

Resident continuity of care experience: a casualty of ambulatory surgery and current patient admission practices

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Abstract

Background: The purpose of this study was to define and assess the impact of changes in health care delivery on the current continuity of care experience of surgical residents.

Methods: This 4-week, prospective cohort study included all patients who underwent a general surgical procedure at the University of British Columbia if a resident was present at the operation. The residents' perioperative involvement in each patient's care was recorded.

Results: Of the 592 eligible cases, 74.8% were elective same-day admissions, 5.4% elective previously admitted patients, and 19.8% emergencies. The overall rate of assessment was 27% preoperatively, 84% postoperatively on the ward, and <1% in outpatient clinic postdischarge. Elective cases were associated with significantly lower rates of preoperative assessment compared with emergency cases (15% versus 74%, $P < .001$).

Conclusions: Changes in health care delivery have outpaced changes in the structure of surgical education, resulting in suboptimal continuity of care experiences for trainees. Residency programs must adapt their curricula to include adequate ambulatory experience. © 2007 Excerpta Medica Inc. All rights reserved.

Keywords: Continuity of care; General surgery; Postgraduate training; Residency

In the current paradigm of surgical training, residents acquire progressively increased responsibility as they advance through their residency program under the guidance and supervision of attending surgeons. Despite dramatic changes to the delivery of health care over the last few decades, the fundamental structure of surgical training programs has undergone little change since Dr William Halsted introduced North America to the concept of graded responsibility within residency training in the early 1900s [1]. More and more, elective surgical patients are admitted the morning of their procedure and, in many instances, discharged the same day. Thus, preoperative consultation and detection of postoperative complications increasingly occurs in ambulatory clinics, a setting that residents often do not access.

The inclusion of continuity of care in the training requirements outlined by various surgical accreditation boards

highlights the central importance of this concept. The American Board of Surgery requires surgical trainees to have "actively participated in making or confirming the diagnosis, selecting the appropriate operative plan, and administering preoperative and post-operative care [2]." Similarly, the Royal College of Physicians and Surgeons of Canada requires that its trainees "have recognition of responsibility for the overall care of the surgical patient [3]." A well-trained surgeon has not only mastered the technical aspects of surgery but meticulously prepares his/her patient for the operating room and astutely detects and manages all complications related to the procedure performed. This art can only be imparted to surgical trainees if they have the opportunity to realize the impact of their preoperative and intraoperative decisions on postoperative outcomes. Furthermore, continuity of care has been shown to lead to more knowledgeable patients, better patient satisfaction, and improved compliance with selected treatment regimens [4].

The numerous recent advances in medical technology that have added to the diagnostic and therapeutic tools

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available to today's general surgeon further emphasizes the need for surgical training paradigms to keep pace. With the advent of interventional radiology, minimally invasive surgery, and newer endoscopic techniques, the options for our surgical patients have multiplied, making the choice of a treatment plan more complex. Surgical trainees are often excluded from this decision-making process by virtue of their absence from preoperative and postoperative outpatient clinics.

There have been several reports implicating work-hour restrictions in poor continuity of care among surgical trainees, which have mainly been retrospective [5–7]. One prospective study evaluated continuity of care in a Canadian general surgery training program, including an analysis of the effect of an emergency procedure [8]. However, this study did not look at rates of outpatient follow-up or the effect of hospital setting (academic versus community) on continuity of care experiences.

Given that there exists a void in the published continuity of care experiences in the current era of work-hour restrictions, the aim of this study was, first, to prospectively ascertain the current experience of general surgery residents within a Canadian general surgery training program with regard to the continuity of care they are able to provide for patients and, second, to delineate the various resident, patient, and hospital factors influencing this experience. In particular, we examine how issues unique to the way health care is currently delivered (eg. same-day admission for elective surgery and ambulatory surgery) impact on the continuity of care experience.

Methods

This study was conducted within the University of British Columbia (UBC) 6-year general surgery training program, which is accredited by the Royal College of Physicians and Surgeons of Canada. Although the majority of clinical rotations take place at the university's 3 main teaching hospitals in Vancouver, residents are required to do at least 2 community general surgery rotations in various regions of the province of British Columbia. Thus, portions of this study were conducted at some of these community teaching sites.

At the UBC's 3 main teaching hospitals, there are a total of 20 attending general surgeons and 4 pediatric general surgeons. The general surgery services are entirely run by residents and fellows in the traditional hierarchical fashion, as defined by Halsted. There are no physician extenders on the service. The house staff members are responsible for in-hospital patient care under the supervision of attending surgeons and are required to attend all scheduled operative procedures, as well as emergency procedures when on call. At 2 of the main training sites (St. Paul's Hospital and British Columbia Children's Hospital), the inpatient wards, operating rooms, and physicians' clinics are all contained within the same facility, and on-service residents are required to attend at least 2 outpatient clinic half days during their rotation. At the other main training site (Vancouver General Hospital), the physicians' clinics are located in outside, private offices, and on-service residents are not mandated to attend these clinics.

At each of the community teaching sites, there are anywhere from 3 to 6 general surgeons on staff. In general, residents rotating through these sites are responsible for the care of patients in whose operations they were involved, as well as patients seen in consultation through the emergency department or the medical wards. There is no requirement to attend outpatient clinics at these sites.

The study was a prospective cohort investigation conducted over an 8-month period from May 1 to December 31, 2005. All general surgery residents on either a general surgery or pediatric general surgery rotation during the study period were asked to participate. Each potential participant was given a detailed description of the study design in written form, with opportunities to ask questions of the principal investigator. Once a resident gave his/her consent to participate in the study, each for a 4-week period, all patients who underwent a general surgical procedure at the institution in which the resident was stationed were included in the study if the resident was present at the time of operation.

All participants were oriented to the study during a 20-minute session. The definitions of all terms used were clarified, and questions were answered.

Residents completed a questionnaire for each patient encounter during this period (Appendix 1). The information recorded included the following:

1. Procedure-related demographic data: date, hospital, procedure, surgeon, and nature of procedure (emergent operation versus elective and same-day admission versus elective, previously admitted)
2. Resident demographic data: postgraduate (PGY) level and operative role (primary operator versus teaching assistant versus first assistant versus second assistant)
3. Resident continuity of care data
 - A. Preoperative: participation in preoperative assessment (either in the emergency room, preoperative assessment room on the day of surgery, or outpatient clinic) and in the decision to operate
 - B. Intraoperative: involvement in any intraoperative decisions
 - C. Postoperative: participation in daily ward assessment, discharge planning, and postoperative outpatient clinic assessment

All data obtained were collected and then transferred into a database by a single investigator (ALM). A review of the completed data-acquisition forms at the end of the study determined the continuity of care. Any missing data identified after reviewing the data-acquisition forms were completed through interviews with the appropriate residents. The chi-square test was used to analyze the data for statistical significance.

The methodology of this study was deemed valid based on a previously published study by 1 of the authors, which determined that self-reported data were accurate in the resident population [8]. In addition, a pilot study was conducted several months before the present study at 2 of the UBC's main teaching hospitals, using residents on the vascular surgery service [9]. The purpose of the pilot study was to ensure the feasibility of our planned data-collection meth-

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