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Handoffs in general surgery residency, an observation of intern and senior residents

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Abstract

BACKGROUND: Handoffs have become an area of concern as duty-hour restrictions impose an increasing number of shift changes. The objective of this study was to study handoffs in a general surgery residency and identify problems that exist in the current handoff process in preparation for a standardized implemented protocol.

METHODS: A resident researcher observed resident-to-resident handoffs for 5 surgical service teams, Monday through Friday, for the middle 2 weeks of the 3rd month of the academic year. Each handoff was observed for the presence, absence, or inconsistency of code status; anticipated problems; active problems; current baseline status; pending tests or consults; and closed-loop communication.

RESULTS: Thirty-eight residents in 2010 were observed, with a total of 52 handoffs ranging from 1 to 27 minutes in length. Five handoffs (10%) were by phone, 47 handoffs (90%) were observed in person, 10 handoffs (19%) were by senior residents, and 37 handoffs (71%) were performed by junior residents. Of the 47 in-person handoffs, code status was mentioned in 2 (4%), and 6 (12%) were given written notes. Of the 37 intern handoffs, the presence of measured criteria occurred in the following percentages: 59% for anticipated problems, 70% for active problems, 51% for current baseline status, 64% for pending tests or consults, and 81% for closed-loop communication. Of the 10 senior-level handoffs observed, all consistently included the previously mentioned criteria.

CONCLUSIONS: This study demonstrates the lack of consistency and propensity for error in unstructured handoffs among junior residents. The finding that senior-level residents exhibited consistently proficient handoffs demonstrates that handoffs are a learned skill. Therefore, teaching junior residents a structured handoff supervised by senior residents would most likely reduce the inconsistency and error-prone nature of the junior-level handoffs observed in our study.

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The handoff process is ubiquitous between most personnel within the health care setting. This transition of care is a point of interest in health care improvement initiatives, as failure of adequate communication can precipitate significant patient care quality issues[1] and can be the root cause of 60% of sentinel events.[2] Errors in communication have the potential to become increasingly more prevalent as transfers of care increase with resident duty-hour restrictions. Therefore, a close look at the handoff process is needed, as almost all of these errors are completely preventable.

Many studies of the resident handoff process have shown that communication errors between shifts can lead

to uncertainty in patient care and ultimately suboptimal care. A study by Arora et al[3] noted that significant events due to deficient handoffs were due largely to failure to report an active problem or pending test and lack of face-to-face communication. Other studies have noted that poor background on patients and failure to communicate goals of care lead to errors or delay in critical decision making when on call.[4] Furthermore, breakdowns in communication from lack of a written handoff and lack of memory from information overload have been cited as significant problems in the handoff process.[5]

In July 2003, the Accreditation Council for Graduate Medical Education placed an 80-hour-per-week maximum for residency programs in an effort to reduce sleep deprivation and improve patient safety.[6] Although these restrictions made some positive strides in improving sleep deprivation among residents,[7] they have a negative impact on the continuity of care by requiring a handoff of information at least twice a day to stay within duty-hour limits. In 2006, the Joint Commission on Accreditation of Healthcare Organizations directly addressed handoff improvement and created a patient safety goal that outlined expectations for health care handoffs.[8] In 2008 the World Health Organization followed suit and listed "communication during patient care handovers" as 1 of its "High 5" patient safety initiatives.[9] These recommendations were generalized to all health care workers, but they came at a time when resident-to-resident handoffs became increasingly more important because of their increase in frequency.

Recognizing the impact of increased handoffs and their potential for error, the Accreditation Council for Graduate Medical Education declared that instituting a structured handoff was a main priority in 2010.[10] However, in July 2011, the council expanded these restrictions to limit postgraduate year (PGY) 1 residents to a maximum of 16 hours with 10 hours off between shifts and a 24-hour shift limit for PGY 2 residents.[11] Although aimed to reduce the errors of fatigued interns, these changes potentially weakened the beneficial effects that work-hour limitations aimed to achieve at the outset by further increasing the number of handoffs.[12]

An additional challenge posed to residents at this time is the lack of standardization of handoffs in each medical specialty and the lack of training to perform them proficiently.[13] Studies based on handoff protocols demonstrated that the process is highly variable between specialties and institutions.[2] This makes standardized training challenging and a system that is difficult to perpetuate depending on the residency.

Using criteria from previously studied successful handoffs,[3] residents were observed for the presence or absence of these criteria. The aim of this study was to assess the quality of surgery residency handoffs and to best understand its strengths and weaknesses as a standardization process is created.

Methods

Institutional review board approval was obtained from the Springfield Committee for Research Involving Human Subjects (study number 10-073). After full written consent was obtained, handoffs by surgical residents from the Southern Illinois University Department of Surgery at Memorial Medical Center in Springfield, Illinois, were observed in September 2010. A resident researcher, who was at the time not affiliated with any of the discussed patients, observed the 5 PM resident-to-resident handoff for 5 surgical service teams, Monday through Friday, for the middle 2 weeks of the 3rd month of the academic year. This resident researcher was at the time a PGY 3 general surgery categorical resident who was very familiar with the handoff process.

The resident performing each of the handoffs was a resident currently participating on 1 of the 5 surgical teams: general surgery for the university, general surgery for private practice physicians, vascular surgery, colorectal surgery, and the trauma service. The teams typically consisted of an intern, a midlevel resident, and a senior or chief resident. At the start of their internship, the PGY 1 residents are given a brief overview on how to conduct a proper handoff. Over the course of the 2 months preceding this observation, interns were to learn the handoff process by the senior residents on their team, though no formal curriculum was in place. The responsibility of handing off is left to the intern on the team, as the interns are responsible for looking after the patients while the senior resident is often in the operating room. If the senior resident is present at the handoff, coaching is given if needed as the junior resident communicates the information. The senior or chief resident will conduct the handoff independently if the junior resident is occupied with other tasks. The resident receiving the handoff was a PGY 2 general surgery resident on the night float service. This resident was paired with a PGY 4 night float resident who was also encouraged to attend the handoff.

The majority of the handoffs occurred in an assigned private resident room where computers were available to access patient lists and other patient data. A written handoff consisted of patient lists printed directly from Cerner PowerChart (http://www.cerner.com/solutions/Hospitals_and_Health_Systems/Acute_Care_EMR/) and included the following for each patient: name, date of birth, room number, date of admission, age, gender, attending physician's name, and a comment, which usually included the attending physician's name, date of consult, and surgery performed. Additional written handoff on these patient lists was encouraged but not mandatory. The resident receiving the handoff was expected to write down the verbal handoff information on the patient list if not already written.

The handoff was observed for the presence, absence, or inconsistency of code status; anticipated problems; active problems; current baseline status; pending tests or consults; and closed-loop communication, as recommended per Arora et al[3] and the Joint Commission[8] for successful handoffs. A handoff criterion was denoted as present in terms of the measured criteria if during >50% of the patients handed off, mention was made of anticipated problems, active problems, current baseline status, pending test of