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Using instrument tracking to effect surgical and sterile processing improvements

by Nathan Carver, product manager, STERIS Corporation

The surgical instrument reprocessing cycle is complex and involves a number of functions within a health system. Multiple operating rooms and other departments touch thousands of instruments each day. This volume, combined with staffing challenges, surgical scheduling needs, increasing numbers of loaner trays, and tight budgets, creates a mammoth instrument management task. The goal is to keep instruments moving efficiently and accurately from the sterile processing department to the operating room and back, to ensure that surgeons have all the sterile instruments they need for every surgical procedure they perform each day.

When things don’t run smoothly, hours may be wasted every day searching for lost surgical instruments or correcting errors related to inaccurate or incomplete trays that find their way to the operating room (OR). Even minor glitches in the surgical instrument cycle can lead to discord between the sterile processing department (SPD), the processor and supplier of surgical instruments, and the surgical department, the provider of patient care.

Thanks to advancements in software and other technologies, tools are now available that can assist in turning these departments into well-oiled surgical instrument management machines. One new tool, instrument tracking software, doesn’t eliminate the need for overall process improvements, but it does facilitate these improvements by providing easy access to data for decision-making and tools for SPD personnel that make their jobs easier. The purpose of this self-study module is to provide an understanding of the ways in which instrument tracking technologies can help hospitals improve their productivity and accuracy, and help them achieve surgical instrument cost and quality improvements.

Improving productivity

Every surgical department and SPD is expected to be as productive as possible with the resources that are available to them. Instrument management technology can improve productivity by addressing a number of key potential problem areas, including reporting capabilities, lost or damaged instrument issues, training challenges and data storage needs.

Reporting

SPDs, which often experience high staff turnover, are nevertheless expected to process and assemble an ever-increasing number of complex surgical instrument trays. Such demands make it difficult for these departments to run at an optimal level every day. If a staff member is highly competent or a high-level performer, how is he or she identified for recognition or reward? Conversely, how are poor performers identified so that they can receive additional training? Instrument tracking technology has the necessary reporting tools to make this simple. Daily reports show which shifts of the day are processing trays at the fastest rates. Reports can also be run to show individual employee productivity and determine how fast an employee is assembling a particular tray. In addition, reports can be produced that compare an employee’s...
tray assembly time with the average assembly time for the department for that same type of tray.

Eliminating lost instruments

OR personnel and SPD staff can invest significant time each day searching for lost instruments. Anecdotal reports from larger facilities have estimated that staff spends 20-30 hours per day performing this type of unproductive activity. Rather than scouring the SPD, OR and everywhere in-between for lost instruments, instrument management technology allows surgical or SPD staff to walk over to a computer, enter the name of the missing instrument, and see where it was last scanned. If a facility has an instrument-level tracking system, the instrument tracking information is much more detailed. With instrument-level tracking, individual instruments are marked with a barcode, laser mark or other method, which allows the tracking of the instrument to a particular tray and the specific washing and sterilization cycles used for processing. Some systems track the instrument’s turn rate, warranty rate, maintenance scheduling and useful life.

Training

SPDs with high staff turnover also require ongoing training for new employees. Training is also needed for current employees whenever new surgical procedure trays and sets are added to a hospital’s inventory. Some instrument management solutions support learning by giving SPDs the option to add educational video clips to their instrument management program. There is also usually a catalog with photos of instruments and trays that techs can quickly pull up on the computer screen to assist them in selecting the correct instruments.

Going paperless

Hospitals are required to track and record their compliance to sterilization standards and to store these records for up to seven years. These requirements result in an unwieldy accumulation of paper records and the need for someone to be responsible for organizing, managing and storing these records. In addition, room space must be allotted for storage of the records.

New washer/sterilizer connection interfaces can work with instrument tracking software to take load logs, BI results, and sterilizer tape that are normally recorded in notebooks and capture them in an electronic format that is automatically sent to an instrument tracking database, which stores it in a much less cumbersome form. Eliminating the paper and the time spent shuffling it is expected to save health systems thousands of dollars a year in productivity and materials costs.

