





# Infection Prevention for Central Service Technicians

PATTI KONCUR CRCST, CHMMC, ACE -- IAHCSSM EDUCATION SPECIALIST

Instrument Continuing Education (ICE) 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.

#### Earn Continuing Education Credits:

**Online:** Visit [www.iahcsmm.org](http://www.iahcsmm.org) for online grading at a nominal fee.

**By mail:** For written grading of individual lessons, send completed quiz and \$15 to:  
Purdue University - Online Learning  
Ernest C. Young Hall, Room 526  
155 S. Grant Street  
West Lafayette, IN 47907

**Scoring:** Each quiz graded online at [www.iahcsmm.org](http://www.iahcsmm.org) or through Purdue University, with a passing score is worth two points (2 contact hours) toward your CIS re-certification (6 points) or CRCST re-certification (12 points).

**More information:** IAHCSSM provides online grading service for any of the Lesson Plan varieties. Purdue University provides grading services solely for CRCST and CIS lessons. Direct any questions about online grading to IAHCSSM at 312.440.0078. Questions about written grading are answered by Purdue University at 800.830.0269.

#### LEARNING OBJECTIVES

1. Discuss the Central Service/Sterile Processing technician's important role in healthcare infection prevention
2. Review personal hygiene and dress code requirements that are important to infection prevention processes
3. Recognize the infection prevention practices for Central Service/Sterile Processing technicians while working in the department

**C**entral Service/Sterile Processing (CS/SP) technicians prepare hundreds and, perhaps, even thousands of medical devices for use each shift; however, they rarely get to see the patients who are treated with those devices. Despite their reprocessing and delivery of those devices, CS/SP technicians may not always recognize the critical role they play in infection prevention. This lesson will identify some key ways CS/SP professionals contribute to the infection prevention process.

#### Objective 1: Discuss the central service/sterile processing technician's important role in healthcare infection prevention

Infection prevention is of utmost importance to healthcare facilities, and facility staff are continually reminded about the need to follow good infection prevention processes. Surveying agencies review infection rates, look for a downward trend, follow facility infection

prevention processes, and ensure that standards, regulations, guidelines and instructions for use (IFU) are followed. The latest Centers for Disease Control and Prevention (CDC) Healthcare Associated Infection (HAI) Data and Statistics report, released in November 2018, states that the current HAI rate is approximately 721,800 (including approximately 78,000 deaths). These infections occurred in acute care hospitals and are based on 2015 actual statistics. The 2018 report went on to state that more than 70% of the 721,800 HAIs could be decreased with a conscious effort.

CS/SP staff can help reduce HAIs while performing their daily tasks of transporting clean and soiled items, and through the way they perform other daily tasks within the department. Every CS/SP professional's hygiene and work practices are directly linked to the overall infection rate. Infection Preventionists frequently turn to the CS/SP department



**Figure 1:** Handwashing is the most important infection prevention practice.



**Figure 2:** Long sleeves should be worn in the assembly area.

when investigating a surgical site infection (SSI) and, sometimes, during an infection outbreak on a patient floor or in a treatment area. CS/SP professionals are essential for ensuring important processing equipment is operating effectively and sterile devices are available when needed. Reaching those goals requires specialized knowledge to ensure the appropriate tests and procedures are not only completed correctly, but that the results are interpreted and documented correctly.

### **Objective 2: Review personal hygiene and dress code requirements that are important to infection prevention processes**

Personal hygiene is essential and starts before technicians report for work. An employee's hair and body should always be clean. Clothes worn into work should also be clean to help reduce the number of microbes introduced into the healthcare environment. Hand hygiene is the most important step in infection prevention. Hands should be washed at least:

- Whenever the hands are soiled;
- Before and after eating;
- After using the toilet;
- After coughing or sneezing or using a tissue; and
- After removing gloves.

