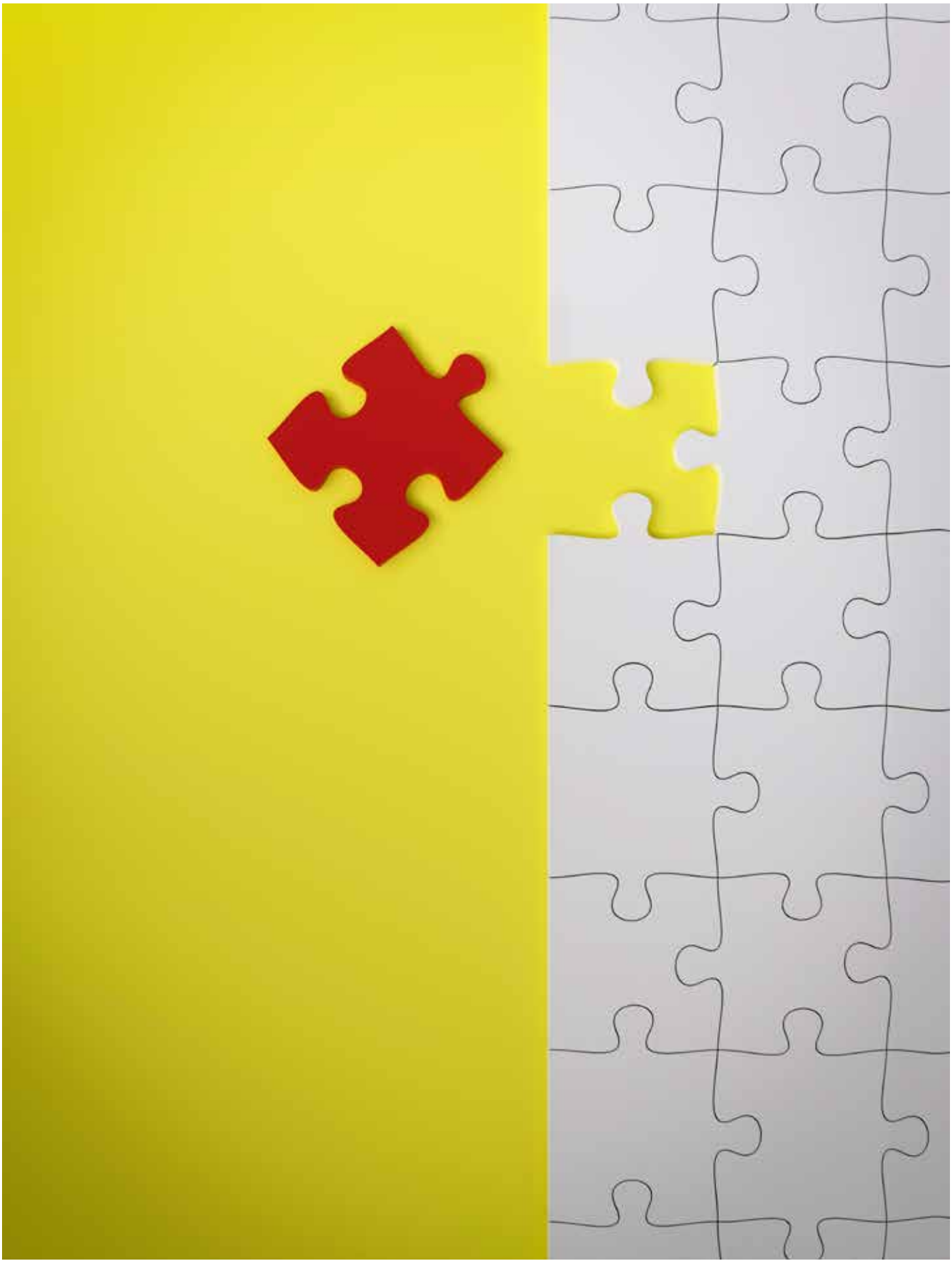

Instrument Error! What Happened?

Identifying Causes, Adopting Solutions

BY NATALIE LIND, CRCST, CHL, FHSPA, DIRECTOR OF EDUCATION—HSPA

Certified Instrument Specialist (CIS) lessons provide members with ongoing education in the complex and ever-changing area of surgical instrument care and handling. These lessons are designed for CIS technicians, but can be of value to any CRCST technician who works with surgical instrumentation.

