Recommended Practices for Sponge, Sharps, and Instrument Counts

The following recommended practices were developed by the AORN Recommended Practices Committee and have been approved by the AORN Board of Directors. They were presented as proposed recommended practices for comments by members and others. They are effective Jan 1, 2006.

These recommended practices are intended as achievable recommendations representing what is believed to be an optimal level of practice. Policies and procedures will reflect variations in practice settings and/or clinical situations that determine the degree to which the recommended practices can be implemented.

AORN recognizes the numerous settings in which perioperative nurses practice. These recommended practices are intended as guidelines that are adaptable to various practice settings. These practice settings include traditional operating rooms, ambulatory surgery centers, physicians' offices, cardiac catheterization suites, endoscopy suites, radiology departments, and all other areas where operative and other invasive procedures may be performed.

PurposE. These recommended practices provide guidance to perioperative registered nurses in performing sponge, sharp, and instrument counts in their practice settings. Counts are performed to account for all items and to lessen the potential for injury to the patient as a result of a retained foreign body. The expected outcome of primary importance to this recommended practice is outcome O2, "The patient is free from signs and symptoms of injury due to extraneous objects." Complete and accurate counting procedures help promote optimal perioperative patient outcomes and demonstrate the perioperative practitioner's commitment to patient safety.

Legislation does not prescribe how counts should be performed, who should perform them, or even that they need to be performed. The law requires only that foreign bodies not be negligently left in patients.2 The doctrine of res ipsa loquitur (ie, "the thing speaks for itself") is most applicable in cases involving retained foreign objects, rendering those litigations nearly indefensible.24 Retained objects are considered a preventable occurrence, and careful counting and documentation can significantly reduce, if not eliminate, these incidents.12 The "captain of the ship" doctrine is no longer assumed to be true, and members of the entire surgical team can be held liable in litigation for retained foreign bodies.6,11 All team members should be committed to and involved in establishing meaningful policies and procedures related to surgical counts.12,13

Recommended Practice I

Sponges should be counted on all procedures in which the possibility exists that a sponge could be retained.

1. Sponge counts should be performed
   - before the procedure to establish a baseline,
   - before closure of a cavity within a cavity,
   - before wound closure begins,
   - at skin closure or end of procedure, and
   - at the time of permanent relief of either the scrub person or the circulating nurse (although direct visualization of all items may not be possible).

2. Initial sponge counts should be performed and recorded, establishing a baseline for subsequent counts on all procedures in which the possibility exists that a sponge could be retained. Policies in the health care organization may identify situations in which this possibility does not exist and counts are not required.14

3. Accurately accounting for sponges throughout a surgical procedure should be a priority of the surgical team to minimize the risks of a retained sponge.23,34,36 The Institute of Medicine has identified avoiding injuries from the care that is intended
to help patients to be one of six aims to a better health care system.17

4. Established policies in the health care organization may define when additional counts must be performed or may be omitted (eg, cystoscopy, ophthalmology).19 Closed claim studies conducted during the past 20 years have demonstrated that roughly two-thirds of reported cases of retained surgical items are attributed to sponges.5,18-20 Although the majority of retained sponges are found in the abdomen and pelvis, there are reports in the literature discussing retained sponges in the vagina, thorax, spinal canal, face, brain, and extremities.5,21-25

5. Sponges should be separated, counted audibly, and concurrently viewed during the count procedure by two individuals, one of whom should be a registered nurse circulator.5,17,21 Concurrent verification of counts by two individuals lessens the risk of inaccurate counts. Separating sponges during the baseline count helps to determine whether a sponge has been added to or deleted from a sterilized package.5,17,21 Use of a pocketed bag or other system for separating used sponges may facilitate visualization for counting. Separating sponges after use minimizes errors caused by sponges sticking together.