Washing hands with soap and water for 20 seconds is the best way to reduce the number of germs on them, in most situations. If soap and water are not available, an approved hand sanitizer may be used (and may also be used for in-between hand washing). It is important to note, however, that hand sanitizers do not eliminate all types of germs and might not remove harmful chemicals. Hand sanitizers are also not as effective as traditional soap and water washing when hands are visibly dirty or greasy.

Fingernails should be clean and not extend beyond the fingertips (fingernails can collect and harbor microorganisms). Artificial nails and nail polish should also not be worn while working in the CS/SP. Bacteria and fungus can grow under the artificial nails, and artificial nails may also fall off during instrument processing and go unnoticed inside a package or

tray. Nail polish can chip and flake, possibly into an instrument set.

### **Dress Code**

Following the facility's dress code policy helps prevent infections by reducing the number of microbes introduced into the CS/SP environment. Technicians should change into clean, hospital-processed scrub attire after arriving at the facility; this reduces the number of microbes introduced into the department from outside the facility. If working in the assembly area, a long-sleeve scrub top or warm-up jacket should be worn to keep skin cells from falling into a tray or pack. T-shirts, if approved for use by the facility, should be completely covered by the scrub attire.

Hospital-supplied head and beard covers (if applicable) need to be worn in all areas of the department, with the exception of locker and break rooms, to keep hair and dandruff from contaminating work surfaces. Reusable head covers should be changed at least daily and laundered in the facility's laundry.

Cloth attire should be cleaned in



the facility-approved laundry because household laundry equipment does not reach the temperature required to reduce the microbial bioburden. Household laundry detergents are also not made for this type of cleaning. At-home cleaning of scrub attire worn in the CS/SP department does not remove all microorganisms and may leave microbes in the washer and dryer, which can contaminate subsequently washed items.

Shoes should be clean at all times to reduce the spread of bioburden.

Jewelry should not be worn in the department. Since jewelry is not cleaned on a regular basis with the proper cleaning solution, microbes can be easily transferred onto clean and sterile supplies. Jewelry may also damage gloves and packaged products.

Personal electronics should not be used in the department. Recent studies show that these items have a very high amount of bioburden that can be easily transferred to work surfaces and co-workers. Facility-supplied electronics, such as phones, should be cleaned in accordance with the manufacturer's IFU. This equipment is usually manufactured for use in a healthcare setting and made to withstand cleaning and disinfection.

It is important to follow the facility's dress code as the facility's policies and procedures regarding attire are developed to keep everyone in the healthcare facility safe.

### Personal protective equipment

Compliance with infection prevention and control principles in the CS/SP department remains an ongoing challenge, particularly when it comes to technicians following personnel protective equipment (PPE) policies. Many believe the required clothing is too warm and that breathing through the masks is too difficult; however, wearing PPE is an Occupational Health and Safety

Administration (OSHA) regulation, which means not wearing PPE is never an option. This federal law was enacted to protect both the worker and other staff and visitors from contracting an infection from microorganisms from used devices. The Centers for Disease Control and Prevention (CDC) strongly supports the OSHA standard. The protective attire required by OSHA for the CS/SP decontamination area is as follows:

**Impervious gown/jumpsuit:** The gown should cover the entire front of the body and fasten in the back. Gowns should always be properly fastened. Reusable gowns should be cleaned in a facility-approved laundry after every use.

**Mask:** Fluid-resistant face masks protect the wearer from splashes and breathing aerosols. The mask can either be flat with ties or cone-shaped with the elastic band, as long as the mask covers the nose and mouth area completely. Masks are designed to allow for adequate breathing when worn correctly; they should always cover the nose completely and not be worn under the nose.

**Goggles or face shields:** Eye protection reduces the risk of eye injury from chemicals and reduces the chance of acquiring infection from the microorganisms in the decontamination area. Eye protection can be in the form of wraparound goggles or a face shield; standard eyeglasses do not replace the need for goggles or face shields. If wearing a face shield, a mask should still be worn to better protect the mouth area. Reusable eye protection should be properly cleaned at least daily and between each employee use.