Improving accuracy

There are three levels of instrument management technology that are designed to help improve the accuracy of surgical procedure set (tray) and case cart preparation. The simplest level is count sheet management. This can be “scaled up” to a more detailed tray management software program that includes training elements, or scaled up to the highest level of detail, individual instrument marking and management.

Count sheet management

The phrase “garbage in, garbage out” applies well to instrument management processes. It is often the case that accuracy issues with instrument sets begin with the very count sheets used to assemble the trays. The contents of procedure trays, and their corresponding count sheets, can be altered at the surgeon’s request, by the scrub nurse, the scrub tech, the SPD tech and the SPD manager, among other people. This can result in a count sheet that dates back several years and often is marked up, messy and difficult to read. Because of this manual, inefficient updating process, when a tray is being assembled, the tech could be assembling incorrect instruments even though he or she is following the count sheet!

A basic count sheet database and software solution can help hospital staff maintain an accurate, current database of count sheets. All updates would be made through a supervisor who would enter all changes into the database and check for accuracy. Updated count sheets would no longer need to be reprinted and copied in large amounts to have ready for use because the count sheet program would print out the appropriate count sheet for each tray as the tray is scanned into the system. Count sheets are produced just in time for use, which could help reduce the amount of paper waste in the department as well.

Tray management

A count sheet program can be scaled up to a tray management solution to help the SPD provide an even greater degree of accuracy during tray assembly. In a tray management program, a tech uses a touch screen to assemble procedure trays. The tech can access instrument information and pictures as he assembles the tray to ensure that he is adding the

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correct instruments. Trays are scanned when they reach the OR, the decontamination area, the prep and pack area, sterilization and sterile storage areas, and when they are loaded onto case carts. This means that the department knows where all trays, instruments and peel pouches are at all times. When an instrument or tray comes up missing, it’s much easier to find a replacement instrument or track down a missing tray, and to ensure that trays and case carts are accurate and complete and get to the OR on time.

Instrument-level management

An SPD can achieve the highest degree of surgical instrument accuracy and efficiency by using an instrument-level tracking solution. Marking individual surgical instruments allows the software additional capabilities that can help prevent mistakes or missing instruments. For example, if a tech tries to scan an incorrect instrument into a tray, a warning will appear, both verbally and visually on the computer screen, to inform the tech that this is the wrong instrument and tell him where the instrument belongs. Also, because the tech physically scans each individual instrument to assemble the tray, there is heightened confidence in the tray’s content accuracy.

Assuring cost savings and quality improvements

Hospitals, like other business organizations, seek to realize the most useful life from their capital investments and reduce their overall costs. In the OR, this requires highly efficient management of their surgical instruments and devices, including management of instrument use, appropriate maintenance and repair, and tracking of individual instruments through specific sterilization cycles to control instrument recall and patient notification costs in cases of contamination.

Inventory management

A health system’s investment in surgical instruments can add up to millions of dollars. With thousands of instruments, dozens of people who handle them and the various places they move to within a facility, effectively managing this inventory is next to impossible without the proper tools. By applying an instrument management technology to the process, a facility can run “par” inventory reports that tell them how many instruments they are actually using. Some software platforms can integrate this information with OR scheduling interfaces, which allows the SPD to avoid bottlenecks, get necessary instruments to surgery on time, and generally run a much leaner operation with less cost. Implementing these solutions can result in millions of dollars a year in surgical instrument inventory savings.

Repairs and routine maintenance

Too often, when instrument repair services show up asking for instruments to repair, the supervisor may simply give them instruments that are not in circulation at that time. Without an instrument maintenance plan and schedule, hospitals may end up having less-used instruments repaired or maintained repeatedly, while more-frequently used instruments aren’t maintained at all because they are constantly in use!

