

Patient Safety Tip of the Week

March 8, 2022

Update on Retained Surgical Items

Retained surgical items (RSI's) continue to be a problem despite numerous interventions to address the issue. Weprin et al. ([Weprin 2021a](#)) point out that the landscape of RSI's is changing. Whereas, historically, “soft” items (sponges, packing, towels, etc.) have always been the predominant RSI's, we are seeing more and more incidents of retained “hard” items (needles, blades, instruments, guidewires, fragments). They note that the overall incidence of RSI's has remained steady, despite a decline in the incidence of soft RSI's. They attribute the reduction in soft RSI's to better use of OR protocols and use of sponge detection technologies. They also note that most RSI's continue to occur in the context of reportedly “normal” operative counts. They also note the limited ability of radiographic imaging to improve on the rates of these RSI's.

Weprin et al. further describe the problem of retained surgical “sharps” in another article ([Weprin 2021b](#)). They surveyed different OR team members about the occurrence of retained surgical sharps and “near-misses” and concluded that the rates of each are likely underreported in published articles and statistics garnered by regulatory bodies. They did find a significant difference between the anesthesiologist, surgeon, and nurse/technologist groups regarding the number of lost sharps not recovered per 10,000 surgeries. But all the groups noted x-ray offered poor effectiveness (26–50%) and added 31-40 minutes each time x-ray was used. An average of 21-30 minutes was spent managing each near-miss, making a lost sharp event result in up to 70 minutes of added OR time.

AORN recently updated its guideline on RSI's (the previous update had been in 2016) and the major changes were recently emphasized ([Croke 2021](#)). The AORN guideline now recommends that adjunct technology should be used to supplement the manual counting processes for surgical soft goods. The previous update simply stated that adjunct technology “may” be used. Our October 27, 2020 Patient Safety Tip of the Week “[Conflicting Studies on Technology to Reduce RSI's](#)” discussed some of the studies looking at the impact of adoption of those technologies, some of which did not show a reduction in RSI's ([Gunnar 2020](#)). But it is now widely accepted that appropriate use of such adjunct technology does reduce the rates of “soft” RSI's. The updated AORN guideline recommends that such adjunct technology should be used even when the count is “correct” (since we know many instances of RSI's occur despite counts that were correct). Since adjunct technology devices that use radiofrequency and radiofrequency

identification may potentially impact on devices such as pacemakers and implantable cardiac defibrillators, the manufacturer's instructions for use should be followed and policies should specify whether pacemakers and implantable cardiac defibrillators should be set to an asynchronous mode when using these devices.

The guideline also recommends that policies should specify under what conditions use of the adjunct tracking technology might be waived.

A recent Outpatient Surgery article ([Marsh 2021](#)) discussed implementation of either barcode scanning or radiofrequency identification to confirm the accuracy of manual counts for soft goods. Marsh noted that there is often pushback to use of these adjunct technologies, usually with the thinking that they add time to procedures. However, in our October 27, 2020 Patient Safety Tip of the Week "[Conflicting Studies on Technology to Reduce RSI's](#)" we noted an observational study evaluating the effect of a radiofrequency (RF) surgical-sponge detection system on time spent searching for surgical sponges ([Steelman 2019](#)) that showed time spent searching for sponges was reduced by 79.58%, the percentage of unreconciled counts was reduced by 71.28%, and time spent using radiography to rule out a retained sponge was reduced by 46.31%. This also resulted in a significant reduction of costs.

Marsh notes that the updated AORN guideline does not favor one adjunct technology over another. She goes on to describe how a facility should go about choosing a technology, and then performing education and training and how to best roll out the new technology. She suggests that the size of the facility might drive whether you launch the use of the chosen new technology incrementally or all at once. Larger facilities should consider using it for one surgical team or procedure at first, then expanding to other teams or surgical cases over a standard timeline set for implementation. On the other hand, the new AORN guideline recommends that adjunct technology should be implemented throughout the organization at the same time ([Croke 2021](#)). Marsh goes on to emphasize that the new technologies support rather than replace the manual count.

