

# Sterile Storage.....Or Is It????

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**\*\*This in-service has been Approved by the CBSPD, Inc. for 1 CEU.**

The purpose of the sterile storage area, regardless of the location, is to store the sterile devices until they are used. Sterile storage can include facility-processed items, items from outside manufacturers and clean but not sterile items. (NOTE: Yes, they can be stored in the same location!) The sterilization process is multi-step to ensure a safe product. Best practices for sterile storage are required to ensure the sterility of the devices is not compromised. Sterility maintenance can be affected by a number of events. This in-service will address them.

## **Compromise of Sterility**

Basically, there are three conditions than can compromise sterility; moisture, soil and physical damage. All of these events are affected by the storage and handling of the packages after sterilization.

The first opportunity to compromise sterility is immediately after sterilization. The Association for the Advancement of Medical Instrumentation recommends that after steam sterilization "items remain untouched on an autoclave rack for a period of 30 minutes to two hours" (based upon the load configuration, weight and density of sets). Yet, how often is the Sterile Processing Department asked to release items when they are still hot? Packs should **never** be touched while still hot. Autoclave carts containing freshly sterilized items should be placed in a low traffic area away from any air conditioning vents. Never place hot packs on a cool metal surface to prevent condensation from occurring. The second opportunity for compromise is the number of times a device is handled after sterilization. Do you know how many times your sterile packs are handled? What about items that are released to the OR then returned to SPD only to be released again? When did too much handling occur? How can you tell if the package is not damaged? Handling is also affected by good handwashing. Is there a handwash sink in your sterile storage area or adjacent to it to encourage frequent handwashing? If not, you may want to consider installing a waterless handwash dispenser.

When packs are handled, they should never be compressed. Do not overload carts/ bins. Any items that falls to the floor must be considered contaminated and returned to the Decontamination Area for complete re-processing.

When distributing items, the person releasing the pack should visually inspect the pack to ensure the packing has not been compromised; no tears, holes, stains. If noted, the pack should be re-processed.

Conversely, when receiving sterile product from outside vendors, or receiving items back into sterile storage (that have not been opened/used), it is the responsibility of the individual accepting the product to check for packaging integrity and for signs of contamination (e.g. staining of packaging material).

## **Packaging**

Packaging materials should be selected based upon the item being contained. Often, dust covers (plastic bags of 2-3 mils in thickness) are applied after sterilization/cooling, to provide additional protection to trays that will remain in storage for a long time or will receive excess handling (e.g. items on the resuscitation cart).

## **Environmental Control**

The sterile storage area should ideally be physically separated, enclosed, located close to the sterilization area and dust free with at least four air exchanges per hour. Humidity should not exceed 70% and temperature should not exceed 75°F.<sup>1</sup> A hygrometer (a device used to measure atmospheric humidity) should be located in the sterile storage area and the temperature and humidity levels documented daily. Any deviation from the normal range should be reported to engineering immediately.

There should be a restriction of entry into the sterile storage area. A policy and procedure is needed to document who has access to this area, attire needed, documentation of items removed, etc. This is especially true for hours when SPD is closed.

Carts, bins, etc. used to transport sterile supplies need to be kept clean. Outside shipping cartons are not permitted in the sterile storage area nor should cardboard cartons (e.g. if supplied as an inside container) be used for sterile storage as they are porous and cannot be cleaned. Corrugated cardboard permits dust and bacteria to harbor in the grooves. Always use impervious (plastic) bins for storage to facilitate cleaning.

Regardless of the type of shelving used in the sterile storage area (open/wire or closed), the shelves and bins must be kept clean and dust free. Unfortunately, with the implementation of Event Related Sterility, the monthly ritual of checking for outdates and cleaning bins seems to have been forgotten. How can we maintain sterile supplies in dusty bins and shelves? We cannot. When was the last time you inspected your sterile storage area?

All sterile storage should be at least 8-10 inches off the floor to permit housekeeping to clean without splashing onto the packs on the bottom shelf. Fire code requires that all

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<sup>1</sup> AAMI. Steam Sterility and Sterility Assurance in Healthcare Facilities –ST-46". 2002.

storage be kept at least 18 inches from any ceiling fixture (sprinkler) so the sprinkler's operation in a fire is not impeded. In addition, storage should be kept at least 2 inches from an outside wall to prevent condensation from the outside leaking through the wall and possibly contaminating packs. If your shelving does not meet these criteria, you can place the items on the bottom shelves in tote bins, which will protect them from splashes. If you do not have solid top shelves, you might want to consider placing the items on the top shelves inside tote bins as well to protect from overhead leaks.

Never store sterile product in areas when they can become wet. This includes under sinks, near windows, near doors or near/under exposed pipes or vents.

There should be sufficient space for storage of sterile product. The only items, which are permitted to be stacked, are rigid containers. When wrapped trays are stacked, the weight of the trays may compress bacteria/dust inside sets. Packages should not be crushed or damaged.

When was the last time you looked at the condition of your peel-packaged items? I continuously see peel packaged items where multiple creases are noted in the packaging. At what point does sterility compromise take place? Can you tell visually?

