ORIGINAL REPORTS

Are Residents Prepared for Surgical Cases? Implications in Patient Safety and Education

Minh-Bao Mundschenk, MD, Elizabeth B. Odom, MD, Trina D. Ghosh, MD, Grant M. Kleiber, MD, Andrew Yee, BS, Kamlesh B. Patel, MD, Susan E. Mackinnon, MD, Marissa M. Tenenbaum, MD and Donald W. Buck II, MD

Department of Surgery, Division of Plastic and Reconstructive Surgery, Washington University School of Medicine, St. Louis, Missouri

OBJECTIVE: In surgical education, the areas of focus and evaluation are skewed toward technical skill and operative knowledge; less emphasized is familiarity with the patient's medical history. The purposes of this study were to characterize how surgical trainees prepare for cases and to determine the comprehensiveness of their preparation.

DESIGN: A 27-question survey was created through a web-based software program and distributed to all resident physicians and fellows in the Departments of Surgery, Neurosurgery, and Otolaryngology at our institution. Survey responses were collected anonymously and analyzed. Institutional review board exemption was obtained.

SETTING: This study was performed at Washington University in St. Louis, Missouri, at an institutional hospital setting.

PARTICIPANTS: The survey was distributed to current surgical trainees at Washington University in St. Louis in the Departments of Surgery, Neurosurgery, and Otolaryngology. Further, 130 of 169 surgical residents and fellows completed the survey.

RESULTS: Most respondents (96%) taught themselves case preparation. Only 57% of respondents reviewed the patients medical record before every surgery. Although most respondents (83%) felt they were prepared or very prepared from a patient-specific standpoint, only 24% felt that their handoff of a patient to on-call colleagues was comprehensive enough to include all pertinent aspects of a patient's history and expected perioperative course. From a technical perspective, most residents (63%) felt they were prepared or very prepared, and this level of comfort increased with postgraduate year; 76% of respondents would not feel comfortable telling their attending they were not adequately prepared.

CONCLUSIONS: Although most trainees feel prepared or very prepared for cases from a patient-specific regard, only half review the patient's medical record before every surgery. Furthermore, almost all trainees have taught themselves how to prepare for surgery. This represents a critical gap in residency education and an opportunity to improve patient safety and quality of care. (J Surg Ed ▮:▮▮▮-▮▮▮. © 2017 Association of Program Directors in Surgery. Published by Elsevier Inc. All rights reserved.)

KEY WORDS: surgical education, case preparation, residency training, surgical training

COMPETENCIES: Patient Care, Medical Knowledge

INTRODUCTION

Surgical resident education is a constantly evolving field, as evidenced by the recent heightened interest in surgical simulators in response to the 80-hour work week restriction.[1] Likewise, assessment criteria of resident performance is continuously being modified, with most assessment tools directed toward technical skills and operative knowledge.[2-4] Less emphasis is placed on the resident's familiarity with the individual patient's medical history and understanding of how this information affects the patient's perioperative care and overall outcome.

The purpose of this study was to evaluate surgical trainees' preparedness for surgical cases, both from a technical and a patient-specific standpoint. Our hypothesis was that surgical residents and fellows would prepare more for the technical details of the surgical procedure rather than details specific to the individual patient undergoing the operative procedure.

Correspondence: Inquiries to Minh-Bao Mundschenk, MD, Department of Surgery, Division of Plastic and Reconstructive Surgery, Washington University School of Medicine, 660 South Euclid Avenue, Campus Box 8238, St. Louis, MO 63110; fax: (314) 367-0225; e-mail: minhbao.le@gmail.com

  1931-7204/$30.00
http://dx.doi.org/10.1016/j.jsurg.2017.07.001

MATERIAL AND METHODS

A 27-question survey was created using an online software program (SurveyMonkey) and distributed to all resident physicians and surgical fellows of the Departments of Surgery, Neurosurgery, and Otolaryngology at Washington University in St. Louis. Answers were collected anonymously and analyzed. Institutional review board exemption was obtained. Basic demographic information was obtained through forced choice items to determine the level of clinical training, surgical division/department, age, and sex.