6. When additional sponges are added to the field, they should be counted at that time and recorded as part of the count documentation to keep the count current and accurate.7

7. Perioperative personnel should count all prepackaged sterile sponges for accuracy. Any package containing an incorrect number of sponges should be removed from the field, bagged, labeled, and isolated from the rest of the sponges in the OR. Containing and isolating the entire package helps reduce the potential for error in subsequent counts.17

8. Sponge counts should be conducted in the same sequence each time as defined by the facility. The counting sequence should be in a logical progression (eg, from large to small or from proximal to distal). A standardized count procedure, following the same sequence, assists in achieving accuracy, efficiency, and continuity among perioperative team members.20 Studies in human error have shown that all errors involve some kind of deviation from routine practice.21,22

9. All sponges used during a surgical procedure should be x-ray-detectable. Radiopaque indicators facilitate locating an item presumed lost or left in the surgical field when a count discrepancy occurs. X-ray-detectable sponges should not be used as dressings. The use of x-ray-detectable sponges as surface dressings may invalidate subsequent counts if the patient is returned to the OR. X-ray-detectable sponges used as dressings may appear as foreign bodies on postoperative x-ray studies.29,30

10. Only towels with radiopaque markers should be used in the wound. If towels are used in the open wound, they should be included in the count as miscellaneous items and should be easily distinguishable from other towels.30,31,32

11. Sponges should be left in their original configuration and should not be cut. Altering a sponge invalidates subsequent counts and increases the risk of a portion being retained in the wound.32,33

12. Nonradiopaque gauze dressing materials should be withheld from the field until the wound is closed or the case is completed. Keeping dressing materials separated from the actual counted sponges will help prevent intermingling with the sponges used in the procedure.3

13. All counted sponges should remain within the OR or sterile field during the procedure.
Linen and waste containers should not be removed from the room until counts are completed and resolved. Confinement of all counted sponges to the OR helps eliminate the possibility of a count discrepancy.17

14. Counted sponges should not be used as postoperative packing. In certain circumstances, such as when counted sponges are intentionally used as packing and the patient leaves the OR with this packing in place, the number and types of sponges retained and the reason for the variation should be documented on the intraoperative record as correct and confirmed by the surgeon.14,15 When the patient returns to surgery and the packed sponges are removed, the number and types should be reconciled with the number and types removed. The number and types removed should be noted in the current patient’s record. The sponges removed should be isolated and not included in the counts for the subsequent procedure. The count on the subsequent procedure should be noted as correct after all sponges have been accounted for. If the sponges are removed in an area other than the OR, the number removed should be noted on the patient record.

15. Sponges should be removed from the OR at the end of the procedure. Removing sponges from the OR at the end of the procedure helps prevent potential count discrepancies during subsequent procedures.17

16. Contaminated sponges must be handled and disposed of according to the Bloodborne Pathogens Standard of the Occupational Safety and Health Administration (OSHA); AORN’s “Recommended practices for environmental cleaning in the surgical practice setting”16 and “Recommended practices for standard and transmission-based precautions in the perioperative practice setting”;17 and facility policies and procedures. The use of leak-proof, tear-resistant containers and personal protective equipment (PPE) can help prevent environmental contamination and reduce the risk of personnel exposure to potentially infectious material.16,18

**Recommended Practice II**

**Sharps and other miscellaneous items should be counted on all procedures.**

1. Sharps and miscellaneous items (eg, vessel clip bars, vessel loops, umbilical and hernia tapes, vascular inserts, cautery scratch pads, trocar sealing caps) should be counted
   - before the procedure to establish a baseline,
   - before closure of a cavity within a cavity,
   - before wound closure begins,
   - at skin closure or end of procedure, and
   - at the time of permanent relief of the scrub person and/or circulating nurse (although direct visualization of all items may not be possible).

2. Initial sharps counts should be performed and recorded on all procedures. Performing counts constitutes a primary and proactive injury-prevention strategy.1 Counting sharps and miscellaneous items is not only important in preventing foreign body retention; the continuous accounting for these items can lessen injuries to those scrubbed in the sterile field. As many as 78% of reported needle-stick exposures occur to members of the surgical team.19,20 Accurately accounting for sharps during a surgical procedure is a primary responsibility of the perioperative nurse and the surgical team members.

3. Sharps and miscellaneous items should be counted audibly and viewed concurrently by two individuals, one of whom should be a registered nurse circulator. Concurrent verification of counts by two individuals lessens the risk for count discrepancies.3

4. Additional sharps and miscellaneous items added to the field should be counted when added and recorded as part of the count documentation.
5. Suture needles should be counted and recorded according to the number marked on the outer package and verified by the scrub person when the package is opened. Viewing each needle will help ensure an accurate needle count. Using empty suture packages to rectify a discrepancy in a closing needle count is not recommended. The actual number of needles may not be the same as the number of empty packages.

