
CVD MOSQUITO
STR. MOSQUITO
BECKMAN
TOWEL CLAMP
MOSQUITO
HORSE TOWEL CLAMP
EDNA CLAMP
EDNA TOWEL CLAMP

Eliminating Missing Instruments

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LEARNING OBJECTIVES

1. Discuss the importance of maintaining accurate count sheets
2. List steps to build an effective replenishment system to replace missing and nonre pairable surgical instruments
3. Review the Six Sigma technique of 5S for instrument organization
4. Discuss the importance of flow through Sterile Processing decontamination and assembly areas to eliminate preventable missing instruments

Missing instruments are a common challenge for Sterile Processing departments (SPDs). This lesson will address the importance of minimizing the occurrence of missing instruments and developing and maintaining an organized storage and reorder system.

Objective 1: Discuss the importance in maintaining accurate count sheets

Most SPDs track tray errors. These typically involve incorrect instruments, packaging errors, damaged instruments, etc. Most departmental leaders do not count missing instruments as a tray error if the instrument is marked "missing" on the tray menu and labeled on the outside of the tray; however, most surgeons and Surgical Services leaders would argue that missing instruments are the highest frequency tray error and are a direct contributor to delays and frustration in the surgical suite. Missing instruments in surgical trays can halt surgical cases and cause Operating Room (OR) circulators and SPD runners to stop their work to go search for the missing critical instrument. It is not uncommon for multiple SPD technicians to be pulled from their job assignments and spend 15 minutes or longer searching for a critical instrument, which creates waste, frustration and backlogged work.

Organizations spend hundreds of thousands of dollars annually replacing missing instruments. This stems from the surgical procedure itself being delayed or, even worse, canceled because the missing instrument is critical to the procedure. When surgeons schedule procedures, they count on the instrument trays being complete and ready for surgery. Missing instruments are a problem SP Instrument Specialists should strive to prevent proactively – before they have a chance to impact the OR.

Many may wonder what causes missing instruments, and the answer will likely vary depending upon who is asked. Some SP Instrument Specialists might claim the OR is largely responsible. Those in the SPD typically blame the OR team

for throwing away instruments with the drapes on the back table. On the other hand, many OR team members might envision a black hole of sorts in the SPD where all the critical instruments are mysteriously collecting. Healthcare administrators do not care what is causing the problem; they just want an end to the never-ending expenses associated with replacing missing surgical instruments. In reality, the root cause of missing instruments is complex. Missing instruments are typically caused by instruments mixed between sets, prioritization systems that leave critical instruments behind, bad data on critical tray count sheets, and no replenishment system to replace damaged instruments. For the purpose of this lesson, let's focus on what the SPD can control.

Counting on Count Sheets

Surgical tray menus are the critical tool ensuring the success or failure of SPDs. Count sheets are the communication tool where the OR team ensures that the SPD team knows exactly which instrument belongs in which tray. Bad data on tray menus leads to the wrong instruments in trays, no information to order replacement instruments, and failure to follow the manufacture's instructions for use (IFU) for instrument processing. Instrument Specialists are set up for failure if count sheets do not have the critically needed information, including the manufacturer, catalog numbers, instrument descriptions, and quantity. Whether a tray menu is electronic or hard copy, the count sheet must be accurate to ensure that SP technicians can get the right instrument in the right tray.

Because there are hundreds of thousands or surgical instruments, critical pieces of the tray menu are manufacturer information and catalog numbers. Most SP technicians have "bread and butter" instruments memorized like Mayo scissors and #3 knife handles, and advanced SP technicians will have a variety of instruments memorized from an assortment of service lines. For example, they can explain the difference between Debakey, Satinsky and Cooley vascular clamps. Even the most experienced SP technician, however, may struggle to know the differences between similar instruments on ear, eye and other microsurgery instruments. Without the manufacturer's catalog information on tray menus, new hires will struggle to learn the jargon and memorize the specialized instruments in their new SP roles – and even long-term employees may struggle or avoid trays with less-familiar instruments. The result for both groups is the wrong instruments in trays and instruments marked "missing." When the manufacture's catalog information is accurate and included on tray count sheets, experienced and new SP technicians can "paint by number" to assemble specialized surgical instrument trays. When this happens, tray assembly speed and accuracy is improved, missing instruments can be located, and replacement instruments can be ordered, if needed.

