A safer, faster way for postoperative x-rays

With patient safety as its primary goal, the University of Michigan Health System has created a new process using bar-coded sponges and electronic radiology orders to ensure no items are unintentionally left in a patient during surgery. Electronic orders provide for a standardized process that not only is safer but also saves 15 to 20 minutes in OR time.

“Having a surgical item left in the patient is something that should never happen,” says Ella Kazerooni, MD, MS, professor of radiology and associate chief of radiology.

“Unfortunately, in complex and emergency cases, in particular, or in larger patients, items are more likely to be left behind, and we want to do everything we can to prevent that.”

Collaboration is key
Though recognizing there was technology that could assist in preventing a retained item, “we also recognized that technology alone isn’t the answer,” says Shawn Murphy, MS, BSN, RN, CNOR, director of nursing OR/PACU and associate hospital administrator. Also important, she says, were collaborative relationships, team building, standard work processes, education, and comprehensive policies.

The U-M Health System, with 27 ORs, uses bar-coded sponges (SurgiCount Safety Sponge System, Irvine, California), which are scanned before the sponges are added to the sterile field and when they come off. The sponges have radiopaque tags that allow them to be seen on an x-ray.

“The bar-coded sponge system can alert the surgical team to a sponge that is not accounted for, but an x-ray is still needed to determine if that sponge remains in the patient,” says Murphy.

Automating radiology orders
“Our top challenge in radiology was to speed up the process of taking an x-ray and communicating results to the surgical team,” says Dr Kazerooni.

Steps in the automated ordering process include:
• When the OR team finds a sponge, instrument, or needle is missing, the circulating nurse enters an order for an x-ray in the hospital’s computerized order entry system.
• The order shows up immediately in the electronic work queue in the radiology department. The circulating nurse no longer has to fill out a requisition, call radiology, or have someone deliver the order to radiology.
• The radiology technologist assigned to the OR is paged and goes to the OR as soon as possible.
• All x-ray images are digital and are sent immediately to the PACS [picture archiving and communication system], where they can be viewed.
• After the x-ray is read, the radiologist calls directly into the OR and talks with the surgeon on speaker phone rather than writing the result on paper that is faxed or hand carried to the OR.

**Standardized order**
A benefit of the automated system is a standardized x-ray order that requests specific information: the type of surgery, what item is being looked for, and the phone number of the OR.

“The electronic order accomplished several things,” says Dr Kazerooni. “It gets the request to radiology quickly, it relays the correct information so the radiologist knows specifically what to look for, and it gives a specific number to call with the x-ray findings.”

The previous paper order only requested an intraoperative x-ray to rule out a foreign body. Radiologists often didn’t know what foreign body they were looking for or exactly where, says Dr Kazerooni.

She estimates the electronic order process saves 15 to 20 minutes of OR time, which reduces the time a patient is under anesthesia, helps reduce delays, and decreases OR time charges.

**Saving OR time**
A previous obstacle to x-rays before electronic orders were introduced was that surgeons thought the process took too long and weren’t willing to wait for x-ray results before closing the incision or moving the patient from the OR.

“We had to prove we could turn this around quickly so we could add value to their work flow and patient care.

“We did that, and now they don’t have to wait long to get the information they need while the patient is still in the OR,” says Dr Kazerooni.

—Judith M. Mathias, MA, RN