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LEARNING OBJECTIVES

1. Discuss the dangers of instrument errors and understand how human factors can impact instrument quality
2. Identify common systems issues that impact instrument errors
3. List steps to reduce instrument errors

The complete case cart is delivered to Surgery and wheeled into the room. Operating Room (OR) staff carefully unload the cart, unpackage the sterile items and set them up in an organized fashion, ready for use. It seems like everything is ready to go, but is it, really?

Every day in healthcare facilities across the country, instrument errors are discovered. But instruments are inspected before they are packaged, sterilized and sent to the OR, so how can that happen? This lesson addresses common causes of instrument errors and reviews strategies to reduce and eliminate their recurrence.

Objective 1: Discuss the dangers of instrument errors and understand how human factors can impact instrument quality

Every instrument used in surgery must be available, complete, functional and safe for use. If any of those requirements are not met, the risk to the patient increases. Sterile Processing (SP) technicians know the dangers of instrument errors and understand that patients risk delayed care and, in some cases, procedure cancellation because of missing or incomplete instruments. Another threat is that instruments that appear clean and ready to use may carry harmful microorganisms that cannot be seen with the naked eye. Those microbes may enter the patient's body and cause serious infections. For those reasons, SP technicians must do everything in their power to provide safe instruments for every surgery. Unfortunately, that is sometimes easier said than done.

Generally, instrument errors fall into two categories: human factors or systems issues. Whatever the cause of the error, a follow-up should be conducted to identify it and take steps to prevent its recurrence. It should be the goal of every SP professional to continually improve instrument quality and, in doing so, enhance patient safety.

Even the best instrument system cannot be successful without the people

who work within it. While the system requires updates and organization, so do the people doing the work. Change is common in any instrument system. Failure to keep abreast of such evolutions and incorporate changes into the daily work routine can result in errors. Changes may include updates to existing information, such as count sheets and instructions for use (IFU), as well as modifications to facility procedures. Other changes pertain to regulations, standards and scientific knowledge. If any change or update is missed, it could cause or contribute to an error. Staying abreast of changes is essential for anyone who handles surgical instruments, and doing so successfully requires dedication and keen attention to detail.

Stress and communication issues can also contribute to errors. Miscommunication and the stress that comes with tight time requirements can affect quality and increase the risk of errors. Errors can also occur when teams fail to support one another. When individuals prioritize personal grievances or differences over quality and patient safety, the risk of errors increases. Every SP employee should prioritize the patient's well-being over their shift goals. Nothing is more important than living up to the trust the patient has placed in the healthcare workers providing their care.

Objective 2: Identify common system issues that impact instrument errors

Surgery and Sterile Processing are both stressful work settings. Patients depend on instrument accuracy, and that requires attention to detail. It also requires an instrument system that changes with every system update. If the system becomes outdated or cumbersome, errors may increase.

Systems usually work well at their outset; however, as they grow and change, they may become more challenging to work within. For example, if changes are made to instrument trays and the information is not recorded for reference, those trays may return to the OR in the previous configuration, which can cause possible frustration for the surgical staff and delay the procedure. Similar situations may arise when instruments are sent out for repair without adequate staff notification or when new instruments are introduced.

Miscommunication can contribute to risks and errors and must be proactively addressed. For example, staff members present when a change occurs might be better informed than those on other shifts. These types of communication gaps can present numerous challenges, all of which can increase the risk for error. Too often, systems identify those in charge of training but fail to communicate that everyone should keep abreast of change. It should not be the responsibility of leads or educators alone; rather, it should be the goal of every staff member. By sharing information and being willing to answer co-workers' questions, instrument errors will be reduced.

Most instrument systems are too large to function by memory, and errors often stem from inadequate training. It is not easy to cover all instruments in a system during a few weeks of training. Documentation should identify which instruments need to be covered before training is complete.

Objective 3: List steps to reduce instrument errors

Instrument errors happen in all facilities. In some situations, the cause of errors may point to a specific issue. Using a process like root cause analysis (RCA) can help examine the issue and identify weaknesses in the system.

Expectations are high for healthcare departments, including the SPD. When an error is identified, it can cause delays; therefore, each error must be taken seriously and addressed proactively. The first step toward proactive resolution is reviewing the current system to determine what needs to be updated or changed. Everything within the system should be reviewed, and any roadblocks to instrument quality should be identified and cleared. The system review should include input from all instrument technicians, and they should be encouraged to share their ideas to make the system more user-friendly. Those who work with the process are a terrific source of ideas for system improvement.

