





# Best Practices in Surgical Instrument Inventory Management

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## LEARNING OBJECTIVES

1. Understand how to perform a full instrument inventory and condition assessment of all surgical trays in the facility
2. Describe the critical aspects of optimizing count sheets
3. Identify the factors to consider when implementing an electronic instrument tracking system

Every Sterile Processing department (SPD) is expected to be as productive as possible with the resources available to them. The goal is to keep equipment moving efficiently and accurately between the SPD and the OR. Achieving this goal helps ensure that surgeons have the sterile instruments they need for surgeries performed. When things do not run smoothly, hours can be wasted searching for lost items or correcting errors related to inaccurate or incomplete trays. Operating budgets and capital expenses can reach as much as \$500,000 in new and replacement instrument costs annually due to poor management and high use of flash sterilization.<sup>1</sup> Instrument management technology can improve productivity by addressing a number of key potential problem areas, including documentation, reporting, lost or damaged instrument issues, and data storage.

It is critical to have evidence-based processes for managing and tracking surgical items from the time they are ordered until they are reprocessed, returned to a vendor, or the sets are

placed in storage. The need for validated processes is necessary for all surgical facilities, especially organizations with a large number of operating suites and a high volume of inventory.

When defining best practices for managing surgical instrument inventories, the following steps will help drive efficiencies and sustain change:

- Taking a careful initial instrument inventory.
- Performing an instrument condition quality assessment of the instrument inventory.
- Optimizing the accuracy of all count sheets.
- Implementing a tracking system.
- Conducting a data migration of back-stock inventory.

## Objective 1: Understand how to perform a full instrument inventory and condition assessment of all surgical trays in the facility

First, it is important to take an honest look into the accuracy of current inventory records. It is common among perioperative departments to lack an accurate grasp of true inventory numbers



in terms of number of tray types and total number of each tray type per specialty. Working knowledge of inventory is often passed down from senior perioperative staff to junior members; however, it is rarely (if ever) confirmed.

An inventory audit should be conducted by each service line (or specialty) to determine how many trays of each type are physically on hand. One important factor for the SPD is to include any volume of instruments processed for outside clinics or internal departments, such as the Emergency Department, catheterization lab, pain clinic, and Labor & Delivery. This audit includes smaller wrapped trays, kits and peel packed items as well. The capture of this information will be important in the future for optimizing utilization and staffing.

The inventory audit should be conducted by staff members who have knowledge of all storage spaces. The audit should be conducted during a period of low OR volume or fewest scheduled cases. This allows for a greater number of trays to be available either on hand or on the storage shelves at any given time. One immediate benefit of conducting an inventory audit of trays is the discovery of idle inventory. These are trays that have not been used in long periods of time or have been made obsolete. Idle inventory can be broken down and the instruments and container items repurposed where there is the greatest need. Peel pack storage and inventory may also have many idle instruments that can be useful elsewhere. The removal of idle inventory helps create additional space on storage shelves that can be used to relieve crowding in other storage areas or simply make it easier for staff to access trays.

Conducting a thorough inventory of the facility's instrumentation is critical at the beginning. This will take a significant amount of time, but it will provide the knowledge of the facility's total cost of



**Include Peel Packs in Inventory**

ownership (TCO) and transparency of the condition of its inventory. When starting a count of the inventory, establish a system of marking the instruments and trays. Utilizing a colored sticker system is effective, but make sure not to place the stickers on the instruments themselves due to sticky residue that could be left on the surface of the instrument. Place the colored stickers on the temporary locations where the first inventory count will take place.

Establishing specific nomenclature while inventorying is imperative for consistency when migrating that information over to its final electronic platform—whether in an Excel spreadsheet or using another back-stock inventory data system the facility chooses. Caution should be taken if instruments without identifying markings are discovered. Those instruments should be removed from the inventory. Without identifying markings, it would be challenging to train staff members on the instrument and very difficult to correctly reorder the unmarked instrument.

