reporting, alternative methods to evaluate students applying for away rotations, and the importance of different factors (1 being the least important and 5 being the most important) for selecting applicants to receive an interview in integrated plastic surgery residency following the new

score reporting. After the receipt of institutional review board (IRB) approval, the survey was distributed electronically using Google Forms to all identified PSPDs' emails (n = 83) in April 2020. One reminder was sent 8 weeks following the first distribution.

Categorical data were presented using percentages and proportions while continuous data were summarized using median and interquartile range (IQR).

RESULTS

Response Rate and Study Reliability

A total of 18 PSPDs responded to our survey (22% response rate). The majority of responses were from the West (33% of total survey responders [46% of PSPDs in that region]) and Northeast (28% of total survey responders [23% of PSPDs in that region]). The median number of plastic surgery residents per year at the respondents' programs was 3 (IQR 2-4).

The relatively low response rate could be ascribed to a “survey fatigue” we have informally observed during this COVID-19 pandemic. Nevertheless, our data report a highly skewed distribution for almost all responses (95% confidence intervals [CI] for responses not overlapping), indicating substantially polarized opinions that are unlikely due to chance alone.

Dissatisfaction With the Decision

Eighty-three percent of respondents were strongly dissatisfied with the conversion to pass/fail reporting. This is consistent with the findings of Makhoul et al. who demonstrated that only 15% of 2095 PDs from 30 different specialties agree with the pass/fail reporting of Step 1.^{6,10} In our study, there was no significant difference in dissatisfaction rates based on the region or the size of the residency program.

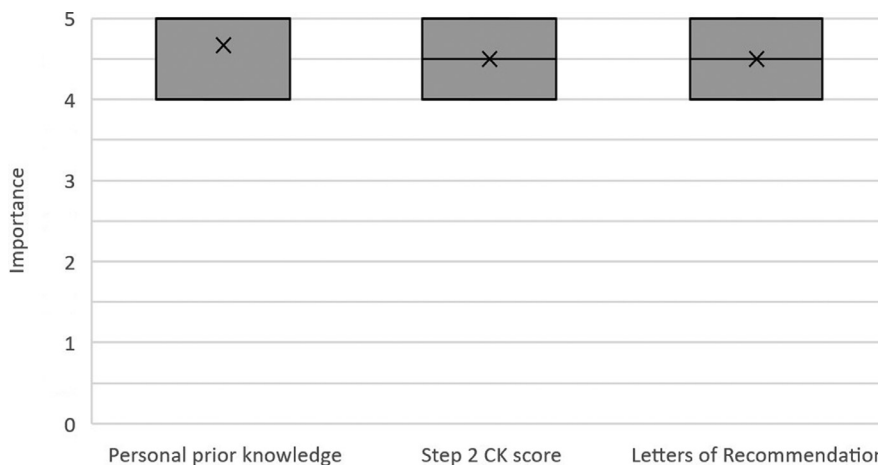


FIGURE 1. The most important factors for selecting applicants to receive an interview in integrated plastic surgery residency.

TABLE 1. Survey Questions and Responses

	N	%	95%CI	
Number of integrated plastic surgery residents	3 (2-4)*			
Program location, N (%) (percentage out of all respondents)				
Northeast (ME, NH, VT, NY, MA, CT, RI, PA, NJ)	5	28		
Midwest (OH, IN, MI, IL, WI, MN, IA, MO, KS, NE, SD, ND)	4	22		
Southeast (DE, MD, DC, VA, WV, KY, TN, NC, SC, GA, FL, AL, MS, LA, AR)	2	11		
Southwest (TX, OK, NM, AZ)	1	6		
West (CO, WY, MT, ID, UT, NV, CA, OR, WA, HI, AK)	6	33		
Program location, N (%) (percentage out of programs in that location)				
Northeast (ME, NH, VT, NY, MA, CT, RI, PA, NJ)	5	23		
Midwest (OH, IN, MI, IL, WI, MN, IA, MO, KS, NE, SD, ND)	4	19		
Southeast (DE, MD, DC, VA, WV, KY, TN, NC, SC, GA, FL, AL, MS, LA, AR)	2	10		
Southwest (TX, OK, NM, AZ)	1	17		
West (CO, WY, MT, ID, UT, NV, CA, OR, WA, HI, AK)	6	46		
Satisfaction with the newly implemented policy, N(%)			95% CI	
Strongly satisfied	1	6	(0.67-0.97)	
Satisfied	1	6		
Neutral	0	0	(0.03-0.33)	
Dissatisfied	1	6		
Strongly dissatisfied	15	83		
Do you currently use Step 1 score as a metric for choosing applicants to plastic surgery away rotations at your institution? N (%)			95% CI	
Yes	13	72	(0.49-0.88)	
No	5	28	(0.12-0.51)	
Rank in order of importance how will you evaluate medical students applying to plastic surgery away rotations at your institution following the new scoring system (Rank 1 has highest importance)			95% CI for rank 1&2	95%CI for rank 3,4,5
Medical school of graduation	3(3-4)*		(0.06-0.41)	(0.59-0.93)
Letters of recommendations	1(1-2)*		(0.67-0.97)	(0.03-0.33)
School grades	3(1.75-4)*		(0.25-0.66)	(0.34-0.75)
Research experience	4(2-4)*		(0.17-0.59)	(0.41-0.83)
How would you rate the importance of the following factors for selecting applicants to receive an interview in integrated plastic surgery residency following the new scoring system (1 being least important and 5 is most important)			95% CI for 4&5	95%CI for 1,2,3
Letters of recommendation	4.5(4-5)*		(0.74-0.99)	(0.001-0.26)
Step 2 CK score	4.5(4-5)*		(0.61-0.94)	(0.06-0.39)
Dean's Letter	2(1-3)*		(0.01-0.26)	(0.74-0.99)
School and clerkship grades	4(3-4)*		(0.34-0.75)	(0.25-0.66)
Surgical clerkship grades	4(4-5)*		(0.61-0.94)	(0.06-0.39)

