CRCST Self-Study Lesson Plan

Lesson No. CRCST 150 (Technical Continuing Education - TCE)

Sponsored by: Science. Applied to Life.™ by Gwendolyn Byrd, CHL, CIS, CRCST CPD Educator, Children's Hospital of Philadelphia

> Christina Parson, CHL, CIS, CRCST SP Manager, Brandon Regional Hospital

The Manual Cleaning Process

LEARNING OBJECTIVES

- 1. Define manual cleaning
- 2. Outline the importance of manual cleaning to prevent healthcare associated infections and promote employee safety
- 3. Review the manual cleaning process
- 4. Address the need for quality assurance testing

This series of self-study lessons on CS topics was developed by the International Association of Healthcare Central Service Materiel Management (IAHCSMM). Purdue University's Extended Campus and IAHCSMM both offer grading opportunities.

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NSTRUMENT CLEANING HAS BECOME A TOPIC OF INTEREST IN TODAY'S news. It is also a major focus in hospitals because of the increase in healthcare-associated infections (HAIs). The importance of proper learning of instrumentation or equipment used on patients is a key factor in HAI prevention. Knowledge of the latest industry recommendations, guidelines and standards, combined with practical skills, ensures that reusable medical devices are safe for handling and patient use. The US Food and Drug Administration (FDA) requires that manufactures provide instructions for use (IFU) to outline proper care and handling, and appropriate methods for device cleaning and reprocessing. This information would include disassembly instructions, types of detergents to be used, proper use of cleaning tools, type of rinse water, and type of mechanical cleaning approved for processing the devices.

OBJECTIVE 1: DEFINE MANUAL CLEANING

Manual cleaning is the physical removal of all visible soil (gross debris) from an item to render it safe for handling and further processing for patient care. This process begins with point-of-use cleaning in the surgical suite. Gross soil should be wiped from the instruments and lumens should be flushed with sterile water during and after the surgical case.

Any soil left on the instruments should be not be allowed to dry.

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Using an approved post-operative pre-cleaning spray to keep blood and protein substances from drying on the instruments is an effective approach. Covering instruments with a lint-free cloth that is moistened with water is another option for keeping blood and protein from drying on the instruments prior to being transported to the decontamination area. Keeping soiled instruments moist after the procedure makes cleaning easier and less time consuming.

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In some cases, such as for non-critical devices, manual cleaning will be the only step required in the reprocessing cycle; however, Central Service (CS) technicians should carefully follow the manufacturer's Instructions for Use (IFU) to ensure that proper steps are being taken.

OBJECTIVE 2: OUTLINE THE IMPORTANCE OF MANUAL CLEANING TO PREVENT HEALTHCARE-ASSOCIATED INFECTIONS AND PROMOTE EMPLOYEE SAFETY

Patients enter the healthcare facility in a weakened and compromised state, which makes them more susceptible to contracting an infection. The CS department plays an important role in infection prevention; therefore, it is important that CS professionals meticulously follow standards, recommendations and manufacturers' IFU for manual cleaning. Proper orientation and annual competency within the facility also helps ensure that all staff members are following standards properly and consistently.

Thorough cleaning is the first step in the disinfection and sterilization process. Failure to completely follow the defined cleaning process (as outlined in the latest standards, recommendations and IFU) may cause inadequate decontamination, interfere with the disinfection or sterilization process, and cause patients to become exposed to infectious agents.

Infection prevention and control goes hand in hand with reprocessing of medical devices in the healthcare setting. An infection is a type of disease that is caused by microorganisms, also known as pathogens. Improperly-cleaned medical devices can be the cause of an infection. It is important to note that not all microorganisms are disease causing; however, CS professionals must consider all contaminated



Figure 1: Immersible instruments should be cleaned below the water's surface.

instruments as potentially disease causing. CS professionals' use of standard precautions when handling contaminated instruments, along with their consistent adherence to proper cleaning processes, is critical for reducing the likelihood of cross contamination. *Note: The use* of proper personal protective equipment (PPE) in the decontamination area is required by the Occupational Safety and Health Administration (OSHA) to protect personnel from potentially infectious microorganisms.

