Researchers at Harvard and MIT (Massachusetts Institute of Technology) have been studying handoffs in surgery for several years.

Meghan M. Dierks, MD, a general surgeon and assistant professor at Harvard Medical School, described what has been learned so far. She outlined strategies OR teams could adopt to make handoffs more consistent, accurate, and complete. She is also director of clinical systems analysis at Beth Israel Deaconess Medical Center in Boston and a research associate at MIT.

In an exploratory study published in 2004, Dr. Dierks and her coworkers observed OR teams’ performance during 9 complex surgical cases that lasted 4 to 6 hours.

They found “a tremendous lack of uniformity” in the content of handoffs as well as the order in which information was given and in its accuracy.

A number of these situations had the potential to compromise patient safety.

In 88 instances, critical information was lost or degraded during the transfer. For example, key preoperative information, such as a surgical consent, was missing. Case bookings were incomplete or unclear so the nursing staff did not know how to plan. The postoperative report was given independently by the circulating nurse and anesthesia provider—and 7 of 9 of these handoffs had one or more inaccuracies between the 2 reports. The surgeon was rarely involved.

**Missing—the context**

A key element often missing from the handoff was the context that could help the clinician accepting the patient to interpret the significance of changes or emerging phenomena, Dr. Dierks told *OR Manager* in an interview.

“In a handoff, you need a richer context to understand the significance of the data and use it to make informed decisions. You’re not just saying, ‘Here’s a piece of data.’ You’re also saying, ‘What is the context? Is it more or less as expected? What are the implications for the next phase of care?’”

For example, a patient with a significant psychiatric history is recovering after surgery. Nurses in the postanesthesia care unit (PACU) haven’t received information that the patient was alert, oriented, and able to make decisions before surgery. They assume the patient has baseline deficits in mental status. As a result, when the patient is disoriented and combative in the PACU, they attribute the behavior to the psychiatric condition. In fact, the patient is hypoxemic and experiencing residual effects of anesthesia.

A caution: Checklists are not the answer to standardizing handoffs.

“What worries me is that checklists may save time and standardize content, but they don’t always provide the important context,” she says. Also, as the Joint Commission on Accreditation of Health-care Organizations points out, caregivers need an opportunity to ask questions and refine the information.

**From OR to PACU**

What about handoffs between the OR and PACU?

“In an ideal world, it should be a collaborative handoff with representatives from nursing, anesthesia, and surgery who work together to give a single, unified report,”
she says. This means less opportunity for inconsistencies and ambiguities.

The reality is that surgeons have often moved on to dictate or start the next case. If the surgeon won’t be present, Dr Dierks suggests a “proxy mode” where the nurse and anesthesia providers obtain information and consensus from the surgeon before he or she leaves the operating room, following the 5-category outline on page 10.

“I think the speed of the turnover should not be an excuse for avoiding giving some information in each of these 5 categories,” she says.

Getting started
Before starting to standardize, Dr Dierks recommends finding out the current state of handoffs in your organization.

“The most useful thing to do is to involve the caregivers who receive patients from another location or another discipline,” she suggests. “Ask them what they consider useful, effective, and safe. What information would help them take care of the patient in the next phase of care? What information do they need to go back and seek after they’ve received the patient? That is an indicator of what is missing.”

Minimal set of elements
She also suggests reviewing all recent adverse events involving handoffs. Study the details and conditions under which the event occurred to determine what barriers existed or what aspects of the handoff were deficient or compromised safety.

“Use the knowledge from this preliminary work to develop a minimal set of elements that should be included in a handoff,” she advises. Then apply standardization to these minimal elements, allowing flexibility for clinicians to add to or elaborate on this minimal standard. Once you’ve come up with standardized content and a format, build in a period to study its effects, she suggests.

“Whatever solution you choose, it needs to make things easier, or at worst, keep things the same in terms of workload. We know from human factors research that any ‘solution’ that adds work will not be widely adopted.”

Based on field observations from the studies, Dr Dierks outlined suggestions for standardizing handoffs (Sidebar, below).

An outline for handoffs in surgery

The following outline is suggested by surgeon and researcher Meghan M. Dierks, MD:

Support of basic needs
Handoffs should support these basic needs for safe and effective care:
• situational awareness
• collaborative decision making
• projective planning
• information (not simply data) to enable detection, adaptation, and recovery from evolving or emerging events
• continuity of ongoing processes.

Minimum categories for handoffs
Based on research, the following 5 categories could serve as minimum components of a handoff.

“Some situations may not require this level of detail within each of the categories. But the basic categories should be represented even in the least complex patient handoff,” Dr Dierks says.
1. **Baseline metrics/benchmarks**
   - During the preoperative period, what were the patient’s:
     - behavioral, emotional, and mental status
     - level of alertness
     - level of anxiety
     - ability to follow directions
     - communication abilities/disabilities.
   - What are the patient’s standard medications, diagnoses, and needs? What was received and administered today?
   - What were the patient’s prior perioperative experiences? Were there prior admission experiences for this same diagnosis?

2. **Most recent phase of care**
   For example, for the intraoperative course:
   - What was the procedure (or diagnosis, chief complaint, etc)? And what are the implications for the immediate next phase of care?
     *Example:* The patient has had a femoral-distal bypass. What was the pulse status at the end of the case? Why do you need to monitor that? What was the visual inspection of the wound at the site of anastomosis?
   - Was the duration of the procedure longer, shorter, or as expected? And what are the implications for the immediate next phase of care?
     *Examples:* Does this mean the patient might be hypothermic, fatigued, agitated, or in increased pain?
   - Was the scope or complexity of the procedure greater, less than, or as expected? And what are the implications for immediate next phase of care?
   - Were there unexpected events or deviations from the expected course?
   - What are your (transferring provider’s) uncertainties regarding specific aspects of the patient’s care? And what are the implications for immediate next phase of care?
     *Examples:* The arterial line waveform is unreliable, blood loss may have been underestimated, or precise urinary output may be difficult to monitor because of a vesicovaginal fistula/incontinence.

3. **Current status**
   - What is the current status of vital signs, mental status, pain control, hemostasis, and airway/breathing?
   - Is this within your expectations, given the intraoperative course and recent interventions?
   - What are the emerging trends?
   - What is the current trajectory of vital signs, mental status, pain control, hemostasis, and airway/breathing? Are these improving, deteriorating, or remaining the same?
   - If changing, what is the rate of change in status—rapid, slow?

4. **Expectations for the next phase of care**
   - What are your expectations for the patient’s status, progress, or occurrence of specific events over the next several epochs: 10 min, 30 min, 60 min? What is the patient’s readiness for discharge?
   - What are your expectations regarding the rate of change in vital signs, mental status, pain control, hemostasis, airway/breathing, electrolyte or hematocrit, wound/dressing status, or output from drains?
   - What are specific, unambiguous thresholds, parameters, and goals to achieve? What is the time frame for achieving these? What interventions should be taken, and who should be contacted if thresholds and parameters are exceeded or goals are not met?
5. Other issues

- When are the next scheduled medications, interventions, and procedures?
  
  *Example: When should the next dose of antibiotic be given?*

- Where did the patient come from?

- Where is the patient going?

- Where is the family? What does the family know? What do they need to be told?

- Who is to be contacted for specific issues (1st tier, 2nd tier if unable to reach 1st tier)? Who are the consultants for specific subsystems?

References

