Implementing Preventive Ethics Systemwide

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“Preventive ethics, like other systematic quality improvement approaches, reduces variation by identifying and intervening on aspects of an organization’s systems and processes that contribute to and sustain ethics quality gaps.”
—Foglia, et al. (p. 104)

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Ineffective communication among health care providers frequently occurs during handoffs, defined by The Joint Commission as the “real-time process of passing patient-specific information from one caregiver to another or from one team of caregivers to another for the purpose of ensuring the continuity and safety of the patient’s care.” For all accreditation programs, National Patient Safety Goal 2E, in effect through 2009, stated that organizations should implement standardized and structured processes for handoff communications that include the opportunity for face-to-face questions and clarification. Subsequent iterations emphasized that these handoffs should be interactive processes, have limited interruptions, and include communication of updated information on patient status and discussion of anticipated changes. The Joint Commission’s requirement for a standardized approach to handoff communications is now Element of Performance 2 (“The hospital’s process for hand-off communications provides for the opportunity for discussion between the giver and receiver of patient information”) for Standard PC.02.02.01 (“The hospital coordinates the patient’s care, treatment, and services based on the patient’s needs”).

Although many strategies have been proposed to improve overall handoffs in health care, little work has focused on the perioperative setting, defined as the period during which the patient leaves the operating room (OR) and arrives at a postprocedural destination, such as the postanesthesia care unit (PACU) or intensive care unit (ICU). Rather, current interventions to improve the quality of handoffs have emphasized house staff sign-outs that occur at the end of a work shift. These shift-work sign-outs are very different from perioperative patient transfers for the following reasons: They are typically unidisciplinary (for example, internal medicine, pediatrics, surgery), non-hierarchical (for example, resident-to-resident, not resident-to-attending) and involve patients already situated on a hospital floor. In contrast, perioperative handoffs are interdisciplinary—including, for example, nurses, physicians, nurse practitioners (NPs), and physician’s assistants (PAs); multispecialty (for example, anesthesia, surgery, critical care); often comingling providers at different levels of training (for example, intern to attending); and involve patients in transit, who are, by definition, at high risk of instability during this acute phase of care. Furthermore, perioperative transfers include not only the exchange of information but also the concomitant transfer of technology, such as monitors, transducers, and lines.

Studies on perioperative handoffs have been largely observational and conducted in PACUs and emergency department settings. Although this literature highlights these clinical arenas as uniquely complex venues for patient handoffs, it does not offer a systematic approach to improving these transfers. One study among pediatric cardiac surgery patients applied Formula One pit and aviation teamwork strategies with promising results. A review of the handoff literature identified the need for a comprehensive approach to improving handoffs and warned against narrowly restricting handoff goals to information processing. Because data for best practices in perioperative handoffs are lacking, we decided to systematically study one such type of handoff: the postprocedural transfer of a patient from the OR to the ICU. In this article, we describe a perioperative handoff tool that is designed to not only improve information transfer but also enhance the social interaction, communication style, and accountability of the members of the handoff team. The tool provides a standardized, systematic approach to conducting perioperative handoffs that incorporates a defined process, a specified team structure, a procedure for technology transfer, and clearly defined information elements to share.

The Perioperative Handoff Tool entails an OR-to-ICU/PACU protocol and checklists. We piloted the tool for patient transfers from the OR to the cardiac-surgical intensive care unit (CSICU) at the Johns Hopkins Hospital in 2009. The data and results of the pilot study can be found elsewhere.

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Tool Development

IMPLEMENTATION

In January 2009 we implemented a novel perioperative handoff protocol in the CSICU of the Johns Hopkins Hospital. Our work was prompted by both national mandates to improve patient handoffs (such as The Joint Commission’s National Patient Safety Goal 2E) and local leadership interest within the departments of anesthesiology and cardiac surgery to improve these patient transfers, which were frequently associated with communication breakdown and low provider morale. All the work described in the article was completed at the Johns Hopkins Hospital under the approval of the Johns Hopkins Medicine Institutional Review Board.

DEFINING THE PROCESS

To create an appropriate systematic evaluation of patient handoff from OR to ICU, we first needed to define the process. Starting in March 2006, we began by creating a process map in which we visualized this patient transfer as consisting of five major steps: (1) prehandoff, (2) physical transport, (3) transfer of technology, (4) transfer of information, and (5) assumption of care. These categories are analogous to those described by Catchpole et al. We further outlined these categories into the distinct actions that occur for each step. We discovered that our institution’s OR–to–ICU handoff process involved more than 50 steps. This complex multistep, multiphase process involves an acutely evolving patient cared for by a multidisciplinary team in a changing physical environment. We discovered environmental limitations, such as limited writing space, poor lighting, frequent interruptions, and ambient noise. In our large academic hospital, there were also inherent variables such as distinct surgical ICUs, staff turnover, and authority gradients.