OBJECTIVE 3: REVIEW THE MANUAL CLEANING PROCESS

Most items that enter the decontamination area will be subjected to some type of manual cleaning. For some instruments, manual cleaning is used as a preparation of instruments before the use of mechanical cleaners; however, for some medical devices, such as delicate microsurgical, lensed and power surgical instruments, manual cleaning will be the only cleaning process performed prior to disinfection, sterilization or patient use. What follows are the basic steps for proper manual cleaning. *Note: The manufacturer's IFU for each device should be carefully followed to ensure proper cleaning.*

PRESOAK: Presoaking helps loosen soil on devices and makes the devices easier to clean. The manufacturer's IFU should be followed when mixing soaking solution, and the temperature should be monitored and documented. Optimal temperature ranges should be between 80°F to 110°F (27°C to 44°C), and not exceed 140°F (60°C). These temperatures will prevent coagulation and assist in the removal of protein substances. Once items are received and sorted in the decontamination area, they should be disassembled before soaking in an approved solution. CS professionals should be careful not to lose small parts. All surfaces of the instruments must be exposed to the solution; hinged instruments should be opened to completely expose the box locks.

CLEAN: Cleaning solutions should be mixed according to the chemical manufacturer's IFU. Recommendations for dilution, temperature and water pH should be followed.

Immersible devices should be cleaned under water to minimize aerosolation. Figure 1 shows instruments being cleaned below the surface of the water. Using a lint-free cloth and the recommended brush type, all areas of the device should be carefully cleaned, brushed and flushed. Lumened or cannulated medical devices should be cleaned with the appropriate size brush, bristle type and material, followed by flushing the lumens to remove all loosened debris. Ensure all areas of the instrument are cleaned, including any crevices.

Devices that cannot be immersed should be cleaned in a manner that will protect the instrument from water invasion, and they should be rinsed and dried according to the manufacturer's IFU. Immersing items that should not be immersed will damage the device, causing expensive repair or replacement of the item. Figure 2 shows power instruments immersed.

RINSE: After cleaning, the device should be thoroughly rinsed with clean water to remove any detergent residue and debris. Following the initial rinse, the devices should be rinsed in treated water. This final rinse helps ensure all residues and debris have been removed, as well as any fever-producing pyrogens. Some items that cannot be immersed may be rinsed under running water. CS professionals should follow the manufacturer's IFU for the proper rinsing method.

LUBRICATE: Some manually-cleaned items require lubrication after cleaning. The use of a water-soluble lubricant is recommended. Be sure the lubricant is approved for the type of sterilization



Figure 2: Immersion of power instruments



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method that will be used. To ensure proper lubrication, carefully follow the manufacturer's IFU for both the lubricant and the instrument.

Carefully check the device for cleanliness before sending it to the assembly area. If a soiled instrument is found, it should undergo the entire cleaning process again.

OBJECTIVE 4: ADDRESS THE NEED FOR QUALITY ASSURANCE TESTING

Quality assurance testing of the cleaning process should be a routine process within the CS processing cycle. Any organic material left on the devices after cleaning lowers the effectiveness of the disinfection or sterilization process, and may lead to subsequent infection. It is not feasible to test each instrument for cleanliness, so a system to select instruments for testing should be developed. Some difficult-to-clean instrument types may be tested each time they are cleaned, whereas other instruments should be selected on a random basis. Disassembled instruments should be tested prior to reassembly.

There are several types of commercial tests available; regardless of the type used, it is essential to follow the manufacturer's IFU. Instruments that fail cleanliness testing should be sent back to the decontamination area for recleaning. When soiled instruments are found, the cleaning process should be evaluated to determine where the process was not effective. Items that have been tested should be recleaned after testing to remove any testing chemical residue.

