

# Surgical Counts Can Be Risky Business!

## COMPTE DES INSTRUMENTS CHIRURGICAUX, AFFAIRE RISQUÉE!

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Le compte des instruments chirurgicaux joue un rôle vital dans l'habileté des infirmières à fournir aux patients un environnement sécuritaire. Les erreurs ne sont pas inévitables. Quoique les niveaux de diligence nationaux fournissent d'excellentes lignes directrices pour le développement d'un protocole de compte efficace, les procédures sont souvent modifiées selon les politiques individuelles des soins de santé. Cet article traitera des facteurs de risque reliés aux corps étrangers retenus, la fréquence, quels objets sont laissés dans les patients, le rôle des radiographies et les conséquences des corps étrangers retenus dans un patient. Les points à considérer lors de l'implantation de nouvelles procédures de compte seront également soulevés.

## SURGICAL COUNTS CAN BE RISKY BUSINESS!

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### ABSTRACT

The surgical count plays a vital role in enabling perioperative nurses to provide a safe environment to surgical patients. Counting errors are preventable. Although national standards of care provide excellent guidelines for developing effective count protocols, counting procedures are often modified according to individual health care policy. This article will discuss the risk factors for retained items, rate of occurrence, what objects are being left in patients, role of x-rays and consequences of leaving an object in a patient. It will also highlight points to be considered when implementing new count policies.

### Introduction:

In November, 2002, AORN President, Donna Watson, stated that health care in the US is not as safe as it should be, and can be.<sup>1</sup> Ms. Watson referred to a 1999 Institute of Medicine report that stated that at least 44,000 to 98,000 patients die in hospitals each year as a result of preventable medical errors. Canadian statistics on medical errors are elusive. Retained surgical tools, such as instruments and sponges, have resulted in a large number of preventable major injuries and death.<sup>2</sup> Reports indicate that surgery tools are left in 1,500 people a year in the United States.<sup>3,4</sup> Several articles state that this number is likely underestimated.<sup>4,5,6</sup>

### Risk Factors for Retained Items:

Gawande et al performed a case-control study of retained surgical items in order to identify risk factors for this type of medical error.<sup>4</sup> Malpractice and incident reports involving 54 patients, with a total of 61 retained items, were investigated. In 69% of the cases the retained items were sponges and in 31% of the cases they were instruments including clamps, retractors and electrodes. Surgery, to remove the retained items, was required for 37% of patients and one patient died during this surgery. The investigators found that items were retained more frequently in emergent surgical cases, in situations where there was an unexpected change in surgical procedure and in patients with a higher body-mass index.

Kaiser et al reports that sponge counts which were thought to be correct, but were actually incorrect have been attributed to team fatigue, difficult operations, sponges "sticking together", or a poor counting system.<sup>7</sup>

Butler et al studied factors that contribute to errors in counting.<sup>8</sup> They report that the most common error is one of documentation, that errors occur more commonly in cardiovascular and general surgery and that they often involve needles. Findings indicated that inexperienced staff, lengthy cases, the involvement of more than one scrub nurse, and two procedures being conducted simultaneously may also increase the likelihood of count errors.

### Rate of Occurrence:

Lauwers and Van Hee report a prevalence ranging from 1/100 to 1/5000 cases.<sup>9</sup> Gawande et al report that items are left in surgical patients in at least one out of every 1,000 to 1,500 intra-abdominal procedures. This corresponds to 1 or more cases each year for a typical large hospital.<sup>4</sup> Because this incidence was calculated only on the basis of malpractice claims, the authors report that the above rate of occurrence is likely grossly underestimated.

### What is Being Left Where?

Gawande et al's study found foreign bodies in the abdomen or pelvis (54%), vagina (29%), thorax (7.4%) and elsewhere including spinal canal, face, brain and extremities (17%). These investigators found no retained items in cases involving laparoscopic or endoscopic procedures.<sup>6</sup> They also reported that when objects were lost and a count was performed, the count was thought to be correct in 88% of the cases.

Kaiser et al reported that retained sponges were found more frequently in abdominal surgery (55%) and vaginal deliveries (16%). In cases with retained sponges, the sponge counts had been falsely correct in 76% of abdominal procedures.<sup>7</sup>

### The Role of Radiographs to Detect Lost Items:

Studies have been undertaken to determine the effectiveness of identifying lost items by radiographs (x-rays). Kaiser et al state that in 3 of 29 cases in which intraoperative x-rays were used to detect radiopaque sponges, the radiograph was falsely negative.<sup>7</sup> False negative x-rays were reported as a factor contributing to incorrect diagnosis. Poor quality films, multiple radiographic opacities and the radiologist's lack of awareness of the surgical team's concerns were also factors involved.

