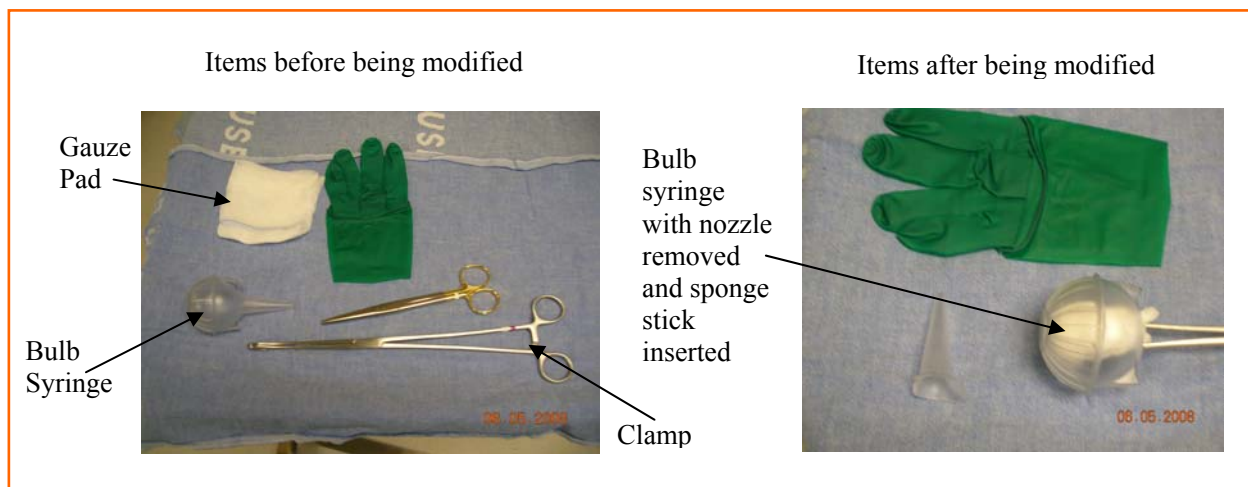


**Innovation and Safety**  
Bulb Syringes and Sponge Sticks

The Patient Safety Commission recently received reports from an Oregon hospital of three similar incidents involving an unintentionally retained object after laparoscopic surgery.

**Why we are sharing this information:** The retained object was a bulb, from a bulb syringe used in a relatively new surgical procedure, a [laparoscopic hysterectomy](#). This [surgery](#) is done to remove the uterus, which in the past usually involved a large abdominal incision. The newer technique, using a laparoscope requires only a few small incisions in the abdomen and vagina. It significantly reduces hospital stay and recovery time. As this technique becomes more widely used, the risk of similar incidents becomes higher. At issue was the modification of very common medical equipment, a bulb syringe and sponge stick, for use in the procedure. The safety implications of these and other low risk and commonly-used items are often overlooked. Further, these events show the importance of a pro-active safety assessment for each innovation or introduction of new technology.



**What happened:** During a laparoscopic hysterectomy, the surgeon adds carbon dioxide gas into the peritoneal space of the abdomen in order to see the uterus and other organs better. To assure that the air remained in the space it is necessary to block the vagina to prevent the gas from being expelled through the incision in the vagina. This was done with an ordinary bulb syringe and sponge stick adapted for this purpose (see illustration). To do this, the surgeon removed the nozzle from the bulb and placed the sponge stick inside (the sponge stick is a clamp with a folded gauze pad secured at the end). When removing the equipment the stick came out but the bulb remained in the vagina. Of the three cases, the last two patients developed symptoms several days after discharge and required antibiotics. The retained bulb was not initially noticed

because the patients reported only minor discomfort, which was thought to be the result of the surgical procedure.

#### **Additional Information:**

Prior to using the modified equipment, the surgeons evaluated three commercially available products, but none was as effective or easy to use as the bulb and sponge stick. Further, the commercial products reduced but did not remove the risk of a retained object. Specifically, the surgeons noted that some of the commercial products were difficult to place, taking as long as 15 to 20 minutes; they did not maintain the air in the peritoneum during laparoscopic stitching; and they generally contained either a metal or a plastic cup which can result in shrill drilling noise and/or plastic fragmentation when a Harmonic scalpel is used (due to the ultrasound vibrations). The surgeon found that because of its shape, the bulb syringe allows less risk of suture injury to the bladder. It is also less costly. The modified bulb syringe costs approximately 25 cents/each compared to commercial instruments at greater than \$100/each.

#### **Findings:**

- ◆ Surgical counts do not routinely include suction bulbs.
- ◆ Some of the surgical staff were new and less familiar with the specific surgical procedure, thus did not realize the bulb had not been removed.
- ◆ Because the sponge stick and bulb are 2 separate items, it is possible to remove the sponge stick without the bulb.
- ◆ Absence of a procedure for evaluating safety implications new/modified technology prior to its incorporation increases possibility of unanticipated problems and adverse events.
- ◆ Because the first event did not involve any patient harm, staff did not report it.

#### **Recommendations:**

- ◆ Review surgical procedures and identify all equipment/items at risk for retention.
- ◆ Develop procedure specific count checklists where appropriate as aid in final count. Include suction bulbs as appropriate.
- ◆ Place a stitch in the bulb prior to placement and leave enough length of string to act as a “flag” that the bulb is still in the vagina.
- ◆ Establish department-wide process for evaluating patient safety implications of new technology or equipment modifications.
- ◆ Institute a [“Good Catch”](#) program to encourage reports of near miss events.
- ◆ Include both patient-related and equipment/procedure-related risks for retained objects in pre-surgical briefing.

Preventing retained objects continues to be a challenge. Often it involves items that had not previously been considered in the count process. To address this issue in your facility, see the Commission’s recommendations, [Preventing Unintentionally Retained Objects](#). In addition, consider use of the Surgical Safety Checklist developed by Peter Provonost. The World health Organization is currently feasibility testing this 1<sup>st</sup> edition of the checklist in 8 facilities — the formal launch was June 25, 2008 — and it is available [here](#).

#### **Contact us!**

If your hospital has observations, or lessons learned that can improve patient safety, please [email](#) or call Leslie Ray at 503.224.9227. In addition, we can connect you to other experts willing to analyze your particular situation. All information is confidential.