A second major change in the updated AORN guideline is a focus on device fragments. Since more and more endovascular procedures are being performed, guidewires and guidewire fragments have become more frequent RSI's. The updated guideline suggests use of a standardized checklist for insertion of devices with guidewires and there should be two-person verbal confirmation that the guidewire is removed and intact. Moreover, insertion and removal of devices with guidewires should be considered a critical phase during which distractions should be minimized.

There is also a new section on foam pieces and negative-pressure wound therapy (NPWT) devices. The foam used in dressings for NPWT devices is not typically radiopaque so it would not be identifiable on radiographic images. The guideline has several recommendations about counting and locating the foam pieces and team communication about them.

A recent AORN Guideline Quick View ([AORN 2022](#)) contained some important practical points for RSI prevention. One of the roles of the RN circulator is to ensure that nothing from a prior case might lead to an inappropriate count. That means surveying the room for potentially countable items left over from a prior case. It also means verifying that the count board or count sheets do not contain information from a prior procedure. He/she should also begin the count and record in a visible location (eg. the count board) the count of all the soft goods, sharps, and miscellaneous items placed in the patient. Instrument counts should be recorded on preprinted count sheets.

The scrub person needs to be aware of the location of any soft goods, sharps, and instrumentation on the sterile field or in the patient and have knowledge of the parts and configuration of all medical devices used during the procedure (to be aware of any potential missing pieces or parts). The integrity and completeness of all items returned from the surgical site should be verified. Any item that is passed or dropped from the sterile field should be retrieved, shown to the scrub person, and included in the final count.

Before initiating the final count, the team should be asked whether any additional supplies are going to be needed. Items added after the count has begun are a potential source for incorrect or discrepant counts.

Retained surgical items are a significant patient safety issue and an added burden on our healthcare system. The Weprin articles stress the need for more research in preventing retention of “hard” items. In the meantime, the AORN articles and guidelines outline best practices currently available for RSI prevention.

In addition to the new AORN guideline and our many prior columns on RSI’s/RFO’s listed below, there are many good resources available to help prevent these. NoThing Left Behind® ([NoThing Left Behind®](#)) is the preeminent resource. Others include AORN ([AORN 2022b](#)), the American College of Surgeons ([ACS 2016](#)), The Joint Commission ([TJC 2017](#), [TJC 2013](#)), Pennsylvania Patient Safety Authority ([Wallace 2017](#)). Verna Gibbs, founder and director of NoThing Left Behind®, also has provided some great tips for surgeons, nurses, and all OR staff for avoiding RSI’s ([Gibbs 2019](#)). And Victoria Steelman, author of so many publications on RSI’s, and her colleagues have also published recent articles on RSI’s ([Steelman 2018](#), [Steelman 2019](#), [Steelman 2019b](#)).

Our prior columns on retained surgical items/retained foreign objects (RSI’s/RFO’s):

- June 12, 2012 [“Lessons Learned from the CDPH: Retained Foreign Bodies”](#)
- November 2012 [“More on Retained Surgical Items”](#)
- January 8, 2013 [“More Lessons Learned on Retained Surgical Items”](#)
- November 5, 2013 [“Joint Commission Sentinel Event Alert: Unintended Retained Foreign Objects”](#)
- August 19, 2014 [“Some More Lessons Learned on Retained Surgical Items”](#)

- October 28, 2014 “[RF Systems for Retained Surgical Items](#)”
- February 2016 “[AORN Updates Guideline to Prevent Retained Surgical Items](#)”
- February 7, 2017 “[Maternal Safety Bundles](#)”
- August 20, 2019 “[Yet Another \(Not So\) Unusual RSI](#)”
- June 16, 2020 “[Tracking Technologies](#)”
- October 27, 2020 “[Conflicting Studies on Technology to Reduce RSI’s](#)”

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