A lot of time and energy is being invested in surgical quality improvement (QI). ORs are eliminating razors and refining processes for prophylactic antibiotics, normothermia, glycemic control, and other issues. Is compliance improving? Are infections being prevented?

For many, finding out takes a laborious chart review. But some are harnessing their information systems to capture data and get reports quickly.

Tallahassee (Fla) Memorial Healthcare, a safety net hospital with 770 beds and 19,000 annual surgical cases, began using electronic data to guide surgical QI in 2004 as it geared up for the Institute for Healthcare Improvement’s (IHI) breakthrough series on reducing surgical infections and later its 100,000 Lives Campaign (www.ihi.org).

Tracking data made an immediate difference. As soon as circulating nurses began asking, “Have the preop antibiotics been ordered?” and entering that data in the computer, compliance rose from 66% to 83% in the targeted groups of patients (open heart, total joints, gastric bypass, colon resections, and major vascular cases).

Nearly 100% of patients now receive antibiotics within 1 hour of the incision. In this target group, the number of cases between infections improved from an average of 24 to 55.

“By looking at the number of cases between infections, we are better able to see the incidence of a rare event such as an infection,” says Todd Schneider, improvement advisor and management engineer.

Tallahassee already had a good foundation for QI as 1 of 7 US hospitals receiving Pursuing Perfection grants from the Robert Wood Johnson Foundation, which focused on redesigning systems to achieve dramatic improvements.

Tallahassee’s ORs introduced electronic intraoperative nursing documentation in 2003, using SurgiNet, which is part of the hospitalwide information system from Cerner. The system includes an electronic patient record. As a result, the OR can retrieve patient information such as allergies, which helps in making sure patients receive the right antibiotic.

The hospital’s IT and QI departments have analysts who design screens and reports to help the OR capture and report data.

Data have been instrumental in fine-tuning the process for preoperative antibiotics. Each time the team adjusted the process, they collected data to measure their results (chart, p 21):

- The first change was to add a prompt to the OR nursing documentation to ask: “Have preop antibiotics been ordered?” “The mere fact that we were asking the question helped us improve our numbers,” says Anne White, RN, BSN, CNOR, director of the main OR. Tallahassee is now collecting data on antibiotics for its entire surgical population, not just the initial target group.

- A month later, the team also began collecting data about which antibiotic was given, using a drop-down menu so nurses can select the drug. (Nurses enter the data because anesthesiology documentation isn’t automated.) Reports were generat-
ed to show which antibiotics individual physicians were giving as well as for which procedures patients received the right antibiotics and for which ones they did not.

- The next step was to boost the percentage of patients who received the antibiotic within 30 to 60 minutes of the incision. Data was reviewed to see what time patients entered the OR and what time the incision was made. For most patients, the time was 20 to 30 minutes.

- To standardize the process, the team tried having the holding area nurse obtain the antibiotic and place it with the patient. The anesthesia provider would then draw up the drug and give it, but this usually happened after the patient was in the OR. The anesthesia provider would get busy, and the antibiotic often was given too close to the incision time. But if the holding area nurse started the antibiotic, and surgery was delayed, too much time would elapse before the incision. “For consistency, the antibiotic has to be given right when the patient leaves the holding area and goes to the OR,” White says. “With this process, we hit the target time of 30 to 60 minutes before the incision about 60% to 70% of the time.”

- The process still did not provide for patients without orders. To bridge this gap, names of patients eligible for antibiotics were highlighted on the OR schedule. The holding area nurse could ask the surgeon for the order. But sometimes these patients were missed. Holding area staff were then asked to document actions taken on eligible patients. That helped the QI team understand which surgeons were receptive and which surgeons managers would need to talk with.
Current process

The current process is to hang the antibiotic while the patient is in the holding area and have the nurse anesthetist start it when he or she comes to interview the patient. For patients who receive vancomycin and other antibiotics that require a longer preincision time, the holding area nurse sets up and starts the administration.

There is a separate process for open-heart patients, who have a much longer in-room to incision time. The antibiotic is given in the OR after placement of the Swan-Ganz catheter, unless the antibiotic is vancomycin. Vancomycin is started when the open-heart patient leaves the holding area.

The QI team continues to work with surgeons to indicate the timing of the antibiotic on their standard preop order sets. That will help create a system that doesn’t depend on the holding area staff contacting surgeons for orders.

Now that the process is standardized, the reports have been modified to help the team spot cases where the process breaks down.

“We are looking at 100% of our cases, and we can get real-time data from yesterday,” Schneider says.

The newest report is sorted by time, with patients who received antibiotics too late at the top and those who received antibiotics too early at the bottom.

“Those are the ones I look at,” White says.

“Before, we were looking at our percentage of success. Now we are just targeting what happened in the cases where the process didn’t work.”

Says Schneider, “We can examine what happened in the past 7 days while it is still fresh in our minds. We can ask the staff about specific cases. That allows us to focus on action immediately. That has been our biggest gain.”

Tallahassee’s major outcome measure is the number of cases between infections.

“Increasing the cases between infections is our goal,” Schneider says. “Essentially, to double the cases between infections would be almost identical to cutting the infection rate in half.”

Getting physicians on board

Electronic reporting has helped get buy-in from physicians.

“Until you can show them the numbers, you really can’t get their attention,” White says.

For example, physicians must have orders written for the antibiotic process to happen smoothly. Automated reports showed that the physicians who didn’t have preop orders written were also the ones who were failing to have antibiotics given in a timely manner.

“By showing them the data, we could start to get standardized preop orders,” White says. She went to the surgical section meetings each month to show the surgeons the data and encourage them to discuss it.

“Having to do this manually would be nearly impossible,” she says. “Without the computer support and IT staff we would never have been able to do this.”

Lessons learned

Tallahassee’s tips for a successful initiative:

• “You have to give people feedback,” says White. “You have to have data so you can show people where you are and how you have improved.”

When the initiative started, White says she thought to herself, “I don’t know why we’re doing this. We’re giving our antibiotics.”

But the data showed the drugs weren’t given as consistently as she thought.

• You can’t make improvements on your own. “OR managers sometimes think they have the tools, and they can do it themselves. But you need help from the staff, the surgeons, the IT department, and other resources.”

• Once your numbers look good, you have to work to keep them there. “You can’t just say you fixed it and look away. You have to continue to look at your data.”

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Making headway on SCIP measures

This article is the third in a series focusing on the Surgical Care Improvement Project (SCIP).

SCIP targets 4 areas:
- surgical site infections
- adverse cardiac events in patients having noncardiac surgery
- venous thromboembolism
- perioperative ventilator-related pneumonia.

Previous articles discussed antibiotic prophylaxis (April 2006) and venous thromboembolism prevention (May 2006).

Practical tools and other information on SCIP are at www.medqic.org/scip. To find tools, look under each SCIP category, then click Tools.