Using the intricate detail provided by mapping the process and the clinical expertise of the authors (two of whom are practicing anesthesiologists [MAP, EAM]), we decided to query frontline providers as to the status of OR–to–ICU handoffs in the institution to determine shortcomings and areas for improvement. To that end, we conducted hours of direct interviews with frontline providers and administered exploratory surveys that we created. Frontline providers included providers at all levels of training from the anesthesia, surgery, and nursing disciplines. We divided these providers into two groups: “receivers” of report, who were typically nurses and intensivists, and “senders” of report, who were typically anesthesia and surgery providers. We sought quantitative and qualitative information. Quantitatively, we used the Likert scale to evaluate the following as related to OR–to–ICU handoffs: provider satisfaction, consistency, variability, and technology transfer. Qualitatively, we prompted providers to give their opinions on (1) what could be done to improve handoffs, (2) the top three equipment and information issues, and (3) any event in the past month that was related to a handoff. We disseminated surveys throughout our 1,000-bed hospital via e-mail, mailbox, and direct delivery. We received 90 completed surveys from a representative cross-section of providers who spanned discipline (for example, physician, nurse), authority hierarchy (resident, attending), silos (neurosurgical ICU, pediatric surgical ICU), and specialty (critical care, anesthesiology, surgery). We collated, categorized, and analyzed the survey data and discovered that from the frontline providers’ perspective, the top four issues in OR–to–ICU handoffs related to the actual verbal communication of report, absence of key providers at the bedside, malfunctioning equipment, and missing information. Interviews with providers revealed that the most common problems were the distraction of simultaneous tasks, the ambiguous role responsibility for patient care during handoffs, and lack of a set time to ask clarification questions.

Armed with this information, in fall 2007 we convened a multidisciplinary focus group to discuss the feedback from the frontline providers and brainstorm possible solutions. The focus group consisted of nurses (OR and ICU), NPs, PAs, intensivists, surgeons, and anesthesiologists. Topics included the desire for tools to guide anesthesia and surgery reports, diffusion of patient care role responsibility during report, ambiguous end to handoffs, need for verbalized contingency planning, distinct time for question clarification, and the need for certain providers to be at bedside throughout the handoff.

GUIDING THE PERIOPERATIVE HANDOFF PROCESS

On the basis of the interviews, surveys, and focus group sessions, the authors created a novel tool for conducting perioperative handoffs that is centered around (1) an OR–to–ICU/PACU protocol and (2) checklists to guide the content of surgical, anesthesia, and nursing reports—resulting in three checklists.

OR–to–ICU/PACU Protocol. The OR–to–ICU/PACU protocol delineates a step-by-step approach to conducting a patient transfer from the time that the patient arrives in the PACU or ICU room from the OR (Figure 1, page 137, and available in color in online article). It is a five-step process that begins with a discrete verbalized start to the handoff and ends with a verbal statement completing the handoff. The handoff team members remain at the patient’s bedside throughout the five steps and participate verbally at prescribed times, guided by the checklists. Step 1 begins as the patient enters the PACU/ICU room. The
The anesthesia provider announces the patient by name, and then all handoff team members verbally introduce themselves. Step 2 is marked by the transfer of technology. During this time, the accepting nurse transfers the monitors and lines while the team members facilitate the transfer and clarify issues that are specifically and strictly associated with the transfer of the technology.

**Checklists.** On the completion of Step 2, the accepting nurse prompts the surgeon to start his or her verbal report, which is guided by the surgery report checklist (Figure 2, page 138, and available in color in online article). The surgeon concludes his or her report with a statement of anticipatory guidance, stating what he or she is most concerned about in this patient. The anticipatory guidance statements serve as the “big picture” direction for the ICU team that is now assuming care for this patient. These statements are informed by the preceding hours of patient care observation by the OR team and encourage the providers to voice any patient safety concerns, particularly those that may not be part of a typical transfer of information.

The anesthesia provider then follows with a report guided by the anesthesiology report checklist (Figure 3, page 139, and available in color in online article) and also concludes with an anticipatory guidance statement of what he or she is most concerned about in the patient. The OR nurse then completes the series of reports by giving his or her own report, guided by the nursing report checklist (Figure 4, page 140, and available in color in online article). The intensivist (or ICU midlevel practitioner) and/or PACU/ICU nurse then clarifies any remaining issues by directly questioning the OR providers and finally concludes the patient handoff formally by announcing that “the handoff is now complete.” At this point, the OR providers may leave the patient’s bedside.