**Gloves:** Gloves should be general purpose utility gloves approved for

Personal electronics should not be used in the department. Recent studies show that these items have a very high amount of bioburden that can be easily transferred to work surfaces and co-workers. Facility-supplied electronics, such as phones, should be cleaned in accordance with the manufacturer's IFU.

the decontamination area; they need to be thick enough to help protect the wearer from punctures. Gloves should also snugly fit above the cuff area of the gown to prevent water from contaminating the hands. Long-sleeve decontamination gloves provide some additional protection. Exam gloves should never be worn because they do not provide adequate protection. Gloves must be changed as soon as they are torn or punctured, and hands need to be washed immediately before putting on new gloves. When gloves are removed for any reason, they should be replaced with clean gloves. Reusable gloves or glove liners should be cleaned at least daily.

**Shoe covers:** Shoe covers are used to protect shoes from water splash or contamination from blood or other body fluids. Shoe covers should be fluid-



Policies, procedures, IFU and PPE standards must be correctly performed in the decontamination area to protect technicians and patients. It is also important to always use the proper tools and follow proper cleaning procedures. Shortcuts, such as not completely disassembling instruments or improperly mixing chemicals, will leave devices unsafe to handle and may impede the disinfection/sterilization processes.

resistant and anti-skid, and they should cover the entire shoe. *Note: All disposable items should be discarded when removed and never re-worn, even if leaving the area for only a short break, because the likelihood of contaminating scrub attire while donning (putting on) used items is very high.*

PPE should be donned before entering the actual decontamination work area and doffed (removed) prior to leaving the area. Entering the decontamination area without wearing PPE, even “only for a second,” is a break in the infection prevention process as clothes can become contaminated in that short a time. *Note: Employees should also follow the facility’s infection prevention and employee health policies regarding reporting to work when ill. Reporting to work when ill, especially with an easily transmitted illness like the flu, may cause fellow employees and others within the facility – including patients and their family members – to also become ill.*

**Objective 3: Recognize the infection prevention practices for the central service/sterile processing technician while working in the department**

**Policies and procedures:** CS/SP

technicians support infection prevention by always following the department’s policies and procedures. These documents strongly support infection prevention processes to keep both the technician and others safe from injury and infection. Policies and procedures are also reviewed by or written in conjunction with departments such as Safety, Compliance, Facilities and Infection Prevention. Following these documents can assist in preventing infection in employees, as well as in patients and the public.

**IFU:** These documents are written by the manufacturer and describe the appropriate processes to use and correctly process each device. IFU must be strictly followed so the items can be properly decontaminated, disinfected or sterilized. Failing to follow IFU may put employees, their co-workers and patients at risk of infection.

**Break/locker room areas:** Both of these areas can present an infection prevention problem. They should be properly maintained and tidy. Soiled scrubs should be placed in the appropriate linen

hamper and disposable items should be properly discarded; no items should be left on the floor. Soiled scrubs should not be kept in lockers as microbes may continue to grow and multiply on these items. Cupboards and refrigerators should always be clean. Technicians should always clean the area used for eating or drinking to minimize the microbial count. Crumbs, leftover food and liquids can attract insects, as well as increase the microbial load in this area. Insects/microbes can easily be transported into the clean areas of both the department and the common corridors.

**Device pick up:** Infection prevention is practiced when the procedures for dress code and soiled item transport are followed. Approved gloves should always be worn when handling soiled items, even if the devices look clean. It is important to always wear protective gowns in areas that require gowns. Gowns and gloves should be removed and discarded as soon as items are properly placed inside the transport vehicle. Soiled items should never be transported uncovered through the hallways; this is because the risk for cross-contaminating clean areas, as well as staff, patients, visitors and the environment is greatly increased. The use of closed or properly covered carts is recommended.

