Computerized Instrument Tracking Systems

Instrument tracking systems are a part of every Central Sterile Supply Department (CSSD). Tracking systems can be as simple as pen and paper or as sophisticated as computer systems that inform the operating room (OR) charge nurse about instrument availability for the surgeries as the procedures are being scheduled. This lesson will explain the benefits and challenges of Computerized Instrument Tracking Systems (CITS), explore the types of CITS currently available, and review the types of reports they can generate.

CITS BENEFITS

Users of a CITS know where all instruments and sets are all the time. Therefore, when a surgical procedure is added, the location of a specialized instrument needed for the case can be easily and quickly determined. If the required instruments are in use for another case or cannot be processed before the case is scheduled to begin, the added case may need to be delayed or the instrument will need to be cleaned and immediate-use sterilized (flashed) if the added case is emergent.

Specific sets can be identified as having been used on a specific patient. Then, if a recall needs to be implemented, this will eliminate the need for many patients to undergo unnecessary testing. This, in turn, saves the hospital in lab test costs and the time required for notifications.

Inventory optimization is enhanced when a CITS is in place. Certified Instrument Specialist (CIS) technicians can manage instrument maintenance and repairs because the system tracks usage. The system can also maintain applicable information about warranties and the useful life of each specific instrument.

CSSD managers using computerized instrument tracking can simplify the training that is required. For example, new employees can easily learn how to use the program and identify the instruments being tracked by it. Also, current employees can learn to identify new instruments more quickly.

A CITS provides legible labels for wrapped instruments. Instruments can be misplaced if their labels cannot be read, and a computer-generated label will be easier to read.

Instrument tracking reports can be generated with just a few clicks of the computer mouse. Results of biological indicator testing, lists of incomplete sets from the previous day, and sets requiring maintenance are examples of the reports that can be easily produced. Each is important for the day-to-day operation of an efficient CSSD.

Managers can use the CITS to monitor the productivity of instrument processing employees. Does the production line slow around one person? Are staff members taking excessive breaks? The answers to these and related questions are helpful to
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monitor the quantity of processing output and to provide for accurate employee evaluations.

One significant benefit to the use of a CITS can be a reduced need for immediate-use (flash) sterilization. When a comprehensive CITS is in place, CSSD employees are notified by computer when a surgery case is added. This improved communication helps the CIS technicians plan their work to best ensure that instruments will be sterile and available in the surgical suite before the procedure begins. Knowing which instruments most frequently require immediate-use sterilization may be helpful in justifying the purchase of additional instruments.

CITS CHALLENGES
One challenge to using CITS is the massive disruption to the workload as the system is implemented. For example, the laser etching systems used with fully automated tracking systems that scan at every station require a two-dimensional matrix “dot” code that is permanently applied to the instrument. Therefore, every set and individual instrument will need to be opened so the matrix dot can be applied. A system using bar codes will also require that every processed set be opened. Some companies’ software programs are only able to scan bar codes on sets rather than the dot codes on individual instruments. It’s important to know which system will work best for the hospital before a tracking system purchase is made.

Organizing instrument storage areas before implementation of the CITS will make the start-up process flow more smoothly. A complete inventory will be a good place to start. Grouping the instrument by surgery types (for example, orthopedic, neurological, and laparoscopic) will make this process go faster.

All computer systems are vulnerable to power outages. The tracking system currently in use will need to be maintained. The CITS can be backed-up with the facility’s emergency electricity system. Alternatively, another type of manual back-up system will be needed to manage instruments if power outages occur.

The cost of the CITS must also be considered. Companies offering CITS often sell them in modules that build upon one another, and this makes it easier to budget for the cost of the total system. An example of this process is discussed in the next section.

IMPLEMENTING COMPUTERIZED INSTRUMENT TRACKING SYSTEMS
In the first phase of implementing a fully computerized instrument tracking system, a computer will be installed at each set assembly station. The company installing the computer program will require a copy of a count sheet that lists every instrument required for a set, and it can include photos and assembly instructions for each instrument inside the set. Specialty instruments will comprise their own sets and are then treated like all other sets.
When the system is operational, the CIS technician scans the bar code or the matrix dot. Many software programs also allow the CIS technician to type in the name of the instrument tray into the computer. The scanning process undertaken by the technician brings the count sheet, photos and set assembly instructions on the computer screen along with the instrument’s name and catalog number and quantity of instruments needed. The technician can then assemble the set while closely following instructions, print the count sheet, and send both to the sterilization station.

If an instrument or implant is missing (for example, an implantable screw from a trauma orthopedic set), this can be noted on the computer, and it will be included on the next day’s report. When shared with surgery department personnel, the sales representative can be contacted to request that the set be filled.

Before installing the next level of a CITS, a full inventory of all sets and instruments will be required because the tracking system to be used can only be accurate if the inventory is accurate.

