



Establishing a Longitudinal Mentorship Program in General Surgery

Author: Reed Geisler M3¹, Edward Woods M3¹, Erin Hoover M3¹, Mathangi Sridharan M3¹, Daniel Lynch M3¹, Emma Clark M2¹, Lyshuand Smith M2¹, Steven Dick M2¹, James Oosten M2¹, John Quinn M2¹
Institutional Affiliation: 1: MD Program, The Ohio State University College of Medicine

Background

- Within general surgery in the United States, a workforce shortage of 15-21% of the optimal general surgeon workforce is expected by 2050¹
- This concern is compounded by a declining rate of application to general surgery programs over recent decades²
- Early mentorship and development of students' clinical skills are associated with increased interest in specialty engagement and application to under-subscribed specialties³

Purpose

- In order to foster development of students interested in general surgery, we established a longitudinal mentorship program that matched first-year medical students with general surgery resident volunteers in their second through final year of training
- Students were expected to engage in clinical, OR, and research opportunities with their assigned general surgery mentor
- Mentors were expected to offer educational opportunities in general surgery and subspecialty rotations to their mentee.

Methods

Following recruitment of volunteer general surgery residents, an application was sent to all first-year medical students at The Ohio State University College of Medicine. This application asked for details about current interest and previous exposure to general surgery via clinical or research experience, other engagements at the College of Medicine, and any subspecialty preferences. Students were further asked about confidence and knowledge about skills relevant to medical students interested in applying to general surgery (Figure 1).

Following completion of the application and skills survey, all student applicants were matched to a volunteer general surgery resident.

Definition of Experience

1=No experience (has not attempted this before prior knowledge on the subject, would need complete guidance)
2=Very inexperienced (has had an introduction to the skill/subject, but cannot perform independently)
3=Modestly experienced (Can perform the technique with little help from an expert, or only in particularly nonchallenging circumstances)
4=Highly experienced (Can perform the technique with little help from an expert, or only in particularly nonchallenging circumstances)
5=Expert (Can teach and supervise others on the skill/subject)

For the final 7 statements, please rate 1-5 your confidence in each statement.

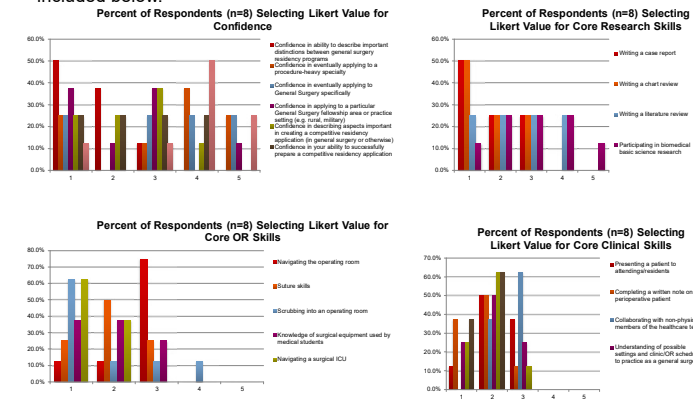
Describe your current level of experience in the following:

	No experience (1)	Very inexperienced (2)	Modestly experienced (3)	Highly experienced (4)	Expert (5)
Navigating the operating room	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Basic skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Handling into an operating room	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Knowledge of surgical equipment used by medical students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Navigating a surgical ICU	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Writing a case report	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Writing a chart review	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Writing a literature review	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participating in biomedical basic science research	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using a computer/technology of a patient	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using a medical history of a patient	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Completing several physical exams of postoperative patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Completing a chart review	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Presenting a patient to attending residents	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Completing a written note on a postoperative patient	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Collaborating with non-physician members of the healthcare team	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Understanding of possible settings and clinical schedules to practice as a general surgeon	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Understanding of roles and resources in general surgery programs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Understanding of general surgical subspecialties and subspecialties for surgical procedures	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Knowledge of resources and facility available to medical students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Knowledge of surgical fields at OSU	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Knowledge of departments relevant to facilitating research and medical innovation for medical students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Understanding of general surgery subspecialties at OSU	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interpersonal patient management principles	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Personalized patient management principles	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interpersonal communication principles	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Navigating the electronic medical record of a patient	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Self-guided learning principles to learn surgical procedures	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Presenting for medical student responsibilities in the clinical arena of a patient	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Confidence in ability to describe important distinctions between general surgery subspecialties	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Confidence in eventually applying to a procedure-heavy specialty	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Confidence in eventually applying to general surgery residency	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Confidence in eventually applying to a particular General Surgery fellowship area or practice setting (e.g., rural, military)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Confidence in describing aspects important to creating a competitive residency application (in general surgery or otherwise)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Confidence in your ability to successfully prepare a competitive residency application	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall confidence to apply to a General Surgery residency	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Figure 1: Likert scale of general surgery confidence and knowledge prior to starting program.

Results (continued)

Eight first-year medical students completed the full application for the General Surgery Mentorship Program, with unique interests in exposure to Cardiothoracic, Pediatric, Trauma/ACS, Transplant, Surgical Oncology, Vascular, and Colorectal Surgery. Each applicant was successfully matched to a current surgical resident engaged in the medical student's subspecialty of interest. Example initial Likert scales of each domain – application confidence, research, OR experience, and clinical skills – addressed by the mentorship program are included below.



Conclusions

The first group of the mentorship program began February 2020 for eight first-year medical students. Data regarding efficacy of the program in the context of the COVID-19 pandemic is pending until completion of the preclinical curriculum by our first mentee group. Upon completion of the preclinical curriculum, students will be reassessed on the same skills and confidence relevant to general surgery that they were asked about on the initial application, as well as for feedback on further development of the program past its pilot year during COVID-19.

References

1. Ellison, E. Christopher, et al. "Ten-year reassessment of the shortage of general surgeons: increases in graduation numbers of general surgery residents are insufficient to meet the future demand for general surgeons." *Surgery* 164.4 (2018): 726-732.
2. Pointer Jr, David T., et al. "Choosing surgery: identifying factors leading to increased general surgery matriculation rate." *The American Surgeon* 83.3 (2017): 290-295.
3. Nimmons D, Giny S, Rosenthal J. Medical student mentoring programs: current insights. *Adv Med Educ Pract.* 2019;10:113-123. Published 2019 Mar 4. doi:10.2147/AMEP.S154974