IN CONCLUSION

Manual cleaning begins with pointof-use cleaning in the surgical suite. Post-operative use of an enzymatic pre-cleaning spray (or a watermoistened, lint-free cloth placed over the instruments) is recommended to keep blood and protein substances from drying on devices prior to being transported to the decontamination area. CS professionals must continue the cleaning process wearing proper PPE and follow the manufacturers' IFU in each step of reprocessing to render the medical devices safe for handling and continued processing for patient use. A quality assurance program should also be put in place to ensure that CS professionals are following cleaning procedures consistently, and that the cleaning and decontamination processes were effective. **(**

RESOURCES

Association of periOperative Registered Nurses. 2016. Guidelines for periOperative Practice.

Centers for Disease Control and Prevention. 2013. Infection Control Frequently Asked Questions – Sterilization, Cleaning.

Association for the Advancement of Medical Instrumentation. ANSI/AAMI ST79, Comprehensive guide to steam sterilization and sterility assurance in health care facilities, Sections 7.5.3.2 and 7.5.3.3.

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Damien Berg, CRCST Nicholas Schmitz Susan Klacik, ACE, FCS, CHL, CIS, CRCST Anna Clarkson, CHL, CIS, CRCST Don Williams, CHL, CIS, CRCST Gwendolyn Byrd, CHL, CIS, CRCST Deborah Bunn, ACE, CHL, CIS, CRCST Mattie Castro, CHL, CHMMC, CIS, CRCST Michelle Clark Christina Poston, CHL, CIS, CRCST Donna Serra, CHL, CRCST

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CRCST Self-Study Lesson Plan Quiz -The Manual Cleaning Process



Lesson No. CRCST 150 (Technical Continuing Education - TCE) • Lesson expires September 2019

OBJECTIVE 1

- 1. Manual cleaning:
 - a. Is the removal of visible soil
 - b. Is the only cleaning process for non-critical items
 - c. Starts at the point of use
 - d. All the above
- 2. Keeping instruments moist after use:
 - a. Keeps instruments from rusting
 - b. Makes instrument easier to clean
 - c. Is required by the Association for the Advancement of Medical Instrumentation
 - d. All the above

OBJECTIVE 2

- **3.** Following manual cleaning standards:
 - a. Ensures increased competency scoresb. Keeps soil from drying on the instrument
 - c. Helps improve patient outcomes
 - d. All the above
- **4.** Failure to follow defined cleaning processes:
 - a. May expose patients to infection
 - b. Interrupts the chain of infection
 - c. Is citable by the Occupational
 - Safety and Health Administration d. All the above
- 5. The use of personal protective equipment:
 - a. Is required by the Association for the Advancement of Medical Instrumentation
 - b. Protects the patient from cross contamination
 - c. Protects personnel from possible infectious microorganisms
 - d. All the above

OBJECTIVE 3

- 6. Presoaking:
 - a. Helps loosen soil
 - b. Coagulates proteins
 - c. Is done at the point of use
 - d. All the above
- Manual cleaning may be the only cleaning process an item receives.
 a. True
 - b. False
- 8. This type of device only needs good manual cleaning:
 - a. Critical
 - b. Semi-critical
 - c. Non-critical
 - d. All the above
- **9.** All items that cannot be immersed in cleaning solution can be rinsed under running water.
 - a. True
 - b. False
- **10.** Instruments that cannot be immersed should be:
 - a. Protected from fluid invasion
 - b. Soaked according to the
 - manufacturer's instructions for use c. Wiped down after presoaking
 - d. All the above
- **11.** Manually-cleaned instruments do not require lubrication.
 - a. True
 - b. False

- **12.** When a soiled instrument is found after the cleaning process, it should be:
 - a. Rinsed to remove the debris
 - b. Resoaked following the manufacturer's Instructions for Use
 - c. Subjected to the complete cleaning process again
 - d. All the above

OBJECTIVE 4

- Quality assurance testing of the cleaning process should be performed on each instrument cleaned.
 a. True
 - b. False
- **14.** Some types of difficult-to-clean instruments may be tested for cleanliness each time they are cleaned.
 - a. True
 - b. False
- **15.** After quality assurance testing, the tested instrument should be sent to the decontamination area for cleaning, even if the instrument tested as clean. a. True
 - b. False

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