





CREATING AND MAINTAINING CORRECT INSTRUMENT SETS

LEARNING OBJECTIVES

1. Present common reasons why changes in current instrument sets may be necessary
2. Identify basic tactics to evaluate and maintain current instrument sets
3. Review examples illustrating how Central Service staff can communicate with and learn about the instrument set needs of their customers
4. Explain the need for an effective and ongoing instrument set maintenance and repair program
5. State the importance of developing and maintaining an appropriate budget for instrument set inventories

THERE ARE, SEEMINGLY, INNUMERABLE SURGICAL INSTRUMENT sets used every day in healthcare surgical suites. The processes required to develop and maintain the sets are vital to the success of every surgical team, and are among the critical responsibilities of Central Service (CS) technicians. Developing the correct configuration of specific instruments in the correct quantities requires considerable thought and input from a variety of surgical team members.

Many questions must be asked as new sets are developed, and as existing sets are maintained and utilized. How are surgical instrument sets developed? Who is responsible for their development? How and when are they evaluated and updated? These are among the issues and concerns to be addressed in this lesson to help facilities ensure that the instrument sets being used are the “right” ones for their facility.

OBJECTIVE 1: DISCUSS COMMON REASONS WHY CHANGES IN CURRENT INSTRUMENT SETS MAY BE NECESSARY

Why, with all the instrument sets currently used in most healthcare facilities, must new sets be developed? One common reason is that new surgeons may provide services not previously

offered, and/or they may prefer to use new or different instrument sets for currently offered procedures or services. Surgeons are customers of healthcare organizations, regardless of whether they are employees or self-employed. Like CS technicians, nurses and other staff members, they may move from one hospital to another.

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Gathering this information can be troublesome, but there is a variety of techniques that may be used. Specific meetings between new surgeons, Operating Room (OR) personnel and the CS leadership team can help identify new set preferences. Most facilities utilize instrument count sheets (sometimes known as inventory lists or recipe cards) that outline the exact type and quantity of each instrument in a specific set. Obtaining count sheets and procedure preference cards used by new surgeons at their previous facility is an excellent way to establish a baseline for their instrument needs and special requests. Showing new surgeons examples of current “like” instrument sets or current inventory sheets may also be helpful in developing his or her instrument requests. This planning and preparation is needed to prevent the delays and frustrations that can otherwise occur when surgical personnel distribute instrument sets for initial use in surgical procedures.

Existing surgical staff may also begin to offer medical interventions for which new instrument sets must be made available. The same protocols noted above, including detailed discussions to learn about the required content of instrument sets for these services, are important. Review of instrument count sheets used by other facilities where the new types of procedures are performed, and from applicable instrument vendors, can be very beneficial.

In today’s fast-paced world of healthcare, and the rapid development of new technologies, surgical procedures can change very quickly. Consider, for example, changes that occurred in the mid-to-late 1980s, when laparoscopic surgery became the technique of choice to perform cholecystectomies (gall bladder removals). Traditional open surgical techniques required instrument sets containing the typical hand-held

instruments used for cutting, grasping and suturing. In contrast, laparoscopic surgery required vastly different instrument sets containing new devices to support these new techniques.

OBJECTIVE 2: PRESENT BASIC TACTICS TO EVALUATE AND MAINTAIN CURRENT INSTRUMENT SETS

After instrument sets are initially developed, an ongoing assessment process will ensure that the sets address the surgeons’ and facility’s current needs. Although an existing set may be used extensively, certain items within the set may not be used, while others might be needed to meet current demands.

Continuous assessment and communication must occur to properly develop and maintain the facility’s inventory of surgical instruments. For this to occur, effective written and/or oral communication with end users is essential. The required input for set maintenance must be generated from surgical team members, including nurses, surgical technicians, surgeons, CS managers, CS technicians, and facility administrators. Surveys, emails and one-on-one interviews involving those from each of these specialties will be very helpful. The result will be different perspectives useful in determining the necessary types and number of instruments, along with their quantity, set configuration (how tray contents are arranged), maintenance, packaging and sterilization requirements, and associated costs.

A note of caution: Interviews, meetings and other discussions require a good memory and carefully constructed notes and files to help ensure that nothing is forgotten or misunderstood. Unfortunately, sometimes promises are made, but not fully delivered, which may yield decreased customer satisfaction.