Examination for identifying markings is just one part of the qualitative review of instruments. This review step is a “deep dive” to examine the instruments under a magnifier to understand the condition of the inventory and assess the functionality of each piece. This



**No Index Numbers on Similar Sets Limits Traceability**

step often requires the greatest amount of time because it involves identifying instruments that are heavily pitted, broken, in need of repair and/or beyond repair. Removing these instruments from circulation can help prevent negative clinical outcomes for the patient and protect OR and SPD staff against injuries and infection.

## **Objective 2: Describe the critical aspects of optimizing count sheets**

Count sheet accuracy is crucial to both the OR and SPD because both areas need accountability for instruments at all times. Inaccurate count sheets could potentially lead to errors or delays that affect patient care. As a guideline, a basic count sheet should include:

- Tray name
- Tray index number (#1, #2, etc.)
- Instrument quantity by type
- Instrument name with description/dimensions, catalog number, and manufacturer
- Total number of instruments in the tray

It is important to keep in mind that the better the information on the counts sheets, the more effective the tracking system will be. Additional information specific to the tray can also be included. As an example, the mode of sterilization and container items can be added to a tray description in a tracking system,



which greatly reduces the opportunities for errors during assembly.

**Objective 3: Identify the factors to consider when implementing an electronic instrument tracking system**

Once a tray's inventory audit is completed, an electronic version should be created. Access or editing privileges should be limited to only a few individuals with responsibility for inventory management. The more accurate the information going into an instrument tracking system, the stronger and more useful the outputs will be.

Prior to implementation, consider the organizational goals. Is total accountability the goal or is implementation simply meant to import data from a manual system to an electronic?

Today's tracking technology offers robust data collection that provides users with many tools to accomplish broad goals as well as specific tasks. There are significant advantages to implementing an electronic tracking system, including the following:

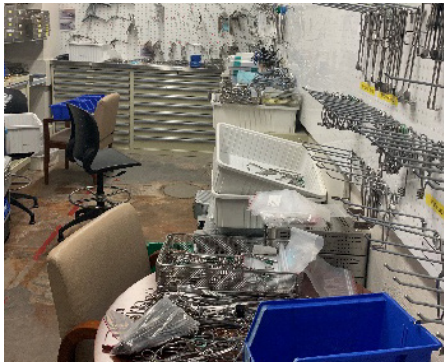
- Improved traceability of trays. Current location and status lets employees know where to find particular trays at any given moment.
- Usage history can be determined and used to establish an effective instrument tray preventative maintenance program. Forecasting demand for trays through usage reports provides staff members with a roadmap of work to come. This can be useful when building staff schedules or staffing models.
- Maintaining a surgical inventory preventative maintenance and repair schedule. These are often kept manually or left up to the repair vendor, which can sometimes lead to some trays getting missed or not being included in the rotation. Trays and high-value items, such as endoscopes, can be scanned and noted in the system as "out for repair."
- Updating on-hand inventory counts. If a tray falls into idle status after a period of time, the tracking system can tag the set and send a report listing the tray with other idle inventory to a

designated staff leader. Staff leaders can then make the decision to pull the tray from inventory.

- Improving employee productivity tracking.
- Monitoring staff training and inservices.
- Maintaining accurate reorder information and equipment utilization.
- Monitoring the processing volume, which can be used to measure operational capacity.

After implementing the instrument tracking, it is important to establish how to effectively store the instrument back-stock inventory. Options for storage include:

- A peg board
  - Carts
  - A drawer system
  - Other types of organized storage
- For greater efficiency and consistency, minimize labeling so users are required to use the electronic back-stock system to identify the location of instruments in stock.



Before Back-Stock Inventory



After Back-Stock Inventory

maintenance of the surgical instrument inventory, and help optimize care of the surgical patients.<sup>2</sup>

**REFERENCES**

1. Brooks, T. "Steps in the Management of Surgical Instrumentation." *Infection Control Today*. [www.infectioncontrolday.com/view/steps-management-surgical-instrumentation](http://www.infectioncontrolday.com/view/steps-management-surgical-instrumentation).
2. Guedon, AC, Wauben, LS, Van der Eijk, AC, et al. "Where Are My Instruments? Hazards in Delivery of Surgical Instruments." Published Online First: October 20, 2015. DOI: 10.1007/s00464-015-4537-7.