Radiographic techniques such as scrutinizing the periphery of the image for partially imaged sponges, soft copy image manipulation and

digital manipulation have proved to be effective in identifying sponges on radiographs.<sup>10</sup>

The literature contains few publications on the value of taking an x-ray to detect lost needles. Barrow published a paper in which the researcher was able to identify needles on sutures as small as 8-0 on anterior-posterior and lateral films.<sup>11</sup> Only the thread size was used to describe the needles. An acrylic torso with the approximate density and resistance of an average human body was utilized for the study.

Macilquham, et al published a study which identified the minimum needle size that can be visualized using a variety of common radiographic techniques.<sup>12</sup> An acrylic radiological teaching torso (phantom) was also used. Routine radiological chest exposures displayed all 12 needles. Needle size ranged from 65 mm to 6 mm (#1 to 8-0).

The researchers went further to attempt to view these needles using three most common radiographic techniques including departmental x-ray equipment, a portable x-ray machine and an image intensifier.

Resultant images were viewed by 10 individuals, including radiologists, surgeons, radiographers and perioperative nurses. All viewers correctly identified every needle larger than 19 mm (4-0) on at least one of the films presented. The smallest size needle identified by the observers was the 13mm needle (6-0). The smallest size needle identified by the majority of observers was 17mm (5-0).

The majority of the viewers (6 of 10) indicated that needle identification was easiest on the image intensifier, followed by the departmental equipment (3 of 10). Only one observer described the portable technique as the optimum radiographic technique.

### Consequences of a Retained Object:

To the courts, a retained item is an open-and-shut case of negligence.<sup>13</sup> Under Canadian law both surgeons and nurses have been found negligent in cases involving retained items.<sup>14</sup>

## Surgical Counts (cont.)

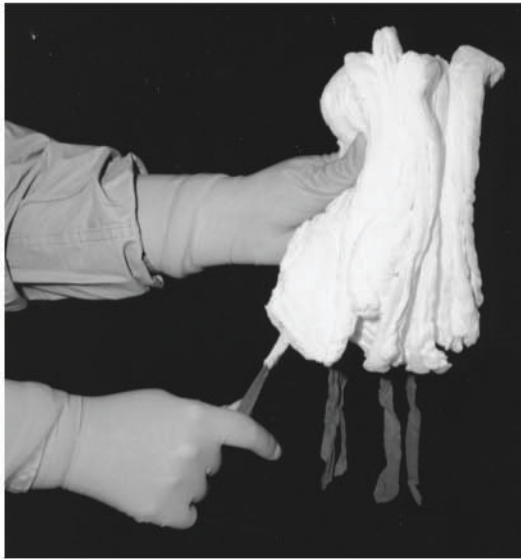


Photo by J. Porteous

Counting laparotomy sponges

The consequences to patients can be much greater. Mortality rates resulting from retained items have been found to be as high as 11 to 35%.<sup>9</sup> In addition to the need for another surgical procedure (in order to remove the object) retained items have reportedly caused bowel perforations, organ damage, sepsis, and acute pain.

### Developing Count Policies:

Clear, concise count policies and procedures are essential to ensure perioperative nurses count when appropriate, count in an effective manner, document appropriately, and take appropriate action in the event of an incorrect count outcome. Not only do these directives need to exist, but perioperative nurses also need to be familiar with the directives and practice them consistently. These care standards protect the patient, the surgical team, as well as the health care facility. Count policies and procedures that reflect established standards of care will lower patients' risk from harm associated with retained objects. They also lower the risk for malpractice lawsuits.

The Operating Room Nurses Association of Canada (ORNAC) provides excellent recommendations which should be included in count policies and procedures.<sup>15</sup> Each health care facility develops their own policies according to their unique resources. Some important elements

to consider in the establishment of surgical count practices that reflect the ORNAC standards are:

1. The scrub shall be involved in all aspects of the count. Two circulators shall not count together without the scrub, or two scrubs without the circulator. This includes counting items off the field.
2. Count out loud and **together**. Each should hear the other's voice to confirm sightings. If you do not hear the other person, stop, and count that item again.
3. Let the scrub nurse take the lead for the **initial count**. Count systematically across the instrument table. There may be items on the table, which are not listed on the count sheet. The circulator should not call out instruments from the count sheet during the initial count.
4. Do not forget to count retractors. Large retractors are being left inside patients.<sup>16,17</sup>
5. **Do not disperse instruments** to another area of the surgical field (e.g. Mayo tray) **until the initial count is complete**. The risk of forgetting to count an item is increased when one type of instrument is in two locations.
6. The circulating nurse shall take the lead for closing counts, since during surgery items