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TABLE 1 (continued)

	N	%	95%CI	
Class ranking	4(3-5)*		(0.44-0.84)	(0.16-0.56)
Research experience	4(3.75-5)*		(0.55-0.91)	(0.09-0.45)
Personal prior knowledge of the applicant	5(4-5)*		(0.74-0.99)	(0.01-0.26)
Volunteer/extracurricular experiences	3(2-3.25)*		(0.09-0.45)	(0.55-0.91)
Away rotation at the institution of interest	4.5(4-5)*		(0.61-0.94)	(0.06-0.39)
Other graduate degrees	2.5(1.75-4)*		(0.12-0.51)	(0.49-0.88)
Medical school of graduation	3(3-3.25)*		(0.1-0.45)	(0.55-0.91)
Do you recommend standardized assessment of medical students' knowledge and skills during their plastic surgery rotations across the US? N (%)			95%CI	
Yes	12	67	(0.44-0.84)	
No	6	33	(0.16-0.56)	
Do you employ technical skills assessment to evaluate medical students during their clinical rotations or interviews? N(%)				
Yes	1	6	(0.01-0.26)	
No	17	94	(0.74-0.99)	
Will you consider technical skills assessment for medical students during their clinical rotations or interviews following the implementation of the new policy? N(%)				
Yes	8	44	(0.25-0.66)	
No	9	50	(0.29-0.71)	
Maybe	1	6	(0.001-0.26)	
Which US graduates will be impacted the most from the new policy? N(%)				
MDs	5	28	(0.12-0.51)	
DOs	4	22	(0.09-0.45)	
Both equally	9	50	(0.29-0.71)	

*Median (interquartile range)

Away Rotations: Letters of Recommendation Are the Most Important Factor

Step 1 is not only used to assess applicants for the Match, but also to evaluate students applying for away-rotations.¹¹ Seventy-two percent of respondents currently use Step 1 as a metric for choosing applicants to plastic surgery away rotations. Following the implementation of the pass/fail reporting, our survey found that Letters of recommendation (LORs) were given the highest ranking for choosing applicants for away rotations (median, 1; IQR, 1-2), followed by the medical school of graduation (median, 3; IQR, 3-4), and school grades (median, 3; IQR, 1.75-4). This outcome might be explained by the fact that, since most US medical students take Step 2 CK during their fourth year (> 50% in or after November), a portion of them might not have passed the exam when applying for an away rotation or even residency. Notably, less than 12% of US medical students take Step 2 CK before August of their fourth year.^{12,13} The subjectivity of LORs and heterogeneity of school grades may create a bias toward students from “higher-tier” medical schools.¹⁴⁻¹⁶ Research experience had the lowest ranking for selection for away rotations (median, 4; IQR, 2-4).

Applicant Familiarity is the Most Important Factor for Selecting Applicants to Receive an Interview

When asked about the importance of the various factors mentioned in the NRMP program directors survey for selecting applicants to receive an interview following the conversion to pass/fail reporting, personal prior knowledge of the applicant received the highest importance (median, 5; IQR,

4-5). This was followed by LORs, Step 2 CK scores, and away rotation at the institution of interest, each of which received a median importance of 4.5 (Fig. 1). Following the conversion to pass/fail reporting, Step 2 CK will represent the only objective national standardized metric to compare applicants. Until other measures are developed, validated, and adopted, Step 2 CK will represent the only universal objective metric alternative to Step 1 and PDs might favor applicants who have the score of this exam prior to applying. Indeed, 77% of PDs will require applicants to submit Step 2 CK scores with their applications with only 9% agreeing for the latter to change to pass/fail.¹⁰ Without a numeric 3-digit score for Step 1, applicants now have only one opportunity at showing their competitiveness from an objective standpoint instead of two (Step 1 and Step 2 CK). On the other end, the emphasis on subjective evaluation of applicants (e.g., applicant familiarity, LORs, etc.) might expand the use of a “holistic review” of candidates and their diverse backgrounds, which is critically needed in the residency application process.^{17,18}

PSPDs responded that other graduate degrees, volunteer and extracurricular activities, and the medical school of graduation had the lowest importance (median score of 2.5, 3, 3, respectively; Table 1, Fig. 2).

