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Radio tags raise surgical safety at Riverside Hospital

Radio-frequency system gives patients, nurses peace of mind

By **Prue Salasky**, psalasky@dailypress.com | 757-247-4784

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Counting "sponges," the multipurpose pieces of gauze used during surgeries, is part and parcel of a surgical nurse's duties before and after an operation. That hasn't changed at **Riverside Regional Medical Center**, but surgical team members now have the use of a new radio-frequency detection system as a backup.

Post-surgery, at the touch of a button, the RF Assure system conducts a 5-second noninvasive scan of the patient to look for any "retained objects," specifically gauze strips, each labeled with a low-frequency, passive tag. An attached wand allows for a similar scan of surrounding areas.

The missing sponge scenario happens everywhere — and often — in as many as 1 in every 1,500 surgeries in the United States. It's not particular to any one medical facility. In fact, it happened so often during his residency at a trauma center in a large New York City hospital that Dr. Jeffrey Fort — now a cardiothoracic surgeon at New York Presbyterian Hospital — developed the RF Assure detection system to improve patient outcomes, save time and reduce stress on staff.

Typically, when a sponge count doesn't match up, it triggers a search by several staff members for the missing gauze all around the operating room — first in the patient, then in the trash, often full of bloody waste, under the operating table, in the linens. As a final measure, an X-ray machine is used to scan for any errant sponges. The procedure can take up to 20 or 30 minutes, during which time a patient cannot be closed up. It also generates additional expense.

The sponge left behind in a patient is a relative rarity, but a sponge misplaced — in a pocket or a hand or on the floor — in the course of the chaos surrounding care of a traumatic injury or complex surgery is common, occurring in about 1 in 10 procedures. Over 80 percent of these "retained objects" (and the vast majority of them are disposable sponges rather than instruments) occur when the **nurses'** count does *not* indicate a missing item, Fort says. "They use tens of hundreds of these sponges, from the size of a postage stamp to a dinner napkin. It's quite easy to misplace them, whether it's a change of surgical team, late at night, or in morbidly obese patients."

Annie Beck, R.N., director of perioperative services at Riverside Regional, encountered the RF detection system at a professional seminar in the spring. She was immediately struck by its efficiency. "It doesn't interfere with the usual process," she says, emphasizing that it's an adjunct and does not replace the manual count. A 35-year nursing veteran, she brought it to the attention of Riverside Regional, which will complete phasing it in by year's end. It has been so successful that the health system then plans to introduce it to Walter Reed hospital in 2012, according to spokesman Peter Glagola.

RF's system, so unobtrusive that patients are unaware of it, consists of a small console, the size of a DVD player, with leads to a gel mat on the operating table and a wand the shape of a giant bubble-blower. RF Assure supplies the gel mats and consoles and the hospital then buys the tagged gauze from the company. Its inventor, Fort, estimates the additional cost at between \$10 and \$12 per procedure, which, he says, is cancelled out by the time savings, the better outcomes for patients, and the stress relief for nurses. At Riverside, the hospital absorbs the additional cost, according to Beck.

To demonstrate the seamlessness of the procedure, Beck has surgical tech Kasey Hayes stretch out on the operating table with a sponge tucked near her lapel. She pushes the button and a few seconds later the console's screen reads "Error detected" with a mild alarm sound. It also issues a report number that's recorded in the patient's chart. Beck points out that in morbidly obese people, their form will spill over the operating table's gel mat. In those cases, a quick swoop with the attached wand performs the same procedure. For test purposes, nurse Tommy Tucker has concealed another sponge in the trash. A swoosh of the wand and the screen records it.

If a sponge is mistakenly left in a patient it can cause pain, discomfort, bowel obstruction and infections. Nationwide, there are thousands of instances each year and each costs tens of thousands of dollars to rectify. Demand for Fort's detection system, with its 100 percent track record, has increased substantially since the government declared a retained surgical item as a "never event," meaning that Medicare won't provide reimbursement for any medical costs associated with it.

The technology, used in addition to counting, offers reassurance to the surgical staff. "It makes me feel very comfortable. We don't have to go trash-diving any more. It really comes into its own when we have to pack sponges and leave them in to tapenade the bleeding. Then the surgeon has to go in again a day later," says Beck. "I think it's going to become the standard of care."



Annie Beck, RN, CNOR Director Perioperative Services at Riverside Hospital inside one of the OR that use this RF tech. . They have started using RF Technology to check for any disposable gauze (sponges) that might be left behind after surgery. Nurses still count, but by using microchip-implanted gauze and a radio-frequency scanner to find all gauze/sponges. (Joe Fudge, Daily Press / December 2, 2011)