**Tool Application to Quality and Safety**
The Perioperative Handoff Tool is intended to fulfill all Joint Commission handoff requirements. As a standardized collection of easy-to-follow steps, it provides for limited interruptions...
through its organized structure. The process is reproducible and independent of the particular patient or providers involved, thereby allowing for widespread applicability. It defines an essential core team of handoff providers and directs their bedside presence, thereby allowing opportunities for direct, interactive, real-time communication and face-to-face question clarification. Through the use of anticipatory guidance statements, the process provides for the transfer of updated information on patient status with discussion of the most likely changes to that status. Finally, the process provides a distinct start and end to the handoff, thereby eliminating any ambiguity in designation of actual patient care transfer between the delivering and accepting teams.

**Tool Application Settings**

The Perioperative Handoff Tool could be applied to any periprocedural setting in which a patient is physically transferred from the procedural location (with the associated procedural team) to a postprocedural care unit with a different care team. It is currently used to conduct all postprocedural handoffs to the PACUs and ICUs of our institution.

**How-To**

Before implementing the Perioperative Handoff Tool, it is important to perform five administrative tasks that create and foster an environment for change, as follows:

1. **Obtain leadership support at multiple administrative levels.**
   
   After it is secured, this leadership support should be made manifest to the frontline health care providers through various media such as leadership letters, administrative e-mails, or departmental fliers.
   
   *We chose to disseminate a leadership letter signed by the departmental and subdivision directors of nursing, anesthesiology, and surgery, explaining the need to implement a handoff process and informing of the time frame for instituting it.*

2. **Create an implementation team of local champions interested in creating this change in practice.**

3. **Train health care providers on the new perioperative protocol (to be done by the implementation team).**

   Although the protocol is fairly self-explanatory, it is crucial to familiarize providers with its use before introducing it in the clinical setting.

   *Options for education include departmental meetings, educational sessions, and Internet links to educational video narratives and simulations, all of which we used to educate providers at our institution. During this education process, we also strategically placed posters in all postoperative destinations to serve as both educational and visual reminder tools to the health care providers.*

4. **Implement the change.**

   This is best achieved by hosting a formal rollout date—a designated date and time when the change goes into effect—during which members of the implementation team are on site and facilitate use of the protocol.

   *During our rollout phase, we also placed a poster on a designated freestanding easel and positioned it in close proximity (at the foot of the bed) when a patient was received from the OR. We always had a member of the implementation team at the bedside with the freestanding poster to help answer any questions about the protocol as it was being actively used in real time. We recommend a rollout phase of at least two weeks’ duration so as to allow for familiarization by all of the health care providers who work different shifts.*

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**Surgery Checklist**

- Actual surgery performed
- Surgical findings (anticipated & unanticipated)
- Surgical complications
- Drains/tubes — location, number, and type
- Special instructions
  - e.g. "chest tubes to suction for 12 hrs"
  - "remove NGT in 6 hours"
  - "nasal cannula sutured in nares" etc.
- Patient Disposition (home, floor, IMC/ICU)
- Responsible 1st service (medicine, ortho etc.)
- Who to Page

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**Conclusion:** "The thing that I am most concerned about in this patient is _______."

*Figure 2. On the completion of Step 2 of the Perioperative Handoff Protocol, the accepting nurse prompts the surgeon to start his or her verbal report, which is guided by the surgery report checklist. NGT, nasogastric tube; IMC, intermediate care unit; ortho, orthopedics. (Available in color in online article.*)

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5. Perform periodic review of the protocol throughout the year to ensure its sustainability and ultimate success.

This review includes updating the protocol as needed and reinforcing the steps to ensure its continued appropriate use by health care providers.

We created a multi- and interdisciplinary sustainability team that meets quarterly to review and revise the handoff process as needed in response to feedback and local changes. We also have identified local champions who perform periodic on-site audits of the use of the protocol.

The following fictional case vignette illustrates the use of the Perioperative Handoff Tool in the handoff of a patient, John Doe, from the OR to the CSICU:

