



A Comparison of Objective Assessment Data for the United States and International Medical Graduates in a General Surgery Residency

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OBJECTIVE: To compare objective assessment scores between international medical graduates (IMGs) and United States Medical Graduates. Scores of residents who completed a preliminary year, who later matched into a categorical position, were compared to those who matched directly into a categorical position at the Mayo Clinic, Rochester.

DESIGN: Postgraduate year (PGY) 1 to 5 residents participate in a biannual multistation, OSCE-style assessment event as part of our surgical training program. Assessment data were, retrospectively, reviewed and analyzed from 2008 to 2016 for PGY-1 and from 2013 to 2016 for PGY 2 to 5 categorical residents.

SETTING: Academic medical center.

PARTICIPANTS: Categorical PGY 1 to 5 General Surgery (GS) residents at Mayo Clinic Rochester, MN.

RESULTS: A total of 86 GS residents were identified. Twenty-one residents (1 United States Medical Graduates [USMG] and 20 IMGs) completed a preliminary GS year, before matching into a categorical position and 68 (58 USMGs and 10 IMGs) residents, who matched directly into a categorical position, were compared. Mean scores (%) for the summer and winter multistation assessments were

higher for PGY-1 trainees with a preliminary year than those without (summer: 59 vs. 37, $p < 0.001$; winter: 69 vs. 61, $p = 0.05$). Summer and winter PGY-2 scores followed the same pattern (74 vs. 64, $p < 0.01$; 85 vs. 71, $p < 0.01$). For the PGY 3 to 5 assessments, differences in scores between these groups were not observed. IMGs and USMGs scored equivalently on all assessments. Overall, junior residents showed greater score improvement between tests than their senior colleagues (mean score increase: PGY 1-2 = 18 vs. PGY 3-5 = 3, $p < 0.001$).

CONCLUSIONS: Residents with a previous preliminary GS year at our institution scored higher on initial assessments compared to trainees with no prior GS training at our institution. The scoring advantage of an added preliminary year decreased as trainees progressed through residency. (J Surg Ed 74:e1-e7. © 2017 Association of Program Directors in Surgery. Published by Elsevier Inc. All rights reserved.)

KEY WORDS: International Medical Graduates, United States Medical Graduates, Surgical Education, Assessment, General Surgery

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

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INTRODUCTION

General Surgery (GS) is one of the most difficult residencies in which to match; in fact, GS was ranked in the top 5 desired residency specialties in 2016 for both international (IMGs) and United States Medical Graduates (USMGs).¹ The Association of American Medical Colleges reported that

in 2016, 3887 IMGs and 3593 USMGs applied for 1308 preliminary and 1241 categorical GS open slots—a combined total of 2549 residency positions.² This resulted in 4934 (66%) applicants who did not match into surgery. For the 2016 match, the National Resident Matching Program reported 843 initially filled preliminary surgery spots; 61% of these were filled by USMGs. Nearly 100% of categorical surgery spots were filled (1239 of 1241), and 77% of these went to USMGs.³ These data are similar to previous experience: USMGs filled roughly 80% of the categorical GS spots from 2012 to 2016.³ Nevertheless, there has been more than a 10% increase in the number of positions filled by international medical graduates (IMGs) in both preliminary and categorical tracks since 2012.³

IMGs face many challenges applying to a surgical residency program, and are often faced with increased difficulty upon starting their training. Potential obstacles are related to language and cultural differences, as well as personal issues surrounding visas or distance from family members. This can be further complicated by unfamiliarity with the U.S. health care system, procedure protocols, and technology.^{4,5} However, the IMG pool has historically offered hundreds of outstanding candidates with an array of talents, skills, and incredible work ethic. In other specialties (e.g., internal medicine), IMGs have outperformed USMGs on the in-training examination.^{6,7} Often such stellar performance is required of IMGs, with some institutions requiring higher licensing examination scores for IMGs to be considered for categorical GS positions.⁸

Our institution offers both preliminary and categorical GS positions. Our program has consistently matched IMGs within the preliminary (common) and categorical (less common) resident slots. Stellar preliminary residents from

our own program often subsequently match with us in to a categorical GS position. We hypothesized that residents with an additional year of GS training at our institution would obtain higher scores in the biannual multistation assessments we offer each year. Additionally, we believe residents who matched directly into a categorical position, who completed medical school abroad (IMG), would score similarly to their USMG counterparts.

MATERIALS AND METHODS

GS residents (PGY 1-5) at Mayo Clinic, Rochester participate in multistation objective structured clinical examinations (OSCE)-style assessments in the summer and winter of every academic year (6 months apart). For the preliminary and categorical PGY-1 residents, these assessments have been in place since 2008. We have called them our “Surgical Olympics.” Although they are formative assessments, they are considered high-stakes for preliminary residents who are pursuing a categorical GS position. With the success of the Surgical Olympics (objective and granular feedback given to trainees was overwhelmingly appreciated), we later developed, in 2013, a multistation assessment for our PGY 2 to 5 residents. This abbreviated but more difficult collection of assessments was termed our “Surgical X-Games.” Each PGY class participated in an ever more difficult assessment. These assessments (Surgical Olympics for interns; Surgical X-Games for PGY 2-5s) are a combination of both knowledge and technical skill stations that are targeted at a specific training level, usually increasing in cognitive (knowledge and reasoning) and skills difficulty for each training year (Table 1). Residents involved

Table 1. Stations Included in Multistation Assessments

PGY-1	PGY-2	PGY-3	PGY-4	PGY-5
<i>Knowledge stations</i>				
Trauma evaluation	Groin anatomy	Groin Anatomy	Neck anatomy	Video commentary
Abdominal anatomy	Video commentary	Video commentary	Video commentary	SMV injury
ICU evaluation	Imaging test	Wound drain placement	Imaging test	TEP inguinal anatomy
Written test	Oral questions	Imaging test	Oral questions	Imaging test
Imaging test		Oral questions		Oral questions
<i>Skills stations</i>				
Central line	FAST examination	FNA	FAST examination	Tracheostomy
Chest tube	FNA	Balloon knot tying	Balloon knot tying	Laparoscopic small bowel anastomosis
Laparoscopic knot tying	Balloon knot tying	Small bowel anastomosis	Laparoscopic small bowel run	
Fascial closure	Peg transfer	Laparoscopic knot tying	Laparoscopic knot tying	
Suturing	Laparoscopic knot tying			
Knot tying	Laparoscopic circle cut			
Chest compressions				
Peg transfer				

FAST, focused assessment with sonography in trauma; FNA, fine-needle aspiration; ICU, intensive care unit; SMV, superior mesenteric vein; TEP, total extra-peritoneal.

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