The floors to the sterile storage area must be cleaned daily. A procedure for the SPD staff to clean the shelves and bins needs to be developed, implemented and enforced.

### **Stock Arrangement**

How the stock is arranged can affect efficient location of items. While there are many ways to arrange stock, the most common methodology is to arrange the items by body system (e.g. all the GU supplies together, chest supplies, etc.). All bins and shelves should be clearly labeled and there should be a Master Locator List, which is readily available to any hospital personnel permitted to enter this area during off-hours.

The most commonly used items should be located at a convenient location, usually middle shelves. Lighter items should be on top shelves and heavier items on bottom shelves to prevent injuries. Non-skid stools may be needed if you have short personnel working in this area.

One of the most expensive costs for a facility is outdated stock. This should not happen and can be prevented if a good system of stock rotation is employed. This should include items sterilized by the facility. The "first in- first-out (FIFO) system is most commonly employed however everyone must follow this practice in order for it to be successful and avoid costly outdates. Sometimes, sales representatives will exchange product that is not outdated as yet for product with a longer shelf life however once it is outdated, the company will not accept it back.

## SUMMARY

Processing personnel spend a great deal of time to properly decontaminate, package and sterilized devices. The facility also pays for sterile product from outside manufacturers. The final step in the process is sterility maintenance of devices. Everyone involved in handling sterile product must be educated in the proper care and handling of sterile products. Maintenance of the sterile storage area, including shelves, bins and transport carts is essential. Cost containment requires that we protect, handle, rotate and store the sterile products we are entrusted with. Concern for patient safety demands no less.

## REFERENCES:

American Society for Healthcare Central Service Professionals. Training Manual for Health Care Central Service Technicians. 2001.

Association for the Advancement of Medical Instrumentation. "Steam Sterilization and Sterility Assurance in Health Care Facilities – ST-46." 2002.

## POST TEST QUESTIONS: Sterile Storage.....Or Is It????

**This in-service is Approved by the CBSPD for 1 CEU. Complete this post test and follow the directions at the end of the test for payment and results.**

1. The first opportunity to compromise sterility is after
  - A) cleaning
  - B) packaging
  - C) sterilization
  - D) distribution
  
2. The minimum amount of time items should remain on the autoclave rack, untouched, after steam sterilization is:
  - A) 10-20 minutes
  - B) 20-30 minutes
  - C) 30 minutes to 2 hours
  - D) 60 minutes to 2 hours
  
3. If the OR needs a tray and it is still hot
  - A) send the tray
  - B) tell the OR it still needs to cool
  - C) wrap in plastic and send tray
  - D) place tray in metal cart and send to OR

4. Dust covers are useful to keep unwanted dust and moisture out of packs. To be effective, dust covers should be what minimum thickness?
- A) 2-3 mils
  - B) 3-4 mils
  - C) 4-5 mils
  - D) 5-6 mils
5. The humidity levels in the sterile storage area should not exceed
- A) 55%
  - B) 60%
  - C) 70%
  - D) 75%
6. The maximum temperature permitted in the sterile storage area is
- A) 60°F
  - B) 65°F
  - C) 70°F
  - D) 75°F
7. A hygrometer is a device used to measure
- A) steam vapor
  - B) temperature
  - C) humidity
  - D) air quality
8. A major reason why corrugated cardboard or outside shipping containers should not enter the sterile/clean areas of SPD/CS is because they:
- A) are heavy to lift
  - B) can harbor insects, dust and bacteria
  - C) are not always used in the clean area
  - D) need to be checked for contents first
9. When setting up storage in the sterile storage area, the minimum amount of space storage should be kept above the floor is:
- A) 4-6 inches
  - B) 6-8 inches
  - C) 8-10 inches
  - D) 10-12 inches

10. The term FIFO is an important method of

- A) sterility maintenance
- B) stock rotation
- C) inventory control
- D) supply distribution

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### Directions for Payment and Results

This in-service = \$10

Re-do's = \$10 each

**No refunds (all sales are FINAL), prices subject to change.**

Payment is accepted in the form of a Credit Card, Facility Check, or Money Order only.  
Sorry, no personal checks.

Please see the form on the following page.

Upon passing this in-service, your certificate will be mailed to you within 7-10 business days.

Please fill out the form below and submit it with your payment and the quiz to:

**Sterile Processing University, 59 Allerton Road, Lebanon, NJ 08833.**

Name: \_\_\_\_\_

Mail to:  Home  Work

Full Address: \_\_\_\_\_

\_\_\_\_\_

Phone: \_\_\_\_\_

Email: \_\_\_\_\_

For Credit Card Orders Only:  Visa  MasterCard  Discover

Credit Card Number: \_\_\_\_\_ Exp. Date: \_\_\_\_\_

Person's Name on Card: \_\_\_\_\_

Card Billing Address: \_\_\_\_\_

\_\_\_\_\_

If you have any questions, please email [heidi@spdceus.com](mailto:heidi@spdceus.com)

Thank you!