Another overlooked information source is technicians who are undergoing or have recently completed training. Those individuals can often identify issues that more seasoned technicians might initially overlook. The saying about things being noticed by fresh eyes is true.

Preventing as many errors as possible is ideal. Some methods that prevent errors include:

- *Using visual aids to provide additional information* – Pictures, videos and graphics can help ensure that instruments are identified and handled correctly. They can also help ensure that all instrument components are present. Many instruments are very similar, and additional information can reduce errors.
- *Enhancing descriptions to include more detail* – Clear descriptions can help reduce the risk of error. For example, including more information in the

description, such as numbers or sizes, makes it easier to ensure the correct instrument is being selected.
- *Providing clear guidelines for assembly, layout and prep for the sterilization process* – Good descriptions or even diagrams can prevent mistakes as instruments are prepared for sterilization.
- *Established clear location information* – When instruments are missing or need repair, a backup location should be identified so the tray can be completed before being returned to the OR. There should also be a specific process for notifying the OR if instruments are missing from a tray and cannot be replaced immediately. Further, a method for recording instruments removed from the backup area helps prevent outages.
- *Identify additional needs* – In some situations, the reasons for errors may indicate the need for additional instruments, equipment, or staff. There should be a mechanism to document those issues and collect data to support the need.

Conclusion

Instrument and system-related errors can delay procedures and jeopardize patient care. With keen attention to detail, effective planning and focused implementation and training around changes and updates, many errors can be prevented, stress can be reduced, teamwork can be improved, and patient safety can be achieved.

CIS Self-Study Lesson Plan Quiz: Instrument Error! What Happened?

Lesson No. CIS 314 (Instrument Continuing Education – ICE) · Lesson expires February 2029

1. Which two human factors can cause or contribute to instrument errors?
   a. Repairs and replacements
   b. Stress and communication
   c. Computer systems and log systems
   d. Training and management

2. Once a good system has been implemented, it will:
   a. Take several years before it is outdated
   b. Continually change
   c. Eliminate errors automatically
   d. Require extra employees to maintain

3. Providing clear assembly guidelines:
   a. Eliminates all confusion for new technicians
   b. Should be the responsibility of the sterilizer operator
   c. Improves the chance of a successful sterilization process
   d. Does not affect error rates

4. Instrument errors can be reviewed and identified by using which process?
   a. PACE
   b. EMDR
   c. JIT
   d. RCA

5. Sterile Processing departments can reduce the risk of incomplete trays by:
   a. Having two employees count each instrument
   b. Including backup locations on tray count sheets
   c. Ensuring two instruments are available for all trays
   d. Partnering with the OR to reduce procedural volume and tray quantities

6. Instrument errors:
   a. Occur in every facility
   b. Are always avoidable
   c. Should result in employee termination
   d. Require immediate intervention from Human Resources

7. If an instrument change or update is not entered into the system:
   a. The risk of errors increases
   b. The information should be provided in staff meeting notes
   c. Technicians should not be responsible for any related errors
   d. The manager or educator should be reprimanded

8. Missing instruments can result in:
   a. Delayed cases
   b. Canceled procedures
   c. Frustrated surgeons and Operating Room staff
   d. All the above

9. Technicians who are in or have recently completed training:
   a. Should not be involved in instrument system review
   b. Should be the primary reviewers of the instrument system
   c. May bring new perspectives to the existing instrument system
   d. Should be removed from training during instrument system review

10. Errors can be reduced by putting the patients' needs first.
   a. True
   b. False

11. Instruments that appear clean to the naked eye:
   a. May harbor microorganisms
   b. Are safe for patient use
   c. Must undergo a secondary inspection from a team lead or manager to verify cleanliness
   d. Do not require additional inspection

12. Generally, instrument errors fall into which two categories?
   a. Planned and unplanned
   b. Systems-based and computer-based
   c. Serious and non-serious
   d. Systems issues and human factors

13. Training is the responsibility of:
   a. Trainers
   b. SP technicians
   c. Managers
   d. All SP staff members

14. Records should be maintained:
   a. For all instruments removed from the backup area
   b. In a locked storage cabinet
   c. At least monthly
   d. At least quarterly

15. Follow-up is necessary:
   a. Primarily when an error causes patient injury
   b. For employees who make repeated errors
   c. When a customer complains about an error
   d. For all errors

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