

cessive noise can contribute to difficulty in hearing the information.⁹ Noise levels in a PACU can exceed the recommended standard of the National Institute for Occupational Safety and Health.¹⁰ This may make it difficult to hear the information correctly. The culture of an institution can also contribute to communication difficulties. In an institution where increased productivity is highly valued, allowing the time necessary to complete a handoff may be problematic. Production pressure can create a sense of urgency, causing the handoff process to be hurried so that the providers can immediately leave the PACU to begin the next case. Hierarchical divisions between nurses and physicians may influence the ability to question information among staff.¹¹ According to the American College of Surgeons closed claims database, breakdowns in verbal communication account for 85% of adverse events.¹² Clear communication is necessary to decrease information loss and prevent unfavorable outcomes.

Another contributing factor to communication error is the lack of standardization in the handoff process. Lack of standardization increases the risk of information loss by depending on the communication abilities of the providers exchanging the information.¹³ The anesthesia provider must recall all the pertinent information of the patient's operative course, and relay this information in a concise manner. It is difficult for an anesthesia provider to perform this task reliably each time. Human factors contribute to the inability of an individual to function without error. A systems approach can help provide a mechanism for the provider to relay information accurately in a standardized fashion.¹⁴ A systems approach focuses on the entire process, not just the provider. In high-reliability organizations, such as the aviation industry, checklists, repeating the information received, and communication strategies are used to increase safety.¹⁵ This, however, is not the standard in most PACUs, which rely predominantly on subjective verbal communication as the means to transfer information and do not routinely use checklists and other communication strategies that could improve accuracy.

The purpose of this research was to determine whether utilization of a formulated checklist, with the objective measures we developed for the handoff in the PACU, decreases information loss, improves adequacy of the handoff, decreases the need for information clarification, and decreases time spent in transfer of care.

Materials and Methods

Our research protocol was first submitted to the institutional review board (IRB) for approval according to the hospital standards. IRB determined that the research project met the criteria of a quality improvement project. Approval was then obtained from the anesthesiology departmental chairperson and was confirmed by the IRB.

- **Creation of Checklist.** A checklist (Figure 1) was

ASSESS READINESS Are you ready for report?

YES TIME OUT

NO STOP

Both parties ask for a time-out for information exchange.

START HANDOFF

- **IDENTIFYING INFORMATION**

- ✓ Patient name
- ✓ Verify name on ID band
- ✓ Procedure
- ✓ Surgeon

- **MEDICAL HISTORY**

- ✓ Past health conditions
- ✓ Past surgeries
- ✓ Allergies

- **ANESTHESIA**

- ✓ Type of anesthesia
- ✓ Airway management/concerns
- ✓ Antibiotics
- ✓ Vascular access: size/location
- ✓ Invasive monitoring

- **INTRAOPERATIVE COURSE**

- ✓ Anesthetic events/treatment/concerns
- ✓ Analgesics
- ✓ Antiemetic
- ✓ Neuromuscular blockade/reversal
- ✓ Surgical events/concerns
- ✓ Intake/output/EBL
- ✓ Blood products Yes/No
- ✓ Labs

- **POSTOPERATIVE**

- ✓ Patient status
- ✓ Airway/O₂/Ventilator settings
- ✓ Infusions
- ✓ Postoperative analgesic/sedation plan
- ✓ Postoperative antiemetic plan
- ✓ Disposition

CLARIFICATION: Do you have any questions?

END HANDOFF

Figure 1. Handoff Checklist

Abbreviations: EBL, estimated blood loss; ID, identification; labs, laboratory tests; O₂, oxygen.

created by a workgroup that included input from the PACU RNs, a team of Certified Registered Nurse Anesthetists (CRNAs), and members of the patient safety committee. After the checklist was created, it was laminated into a card that the anesthesia provider received before the start of the case.

Then, face and content validity of the checklist was performed in a pilot study, in which 29 PACU RNs and 29 CRNAs were asked to evaluate the clarity and representativeness of various key contents. Key content included identifying information, medical history, anesthesia, intraoperative course, and postoperative information. All the participants reported that the information on the checklist was clear, representative, and easy to use. They also reported that the checklist highlighted key elements necessary for postoperative patient care.