6. The scrub person should be able to account for all sharps on the sterile field. Sharps remaining unconfined on the sterile field may be unintentionally introduced into the incision or dropped on the floor or may penetrate barriers.

7. Whenever possible, sharps must be handed to and from the surgeon on an exchange basis using a “neutral zone” or “hands-free” technique. Passing sharps to the surgeon on an exchange basis will lessen the possibility of a lost sharp item and prevent injury to the surgical team members at the sterile field.

8. Sharps counts should be conducted in the same sequence each time as defined by the facility. The counting sequence should be in a logical progression (e.g., from large to small item size or from proximal to distal from the wound). A standardized count procedure, following the same sequence, assists in achieving accuracy, efficiency, and continuity among perioperative team members. Studies in human error have shown that all errors involve some kind of deviation from routine practice.

9. Members of the surgical team should account for sharps or other miscellaneous items that may have been broken or become separated within the confines of the surgical site in their entirety. Breakage and/or separation of parts can occur during open as well as minimally invasive surgical procedures. Verification that all broken parts are present or accounted for helps prevent unintentional retention of a foreign body within the patient.

10. Open sharps on the sterile field should be confined and contained. Used sharps on the sterile field should be kept in a disposable puncture-resistant container. Collecting used needles in a container helps ensure their containment on the sterile field and lessens the risk of injury to personnel at the sterile field.

11. All counted sharps should remain within the OR and/or sterile field during the procedure. If a sharp is passed or dropped off the sterile field, the circulating nurse should retrieve it in a safe manner, show it to the scrub person, and isolate it from the field to be included in the final count. Linen or waste containers should not be removed from the OR until all counts are completed and resolved and the patient has been taken from the room. Confinement of all sharps to the OR helps minimize the possibility of a count discrepancy.

12. Sharps must be handled according to the OSHA Bloodborne Pathogens Standard. Proper use, handling, and disposal of contaminated sharps help minimize the risk of exposure to bloodborne pathogens from patient to health care worker and from health care worker to patient. AORN’s “Recommended practices for standard and transmission-based precautions in the perioperative practice setting” should be followed. Sharps should be disposed of according to AORN’s “Recommended practices for environmental cleaning in the surgical practice setting.”

**Recommended Practice III**

**Instruments should be counted for all procedures in which the likelihood exists that an instrument could be retained.**

1. Instrument counts should be performed
   - before the procedure to establish a baseline,
   - before wound closure, and
- when feasible, at the time of permanent relief of the scrub person and/or circulating nurse.

Instrument counts protect the patient by reducing the likelihood that an instrument will be retained in the patient. Instrument counts are a proactive injury-prevention strategy. Retention of surgical instruments accounts for approximately one-third of retained item case reports. Case studies demonstrate that many types and sizes of instruments have been found, ranging from small serrine clamps to moderately sized hemostats (6 to 10 inches) to 13-inch-long retractors.

2. Instruments should be counted audibly and viewed concurrently by two individuals, one of whom should be a registered nurse circulator. Concurrent verification of counts by two individuals assists in ensuring accurate counts.

3. Instruments should be counted when sets are assembled for sterilization. This assembly count provides a basic reference for the instrument set and is not to be considered the initial count before the surgical procedure. A count performed outside the OR that is considered an initial count increases the number of variables that can contribute to a count discrepancy and unnecessarily extends responsibility to personnel not involved in direct patient care.

4. Initial counts in the OR should be performed to establish a baseline for subsequent counts, including minimally invasive procedures (e.g., laparoscopy, thoroscopy). The possibility of any incision being extended to allow for a more extensive procedure than anticipated supports the practice of performing an initial count for all procedures.

5. Individual pieces of assembled instruments (e.g., suction tips, wing nuts, blades, sheathes) should be accounted for separately on the count sheet. Removable instrument parts can be purposefully removed or become loose and fall into the wound or onto or off the sterile field.

6. When additional instruments are added to the field, they should be counted when added and recorded as part of the count documentation.