The Pass/Fail Reporting Will Have Equal Impact on MDs and DOs

Only half of our respondents think that MDs and DOs would be equally impacted by the change in Step 1 reporting pattern. Instead, the remaining half believes it might impact more MDs (28%) or DOs (22%). We did not inquire about the impact on international medical graduates, although Makhoul et al. found that 44% of

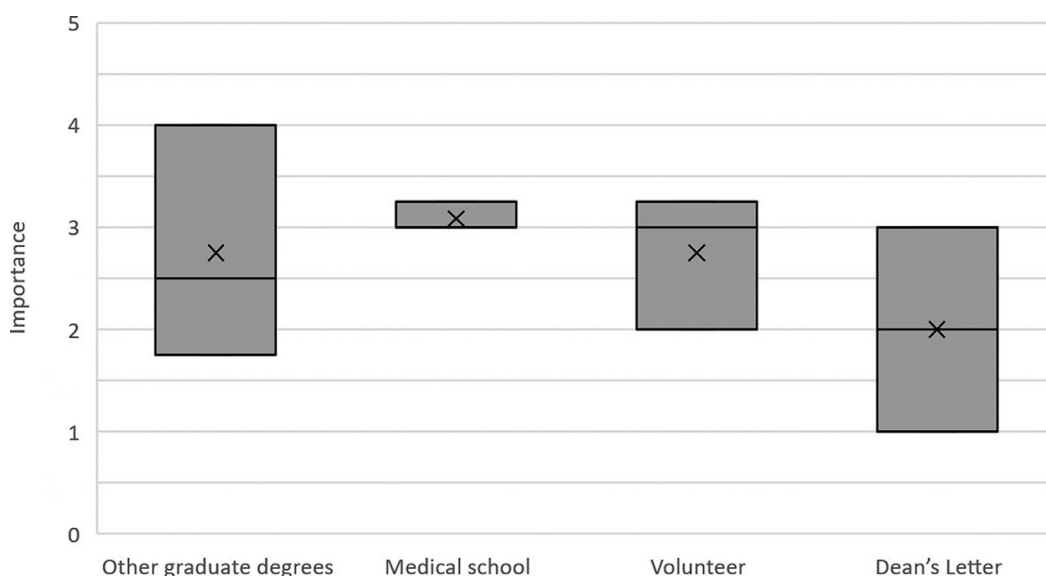


FIGURE 2. The least important factors for selecting applicants to receive an interview in integrated plastic surgery residency.

PDs believe that the new decision will place international medical graduates at a disadvantage during the application process. However, the true impact will need to be assessed in future studies following the implementation of the new score reporting pattern.¹⁹

Standardized Assessment: The Unmet Need

With the lack of Step 1 as a universal objective metric for comparing applicants, there might be a need for developing and validating other standardized assessments to evaluate applicants' skills beyond what is tested in Step 2 CK. The majority of respondents (67%) would recommend such standardized assessment during plastic surgery rotations; however, only 6% use them currently. Forty-four percent would consider the implementation of such an assessment following the new score reporting. Standardized assessment of medical students' knowledge and skills during their rotations can offer an objective metric to compare applicants across the United States. AlJamal et al. assessed the use of simulation-based assessment in their general surgery interview process and found that residents selected through this process had higher scores on surgical simulation assessment during residency.²⁰

CONCLUSIONS

Following the conversion to pass/fail reporting of Step 1, emphasis in the residency selection process will be primarily placed on subjective metrics of applicant familiarity, such as personal prior knowledge of the applicant. Step 2 CK, LORs, and away rotation at the institution of interest are other factors of importance. There is an interest among PSPDs and a need for developing and validating other standardized objective metrics of patient care and medical knowledge to evaluate surgical residency applicants.

Although the ongoing COVID-19 pandemic has affected the 2020-2021 residency application cycle and contingency plans have been enacted (virtual interviews, virtual sub-Internships, etc.), this study did not investigate these important aspects or how virtual rotations might differ from in-person rotations. Hopefully, in person rotations will be possible again in the next future (especially after the change in Step 1 reporting pattern, planned for January 2022).

CONFLICTS OF INTEREST

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