The next phase in implementing a CITS is to place scanners throughout the entire CSSD. When the instruments reach decontamination, they are scanned, and the screen will display any special washing instructions. For example, sagittal saws must be manually washed. After the washing process, the instruments are scanned at the assembly station. The same program discussed above is used for set assembly.

When the sets are put onto the rack to go into the sterilizer, they are again scanned, and any specific sterilization instructions will be shown on the screen. This information can then resolve any confusion about, for example, which scopes must be placed into the ethylene oxide (EtO) load and which can go into the steam sterilizer. This scan also provides a quick and legible documentation of each sterilizer’s load.

When the load is released, the scanning continues. The shelf space where the set is stored will have a bar code or a matrix dot, and it will be scanned when the set is placed in storage. The CITS will then indicate the exact location of the set, even if it is in the wrong place.

A complete CITS is even more comprehensive than the above-described system and includes the placement of scanners in the surgery department so specific trays can be scanned for particular procedures. For example, the system will indicate that Dr. Smith used general tray #6 on patient Jane Doe. If there was a problem with the sterilizer that created a load recall, the OR charge nurse will be informed that general tray number six was used by Dr. Smith on Jane Doe. Only Ms. Doe will need to be notified. The system works in reverse, as well: if it is discovered that patient Jane Doe has a disease, such as Creutzfeldt-Jakob Disease (CJD), then only those patients on whom general tray #6 was used in their surgery will need to be notified.

When selecting a CITS, it is important to ensure that the tracking system can interface with the OR scheduling system. This is vital to guarantee the most effective communication between the two departments. Knowing when cases...
are added or canceled and when surgery times are changed is essential to plan and organize work in the CSSD. As well, linking the scheduling system to the physician's preference card and the CITS allows OR personnel to know the location of applicable instruments when a schedule change occurs.

A CSSD facilitator will be valuable when the CITS is implemented. This person serves as a within-facility liaison between the computer software company and the CSSD. He or she will interact with the company to organize the implementation process, assist with training and answer questions, such as how to input information about new instruments after the initial implementation is completed.

CITS REPORTS
Even the most basic CITS can generate many different reports, and it may take some time to determine those which will be most useful for the CSSD and the hospital.

Daily reports about pending biological indicators are important. Every morning, this report can tell the CIS technician working the sterilization station which biologicals must be read. If a biological is positive, one click of the computer mouse will pull up what was in that load so the recall can begin.

An incomplete sets report facilitates the replacement of missing instruments and implants, and it is also a valuable tool. Instruments are misplaced for many reasons, and it is always important to have complete sets available.

A set maintenance report tracks the number of uses for each set. It indicates the number of remaining uses before a set must be sent for general maintenance. Normally, when there are less than five remaining uses, the set should be sent for maintenance.

IN CONCLUSION
CITS offers many benefits, including the comprehensive accounting of all instruments and the generation of numerous helpful reports. Many CSSDs implement a CITS in phases to better manage costs and time requirements, and to resolve any implementation challenges in an organized manner.

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ADDITIONAL READING


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1. Which is a benefit of a CITS?
   a. Identify location of sets
   b. Inventory optimization
   c. Legible labels for wrapped instruments
   d. All of the above

2. A CITS _____ simplify the training process.
   a. Can
   b. Cannot

3. CSSD managers can use a CITS to track the productivity of their employees.
   a. True
   b. False

4. Which is a challenge to the use of a CITS?
   a. Reduced need for immediate use sterilization
   b. The availability of numerous tracking reports
   c. Work load disruption during implementation
   d. None of the above are challenges

5. Manual back-up systems are not necessary when a CITS is in use.
   a. True
   b. False

6. What information is contained in a computerized count sheet?
   a. Instruments needed for the set
   b. Photos of instruments
   c. Special set assembly instructions
   d. All of the above

7. A full inventory of all instruments and sets is necessary for an accurate CITS.
   a. True
   b. False

8. When sets are placed on rack to go into the sterilizer, they are scanned, and any specific sterilization instructions will be shown.
   a. True
   b. False

9. The CITS will not be able to locate a set if it has been placed in the wrong sterile storage area.
   a. True
   b. False

10. Purchasing a CITS that will interface with the OR scheduling system
    a. Improves communication between the departments
    b. Gives CIS technicians guidance in managing work loads
    c. Surprises the CSSD with instrument requests
    d. Both A and B

11. CITS can produce which of the following reports?
    a. Loads that are recalled
    b. Set maintenance
    c. Completed sets
    d. Number of mouse clicks

12. During the first phase of CITS implementation, computers will be installed in be installed in each set assembly station.
    a. True
    b. False

13. CITS can report the results of biological indicator testing.
    a. True
    b. False

14. CITS help to justify the purchase of additional instruments.
    a. True
    b. False

15. Which type of system requires that each set and instrument be opened when a CITS is implemented?
    a. Laser etching
    b. Bar code
    c. A and B above
    d. None of the above

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