Association for Surgical Education

Cutting too deep? Assessing the impact of a shorter surgery clerkship on students’ clinical skills and knowledge

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KEYWORDS: Surgery clerkship; Objective structured clinical examination; National Board of Medical Examiners

Abstract

BACKGROUND: The aim of this study was to compare the performance of students completing an 8-week versus a 6-week surgery clerkship on an objective structured clinical examination (OSCE) and the National Board of Medical Examiners (NBME) clinical science surgery examination.

METHODS: One hundred fifteen students from the 8-week clerkship and 99 from the 6-week clerkship were included. Performance on a summative OSCE was assessed using behaviorally anchored checklists. NBME exams were graded using the NBME's standard scaled scores. Results were compared using 2-tailed, independent-samples, unequal-variance t tests.

RESULTS: Mean OSCE scores for the 8-week and 6-week curricula were not statistically different. Mean NBME scores also did not statistically differ. Six-week students performed significantly better in the specific OSCE subdomains of blood pressure, orthostatic blood pressure, rectal exam, and fecal occult blood test.

CONCLUSIONS: Overall OSCE and NBME exam performance did not differ between 8-week and 6-week surgery clerkship students.

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In 2011, the New York University School of Medicine initiated the implementation of its new Curriculum for the 21st Century. The curricular changes emphasized earlier clinical exposure and a more integrated clinical experience overall. As part of the first stages of implementation, the duration of many core clerkships, including surgery, was shortened from 8 to 6 weeks. This permitted increased time during the clinical years for electives and research.

In its original 8-week structure, surgery students rotated through two 3-week blocks on general surgery, surgical oncology, or trauma, followed by a 2-week subspecialty elective. In the new 6-week format, the subspecialty elective is no longer offered. Students in the 6-week clerkship are no longer required to take evening call every 4th night, though they continue to take two 12-hour weekend trauma calls during the rotation. The weekly didactic lecture series was reduced by 25% in the 6-week clerkship. To preserve students’ clinical exposure, no compensatory lectures were scheduled. No observable change was noted in faculty members’ or residents’ teaching styles during the shorter 6-week block. Although no formal faculty development program was implemented, the
clerkship director did meet with surgical faculty members and residents to explain the curricular changes.

Student assessment remained consistent between the 8-week and 6-week clerkships. In both curricula, students participated in the same summative objective structured clinical examination (OSCE) and sat for the National Board of Medical Examiners (NBME) clinical science surgery examination. Students in the 6-week curriculum were repeatedly encouraged by the clerkship director to capitalize on study time outside of the hospital in light of the overall shorter exam preparation time.

The OSCE’s unique role as an assessment tool to measure clinical competence among medical students, particularly in surgery, is long-standing and widespread.\textsuperscript{1,2} Its capacity to evaluate clinical ability in a standardized manner has been especially demonstrated.\textsuperscript{3} Moreover, recent studies have found utility in its replacing more traditional Likert-based assessments of general knowledge base and clinical performance.\textsuperscript{4}

Studies examining the effect of reduced surgery clerkship length on student performance are scarce and provide conflicting results. Some have found that students enrolled in longer clerkships achieved higher OSCE and NBME exam results than those in shorter clerkships, whereas others have found no change in NBME exam scores between the 2 clerkships.\textsuperscript{5–7} The overall number of surgery-specific studies remains limited. Studies on reduced clerkship length in obstetrics and gynecology also prove conflicting and uniformly exclude OSCEs as a performance measure.\textsuperscript{8–10}

We sought to evaluate the impact of a shorter surgery clerkship on our own medical students’ performance, as measured by an end-of-clerkship OSCE and the NBME clinical science surgery examination.

Methods

A retrospective cohort study of medical students completing the surgery clerkship in 2010 and 2011 was conducted. All students who participated in a required summative OSCE and sat for the NBME clinical science surgery examination during this time period were included. Prior clerkship experience was evenly matched between the 2 cohorts, as all students had completed the clerkship during the first 4 rotation blocks, beginning in July of the respective years.

The OSCE case involved workup of a patient with an acute gastrointestinal bleed. Participants were instructed to elicit a history and perform a focused physical exam, including a simulated rectal exam and fecal occult blood test on an adjacent model. Students were evaluated by standardized patients and surgical faculty members, using behaviorally anchored checklists. Performance was assessed across 8 subdomains: communication, chief complaint, history, blood pressure, orthostatic blood pressure, abdominal exam, rectal exam, and fecal occult blood test.

Response options for graders included “not done,” “partially done,” and “done.” One point was awarded for each item completed as done, while .5 points were awarded for those partially done and 0 points for those not done. Scores were calculated as the mean of relevant items in each subdomain. NBME exams were graded according to the NBME standard scaled scores.

Results were analyzed using 2-tailed, independent-samples, unequal-variance t tests. Statistical significance was defined as a P value <.05.