An instrument management technology can help monitor surgical instrument use, condition and age, and can ensure that instruments are rotated into and out of use to allow for maintenance of the most popular items. Although a facility might actually find instrument repair costs going up as it maintains those items that are used more frequently, it will prolong the useful life of many instruments if they are properly maintained. At the same time, the surgeons will be more satisfied because they will have tools that are in better condition to work with.

Instrument level recalls

A patient with a life-threatening contagious disease such as Creutzfeldt-Jakob disease (CJD) is a serious concern for the hospital. Reprocessing procedures for instruments contaminated with these highly infectious soils are different from the usual procedures. When a CJD case is identified after the instruments used for that case have been reprocessed and reused, the hospital must contact all patients that might have come in contact, even indirectly, with the instruments if they were used after that patient. Often this results in notification for entire sterilization and washer loads because tracking is typically based on instrument descriptions rather than on individually coded items.

If an instrument-level tracking technology is in use, however, hospital staff can focus on individual instrument sets and notify only those patients who have been affected. The ability to track individual instruments can therefore reduce the cost associated with a broad-scale recall.

Summary

Healthcare systems are being asked to report infection rates, tighten their budgets, operate efficiently and use limited staff effectively, all while providing the highest quality healthcare possible. Database platforms and interface technology have become more important than ever in helping SPD and OR staffs practice highly effective infection control, manage accurate instrument and patient records, and oversee the optimal useful life of their surgical instrument inventory. Such technology can not only save time and money over the long term; it can also instill confidence in the quality and accuracy of the facilities’ sterile processing functions and ultimately help provide the most important result: optimal patient outcomes.
Using instrument tracking to effect surgical and sterile processing improvements

Circle only one answer:

1. How can instrument tracking technology assist in tracking individual employee productivity?
   a. By providing reports that show the employee’s time to assemble instrument trays vs. the time it takes for other employees to assemble the same trays
   b. By storing paper reports in electronic form
   c. By printing out the appropriate count sheet for each tray as the tray is scanned into the system

2. How does instrument tracking help a facility drive productivity improvements?
   a. By ensuring the training of new staff
   b. By improving individual employee tray assembly speed
   c. By reducing the amount of time spent searching for lost instrumentation
   d. All of the above

3. How can individual instrument tracking minimize the impact of a CJD case recall?
   a. By providing heightened confidence in a tray’s accuracy
   b. By allowing the SPD to focus on individual instrument sets and clearly identifying those sets that have been impacted
   c. By requiring the hospital to contact all the patients that might have come in contact, even indirectly, with contaminated instruments

4. How does individual instrument tracking help a facility make quality improvements?
   a. By making count sheet changes
   b. By having less-used instruments repaired or maintained repeatedly
   c. By monitoring surgical instrument maintenance schedules, use, condition and age, which allows rotation of instruments into and out of use to allow for maintenance of popular items

5. How does instrument management technology assist in training new staff?
   a. By investing significant time each day searching for lost instruments
   b. By giving SPDs the option to add educational video clips to their instrument management program.
   c. By providing a catalog with photos of instruments and trays that techs can quickly pull up on the computer screen to assist them in selecting the correct instruments.
   d. Both b and c

6. Instrument tracking technology drives cost savings by:
   a. Enabling paperless electronic archiving of compliance documents such as load logs, BI results and sterilizer tape, which are normally recorded in notebooks that require storage space and manual labor time.
   b. Enabling a facility to run “par” inventory reports that tell them how many instruments they are actually using, in order to manage surgical instrument inventory cost-effectively.
   c. Both a and b

7. Tray management programs improve training by:
   a. Marking individual instruments with a barcode or laser mark.
   b. Allowing the SPD to update their count sheets.
   c. Providing a catalog with photos of instruments and trays that techs can quickly pull up on the computer screen to assist them in selecting the correct instruments.

8. Instrument tracking software facilitates SPD process improvement by providing easy access to data for decision-making and tools for SPD personnel that make their jobs easier.
   a. True
   b. False

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