Patient John Doe is en route to the CSICU from the OR after having undergone a several-hour, four-vessel bypass surgery. He is accompanied by the anesthesiologist and cardiac surgeon and is on a transport monitor that displays electrocardiogram, invasive blood pressure, central venous pressure, and pulse oximetry. He is being manually ventilated via a bag valve mask and is being administered a low-dose epinephrine drip. Patient Doe arrives at ICU Room 4, where the accepting nurse, respiratory therapist, and ICU practitioners (intensivist and midlevel practitioners) are waiting.
The anesthesiologist announces the patient's name and introduces himself. Then each surgeon, nurse, and ICU practitioner introduces himself or herself in turn. There is then a period of silence as the patient's lines and monitors are transferred from the transport bed to that of the ICU. The anesthesiologist and surgeon remain at the patient's bedside, monitoring the patient's status during this time. As the last line is transferred, the accepting nurse states that he is ready to listen to report. The surgeon begins her report, referencing her report checklist (which, at our institution, is printed on badge cards for ease of reference) as she speaks to ensure that she includes all of the essential information elements to be reported. She concludes by stating that she is worried about the relative patency of the last graft and that any ST segment changes noted on the monitor should be followed by an electrocardiogram and an immediate page to the cardiovascular surgery service. The anesthesiologist then starts his report, referencing the report checklist on his badge card as needed to include all of the essential informational elements of his report. He concludes by stating that the patient has been persistently hypotensive since coming off bypass, a fact that he attributes to vasodilation; he anticipates that the patient will continue to require more fluid boluses during the next several hours to help support the blood pressure. Finally, the OR nurse gives her report, referencing her report checklist on the badge card. She states that the patient requires his hearing aids to hear normal-volume conversations and that his family has them in the waiting room. She then indicates to the ICU team that her report is complete. The intensivist then asks for the total concentration of pressor required during the surgery and further elucidates the surgeon’s concerns on the nature of the graft patency. The ICU nurse questions whether the arterial line waveform was positional during the surgery. After all questions have been answered, the intensivist states aloud, “the handoff is complete,” and the nurse, anesthesiologist, and surgeon return to the OR to start preparing for their next case.

Use of the five-step OR–to–ICU/PACU Protocol is summarized in Table 1 (page 141).

**Results and Lessons to Date**

The Perioperative Handoff Tool was initially piloted for patient transfers from the OR to the CSICU at the Johns Hopkins Hospital in 2009. In the ensuing months, its use spread across our hospital, and it is currently being used to conduct all adult perioperative handoffs from the OR to the ICUs and recovery room areas (PACUs). Minor modifications have been made to the tool that highlight unique aspects of the local care issues. Some modifications include subspecialty-specific information, such as bypass times and heparin totals in the CSICU and intracranial pressure values in the neurosurgical ICU. The process as presented here has improved information sharing during handoffs, increased satisfaction of the receiving team, and decreased distractions during a very vulnerable point in a patient’s care.14 In addition, it has subjectively leveled the playing field between the various practitioners who participate because there is a preset expectation of opportunities for asking questions and clarifying issues at the completion of the report.

The success of the Perioperative Handoff Tool in the various settings is attributed to the comprehensive development phase. Although the plan was to pilot test in the CSICU, all types of providers from all perioperative settings were included in the focus groups and surveys that identified key defects in the routine (standard) approach and suggested elements for the new tool.

**Summary and Next Steps**

The Perioperative Handoff Tool is novel for a number of reasons. First, it establishes and mandates the bedside presence of a core handoff team of providers physically located at the patient bedside throughout the handoff process. Second, it creates a series of ordered, nonsimultaneous steps to guide handoff. Third, it provides a temporal separation of the transfer of technology and information. Fourth, it provides a reference checklist for key...
### Table 1. Sample Perioperative Handoff for Case Vignette Patient John Doe*