7. Members of the surgical team should account for instruments that may have been broken or become separated within the confines of the surgical site in their entirety. Breakage and/or separation of parts can occur during open as well as minimally invasive surgical procedures. Verification that all broken parts are present or accounted for helps prevent unintentional retention of a foreign body within the patient.

8. Instrument counts should be conducted in the same sequence each time as defined by the organization. The counting sequence should be in a logical progression (e.g., from large to small item size or from proximal to distal from the wound). A standardized count procedure, following the same sequence, assists in achieving accuracy, efficiency, and continuity among perioperative team members. Studies in human error have shown that all errors involve some kind of deviation from routine practice.

9. The final instrument count should not be considered complete until those instruments used in closing the wound (e.g., malleable retractors, needle holders, scissors) are removed from the wound and returned to the scrub person.

10. All counted instruments should remain within the OR during the procedure until all counts are completed and resolved. If a counted instrument is passed or inadvertently dropped off the sterile field, the circulating nurse should retrieve it, show it to the scrub person, and isolate it from the
field to be included in the final count. Confinement of all counted instruments to the OR helps eliminate the possibility of a count discrepancy.

11. All instruments should be accounted for and removed from the room during end-of-procedure cleanup. Accounting for all instruments facilitates inventory control and patient safety. Removing all instruments from the room helps avoid potential count discrepancies during subsequent procedures.

12. Instrument sets should be standardized with the minimum variety and number of instruments needed for the procedure. Instruments that are not routinely used on procedures should be deleted from sets. Reducing the number and types of instruments and streamlining standardized sets improves ease and efficiency of counting. Specialty instruments, if needed, can be opened and added to the count at the time of the procedure.

13. Preprinted count sheets that are identical to the standardized sets should be used to record the counted items. Preprinted count sheets provide organization and efficiency, which are key to preventing unnecessary delays. The circulating nurse should record only the number of instruments opened for the procedure. Additional instruments requested by the surgeon should be counted and added to the preprinted count sheet separately.

14. Contaminated instruments must be handled according to the OSHA Bloodborne Pathogens Standard. Proper use and handling of contaminated instruments help minimize the risk of exposure to bloodborne pathogens from patient to health care worker and from health care worker to patient. Contaminated instruments should be handled according to AORN’s “Recommended practices for cleaning and caring for surgical instruments and powered equipment” and “Recommended practices for cleaning and processing endoscopes and endoscope accessories,” as well as the institution’s policies and procedures. Contaminated instruments may expose personnel to harmful pathogens.

15. Alternative measures should be established to minimize the risk of retained instruments during procedures in which accurately accounting for instruments is not achievable (eg, anterior-posterior spinal procedures). These measures should include the use of an intraoperative x-ray, read by a radiologist, before the patient is discharged from the OR.

16. Organizations should define when instrument counts should be performed for pediatric patients. Instrument counts may be deferred when there is no perceived risk of retained instruments.

Recommended Practice IV

Additional measures for investigation, reconciliation, documentation, and prevention of retained surgical items should be taken.

1. When a discrepancy in the count(s) is identified, the surgical team is responsible for carrying out steps to locate the missing item. Procedural steps include, but are not limited to,
   - count discrepancy reported to surgeon and surgical team;
   - procedure suspended, if patient’s condition permits;
   - manual inspection of the operative site;
   - visual inspection of the area surrounding the surgical field, including floor, kick buckets, and linen and trash receptacles;
   - if the patient’s condition permits, intraoperative x-ray taken and read before patient leaves the OR or, if the patient’s condition is unstable, an x-ray should be taken as soon as possible;
   - documentation of all measures taken and outcomes on patient’s record;
• reporting of incident following organization policy; and
• review of incident or near miss for cause, effect, and prevention.