Data were part of a medical student research registry, approved by the New York University Institutional Review Board, which contains deidentified educational data for all medical students who provided informed consent for such data to be used for medical education research purposes.

| Results |

OSCE and NBME exam results of the consenting 214 medical students (all but 2 provided consent to be part of the research registry) were included in the study, as summarized in Table 1. One hundred fifteen of these students had participated in an 8-week clerkship and 99 in a 6-week clerkship. Mean total OSCE scores of students in the 8-week (93.21 ± 5.64) and the 6-week (92.92 ± 6.01) clerkships were not found to be statistically different (t = 37, P = .71). Similarly, no significant difference was found between the mean NBME scores in the 8-week

| Table 1 | OSCE and NBME exam results |
|---|---|---|---|
| Variable | 8-wk curriculum (n = 115) | 6-wk curriculum (n = 99) | P |
| Total OSCE score (%) | 93.21 ± 5.64 | 92.92 ± 6.01 | .71 |
| Communication (14 points) | 12.56 ± 1.85 | 12.94 ± 1.14 | .07 |
| Exam presentation (3 points) | 2.89 ± .38 | 2.90 ± .29 | .94 |
| History (9 points) | 7.64 ± 1.37 | 7.96 ± 1.15 | .06 |
| Blood pressure (7 points) | 6.48 ± .84 | 6.73 ± .49 | .007 |
| Orthostatic blood pressure (4 points) | 3.17 ± 1.14 | 3.54 ± .86 | .008 |
| Abdominal exam (9 points) | 8.39 ± .95 | 8.40 ± .90 | .92 |
| Rectal exam (6 points) | 5.66 ± .59 | 5.81 ± .41 | .03 |
| Fecal occult blood exam (4 points) | 3.35 ± .86 | 3.76 ± .49 | .001 |
| NBME exam score (%) | 76.13 ± 7.74 | 75.26 ± 7.91 | .42 |
(76.13 ± 7.74) and the 6-week (75.26 ± 7.91) cohorts ($t = .81, P = .42$). The similar distribution of mean total OSCE and NBME exam scores between the 2 groups are shown in Figs. 1 and 2.

Students completing the 6-week clerkship performed statistically better in 4 of the 8 OSCE subdomains than those in the 8-week clerkship. The mean subdomain scores of these students were found to be statistically higher in blood pressure measurement (6.73 vs 6.48, $P = .007$), orthostatic blood pressure measurement (3.54 vs 3.17, $P = .008$), rectal exam (5.81 vs 5.66, $P = .03$), and fecal occult blood exam (3.76 vs 3.35, $P = .001$). No differences were
Comments

Just as the health care system has dramatically transformed over the past 2 decades, so too has the traditional model of medical education. A trend toward a more generalist education within this time period has led to the shortening of many surgery clerkships.5

Our study revealed that students in a 6-week surgery clerkship did not perform significantly worse than students in an 8-week clerkship on a summative OSCE and the NBME clinical science surgery exam. Six-week students were actually found to have slightly stronger performance on specific procedural skills than those in the longer clerkship.

Although our results differ from previous surgery-specific studies, there were notable discrepancies in the clerkship structure and assessment modalities. In examining the effects of their own curricular changes, Lind et al5 found that students in an 8-week surgery clerkship achieved higher OSCE and NBME exam scores than students enrolled in the newer 6-week curriculum. Six-week students in their study, however, rotated through a single service, whereas students participating in the longer curriculum rotated through two 4-week services. In both our 8-week and 6-week clerkships, students rotated through at least 2 major clinical sites for 3-week blocks. Although Gary and Rosevear7 found no decrease in NBME exam scores after reduction from a 12-week to an 11-week curriculum, performance measures were limited to the NBME exam results alone.

Several factors may account for our observed lack of difference in overall OSCE and NBME exam performance between the 2 cohorts, as well as the improvement in specific procedural components by the 6-week clerkship students. Potential variations in academic abilities and clinical experiences may exist between the class years. Mean Medical College Admission Test scores were 33.70 and 33.19 for the 8-week and 6-week clerkship student classes, respectively, while average undergraduate grade point averages were 3.77 and 3.74, respectively. Moreover, there were no major alterations in admission practices between the 2007 to 2008 and 2008 to 2009 admission cycles. Variability in clinical experiences before medical school may still account for the improved procedural skills observed among the 6-week clerkship students and could be explored in future studies.

Specific preclinical training may also have contributed to these differences. During the 1st week of their 1st medical school year, the 6-week clerkship students participated in an introductory OSCE, whereas the 8-week cohort did not. This OSCE focused primarily on history taking and rapport building, however, and did not include a physical exam component. Preclinical blood pressure and rectal and genitourinary exam instruction remained the same between the 2 cohorts.

A noteworthy limitation of our study was sample size. In 2012, New York University School of Medicine initiated the secondary phase of its Curriculum for the 21st Century, shortening the preclinical student experience to 18 months. Because of the subsequent 6-month overlap period of 3rd-year and new 2nd-year clerkship students, we excluded these blocks of students to avoid confounding factors from the additional number of students on the clerkship. Moreover, because of the retrospective nature of the study design, assessment modalities were limited to the summative OSCE and NBME exam.

Future studies will attempt to address these limitations and expand on the project’s design. With the advent of the fully implemented Curriculum for the 21st Century, including the first class to complete an 18-month preclinical experience and the full core clerkship year, we hope to examine the potential impact of this new preclinical curriculum on performance in the surgery clerkship.

References