Team training, checklist equal better outcomes in pilot

Team members simply introducing themselves to one another at the start of a case made a difference in the rate of infectious events in a pilot study. The rate was 1.9% when the introductions were documented and 21.1% when they were not. (The infectious event rate included surgical site infections, urinary tract infections, and pneumonia.)

Overall, in the study at Saint Francis Hospital and Medical Center, Hartford, Connecticut, team training plus use of a surgical safety checklist reduced adverse events from 24% in control patients to 16% in cases with team training only and to 8% in cases with checklists plus team training.

The authors say this is the first study to examine how team training can help teams using a checklist with validation through the American College of Surgeons National Surgical Quality Improvement Program (ACS NSQIP) database.

A report of the study, which used the AORN Comprehensive Surgical Checklist, is in the Journal of the American College of Surgeons.

Study groups
Data on patients from the NSQIP database was used as controls and compared with:
- a group of 246 procedures performed by teams who had communications training
- a group of 73 procedures performed by teams who had communications training and used a checklist. Both physicians and staff received the training.

Complications included surgical site infections (SSIs), venous thrombosis, pulmonary embolus, and urinary tract infections.

The pilot study stemmed from a fellowship project by Scott Ellner, DO, MPH, FACS, a general trauma surgeon and vice chairman of surgery at Saint Francis and a fellow with the American Hospital Association and the National Patient Safety Foundation.

After IRB approval was granted, the group held a kickoff in September 2010 to explain the project to those involved, including perioperative nurses, surgeons, anesthesiologists, certified registered nurse anesthetists (CRNAs), surgical technologists, and nursing assistants, notes Cynthia Ross-Richardson, MS, BSN, RN, CNOR, the NSQIP coordinator at Saint Francis.

At the meeting, the group completed a safety attitudes questionnaire (SAQ) to determine the baseline patient safety culture in the OR. The SAQ is a validated survey developed at the University of Texas.

Team training
The SAQ responses were used in forming the communication team-training sessions. The study team analyzed the SAQ answers, and Nancy Krafck-Rousseau, PhD, a communication specialist at Saint Francis, used them to form the communication team training sessions.
These 3 hour-long sessions included topics such as differences between introverts and extroverts, effective dialogue among OR personnel, and how to use a checklist. Sessions were offered on all shifts, including weekends.

**Introducing the checklist**
The checklist was introduced in didactic sessions “because we wanted to build upon the importance of each specific measurement and part of that checklist,” says Ross-Richardson. Staff also brought up their concerns.

Dr Ellner was a key to checklist implementation, she says, because the staff considered him a role model.

“You have to have a champion working on the front lines every day. He is passionate about dealing with conflict and making sure the patient is safe. Without him, I don’t think the project would have been as successful,” she says.

The check-in phase of the AORN checklist is initiated in the preoperative area. The remaining 3 phases are completed in the OR. The checklist, on a laminated card, starts with the time-out, which is initiated and led by the anesthesia provider.

**Study observers**
During the study cases, trained observers assessed whether the checklist was used, tracked the number of times the circulating nurse exited during the case, and documented any safety-compromising events.

Three medical students, including Lindsay Bliss, MD, who had a strong interest in quality and safety, were trained to be observers.

“Dr Bliss was passionate about the project and went well above and beyond what we were expecting,” notes Ross-Richardson.

“An observer would bring the checklist to the nurse in the preoperative area and follow the patient and checklist throughout the preop, intraop, and postoperative periods to sign-off in the PACU.

“We had a lot of commitment from them,” she adds. “One case lasted 9 hours, and the observer was there for all of it.”

**Safety events**
Events were grouped according to the nature of the deficiency, such as communication, equipment availability or malfunction, disruptive behavior, patient flow and process, and sterility.

Observations were tallied and analyzed, and the data was matched with the NSQIP data.

Though 150 cases with checklist use were necessary to maximize the likelihood of statistical significance, the sample size was 73 because of limited availability of trained observers.

Still, the numbers collected did demonstrate some statistical significance, says Laura Sanzari, BSN, RN, APACHE outcomes coordinator for Saint Francis.

**Checklist and outcomes**
Three components of the checklist were linked to significant changes in morbidity, though other events also showed a decrease. There were more deep SSIs when:

• confirmation of patient identity was lacking
• there was a failure to address the procedure and procedure site during the check-in section of the checklist.

Also, cases where it was not documented that the team members had introduced themselves to one another were more likely to have infectious events than those where the introduction was documented (21.1% vs 1.9%).
The fewer times the circulating nurse exited, the lower the morbidity rate. Exits varied from 0 to 25 per case.

**What accounts for the results?**

Sanzari says she thinks the findings relate to the plan of care and disseminating the plan to the team prior to the procedure. The plan of care was part of team training.

“Having the plan of care, which includes the procedure, name, site, supplies, and equipment, affects the number of times the circulating nurse leaves the room,” she says. “Traffic in and out of a room causes air disturbances, which could lead to surgical site infections.”

Why would introductions make a difference?

One theory, she says, is that introductions instill a sense of accountability and help to ensure that everyone's voice can be heard.

Using a checklist also had an effect on OR time. Without a checklist, cases lasted an average of 155 minutes; with a checklist, that dropped to 145 minutes.

“It all relates to discerning the plan of care—knowing ahead of time what’s needed, checking the equipment, and making sure it works,” Sanzari reiterates.

**Team training is key**

“Conducting this study has opened the door for others to realize there are ways to improve patient care in a simple, not very costly way,” says Ross-Richardson. The tools are available, and most are free—the key is team training.

If a hospital has instructors who can provide team training, it can design a program using the SAQ. The SAQ provides a baseline measure of clinicians’ concerns. Team training can address those concerns, starting an OR on the path to safer surgery.

Saint Francis is continuing the team training when new issues arise and when new staff come on board.

The researchers say they will use the data to support universal adoption of the checklist at their medical center. They also plan to pursue a multicenter study to increase the statistical power of their research.

—Judith M. Mathias, MA, RN

**References**

AORN Comprehensive Surgical Checklist www.aorn.org/Clinical_Practice/Toolkits/Correct_Site_Surgery_Tool_Kit/Comprehensive_checklist.aspx#axzz2lpccM7bN