**Decontamination area:** Policies, procedures, IFU and PPE standards must be correctly performed in the decontamination area to protect technicians and patients. It is also important to always use the proper tools and follow proper cleaning procedures. Shortcuts, such as not completely disassembling instruments or improperly mixing chemicals, will leave devices unsafe to handle and may impede the



disinfection/sterilization processes. The decontamination area should always be kept as clean as possible. Sinks and countertops should be cleaned frequently and disinfected at the end of each shift to reduce bioburden and cross contamination. Solutions in sinks and ultrasonic cleaners should be changed and replaced with fresh, properly-diluted cleaning solution. The interiors of all cleaning equipment should be kept clean and maintained to allow the equipment to function properly. Verification testing should be performed according to facility policy and the manufacturer's IFU to ensure the equipment is working properly.

**Preparation and packaging/assembly area:** Work surfaces in this area should be cleaned frequently and disinfected according to departmental policy to minimize microbial, lint and dust counts. Storage bins, computers and shelving should also be cleaned as outlined in the department/facility policy. Using shortcuts in the preparation and packaging/assembly area is a break in infection prevention processes. Each instrument should be inspected for cleanliness. If an instrument is found to have soil, it must be returned to the decontamination area for reprocessing. Cleaning instruments in the preparation and packaging/assembly area can lead to contamination of the area. Failing to follow assembly IFU or failing to check each instrument for cleanliness can potentially cause an unsafe, soiled instrument to be used on a patient, thereby, increasing the risk of infection.


**Sterilization and storage areas:** Countertops, computers, carts, shelves and sterilizing equipment must always be kept clean. Soiled chambers, carts and equipment can cause either a sterilization

failure or contaminate sterilized items. Using improper sterilization times and/or improperly loading sterilization equipment or transfer carts can lead to contaminated devices. Placing warm items under air conditioning vents or on solid shelves can cause condensation in and on the packages, thereby, contaminating the items. Handling sterile items before they have properly cooled or with unwashed hands can also contaminate the items. Storage shelves must be kept clean and dust free. Keeping air vents and floors clean is another important infection prevention measure. Washing hands before touching clean and sterile items and lifting (not dragging) trays on and off the shelf are also important to prevent contamination of the items. Stacking rigid containers past the approved amount will damage containers, and stacking wrapped trays, which compresses the packages, can lead to item contamination.

**Clean/sterile deliveries:** Following policies and procedures and best practices when items are delivered is a crucial infection prevention measure. Using closed and covered carts to transport soiled, clean and sterile items protects items from contamination. Keeping soiled and clean/sterile items separated is also key to not compromising the condition of the items. Sterile packages should not be stacked beyond what was approved by the manufacturer, and the same is true of stacking soiled trays. Stacking soiled trays can cause items to shift and fall during transport which, in turn, can contaminate the surrounding area. *Note: Even if closed carts are used, items can possibly fall against the doors. This can force the doors open and allow items to fall outside the cart.*

## CONCLUSION

CS/SP technicians must consistently

follow proper infection prevention practices throughout their work shift. Following policies, procedures, standards and IFU is key to good infection prevention practices and outcomes. 

## RESOURCES

- International Association of Healthcare Central Service Materiel Management. *Central Service Technician Manual, 8th Edition*. 2016. Chapters 6, 7, 8, 14 and 16.
- International Association of Healthcare Central Service Materiel Management. *Webinar: Central Service Attire*. 2018
- Centers for Disease Control and Prevention. *CDC HAI Data and Statistics, Jan. 2018*. <https://www.cdc.gov/hai/surveillance/index.html>.

Association for the Advancement of Medical Instrumentation. *ANSI/AAMI ST79:2017, Comprehensive guide to steam sterilization and sterility assurance in health care facilities*, Section 4.

