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Tags may keep tabs on surgical tools

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New research suggests radio tags similar to those used to deter shoplifters can help operating room personnel keep track of sponge gauze and medical instruments, preventing them from being left in the patient.

Using a handheld wand scanning device, researchers at California's Stanford University Medical Center quickly found sponge gauze tagged with radio frequency identification chips (RFID) 100 percent of the time, according to the results of a preliminary study published in this month's Archives of Surgery.

"The RFID tag used in the study is only the size of a nickel," said the study's lead author, Dr. Alex Macario of Stanford University Medical Center, in a written response to Newsday's inquiry. "These tags were specifically manufactured for this study and application, so they can function after sterilization."

An estimated 1,500 objects are mistakenly left inside patients after surgery each year, Macario said. The risk significantly increases during emergency procedures. Most hospitals, including Stanford, require counting sponges and surgical instruments before, during and after surgery. X-rays are required after emergency surgery or operations lasting longer than 10 hours, officials said.

The RFID chips are more sophisticated than the larger electronic article surveillance tags used to prevent clothing theft, officials said. In the small study, researchers tested a 1.5-pound battery-powered handheld scanning device on eight patients undergoing elective abdominal or pelvic surgery. Before the wound was closed, one surgeon placed a tagged or untagged sponge inside the patient while the other surgeon looked away. The edges of the wound were pulled together and the second surgeon used the wand to find the tagged sponge.

Dr. David L. Feldman, vice president of perioperative surgery at Maimonides Medical Center, Brooklyn, said that the study was encouraging but the technology may prove too costly.

"Hospitals use millions of sponges each day. Can you imagine? There is a cost to it," Feldman said. "It is a neat idea ... and you can make the argument that from a patient safety perspective it may be worth doing."

But Dr. Donald Krieff, chief of neurosurgery at Nassau University Medical Center, said, "It is still going to rely on the nurse's ability to have the counts correct."

Surgical sponges and lap pad are the objects most frequently left inside after surgery, according to a 2001 analysis by The New York Patient Occurrence Reporting and Tracking System. Retained items can result in sepsis, intestinal obstruction, fistula or abscess formation and adhesions. A secondary surgical procedure is often required to remove the item, which can cause death in severe cases.

The study was funded by the National Institutes of Health. Two of the study's authors, Dean Morris and Sharon Morris, own several patents related to RFID-tagged sponges. Dean Morris is a director and Sharon Morris is a nursing consultant for ClearCount Medical Solutions, which produces the sponges and scanning device used in the study.

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