

A Survey on Recent Medical School Graduate Comfort With the Level 1 Milestones

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OBJECTIVE: The Next Accreditation System implemented 5 levels of milestones for orthopedic surgery residents in 2013. The Level 1 milestones were noted as those “expected of an incoming resident.” While the milestones were intended for assessing resident progression and readiness for independent practice, this designation can also be used to assess how well prepared graduating medical students are for beginning an orthopedic surgery residency. The primary objective of this paper is to measure recent medical school graduate comfort with the Level 1 milestones.

DESIGN, SETTING, AND PARTICIPANTS: In June 2015, the program directors for the Midwest Orthopaedic Surgical Skills (MOSS) Consortium affiliated residency programs were sent an online survey for distribution to the recent medical school graduates who matched at their respective programs. The survey was about recent graduate comfort with the Level 1 milestone handles associated with 16 orthopedic milestones spanning multiple subspecialties. Responses were grouped based on comfort with individual milestone handles with orthopedic conditions (e.g., carpal tunnel) or with broader categories spanning orthopedic milestones (e.g., imaging).

RESULTS: In all, 66 of 112 graduates (58.9%) responded. Of 60 milestone handles surveyed, respondents were “Comfortable” with an average of 31.6 ± 14.2 handles with some conditions performing much better than others. The median “Comfortable” response rate was 31 handles. The 8 broader categories had “Comfortable” response rates between 35% and 70%. All 8 orthopedic conditions had significantly higher “Comfortable” response rates for “Evaluation & Knowledge” handles than for “Decision Making & Treatment” handles.

CONCLUSIONS: Most recent medical student graduates who matched into an orthopedic surgery residencies are only comfortable with about half of the Level 1 milestone handles even though they are expected to meet the Level 1 milestones upon beginning residency. This finding suggests the development of an assessment based on the Level 1 milestones would be appropriate to better inform both graduate and undergraduate medical education in orthopedic surgery. (J Surg Ed ■■■■-■■■. ©2017 Association of Program Directors in Surgery. Published by Elsevier Inc. All rights reserved.)

KEY WORDS: orthopedics, education, medical, undergraduate, clinical competence, pilot projects, students, medical, internship

COMPETENCIES: Patient Care, Medical Knowledge

INTRODUCTION

The Orthopaedic Surgery Milestone Project developed by the Accreditation Council on Graduate Medical Education (ACGME) and American Board of Orthopaedic Surgery (ABOS) in 2013 put forth 5 levels of milestones to be used in the evaluation of orthopedic surgery residents, with Level 4 being designated as the “level designed as the graduation target.”¹ While the milestones were created to guide programs in progressing residents toward competency and independence, they can be used to inform medical student curriculum development and assessment as well, since Level 1 is noted as the competencies “expected of an incoming resident.” While this connection has not previously been assessed in orthopedic surgery, others specialties, including emergency medicine² and Ob/Gyn,³ have discussed it, specifically noting “medical educators must ensure that

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senior medical students and incoming interns have met various Level 1 milestones for residency preparedness... [highlighting] the need to facilitate achievement of Level 1 milestones before the onset of residency.”³ Medical students applying into orthopedic surgery complete multiple orthopedic subinternships in order to improve their chances of matching.⁴ However, while previous studies have looked at all medical student knowledge in musculoskeletal education,^{5,6} no studies have focused on assessing recent medical school graduates entering orthopedic surgery residency training.

The purpose of this study was to answer the question “How comfortable are recent medical school graduates who matched into orthopedic surgery with the Level 1 milestones?” To address this question we designed a survey for recent medical school graduates who matched into orthopedic surgery. Participants were asked to rate their comfort with select Level 1 milestone medical knowledge and patient care handles using a 7-point Likert scale ranging from “Very Uncomfortable” to “Very Comfortable.” (An example handle for ACL injury patient care milestone being “ordering basic imaging studies.”) Responses of 5 through 7 were grouped as “Comfortable.” We hypothesized recent medical school graduates would be, on average, “Comfortable” with half of the Level 1 milestone handles.

MATERIALS AND METHODS

Sixteen orthopedic milestones, comprising medical knowledge and patient care milestones for 8 orthopedic conditions, were selected from the 32 orthopedic milestones developed by the ACGME and ABOS. The conditions selected were: ACL injury, carpal tunnel, degenerative spinal condition, diabetic foot, hip fracture, metastatic bone lesion, rotator cuff injury, and supracondylar humerus fracture. These are noted as “conditions” when referring to paired knowledge and patient care milestones. For each milestone, the Level 1 medical knowledge and patient care handles/descriptors were selected for an online survey. Only 16 were selected in order to keep the survey a manageable length. The 16 were chosen to cover a breadth of orthopedic subspecialties. Each milestone was presented in the form of “When a patient has ‘X condition,’ how comfortable are you with (specific handle)?” Participants responded on a 7-point Likert scale with 1 meaning “Very Uncomfortable,” 4 meaning “Neutral,” and 7 meaning “Very Comfortable.” Since a response of 4 was defined to be “Neutral,” responses below this (responses of 1 through 3) were grouped as “Uncomfortable.” Similarly, responses above this (responses of 5 through 7) were grouped as “Comfortable.”

The survey was sent in early June 2015 to the program directors of the Midwest Orthopaedic Surgical Skills (MOSS) Consortium, totaling 18 different orthopedic

surgery residency programs and 112 incoming PGY1 residents. Program directors distributed the survey to the medical students who matched at their programs before they began residency. Some respondents completed the survey just before medical school graduation and some shortly after graduation. All had completed medical school coursework, and none had completed more than 1 month of residency training at the time of survey completion. For the purposes of this investigation, respondents are referred to as “graduates,” indicating all respondents had completed medical school but that none had yet had a significant amount of residency training to affect their responses.

Although not broken down as such by the ACGME and ABOS, Level 1 milestone handles were grouped into 8 categories: anatomy, complications, H&P, imaging, natural history, nonoperative treatment, operative treatment, and pathophysiology. For example, the 7 milestone handles involving ordering or interpreting imaging were grouped into the broader category of “imaging.” Categories contained between 5 and 9 milestone handles. The categories H&P, imaging, anatomy, pathophysiology, and natural history were grouped as the “Evaluation & Knowledge” handles. The categories complications, nonoperative treatment, and operative treatment were grouped as the “Decision Making & Treatment” handles.

All statistical analysis was performed using Stata 13.1 (StataCorp, College Station, TX). The project was reviewed by the Institutional Review Board of the University of Chicago and was ruled exempt from further review. No funding was used for this project.

RESULTS

Sixty-sixty recent graduates (58.9%) responded. Sixteen orthopedic milestones were included in the surveys, generating a total of 60 Level 1 milestone handles. Of the 60 milestone handles, 29 milestone handles had a “Comfortable” response rate of $\leq 50\%$ (Fig. 1 A-H, blue). Recent graduates gave “Comfortable” responses to between 0 and 59 milestone handles, inclusive, with median and mean $\pm$ standard deviation “Comfortable” response rates of 31 milestone handles and 31.6 ± 14.2 milestone handles (95% confidence interval: 28.1–35.0), respectively (Fig. 2).

When all responses for a single condition were combined, recent graduates were most “Comfortable” with carpal tunnel and rotator cuff injuries with 76% and 68% “Comfortable” response rates, respectively. They were least “Comfortable” with metastatic bone lesions and degenerative spinal conditions with 29% and 40% “Comfortable” response rates, respectively. “Comfortable” response rates for supracondylar humerus fractures, ACL injuries, diabetic feet, and hip fractures were between 50% and 63% (Fig. 3).

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