## PHOTO CREDIT

Lead PPE Image Courtesy of Ofstead & Associates



# CIS Self-Study Lesson Plan Quiz -

## Infection Prevention for Central Service Technicians

Lesson No. CIS 274 (Instrument Continuing Education - ICE) • Lesson expires July 2022

1. Surveying agencies:
  - a. Review infection rates
  - b. Ensure instructions for use are followed
  - c. Look for standard compliance
  - d. All the above
2. The Centers for Disease Control and Prevention states that which percentage of all healthcare-associated infections can be reduced with a conscious effort?
  - a. 10%
  - b. 45%
  - c. 70%
  - d. 50%
3. Personal infection prevention hygiene begins:
  - a. After changing into clean scrub attire
  - b. Before putting on personal protective equipment
  - c. Before reporting to work
  - d. When washing hands
4. The most important step in infection prevention is:
  - a. Keeping clean, soiled and sterile items separated
  - b. Handwashing
  - c. Following the facility's attire policies and procedures
  - d. Keeping soiled items covered
5. Hands should be washed:
  - a. After changing into clean scrubs
  - b. Before putting on personal protective equipment
  - c. Between work assignments
  - d. All the above
6. Hand sanitizers should be used:
  - a. Between handwashing
  - b. Before changing into scrubs
  - c. Immediately after handwashing
  - d. When hands are visibly soiled
7. Following the department's dress code:
  - a. Is required by the US Food and Drug Administration
  - b. Is optional, except in the decontamination area
  - c. Helps reduce the number of microbes introduced into the department
  - d. All the above
8. Reusable scrub attire should be:
  - a. Cleaned at home using the appropriate detergent
  - b. Cleaned at home, but separately from non-healthcare clothing
  - c. Cleaned at the facility's approved laundry
  - d. Cleaned when visibly dirty
9. Personal electronics:
  - a. Can be used if they are properly decontaminated daily
  - b. Can be used in the assembly area, but not in the decontamination area
  - c. Should be left at home
  - d. Should not be used in the Central Service/Sterile Processing department
10. Wearing a face shield:
  - a. Is not required, unless working in the splash zone of the decontamination area
  - b. Is not required if wearing eyeglasses
  - c. Does not replace the need to wear a mask
  - d. None of the above
11. Central Service/Sterile Processing technicians support infection prevention practices by:
  - a. Following the department's policies and procedures
  - b. Staying out of the facility's public areas while on duty
  - c. Rarely performing rapid turnovers
  - d. All the above
12. Instructions for use:
  - a. Are written by the device manufacturer
  - b. Explain how to properly process a device
  - c. Are part of the department's infection prevention practice
  - d. All the above
13. When performing soiled device pick up:
  - a. Full decontamination personal protective equipment should be worn
  - b. Gloves should be removed once the soiled items are placed in the transport cart
  - c. Gloves and glove liners should be worn only when handling grossly soiled items
  - d. All the above
14. Using shortcuts in the decontamination area:
  - a. Is acceptable only during a rapid turnover of instruments
  - b. Is acceptable if the department has validated the shortcut process
  - c. Is acceptable when approved by the surgeon or Central Service/Sterile Processing Director
  - d. Is never acceptable
15. Infection prevention practices in the sterilization and storage areas include:
  - a. Not placing warm items under an air conditioning vent
  - b. Keeping all equipment in these areas clean
  - c. Not stacking trays higher than the packaging manufacturer's instructions for use states
  - d. All the above

**Request for online scoring** (payment and scoring made directly online at [www.iahcsmm.org](http://www.iahcsmm.org))

**Request for paper/pencil scoring** (please print or type information below)

- I have enclosed the scoring fee of \$15. (please make checks payable to Purdue University. We regret that no refunds can be given)
- Check here if you have a change of address
- Check here if you wish to have your results emailed to you

**Detach quiz, fold, and return to:**

Purdue University - Online Learning  
Ernest C. Young Hall, Room 527  
155 S. Grant Street  
West Lafayette, IN 47907  
800.830.0269

Name \_\_\_\_\_

Mailing Address (be sure to include apartment numbers or post office boxes) \_\_\_\_\_

City \_\_\_\_\_ State/Province \_\_\_\_\_ Zip Code/Postal Code \_\_\_\_\_

( ) Daytime telephone \_\_\_\_\_ IAHCSSM Membership Number \_\_\_\_\_

Email Address \_\_\_\_\_

*If your name has changed in the last 12 months, please provide your former name  
Purdue University is an equal access/equal opportunity institution*