OBJECTIVE 3: REVIEW EXAMPLES ILLUSTRATING HOW CENTRAL SERVICE STAFF CAN COMMUNICATE WITH AND LEARN ABOUT THE INSTRUMENT SET NEEDS OF THEIR CUSTOMERS

Numerous tactics can be included in a planned and organized communication program to educate customers about their exact needs for instrument sets. Many examples were used during a month-long instrument fair at one organization. At this facility, surgeons received email announcements from the facility’s Surgical Services Director and Medical Director, and signs were posted throughout OR areas. The length of time for the fair was based on the size of the facility’s instrument inventory and the types of surgical procedures it offered. The instrument fair featured different surgical specialties on specific days that are scheduled well in advance. CS technicians helped with the set-up, organization, gathering of information, and returning of items to inventory (and reprocessing, if necessary) at the completion of each day during the instrument fair.

On the day of the Orthopedic Fair, for example, items applicable to orthopedic surgery—including instrument sets and individual items, such as retractor sets and power equipment – were displayed, as were items currently included on instrument count lists that are rarely, if ever, used. Advance notices were sent to orthopedic OR team members and surgeons, inviting them to inspect and assess the facility’s current instrumentation available for this surgical specialty. Instrument set lists were displayed with the instrument sets, and opinion sheets were issued, so attendees could provide written comments about the accuracy of each set. CS personnel greeted the visitors as they enter the



display area and walked with them as they viewed the displays.

Orthopedic team members and surgeons were encouraged to make oral and written comments about whether:

- Each set meets current needs
- Any set should be removed from service
- Items should be added to or deleted from each set
- The current quantity of sets is adequate to meet demand
- The quality of instrument maintenance meets their needs

During each specialty fair, CS professionals provided information about the required number of trays needed daily, based upon their experience with requests made for the trays. This provided an opportunity for surgeons, OR and CS personnel to discuss the challenges encountered when turnover requests permit only minimal processing time.

For example, CS professionals discussed required decontamination, assembly and sterilization protocols, and the disadvantages of immediate-use steam sterilization (IUSS). *Note: The Association of periOperative Registered Nurses (AORN) and the Association for the Advancement of Medical Instrumentation (AAMI) recommend that IUSS only be performed when there is insufficient time to process by the preferred wrapped or container method intended for terminal sterilization (i.e., in an emergency situation) and not be used as a substitute for sufficient instrument inventory.^{1,2,3} Neither organization supports IUSS of implant sets.* CS personnel also explained the lack of approved validation for IUSS sterilization from loaner orthopedic and spine set manufacturers, based on receipt of current manufacturer Instructions for Use (IFU). This discussion helped prompt surgeons and OR personnel to express the need for additional quantities

of applicable instruments in an effort to avoid IUSS sterilization.

In addition to IUSS concerns, fair attendees were reminded that “all instruments and devices used in surgery should be cleared by the U.S. Food and Drug Administration (FDA) prior to surgery and must have written, manufacturer-validated cleaning and decontamination IFU.”⁴ The device manufacturer is responsible for ensuring that the device can be effectively cleaned and sterilized; therefore, the device manufacturers’ written IFU should always be followed.⁵

After the instrument fairs were completed for each surgical specialty, comments were documented and action plans were developed to address improvements required for each specialty. The action plans addressed any specific needs, and they provided helpful information to develop a comprehensive and prioritized list of capital and operational budget requests. This can help build and maintain instrument inventories to meet the needs of surgical customers.

OBJECTIVE 4: EXPLAIN THE NEED FOR AN EFFECTIVE AND ONGOING INSTRUMENT SET MAINTENANCE AND REPAIR PROGRAM

After components of instrument sets are agreed upon, the various IFU consulted and the ability to comply with the manufacturers’ recommendations confirmed, the new sets can be created or existing sets can be reconfigured. Procedures for the continuous assessment and maintenance of instrument sets become very important. Without this emphasis, the efforts required to develop the ideal instrument sets will be wasted because of changing needs that can often occur very quickly. It is especially important that the IFU for each instrument manufacturer be readily available to frontline person-

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nel. These recommendations describe routine maintenance, lubrication, disassembly, and cleaning techniques, along with sterilization instructions. Failure to follow these instructions can lead to damaged equipment, patient injury or shortened instrument life. The ideal set of instruments, based on the customers’ recommendations, will not be satisfactory if they are supplied with devices that are rusty, dull, broken, stiff, or – even worse – not sterilized. Reliable and professional service provided by the CS processing team will go a long way in reducing or preventing frustration for end users.