One of the root causes to missing and/or incorrect instruments is poor descriptions for surgical instruments on count sheets. Considering the following:

- Forcep Allis
- Allis Clamp
- Allis Clamp Med
- Allis Clamp 7in
- Forcep Allis Tissue Straight 6 ¼"

All of these descriptions may be asking for the same instrument; however, only the last instrument description (Forcep Allis Tissue Straight 6 ¼") will result in SP technicians consistently putting the correct instrument in the correct tray. For the other examples, SP technicians may put a variety of lengths or thicknesses of Allis forceps in instrument trays. Additionally, technicians may not be able to replace an instrument because they do not have enough information. Often, hospitals use their own jargon on tray menus. For example, a Rochester Eastman retractor is listed as a Kelly retractor. There is no sizing information and it is the incorrect name. The OR cannot understand why those in the SPD cannot get it right. SP technicians must get it right, and the way to get there is by having accurate tray menus with standard nomenclature for instrument names. The following is an example of a simple instrument standard nomenclature that is effective: instrument type, inventor or scientific name, description of direction/curvature, length, and thickness (if applicable). This structure ensures technicians can quickly read tray menus to match their instruments to the count sheet. It also ensures they have the information to find their instrument in other trays or from the back-up wall, and it drastically reduces the risk for technicians putting the incorrect instrument in a surgical instrument tray.

As instrument count sheets are cleaned and completed, the SP leader needs to ensure the technicians understand that "close enough" substitutes are not acceptable. When an organization has had poor information for years, the surgical instrument trays likely have years' worth of poor instrument substitutes or incorrect instruments. As trays are processed through the SPD, wrong instruments will be removed, and correct instruments will be placed in trays. This may result in a short-term increase in missing instruments as incorrect instruments are removed and replacement instruments are unavailable.

Objective 2: List steps to build an effective replenishment system to replace missing and nonrepairable surgical instruments

Surgical instruments undergo wear and tear during surgical procedures. SPDs have preventative maintenance systems set up to repair and maintain the functionality of the instruments. Over time, the instruments become nonrepairable. When instruments are damaged beyond repair, the SPD must have a replenishment plan. The replenishment plan should include a system for having instruments on hand for high-use instruments and a separate system for purchasing replacement specialty instrumentation.

Departments can build a back-up supply of instruments, either through purchasing high-use instruments or engaging in a consignment system with their contracted instrument vendor. Some instrument repair companies will include replacing high-use instruments as part of their repair service. The instruments in any of these systems must be the right mix of instruments and organized in a way to ensure SP technicians can find the instrument they need as quickly as possible. Instrument use should be analyzed to identify the most frequently-used instruments in the department. For departments with surgical instrument tracking systems, the information can be exported by the system. It is important to evaluate the frequency of use for each type of instrument across all trays. The department should focus on creating par levels for back-up instruments matching highly-used instruments. Instruments with a greater risk/tendency for damage or wear (e.g., osteotomes) should also be included.

Objective 3: Review the Six Sigma technique of 5S for instrument organization

Once the selection of instruments is completed, the back-up instrument area should be organized in a way that makes it easy to locate instruments quickly. Six Sigma has an organization technique known as 5S. This technique, which includes the following, results in items being organized in a way to make it intuitive to find and locate the critical item when needed:

Sort: The first step in a 5S project is to sort. Sort instruments that are needed from instruments that are old inventory and will never be used. Many third-party instrument vendors and some manufacturers will purchase old instrument or give trade-in credit toward new purchases. Remove any broken damaged instruments and send them for repair if they can still be used. For any nonrepairable instruments or dead inventory that is unsellable, consider recycling. The important thing is to only keep instruments in the backup inventory that will be used.

Set in order: The next step in a 5S project is to set in order. Organize instruments to promote workflow and place high-use instruments in easy-to-reach locations; low-use items should be located farther away. Instruments primarily used in the low-temperature sterilization area should be stored there. If the instruments are primarily used to replace nonrepairable instruments, perhaps they should be located near where trays are checked back in from the onsite repair team. Organize the space so it is easy and intuitive to use.

