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Improvement in acute care surgery medical student education and clerkships: use of feedback and loop closure

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ABSTRACT

Background: The unpredictable and sometimes chaotic environment present in acute care surgery services (trauma, burn, surgical critical care, and nontrauma emergency surgery) can cause high levels of anxiety and stress that could impact a medical students' experience during their third year of medical school surgical clerkship. This negative perception perhaps is a determinant influence in diverting talented students into other medical subspecialties. We sought out to objectively identify potential areas of improvement through direct feedback and implement programmatic changes to address these areas. We hypothesized that as the changes were made, students' perception of the rotation would improve.

Materials and methods: Review of end of clerkship third year of medical school trauma burn surgery rotation evaluations and comments was performed for the 2010–2011 academic year. Trends in negative feedback were identified and categorized into five areas for improvement as follows: logistics, student expectations, communication, team integration, and feedback. A plan was designed and implemented for each category. Feedback on improvements to the rotation was monitored via surveys and during monthly end of rotation face-to-face student feedback sessions with the rotation faculty facilitator and surgery clerkship director. Data were compiled and reviewed.

Results: Perceptions of the rotation markedly improved within the first month of the changes and continued to improve over the study time frame (2011–2013) in all five categories. We also observed an increase in the number of students selecting a surgical residency in the National Resident Matching Program match from a low of 8% in 2009–2010 before any interventions to 25% after full implementation of the improvement measures in 2011–2012.

Conclusions: A systematic approach using direct feedback from students to address service-specific issues improves perceptions of students on the educational value of a busy

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trauma-burn acute care surgery service and may have a positive influence on students considering surgical careers to pursue a surgical specialty.

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1. Introduction

It has been recognized that the experience during the third year medical student surgery clerkship can impact student perceptions of surgeons and affect whether they will consider surgery as a career [1]. Some features of surgery rotations shown to positively resonate with students include involvement in surgical procedures and resident and faculty interaction [2,3]. As technology advanced, we have moved toward less invasive management of traumatic injuries. As the number of operative trauma cases in residency training centers decreased, there were fewer operative trauma cases involving students [4]. This decreased volume threatened not only the operative volume for residents, students, and faculty but also the attractiveness a trauma surgery as a profession. Meeting increasing complexity of patient care given by current demographic changes, highly capable trauma surgical divisions, has expanded their practices to include emergency general surgery and surgical critical care, in a new model of patient care called acute care surgery [5]. These changes led to creation of acute care surgery services at many teaching hospitals, improving the number of operative cases for emergency surgeons and their trainees [6].

We transitioned to an acute care surgery model, merging our trauma-burn, emergency general surgery, and surgical critical care services in 2005. However, despite this reorganization, we observed the students at our institution were becoming overall less satisfied with their trauma/burn/emergency general surgery rotation experience. The unfavorable reviews were particularly concerning considering recent trends of fewer students choosing surgery as a career. The 2013 Association of American Medical Colleges medical school graduation questionnaire reported that just over 6% of medical students planned to enter a general surgery residency from 2010–2014. The trends were also fairly stagnant for all other surgical specialties [7]. The low number of potential applicants to general surgery residency training programs supports the concerning surgical workforce demand projections from the American Association of Medical Colleges Center for Workforce Studies [8].

To determine the nature of our student's dissatisfaction with the trauma-burn acute care surgery rotation, we systematically evaluated the feedback from the students and implemented changes, focusing on areas most often cited as problematic by the students. We hypothesized that as changes were made, student perception of the rotation would improve.

1.1. *Learning environment*

The University of Michigan Medical School enrolls approximately 170 students each academic year. The third year of medical school (M3) is currently broken up into twelve 4-wk blocks. The surgery clerkship spans two consecutive blocks (total of 8 wk), a "core" surgery block and a "specialty" surgery block. Each block is run by a faculty facilitator who reports to the surgery clerkship director.

The trauma-burn acute care surgery service admits and cares for trauma surgery, nontrauma emergency general surgery, surgical critical care, and burn patients. Trauma-burn acute care surgery rotation may be taken as either a core surgery block or a specialty block, but each student may only rotate through the rotation for one block. Approximately 25%–30% of the students will rotate through this rotation during their M3 clinical year (Tables 1 and 2).

2. Methods

To identify areas of student dissatisfaction, the third year medical student end of clerkship evaluation comments for the trauma-burn acute care surgery rotation were compiled and reviewed for the 2010–2011 academic year. The comments were assigned to the following: categories: logistics, expectations, team integration, communication, and feedback based on type for feedback given and found as similar to other reported publications [9,10]. Criticisms of the service were evaluated, and a system "corrective action" improvement plan was devised for each category (Table 3). The corrective actions were formally initiated with the academic year 2011–2012.

Success of these changes was assessed in three ways. First, at the end of every 4-wk block, the students gave direct feedback for areas of improvement to the trauma burn rotation faculty facilitator. Second, students evaluate the surgery clerkship via anonymous electronic feedback surveys. Changes were made monthly in response to the feedback given during this session. Satisfaction with the changes was gauged by the reduced number of suggested changes and increased number of accolades relayed by the students at the facilitator meetings and on the electronic evaluations. The effectiveness of the implementation was objectively assessed by the number of students ranking the trauma-burn surgery

Table 1 – University hospital rotation options.

Core surgery service	Specialty surgery service
University hospital surgery service block options	
Trauma-burn acute care surgery	Trauma-burn acute care surgery
Surgical oncology/colorectal surgery	Thoracic surgery
Gastrointestinal surgery	Pediatric surgery
Endocrine/minimally invasive surgery	Transplant surgery
	Vascular surgery
Surgical subspecialty week options	
Plastic surgery	Otolaryngology
Cardiac surgery	Anesthesiology
Urology	Neurosurgery
Orthopedic surgery	