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My Thoughts / My Surgical Practice

Educational benefits of an acute care surgery rotation during the medical student surgical clerkship[☆]



Acute care surgery (ACS) is a general surgery subspecialty that was created in the early 2000s as a solution to both the decreasing interest in trauma surgery as a career and unmet need for surgeons who could provide high acuity surgical care and disease management to a growing American population.¹ The specialty was founded upon the vision of training versatile surgeons with broad expertise across the fields of trauma surgery, emergency general surgery and surgical critical care and who could handle the variety and complexity often present in critically ill and injured patients.²

Authorities in the field have declared that trauma education at the medical school level is in a state of emergency, specifically describing how current teaching at the undergraduate level is insufficient considering the large mortality burden of trauma, highlighting the need for better trauma management training in students.³ Recent literature has begun to address some of the major issues present in undergraduate trauma-specific and general surgical education: Studies have investigated the declining student interest in pursuing careers in surgery and demonstrated how student exposure to the field through a voluntary trauma shadowing program or pre-clerkship surgery workshop can improve students' views of trauma surgery, improve poor perceptions of surgery and surgeons and increase students' reported likelihood to apply to a surgical residency.^{4,5} Thus, there is a demand for continued expansion and improvement of education in ACS and general surgery in order to maintain a steady flow of future surgeons entering the specialty.

At our institution, third-year medical students complete a required 6-week general surgery clerkship, which includes a mandatory 3-week rotation on an ACS service at Los Angeles County + University of Southern California (LAC + USC) Medical Center, a large county hospital with a Level 1 trauma center.⁶ From the emergency department to operating room or intensive care unit, students are immersed in a unique environment in which they learn how to assess and treat critically injured or ill surgical patients in a high-acuity setting. In order to understand students' perspective on the benefits of ACS education during their surgical training in medical school, we retrospectively reviewed students' anonymous responses to the required end-of-clerkship evaluation survey distributed to students following their completion of the surgical clerkship during the 2015–2018 academic years.

The total survey response rate was 98% (548 out of 557 evaluations completed) for the three-year study period. We examined

student responses to one specific question, “Describe the three most valuable things that you have gained in terms of your own growth during this clerkship” and identified students' self-reported educational gains that were related to clinical experience in ACS. Analysis of responses revealed four commonly reported areas of ACS-related gains:

1. Learning when surgical consultation and/or intervention are indicated for common acute surgical problems (e.g. appendicitis, cholecystitis, and bowel obstructions)
2. Gaining experience with critical care patient management
3. Becoming comfortable with the workup and assessment of trauma patients
4. Experiencing an overnight in-house call

Other areas students listed included: gaining exposure to the ACS specialty, experiencing high-stress environments, seeing cases in the emergency department, and learning to make quick surgical decisions. Examples of student responses for each of the above commonly mentioned areas are presented in [Table 1](#).

ACS programs are continuing to grow in number and size throughout the nation, and some medical schools have recognized the valuable learning opportunity ACS can provide for medical students and have incorporated an ACS rotation into clinical curriculum. The benefits of a surgical rotation like ACS are applicable to not only the medical student interested in surgery but are also of equal or greater value to a medical student interested in another non-surgical field. Some of the benefits reported by students from our study such as learning how to care for patients with common surgical problems and making appropriate decisions regarding the need for surgical consultation, building an initial foundation in procedural proficiency and learning to work with a variety of health care providers are skills universally required by all physicians. In comparison to other clerkships/specialties, the surgery clerkship is especially recognized as a crucial time to provide students increased procedural experience and allows students higher entrustment and meaningful procedural participation to better prepare for future internship.⁷

However, the need for urgent surgical care remains high, and the consensus is that the viability of ACS lies on the interests and pursuits of the current and incoming generation of young surgeons. As recently as 2015, there was published data showing that medical student awareness of ACS as a specialty and its benefits was lacking, and conscious efforts are being placed on trying to better advertise the field to students.⁸ Knowing that exposing students to ACS and

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Table 1

Examples of student responses to the question “Describe the three most valuable things that you have gained in terms of your own growth during this clerkship” in commonly reported areas.

Theme 1: Learning when surgical consultation and/or intervention are indicated for common acute surgical problems
<ul style="list-style-type: none"> - “Clinical workup and surgical options for common surgical diseases (appendicitis, cholecystitis, hernias)” - “Identifying surgical problems and prioritizing acute indications for surgery” - “While on ACS, I learned indications for CT scanning and emergency surgery” - “I learned how to evaluate urgency for surgical intervention” - “Learning when it is appropriate to consult surgical services for – we responded to a fair number of unnecessary consults on ACS”
<p>Theme 2: Gaining experience with critical care patient management</p> <ul style="list-style-type: none"> - “ACS gave me the opportunity to work on ICU patients which is very different than the care that is required for a floor patient” - “More in depth understanding of care in the ICU setting and system-based presentations for these patients” - “My exposure to both surgical and medical management of critically ill patients was truly invaluable.” - “I have learned more about how ICU patients are managed and the various factors impacting their care and recovery” - “I am more comfortable taking care of really sick patients in the ICU”
<p>Theme 3: Becoming more comfortable with trauma assessments</p> <ul style="list-style-type: none"> - “During ACS, I learned how to quickly evaluate trauma patients and keep up with the team in fast-paced emergency situations” - “Learned how TTA (Trauma Team Activation) responses work.” - “Much more comfortable with how to immediately assess patients in a trauma setting (ABC’s!)” - “Improved confidence in being able to work up a trauma patient” - “Learning the basics of trauma such as the primary, secondary, and tertiary survey, common trauma presentations, initial/basic management”
<p>Theme 4: Experiencing an overnight call</p> <ul style="list-style-type: none"> - “I learned the limits of my endurance, physically and mentally during 30-h shifts. I now know that I can function on an empty tank and am proud of it” - “Endurance: it’s a long 30 hours to keep thinking ahead and making sure no mistakes happen” - “I learned I can work entirely through the night on call. Something I never knew I would be able to do.” - “I realized that I do not like working more than a full day consecutively, calls are not for me.” - “Having to do 30-h calls was miserable but having gone through it I feel stronger and more confident that I will be able to handle work as a resident no matter what specialty I go into.”

ACS: acute care surgery, CT: computed tomography, ICU: intensive care unit.

similar trauma-filled educational environments has been shown to significantly increase student interest in both surgery in general and trauma specifically, is a finding highly promising for the surgical community.⁵ In addition, there have been significant efforts to ameliorate negative stereotypes of the surgical specialty amongst the medical student population; a recent investigation of the commonly feared student duty hours during the surgery clerkship produced reassuring findings that there was no association between work hours and negative academic outcomes. Such findings help to highlight the importance of counseling students to choose rotations on surgery clerkships based on their interest and not perceived workload.⁹

To our knowledge, this is the first report of medical students’ perspective on the benefits of ACS specialty training during medical school. We have identified specific educational gains students report obtaining from experience in ACS and deem particularly important for their own growth. Given the significance of the third-year clerkship experience and potential for positively influencing students’ opinions and choices on choosing a surgical career through firsthand experience and well planned curriculum, further research in ACS at the medical school level is crucial to advancement of not just the ACS specialty itself but also the field of surgery at large.

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Declaration of competing interest

All authors deny any potential conflicts of interest.

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