Shine: The third S in a 5S project is to shine. The area should be cleaned, so it is neat and tidy. Dust the back-up wall peg board or bins. Remove and replace any old or worn labeling. Remember, instruments stored in the back-up area will be placed in trays for surgery; they should be stored in a clean, sanitary environment.

Standardize: The fourth step in a 5S project is to standardize. One of the most effective tools for standardizing a back-up wall is use Kanban cards. Kanban is a visual indicator that an action needs to occur. Kanban cards for instrument back-up walls typically have an image of the instrument, manufacturer, catalog information, and a reorder point or par level. The Kanban cards are placed on the pegs and in the bins of the back-up wall. This serves two purposes: first, SP technicians have labels with images for each instrument. This keeps the back-up wall organized, and when new instruments come in, they can be quickly put in the right location. The second purpose leads to sustainability.

Sustain: The final S in a 5S project is to sustain. A system needs to be developed to ensure that the organization and replenishment of the back-up wall stays in place. Kanban cards can be placed at the reorder points for the instrument back-up wall. The cards have the critical information that the requisitioner will use to order replacement instruments. At least annually (if not more often), the organization should reanalyze the instrument utilization data and nonrepairable instrument trends to adjust the back-up wall instrument mix, as appropriate.

Having a well-functioning back-up wall is critical for high-replacement instruments that are at end of live or nonrepairable; however, facilities can have over 20,000 types of instruments in their instrument trays. Not all instruments can be managed through a back-up wall. For those specialty instruments that are high value, low utilization, or super specialized, the organization will need an alternative system for managing missing and nonrepairable instruments. The specialized instrument should be

communicated to the OR. Some instruments are so specialized that the associated surgical procedures cannot be performed without the critical instrument. If the instrument is not available, the organization may need to borrow or get loaned instruments, or worst case, reschedule surgeries. *Note: This should be vetted as soon as possible to reduce any patient care impact that could occur.* After the instrument is confirmed lost or nonrepairable and communicated to the OR team, the SP team then needs to order the instrument. Ideally, the tray information can be included on the purchase order or documented to print on the delivery receipt when the instrument arrives. This will simplify the process for getting the instrument on the right tray as quickly as possible.

Objective 4: Discuss the importance of flow through Sterile Processing decontamination and assembly areas to eliminate preventable missing instruments

While the OR team can certainly contribute to missing instruments, it is not always in the way most SP technicians believe. Many missing instruments mysteriously reappear the following day in the SPD. Many SP professionals may have experienced the OR coming to the SPD and finding a critical instrument in a random bin. Most SPDs experience this daily and in large "mega departments," it can occur several times a day. This type of missing instrument root cause is typically the OR team mixing surgical instruments in multiple trays. When instruments are mixed on the sterile field and not re-sorted prior to SPD receipt, this increases the risk for missing instruments. In the SPD, there typically is a list of priority trays for the day; these trays are pushed through decontamination as soon as they arrive because they are needed for surgeries later in the day. One-of-a-kind trays can be fast tracked through the decontamination area. If there is not a consistent flow process, SP technicians can choose which instruments to send through in which order. All these behaviors lead to the same issue: instrument trays from the same case cart being sent through the washers at different times. When this happens, instrument trays then arrive in the assembly area, Instrument Specialists attempt to assemble the trays and, unfortunately, the sets are missing instruments that are still in other trays from the original case cart in decontamination. The instruments are marked as missing and the trays are sterilized. The next morning, when the tray is used in surgery, it is missing critical instruments. The instruments are then found in the SPD and the OR team cannot understand why the SPD "cannot get it right."

Instrument Specialists should focus on what they can control and avoid the blame game. The SPD can control the flow of instruments through decontamination and assembly. Trays from the same case cart should be kept together through decontamination and assembly. This will reduce search time in the instrument assembly area and reduce the occurrence of preventable missing instruments. Tags validated for decontamination processes can be used to keep these trays together through the processes. Employee engagement and buy-in will ensure success for improving the flow of instruments in an SPD.

Conclusion

While missing instruments will remain an issue in the SPD, the occurrence can be decreased. By focusing on the processes that can be controlled by the SP technicians and developing an organized and well-maintained system of instrument processing and missing instrument replacement, many of the occurrences of missing instruments can be reduced.