The number of items unintentionally left behind after surgery remained at zero for the second full year after counting practices were reinforced at the University of Minnesota Medical Center (UMMC) in Minneapolis. In contrast, 8 such incidents were reported in the year and a half before the project.

In Minnesota, such incidents must be reported and are made public (see related article).

Though root cause analyses were performed for each incident, the problem kept happening.

UMMC started its reevaluation in mid-2004 by conducting a failure mode and effects analysis (FMEA). In addition, human factors experts from the University of Minnesota spent 5 days observing surgery with an OR nurse adviser. Human factors experts focus on how to design systems and technology to make work processes easier and more user friendly. The hospital also held focus groups with physicians, circulating nurses, and surgical technologists. (See April 2005 OR Manager.) The university has 38 ORs and performs about 20,000 cases annually.

Among issues the human factors experts observed were:
- lack of awareness or knowledge by the staff of details of the counting policy
- lack of standardization in practices such as counting and verifying the count and recounting if the count is off
- distractions during counting, such as beeping pagers
- not recording the counts in a consistent format
- frequent changes in policy, causing confusion
- cultural factors, such as the hierarchy between physicians and nurses, which sometimes prevented communication of potential problems; for example, a nurse might notice a mistake but hesitate to point it out to a physician.

An action plan

The analysis led to an action plan to address the issues, notes Carol Hamlin, RN, MSN, director of departmental performance for perioperative services. Issues identified during the FMEA formed the basis of a detailed plan with separate action items for each issue.

Changes implemented include:
- Standardizing of best practices for counting and verifying the count, including what to count, when to count, what to do about an incorrect count, and how to document.
- Ensuring staff compliance with the count policy by clarifying expectations, observing practice, and following up with noncompliant clinicians.
- Managing distractions at critical times during surgery.
- Introducing a required “time-out for patient safety” when a staff member feels a situation in the room has become unsafe. Specifically:
  - Whenever caregivers realize they or others are task saturated, they are expected to call for additional help.
  - Options for help include other available clinical staff, supervisors, charge personnel, managers, etc.
  - When delegating to supplemental help, caregivers assigned to the patient should retain patient and case-related tasks, such as documentation, counts, and vital signs.
Tasks to delegate include getting supplies, lab results, or blood products; setting up equipment; phone or pager activities, etc.

- Developing a position statement by perioperative staff and leaders about prioritizing tasks and handling interruptions, such as pages.
- Introducing the OR staff to appropriately assertive communication methods.
- Standardizing policy development and implementation, including minimizing frequent policy changes that cause confusion.

To maintain compliance with policies, UMMC conducts quarterly observational audits of its counting process. Five procedures are observed per quarter in each of the center’s 3 surgical sites. Observers typically watch the whole procedure, including the time-out, the counts, specimen management, and management of medications on the sterile field, says Hamlin.

### Root causes of surgical events

Root causes submitted by Minnesota facilities:

- Perceived pressure to complete procedures in a certain amount of time led to rushed preoperative verification procedure.
- Staff reluctant to voice questions or concerns to surgeons.
- Noise, interruptions, multiple competing responsibilities, and other distractions immediately prior to surgery made it difficult to focus on the time-out or other preprocedure verification policies.
- Policies related to site marking do not include the operating surgeon.
- Policies used in the OR to verify surgical sites may not be used in procedure rooms or during bedside procedures, or it may not be clear to the staff that these policies apply in other settings.
- Policy was in place requiring a pause before the beginning of a procedure, but the policy did not assign one person to be accountable for completion of the process.
- No policy was in place requiring final visual inspection of sponge/gauze counts following vaginal delivery.
- Sponges used during a procedure become more compact when moist and are difficult to separate, leading to an incorrect count.
- Surgical drapes, Betadine, or other materials obscured the surgical site marking.
- There was lack of training for new, temporary, or floating staff on sponge count procedures or use of certain types of equipment.
- There was a lack of communication during staff handoffs.
- No policies were in place for counting certain materials/equipment on the surgical field, or communication of policies to staff in all areas of the facility was inadequate.
- Accountability for tracking certain items before, during, and after the procedure was not clear.