It is important to plan, implement and maintain an effective repair and maintenance program for all instrument sets. There are many mobile instrument repair vendors that may be able to repair devices on-site, but complete refurbishment will likely require sending sets for off-site service. Instrument repair vendors must be carefully chosen because their work impacts the ability of CS technicians to deliver what they promise: the availability of the appropriate instruments properly processed in the correct quantity, and in the required working condition.

OBJECTIVE 5: STATE THE IMPORTANCE OF DEVELOPING AND MAINTAINING AN APPROPRIATE BUDGET FOR INSTRUMENT SET INVENTORIES

It is important to recognize the importance of developing and maintaining an appropriate budget to support the facility's surgical instrument inventory. Funding will be required in both the capital budget (for purchase of new instruments and equipment) and in operating budgets to maintain existing instruments. Healthcare organizations differ in what is allowed under operational and what is considered capital budgets. CS managers should know and understand the budgeting processing in their faculty in order to plan accordingly. The amount required differs for each facility and will be based upon numerous factors. These include the introduction of new technology, changes in the volume of certain specialties, and the extent of repair and replacement required for existing inventory items.

Most instrument manufacturers and vendors can provide an average annual cost of repair and replacement, based on specific inventory volumes and usage intervals that can be used as a benchmark for a facility's specific budget estimates.

Involving facility administrators throughout the entire process of instrument set determination and maintenance can be very helpful when funding must be requested. Those who understand the importance of developing and maintaining the proper instrument sets, based on surgeon and staff needs, are more likely to offer the needed support.

If a new product (i.e., New technology for surgical procedures) is being considered for use within a facility, it should be brought to the attention of a multidisciplinary committee with representatives from those who will be affected by the new product.⁶ Most healthcare facilities have a product evaluation committee whose responsibility is to evaluate new products, review budget implications, and establish policies and procedures for their use. If a new product requires reprocessing a member of CS should be part of that committee that reviews the product prior to purchasing to ensure the organization can reprocess the devices with the existing equipment or if additional equipment may be needed.

IN CONCLUSION

This lesson explored ideas helpful in developing and maintaining surgical instrument sets. It is important to have the suitable number of necessary instrument sets, with the proper quantity and contents of instruments within each set. Additionally, an effective repair and maintenance plan, along with appropriate funding, is needed to support the demand for surgical instruments.

Still, the most vital element in the management of instrument sets is a good working relationship with – and effective communication amongst – surgeons, OR and CS personnel. With these components in place, challenges relating to surgical instrument sets will be minimized, and healthcare facility

personnel, including CS technicians, will be able to focus their activities on ensuring that patients' needs are consistently met. 📌

REFERENCES

1. AAAHC, AORN, APIC, ASC Quality Collaborative, IAHCSSMM. 2011. Multi-Society Position Statement on Immediate-Use Steam Sterilization.
2. Association of periOperative Registered Nurses. 2015. Guidelines Sterilization: In: AORN Guidelines and Tools for the Sterile Processing Team eBook. Derived from AORN Guidelines for Perioperative Practice, 2015 Edition.
3. Association for the Advancement of Medical Instrumentation. ANSI/AAMI ST79 - Comprehensive guide to steam sterilization and sterility assurance in health care facilities, ANSI/AAMI ST79:2010 & A1:2010 & A2:2011 & A3:2012 & A4:2013 – Introduction.
4. Association of periOperative Registered Nurses. 2015. Guidelines for Cleaning and Care of Surgical Instruments. In: AORN Guidelines and Tools for the Sterile Processing Team eBook. Derived from AORN Guidelines for Perioperative Practice, 2015 Edition.
5. Association for the Advancement of Medical Instrumentation. ANSI/AAMI ST79 - Comprehensive guide to steam sterilization and sterility assurance in health care facilities, ANSI/AAMI ST79:2010 & A1:2010 & A2:2011 & A3:2012 & A4:2013 – section 7.
6. Association for the Advancement of Medical Instrumentation. ANSI/AAMI ST79 - Comprehensive guide to steam sterilization and sterility assurance in health care facilities, ANSI/AAMI ST79:2010 & A1:2010 & A2:2011 & A3:2012 & A4:2013 – section 12.