

Surgical Education

Does the amount of time medical students spend in the operating room during the general surgery core clerkship affect their career decision?



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Abstract

BACKGROUND: The amount of time medical students (MS) spend in the operating room (OR) during their general surgery core clerkship has not been previously studied as a predictor for choosing a career in surgery. We hypothesize that MS choosing a career in surgery spend more time in the OR.

METHODS: Operative records for surgery cases at our institution from 2009 to 2013 were linked to the schedules of MS from classes of 2010 to 2014. Total number of minutes, cases, and average number of minutes in the OR were calculated and compared with the match lists. Univariate analysis was conducted to assess for associations ($P < .05$).

RESULTS: A total of 117 students and 1,524 procedures were included. Twenty-two MS chose a surgical career (19%). An average of 2,018.5 minutes per rotation was spent in the OR (81.2 min/d), but neither the amount of time nor the number of cases was associated with choosing a career in surgery.

CONCLUSIONS: Quality of the educational experience trumps quantity regarding what most influences MS career decision.

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Understanding the factors influencing a medical student (MS)'s decision to pursue a career in general surgery is necessary to maintain a large pool of qualified medical

students applying to the profession. Studies have shown that the general surgery core clerkship (GSCC) can exert considerable influence on MS' perceptions of surgery as a profession and the choice to pursue surgery as a career.¹ After this clerkship, the stereotypical perception of the traditional "surgeon," a cantankerous, arrogant, and impersonal physician, may be dispelled. Students can observe surgeons as compassionate physicians, content with their career choice, respected by other physicians, and, most importantly, respected by their patients.² Other factors associated with increased odds of matching into

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surgery are performance in the surgery clerkship,^{3,4} quality of attending teaching,⁵ and quality participation during operations.⁶

A MS experience during the GSCC, particularly the time spent in the operating room (OR), has considerable promise of increasing interest in choosing surgery as a career. It can facilitate surgical education and learning and forge important mentor–mentee relationships with attendings and residents.⁷ Yet, the timing and length of the GSCC vary among medical schools,⁸ and depending on a student's interest, the GSCC may be the first time he or she has been able to observe or participate in the OR. Although some efforts have been made to increase interest in general surgery among MS,^{9–11} additional focus is needed on standardizing the amount of time spent in the OR.

There is a wealth of literature showing how the GSCC affects MS career decisions, but limited literature exists examining what exactly MS do during the GSCC, particularly the amount of time they spend in the OR, the number and types of cases in which they participate, and the variability of their experience. It has been shown that students entering general surgery spent more time in the OR than students who did not choose general surgery,⁶ and the operative exposure during the GSCC improves perceptions of surgery,¹ yet few studies have been done examining exactly how much time MS spend in the OR during the GSCC.

The present study was undertaken to examine the relation between time spent in the OR during a MS GSCC and the association with choosing a surgical specialty. Secondary aims of this study include exploring the specific details of the MS experience during the GSCC and the variability of that experience among students. Our hypothesis is that MS who choose a career in surgery will spend more time in the OR during their GSCC compared with students who choose nonsurgical specialties.

Methods

Operative records for all general surgery procedures conducted at Emory University Hospital from January 2009 to January 2013 were reviewed. Cases with a MS currently on the GSCC who were present for any portion of the operation were included in the analysis. All other cases were excluded. Referencing the MS schedules with the OR records determined if the participating MS were on their GSCC versus an elective or sub-internship. The procedure, primary surgeon, personnel involved in the case and the amount of time an individual spent in the OR were recorded for each operation. These data were obtained from the hospital electronic medical record intraoperative reports generated by the circulating nurse present during the case as they record the time every person enters and exits the OR. The procedures were grouped into 16 procedure types by Current Procedural Terminology codes obtained from the electronic medical record. In cases where Current

Procedural Terminology codes were unavailable, the case description or operative report was used to choose the appropriate procedure type. Medical student GSCC schedules were obtained for all students rotating at the Emory University Hospital for the Classes of 2010 to 2014. Students were grouped according to which of the 3 general surgery services they were assigned during the clerkship. Students assigned to GSCC rotations at hospitals other than Emory University Hospital were excluded. The total number of minutes spent in the OR, total number of cases seen, and average number of minutes in the OR per day were calculated. A case was considered seen if the MS was present for any amount of time during the case as determined by the intraoperative record. If 2 MS were present for the same case, 1 observation was counted for each student yielding a total of 2 observations.

Residency match lists provided career information for the Classes of 2010 to 2014. Students who matched into otolaryngology, urology, neurosurgery, orthopedic surgery, plastic surgery, oral and maxillofacial surgery, and general surgery were considered to have matched into a surgical specialty. Matches into all other specialties were considered nonsurgical. The primary dependent variables were the total amount of time spent in the OR during the GSCC, the total number of cases seen during the GSCC, and the minutes per day in the OR during the GSCC. The primary outcome variable was matching into a surgical specialty. Secondary dependent variables included type of procedure, the surgical service to which the MS was assigned, and the primary surgeon in the OR as it related to time spent with the MS. *t* tests were used for continuous variables and chi-square tests for categorical variables to determine any association between dependent and outcome variables. All analyses were performed using JMP 10.0 (SAS Corporation Cary, NC) for OSX.

Results

A total of 12,110 operative cases were identified. Of these, 7,038 were excluded because there was no MS present during the operation. 535 different MS were present for the remaining 5,072 cases and of these, 3,548 with 418 different MS were excluded because the MS was on a rotation other than the GSCC, such as a surgical sub-internship or surgical elective.

One hundred and seventeen students and 1,524 procedures were included in the final analysis; 34 students on service A, 46 on service B, and 37 on service C. Forty-nine percent of students were men, with a larger proportion of male students on service A compared with the other services. Among all services, 22 students chose a surgical specialty (19%), with general surgery being chosen 50% of the time (Table 1). Service B had the most students during the study period. Consequently, service B also had the most student–case observations, representing 51% of all cases observed. Cases involving

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