For consistency and compliance for all who use the tracking system, it is important that the system be simple to use, easy to customize and update, and remove manual processes. The data input should be clean, and the output should be presented in a digestible format that allows the OR and SPD teams to:

- View insights
- Receive alerts and notifications
- Connect to other systems for services such as repairs, training and consultation

**Conclusion**

SPD and OR professionals are expected to process and assemble an ever-increasing number of complex surgical instrument trays and devices with efficiency and accuracy. Multiple ORs and other departments touch thousands of instruments daily, and the sheer volume, combined with other

challenges, creates a massive instrument inventory and distribution task.

If a facility's SPD does not have an effective instrument management system, it has little ability to track vital usage, and in some cases, it forces the SPD to complete fast-turn and immediate-use processing—often skipping vital quality assurance steps in an effort to keep up with the ever-changing OR schedule. The results can be delays in the OR schedule and, potentially, an increased risk to patient safety.<sup>2</sup>

Conducting a thorough inventory of the facility's instrumentation, optimizing count sheets, and implementing a robust tracking system and back-stock inventory can help drive efficiencies in both the SPD and OR. Implementation of these surgical instrument inventory best practices may streamline OR and SPD productivity, minimize errors in selection and



# CIS Self-Study Lesson Plan Quiz

## Best Practices in Surgical Instrument Inventory Management

Lesson No. CIS 287 (Instrument Continuing Education - ICE) • Lesson expires September 2024

1. Which of the following is/are considered best practice(s) in managing surgical instrument inventory?
  - a. Conducting a data migration for back-stock inventory
  - b. Optimizing count sheets
  - c. Implementing a tracking system
  - d. All the above
2. An initial inventory audit should be conducted:
  - a. By each service line or specialty
  - b. By at least two staff members who perform inventory audits frequently
  - c. When surgical volume is high, so one can see what's being used most
  - d. All the above
3. Instruments without a product code or other identifying markings should be researched and placed in the back-stock bin that is the closest match to the unmarked instrument.
  - a. True
  - b. False
4. Which result would one expect to see from a qualitative audit of instruments?
  - a. The total number of instruments found in a general set
  - b. The number and types of scissors in a plastics set
  - c. The identification of instruments that need repair
  - d. None of the above
5. When taking a "deep dive" to examine instruments under a magnifier, individuals are looking for:
  - a. Pitting corrosion and cracks
  - b. Only instruments that cannot be repaired
  - c. Scissors with blades that staff can sharpen themselves
  - d. All the above
6. Count sheets are typically only used in the Sterile Processing department.
  - a. True
  - b. False
7. The basic information that should appear on a count sheet includes:
  - a. Instrument name and description
  - b. Instrument catalog number and manufacturer
  - c. Total number of instruments in the tray and the tray index number
  - d. All the above
8. One can include the mode of sterilization and container items as part of a tray description in the tracking system.
  - a. True
  - b. False
9. Which of the following is considered an advantage of implementing an electronic tracking system?
  - a. It helps maintain accurate reorder information
  - b. It helps update on-hand inventory
  - c. It improves tray traceability
  - d. All the above
10. Usage history can help with which of the following?
  - a. Forecasting demand for trays
  - b. Building staff schedules
  - c. Setting up a preventive maintenance program
  - d. All the above
11. A tracking system can update on-hand inventory counts and:
  - a. Tag an "idle" tray
  - b. Send inservice recommendations to a designated staff leader
  - c. Determine which trays to pull from inventory
  - d. None of the above
12. A tracking system can maintain an instrument repair schedule, which is better than:
  - a. Maintaining a manual schedule
  - b. Allowing a repair vendor to keep the schedule
  - c. Wondering whether an endoscope is out for repair or misplaced
  - d. All the above
13. Back-stock storage options include:
  - a. Case carts
  - b. A peg board
  - c. One bin where all extra instruments are placed together and everyone has access to them
  - d. A designated drawer at the workstation
14. Back-stock should always be labeled directly on the instrument:
  - a. True
  - b. False
15. Lack of tracking can lead to:
  - a. Too many sets exposed to immediate-use steam sterilization
  - b. Skipping of quality assurance steps
  - c. Operating Room delays
  - d. All the above

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