2. The perioperative registered nurse circulator should inform and receive an acknowledgment from the surgeon and team as soon as a discrepancy in a surgical count (i.e., sponge, sharps, instrument) is identified.1,11,21,25

3. The perioperative registered nurse circulator and scrub person should ask the surgeon to conduct a manual search of the wound to locate the missing item(s). The scrub person and perioperative registered nurse circulator should do a manual and visual search, respectively, of the sterile area surrounding the wound and the remainder of the sterile field. The perioperative registered nurse circulator should conduct a search of the nonsterile areas of the room in an attempt to locate the item(s).1,3,20,26,45,52

4. If the item is not recovered, an intraoperative x-ray should be taken before the final closure of the wound. It should be specified that the purpose of the x-ray is to rule out a retained foreign body (e.g., needle, sponge, instrument). This x-ray should be read by a radiologist. Studies show greater accuracy when x-rays are read by a radiologist.12,13,19,20 In the case of missing needles, there is no definitive evidence as to how effective x-rays are in detecting small suture needles. Studies done in recent years have demonstrated that needles 17 mm and smaller may not be consistently visible on an x-ray.5,54

5. Following organizational policy, documentation of a count discrepancy should include all the measures taken to recover the missing item and communications made regarding the outcome. Such documentation is considered sound professional practice and demonstrates that all reasonable efforts were made to protect the patient’s safety.1,6,17,21,28

6. A critical investigation should be conducted of any patient safety incident process.17(18) Error and near-miss reporting are the first step to addressing error reduction.15,30 The distraction-prone environment of the OR means that performing routine tasks, such as surgical counts, can be considered at risk for error.10 Errors can be divided into two categories: those at the human interface in a complex system (i.e., active), and those representing failed system design (i.e., latent).37 Elements of the root cause analysis tool should be considered in addressing the contributing causes (e.g., human, process, system) and in identifying risks and preventive measures.37 Multidisciplinary teams should be involved in the process of review and address any changes in policy that can improve patient safety.17

7. Additional measures should be established to minimize the risk of retained items in high-risk situations. The following situations have been identified through research to be of higher risk for retained foreign bodies:

• the emergent nature of a procedure,
• an unexpected change in the procedure, and
• patient obesity.5

8. Internal data from adverse events and near misses should be reviewed to identify high-risk situations within the organization. Health care organizations should identify conditions or situations that pose an increased risk for retained foreign bodies. Health care organizations should establish measures to be taken, in addition to a count, for identified high-risk situations. These measures should include an intraoperative x-ray for foreign body, read by a staff radiologist, before the patient leaves the OR. In one study, three of 29 x-rays were read as negative when a retained sponge actually was present.18 Therefore, x-ray alone may be insufficient to detect a retained item.
Recommended Practice V

Sponge, sharp, and instrument counts should be documented on the patient's intraoperative record by the registered nurse circulator.

1. The uniform perioperative nursing vocabulary should be used to document counts on the intraoperative patient record. The perioperative nursing vocabulary is a clinically relevant and empirically validated standardized nursing language. This standardized language consists of the Perioperative Nursing Data Set (PND5) and includes perioperative nursing diagnoses, interventions, and outcomes. The expected outcome of primary importance to this recommended practice is outcome O2, "The patient is free from signs and symptoms of injury due to extraneous objects." This outcome falls within the domain of Safety (D1). The associated nursing diagnosis is X29, "Risk of injury." The associated interventions that may lead to the desired outcome may include (I93) "Performs required counts."

2. Documentation of counts should include, but not be limited to,
- types of counts (ie, sponges, sharps, instruments, miscellaneous items) and number of counts;
- names and titles of personnel performing the counts;
- results of surgical item counts;
- notification of the surgeon;
- instruments intentionally remaining with the patient or sponges intentionally retained as packing;
- actions taken if count discrepancies occur;
- outcome of actions taken; and
- rationale if counts are not performed or completed as prescribed by policy.

3. Accurate documentation serves several purposes, including evidence of the patient's treatment, the basis of the plan of care, communication to all caregivers, protection from liability, and a link to reimbursement. Documentation of nursing activities related to the patient's perioperative care provides an accurate picture of the nursing care administered and provides a mechanism for comparing actual versus expected outcomes.

4. Justification for omission of counts in an emergency should be documented. Extreme patient emergencies may necessitate omission of counts to preserve a patient's life or limb. Documenting the omission and reasons for the variation provides a record of the occurrence and an alert to subsequent caregivers that the patient may be at an increased risk for a retained foreign body.

Recommended Practice VI

Policies and procedures for sponge, sharps, and instrument counts should be developed, reviewed periodically, revised as necessary, and readily available in the practice setting.