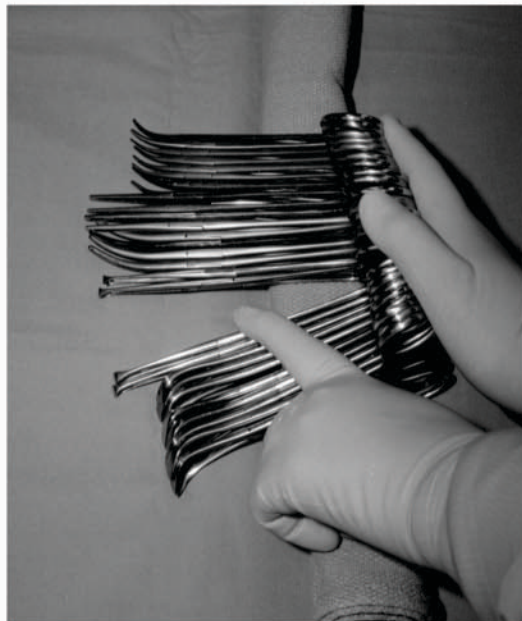


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Counting instruments



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## Surgical Counts (cont.)



Photo by J. Porteous

*An assortment of sponges, instruments, needles, and ligature reels that may require counting.*

- are distributed over the sterile field. The circulator calls out items from the “list” on the count sheet. There is less chance of forgetting to count an item.
7. **Only document what you have counted.** Never document for someone else. The risk of having an item documented twice, or not at all, is increased when people document for each other.
  8. **Document** items that are added to the sterile field **immediately**. It is easy to become distracted, and forget to do so.
  9. **Separate sponges completely** when counting. Each individual must be absolutely certain about the number of sponges in each package.
  10. Both **too many** and **too few** items are considered an incorrect count.
  11. If a count is incorrect **let the surgeon know immediately** and then start the search. The surgeon may not yet have completed the closure.
  12. When staff are being permanently relieved during a case, the incoming scrub, **and/or** circulating nurse, shall complete a full count before assuming legal responsibility for that count. This should be accomplished before the departure of the outgoing nurse(s).

### Conclusion:

The words of a 59-year-old man who suffered life-threatening complications involving a surgical clamp being left inside him *twice* (during 2 separate surgical procedures) gives us some insight into his experience: “It was a terrible ordeal that I wouldn’t want anybody else to go through”.<sup>18</sup>

Another man, who retained a foot-long malleable retractor, stated, “There were days when I would just roll up on the floor in the bathroom and sob, because I was in so much pain”.<sup>17</sup> We need to make every effort to protect our patients from the dangerous consequences of retained objects.

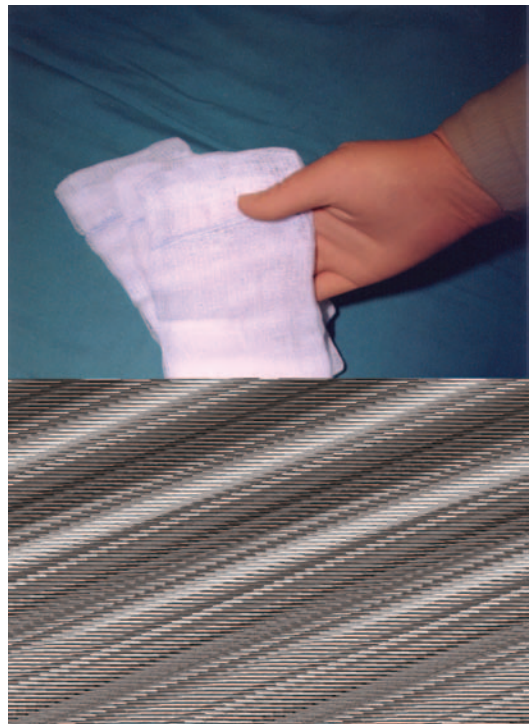


Photo by J. Porteous

*Counting radiopaque gauze sponges*

# Surgical Counts (cont.)



Photo by J. Porteous

Assortment of surgical sponges

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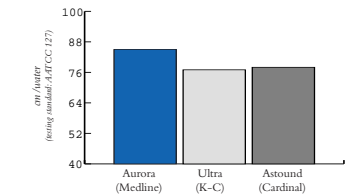
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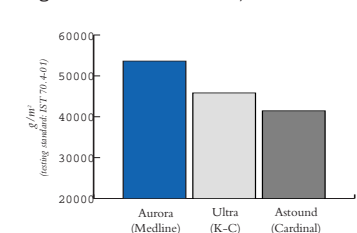
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