<table>
<thead>
<tr>
<th>Protocol Steps</th>
<th>Anesthesiology Provider</th>
<th>Surgery Provider</th>
<th>ICU Nurse</th>
<th>ICU Provider</th>
<th>OR Nurse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient arrives to the ICU room.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 1</td>
<td>&quot;This is John Doe who is status post–cardiac bypass surgery. I am Dr. Jack, resident anesthesiologist.&quot;</td>
<td>&quot;I am Dr. Smith, cardiac surgery fellow.&quot;</td>
<td>&quot;I am Dan, the accepting ICU nurse.&quot;</td>
<td>&quot;I am Dr. Jackson, the ICU attending.&quot;</td>
<td>&quot;I am Leo, the operating room nurse.&quot;</td>
</tr>
<tr>
<td>Step 2</td>
<td>[Stands silently at bedside.]</td>
<td>[Stands silently at bedside.]</td>
<td>Transfers monitors and lines. When complete, states, &quot;I am ready for report.&quot;</td>
<td>[Stands silently at bedside.]</td>
<td>[Stands silently at bedside.]</td>
</tr>
<tr>
<td>Step 3</td>
<td>[Listening at bedside]</td>
<td>&quot;Mr. Doe underwent a four-vessel bypass surgery today.&quot; Completes report using surgery checklist as a guide. Ends by providing anticipatory guidance that &quot;I am worried about the relative patency of the last graft. Please obtain an EKG if you notice any ST segment changes and immediately page me.&quot;</td>
<td>[Listening and taking notes at bedside]</td>
<td>[Listening and taking notes at bedside]</td>
<td>[Listening at bedside]</td>
</tr>
<tr>
<td>Step 4</td>
<td>&quot;In addition to his coronary artery disease, Mr. Doe has a history of diabetes, hypertension...&quot; Completes report using anesthesia checklist as a guide. Ends with a statement of anticipatory guidance: &quot;Mr. Doe has been persistently hypotensive since coming off bypass, which I believe is secondary to vasodilation. He will likely require more fluid boluses over the next several hours.&quot;</td>
<td>[Listening at bedside]</td>
<td>[Listening and taking notes at bedside]</td>
<td>[Listening and taking notes at bedside]</td>
<td>&quot;I agree with the anesthesia report and just want to add that the patient’s family is in the waiting room, and they have his hearing aids which he needs to wear in order to hear normal-volume conversations.&quot;</td>
</tr>
<tr>
<td>Step 5</td>
<td>[Answers questions.]</td>
<td>[Answers questions.]</td>
<td>&quot;Was the arterial line positional during surgery? In which waiting room is the family located?&quot;</td>
<td>[Answers questions.]</td>
<td>[Answers questions.]</td>
</tr>
<tr>
<td>OR providers leave the bedside.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&quot;Handoff is now complete.&quot;</td>
</tr>
</tbody>
</table>

* ICU, intensive care unit; EKG, electrocardiograph.
elements of surgery, anesthesiology, and nursing reports. Fifth, it provides for tangible contingency planning through the use of anticipatory guidance statements. Sixth, it removes role ambiguity for patient care responsibility during the handoffs. Finally, it provides a distinct time for question clarification and an unmistakable spoken end to the handoff.

We are in the process of analyzing post–pilot study data that will help us to further refine our tool. Furthermore, we have created a multimedia perioperative handoff implementation toolkit which is intended to educate and enable those who are interested in implementing the tool at their practice or institution.

Contact Us
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References
Figure 1. The protocol delineates a step-by-step approach to conducting a patient transfer from the time that the patient arrives in the postanesthesia care unit (PACU) or intensive care unit (ICU) room from the operating room (OR).
Figure 2. Surgery Checklist

- Actual surgery performed
- Surgical findings (anticipated & unanticipated)
- Surgical complications
- Drains/tubes — location, number, and type
- Special instructions
  e.g. “chest tubes to suction for 12 hrs”
  “remove NGT in 6 hours”
  “nasal cannula sutured in naris” etc.
- Patient Disposition (home, floor, IMC/ICU)
- Responsible 1st service (medicine, ortho etc.)
- Who to Page

Conclusion: “The thing that I am most concerned about in this patient is __________.”

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Figure 2. On the completion of Step 2 of the Perioperative Handoff Protocol, the accepting nurse prompts the surgeon to start his or her verbal report, which is guided by the surgery report checklist. NGT, nasogastric tube; IMC, intermediate care unit; ortho, orthopedics.
Figure 3. Anesthesia Checklist

**Preop:**
- PMH & PSH
- Allergies and CODE status
- **Meds** - specify which taken prior to surgery (esp. beta blockers, sedatives, abx)
- Baseline vital signs; height; weight
- Baseline physical exam – neurologic, demeanor etc.
- Baseline labs

**Intraop:**
- Airway – intubation technique, abnormalities etc.
- Lines – size, location, etc. & **Procedures** – blocks, spinal etc.
- Fluid totals
- **Paralytic status** - relaxed, reversed
- **Labs and Meds:** Narcotic totals, antibiotics, anticoagulant, anticonvulsant etc.
- **Key events** - e.g. Unexpected episode of SVT/hypotension/hypoxia etc.

**Postop guidance:**
- Drips, CV management
- Respiratory: **Vent settings, etc.**
- Other

**Conclusion:** “The thing that I am most concerned about in this patient is ________.”

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*Figure 3. The anesthesia provider’s report is guided by the anesthesiology checklist and concludes with an anticipatory guidance statement of what he or she is most concerned about in the patient. PMH, past medical history; PSH, past surgical history; Meds, medications; abx, antibiotics; SVT, supraventricular tachycardia; CV, cardiovascular.*
Figure 4. The operating room nurses use this checklist in providing the report. IV, intravenous; CVP, central venous pressure; Art, arterial; PiC, peripherally inserted long-line catheters; JP, Jackson-Pratt drain; SCD, sequential compression device; TED, thromboembolic deterrent.