To evaluate preparation from a patient-specific standpoint, respondents were asked how many hours per week they dedicated to reviewing medical records, and they were also asked for what percentage of cases they reviewed the patient record. The quality of their patient-specific preparation was assessed by 2 questions: respondents were asked to select their level of preparedness and also to describe the quality of their handoff regarding a patient, because the quality of their communication would depend on their understanding of the patient's medical history.

Similarly, to evaluate trainee preparation from a technical standpoint, they were asked for what percentage of cases they reviewed surgical reference materials and the number of hours dedicated to preparing for a specific case from an operative/technical standard. They were also asked to describe how prepared they were in technical steps for an operative case.

Another set of questions was focused on the method of case preparation; respondents were asked to choose which methods were employed $>50\%$ of the time, and of these, to select the 3 most important methods with respect to surgical education and to patient safety. When preparing for emergent cases (implying limited available time), they were asked to select which methods were used $>50\%$ of the time.

Respondents were asked how often they had adequate notice/time to prepare for a case. In situations when the trainee did not prepare for a case, they were asked to select the top 3 reasons why they did not prepare. They were asked "Do you feel comfortable telling your attendings that you are not adequately prepared for the case?" They were also asked how they learned to prepare for cases and to describe the most important reason to prepare for cases (Fig. 1).

RESULTS

Out of 169 surgical residents and fellows, 130 responded to the survey for a response rate of 77%. The breakdown of level of training of the respondents was 15.7% first postgraduate year (PGY 1), 13% PGY 2, 19.1% PGY 3, 13.9% PGY 4, 14.8% PGY 5, 6.1% PGY 6, and 10.4% surgical fellows. Most of them were between 27 to 30 years of age (35.7%) and 30 to 35 years of age (42.6%). Over a third (37.2%) of respondents were females and 62.8% of respondents were males. The most common surgical specialties represented were general surgery (38.5%) and plastic surgery (19.2%); others included urology (11.5%), vascular surgery (1.5%), pediatric surgery (2.3%), cardiothoracic surgery (4.6%), neurosurgery (13.9%), and otolaryngology (8.5%).

Patient-Specific Preparation

Most respondents (50.4%) dedicated less than 5 hours per week reviewing patient records in preparation for surgery. With respect to patient safety, respondents felt that the 3 most important resources were review of the patient's medical record (98%), discussion with the attending faculty (on the day of surgery, 47.5%; before the day of surgery, 53.5%), and review of surgical atlas/anatomy text (39.6%). However, only 57.4% of respondents reviewed the patient's medical history before every surgical case. When asked to rate the quality of their patient-specific preparation, 30% felt they were very prepared, and 53.3% felt they were prepared. However, when asked to rate the quality of their patient handoffs, only 24.2% of respondents felt their handoff of a patient was comprehensive enough to include all pertinent aspects of a patient's medical history and operative course, which would allow them to anticipate the patient's postoperative course or alert the on-call team to any postoperative concerns. Less than half of respondents (40%) felt their handoff was thorough, and 31.7% rated theirs as adequate. Resident comfort with patient-specific details did not change with progression in training.

Technical Preparation

Just over a fourth of respondents (26.8%) dedicated less than 5 hours per week to reviewing surgical reference materials before surgery, and 56.1% dedicated at least 5 to 10 hours to operative preparation. The most common resources used for operative case preparation were surgical atlases or anatomy textbooks (65.4%), surgical text references (58.4%), and discussion with the attending before the day of surgery (39.6%).

Nearly 70% of respondents felt that they understood the technical aspects of a case enough to envision all the steps and perform that case with assistance (43.1%) or independently (20.3%). About a third of respondents (34.2%) felt that they were only somewhat prepared and could at least conceptualize the major steps of the case. Not surprising, the resident's comfort with the technical aspects of the case increased directly with progression in training, such that senior residents (PGY 4-6) and fellows were more likely to feel comfortable operating independently.