1. These policies and procedures should include, but not be limited to,
- items to be counted,
- directions for performing counts (eg, sequence, item grouping),
- procedures in which baseline and/or subsequent counts may be exempt,
- alternative or additional safety measures for special circumstances,
- nursing actions and procedures for count discrepancy reconciliation, and
- competency validation.

Policies and procedures establish authority, responsibility, and accountability and serve as operational guidelines. Policies and procedures also assist in the development of patient safety, quality assessment, and quality improvement activities. Nurses should collaborate with all members of the health care team to develop policies that address surgical counts.

2. Policies and procedures should be written to include organ procurements. Counted items could be at risk for being retained and sent with the donated organ(s), retained in the donor, or left in the OR.
3. Practices, policies, and procedures are subject to change with the advent of new technologies.

4. An introduction and review of policies and procedures should be included in orientation and ongoing education of perioperative personnel to assist them in obtaining knowledge and developing skills and attitudes that affect patient outcomes.

GLOSSARY

INSTRUMENTS: Surgical tools or devices designed to perform a specific function, such as cutting, dissecting, grasping, holding, retracting, or suturing.

SHARPS: Items with edges or points capable of cutting or puncturing through other items. In the context of surgery, items include, but are not limited to, suture needles, scalpel blades, hypodermic needles, electrosurgical needles and blades, and safety pins.

SPONGES: Soft goods (eg, gauze pads, cottonoids, peanuts, dissectors, tonsil and laparotomy sponges) used to absorb fluids, protect tissues, or apply pressure or traction.

MINIMALLY INVASIVE SURGERY: Includes laparoscopy and other procedures that involve small incisions and endoscopic instrumentation performed in the OR.

MISCELLANEOUS ITEMS: Includes vessel clip bars, vessel loops, umbilical and hernia tapes, vascular inserts, cautery scratch pads, trocar sealing caps, and any other small items that have the potential for being retained in a surgical wound.

NEUTRAL ZONE (SYNONYM: HANDS-FREE TECHNIQUE): A safe work practice control technique used to ensure that the surgeon and scrub person do not touch the same sharp instrument at the same time. This technique is accomplished by establishing a designated neutral zone on the sterile field and placing sharp items within the zone for transfer of the item between scrubbed personnel.

NEAR MISS: An occurrence that could have resulted in an accident, injury, or illness but did not by chance, skillful management, or timely intervention.

ROOT CAUSE ANALYSIS: A retrospective approach to error analysis that focuses on failures of system design as related to common root causes of adverse events.

NOTES
6. E. K. Murphy, “Captain of the ship’ doctrine continues to take on water,” (OR Nursing Law) AORN Journal 74 (October 2001) 525-528.
30. D Fogg, "Retrieving flash sterilized items; occupational exposure to bloodborne pathogens; sponge, needle, and instrument counts; (Clinical issues) AORN Journal 55 (April 1992) 1091-1093.
41. D Fogg, "Gas sterilizing medication; using wall suction for evacuating laser plumes; counting needles in multipacks; (Clinical issues) AORN Journal 52 (August 1990) 408-412.
42. C Peterson, "Rectifying counts; neurostimulators; double gloving; reprocessing single-use devices; simultaneous counting; (Clinical Issues) AORN Journal 76 (September 2002) 510-515.
43. C Peterson, "Deep vein thrombosis; neutral zone; circulating and recovering; environmental controls; wound classifications; sterile field; (Clinical Issues) AORN Journal 79 (April 2004) 856-864.
Blood Test May Detect Heart Transplant Rejection

A blood test may detect whether a patient who received a heart transplant is rejecting their heart, according to a Dec 15, 2005, news release from NewYork-Presbyterian Hospital. A gene-expression test that provides a snapshot of immune system status was performed on more than 600 patients who had received transplanted hearts. The study found that patients with a low score on the test had a less than 1% chance of rejection.

More studies are needed to determine the accuracy of the test in patients immediately after transplantation, but the blood test has the potential to reduce the need for biopsies, which have been the most reliable method for detecting rejection of transplanted hearts. Traditionally, patients who have received transplanted hearts must undergo biopsies for the rest of their lives to monitor possible transplant rejection.