

Sterilization and Disinfection of the Outreach Clinic Patient Care Environment

Onsite Sterilization and Management

Introduction

Management of infection control in the outreach environment has inherently unique compliance challenges. This guidance does not replace your full Exposure Control manual; rather, it's an adjunct for practical step-by-step processes to support a safe, aseptic environment that includes effective sterilization and disinfection protocols.

We will discuss the protocols for two different delivery models; the first is for onsite sterilization and maintenance of all infection control activities, and the second is for offsite sterilization.

Always wear appropriate Personal Protective Equipment (PPE) to protect skin, eyes and mucosal tissues.

Sterilizers are heavy and sensitive to the wrong movements (the M3 weighs ~70 lbs.). Therefore, a sterilization location that is as permanent as possible is essential.

For an outreach site that allows for the equipment to remain at least somewhat indefinitely, securely and with enough area to assure infection control compliance, the following guidance applies:

Site Organization and Layout

1. Designate a treatment space that contains the patient chair and delivery unit. If you are providing x-rays in this area, make sure that the distance from the area of radiation exposure to potential exposure of non-patients allows for dissipation of the radiation. This is typically 6 feet minimum. Standard walls constructed with 2x4s and 5/8-inch drywall effectively absorb radiation. However, remember to make sure that your exposure plan and protocols comply with state, county and city regulations.
2. Designate a separate space for sterilization processing. This space must have sufficient distance from the treatment chair or a barrier between the treatment area and sterilization processing to prevent droplet and splatter contamination by blood or other OPIM.
3. The sterilization space must allow for compliance to the same divisions of processing that apply to the standard clinic setting:
 - A. Receiving, Cleaning and Decontamination:**
 - Always wear appropriate PPE.
 - Deliver reusable contaminated instruments to processing area in covered container.
 - Dispose of contaminated materials in biohazard bag or sharps container (for sharp contaminated items such as needles or broken instruments)
 - Remove debris and contaminants through either manual scrubbing or mechanical means, such as an ultrasonic cleaner.
 - If you must clean instruments by hand, pick them up one at a time and do not reach into piles of contaminated instruments with fingers. Wear utility gloves.
 - Rinse instruments with water after cleaning.

- Visually inspect each instrument to ensure it's free of adhesions.
- Use tongs to reach into containers of contaminated instruments to prevent sharps exposure.
- While risk of contraction of a bloodborne disease greatly decreases with the removal of contaminated debris, treat all instruments as contaminated until sterilization is complete.

B. Preparation and Packaging:

- Use a separate place for this process with either a barrier or enough distance to prevent splatter from scrubbing instruments from contaminating this area.
- If you are using cassettes, apart from inspection, the instruments can remain in the cassette for the entire process from cleaning through sterilization.
- If a cassette, wrap, use indicator tape and note date of sterilization and which sterilizer being used. Place an internal indicator in cassette.
- If a sterilization pouch, improve monitoring with a multi-parameter pouch and carefully place all the instruments designated for their respective procedures in the pouch; again date and designate the sterilizer being used.
- For hinged instruments, sterilize those open.

C. Sterilization:

- Use a separate place for sterilization, storage of preparation materials, such as wrap and tape; and removal of sterilized instruments.
- Do not overfill sterilizer. Place cassettes or pouches in sterilizer allowing space around each to ensure complete sterilization.
- Follow manufacturer guidance for sterilizer use.
- Recommend use of indicator strips that measure time, heat and pressure.
- Allow instruments both packaged and in cassettes to dry in the sterilizer, unless they will be reused that day.
- If your Biological Monitoring (BI) test is positive after sterilization cycle, reprocess the instruments. Common causes are overloading of sterilizer, lack of separation between instruments, pouches, cassettes, and spore testing. If it happens a second time, document, do not use the instruments and request a repair technician check the sterilizer for correct functioning.
- The Centers for Disease Control and Prevention (CDC) has established protocols for positive BI tests.
- After starting sterilization cycle, wipe sterilizer handle and controls with disinfectant to prevent post-cycle contamination.
- To ensure correct process and sterilizer function, use a weekly monitor (mail in), or monitor more frequently if required by state law.
- Transfer sterilized instrument pouches and cassettes to a clean, covered storage area using clean gloves and sterile forceps. Handle as little as possible.
- If the sterile packages tear or become wet, reprocess the instruments.

D. General Recommendations:

- Avoid cold sterilization and use disposable, single-use items when items cannot be steam sterilized.
- Do not use cold sterilization solution as a surface disinfectant.

Disinfection of Treatment Areas

- Identify all contaminated surfaces. This can be harder than it sounds: consider drawer and light handles, work surfaces, keyboards, switches, x-ray controls, tubing, faucets, lead aprons, pens, covers of storage bins, procedure tubs.
- Remove debris by cleaning with disinfectant and rinsing.
- Disinfection is not possible if debris remains.
- Once the surface is clean, apply disinfectant liberally so the surface remains wet for two minutes (length of time for MaxiCide® to take effect).
- Do not use a surface disinfectant that has a longer kill time than two minutes, as it's too difficult to keep the surface wet long enough to achieve kill results.
- Refer to manufacturer guidance for surface materials suitable for disinfectant. For example, most chair upholstery is best cleaned with soap and water to avoid damage. However, as dental chairs are non-critical, soap and water clean with barriers placed is appropriate.
- Place barriers on all clinical surfaces possible: light handles and switches, cover for keyboards, chair cover, air-water syringe, sensor sleeves, curing light.
- Change barriers between patients.
- Clean walls and other non-critical surfaces at least weekly with soap and water, or an approved disinfectant (e.g., Lysol).

Offsite Sterilization and Infection Control Management

While the sterilization and decontamination steps remain the same, sterilization of items off-site requires a few important additional considerations:

Storage of Contaminated Instruments Until Transfer

When contaminated instruments require off-site sterilization, these steps help with management:

- Have a designated processing area onsite.
- The section on Receiving, Cleaning and Decontamination (above) applies: remove biohazard in the same way.
- Clean the instruments, preferably with an ultrasonic cleaner, but manually if needed.
- Keep the instruments in a decontamination soak.
- Before leaving at the end of the day, rinse the instruments, dry them gently, and store them in a plastic bin with a red lid and biohazard label on the container. Recommend lid and side of the container – and make sure the lid secures well.
- Before transferring the container to your car, use surface disinfectant to decontaminate the handles, lid and any other surface that has been exposed to contaminants.
- You can now transfer the contaminated instruments to your designated sterilization processing area.
- When packing up at the end of the treatment schedule for a site, empty the ultrasonic cleaner, rinse it, and dry it. Store it in a separate plastic container with a red lid and with the same biohazard labeling.
- Disinfect the exterior of this container, as well.
- Once you return the contaminated instruments to your designated sterilization area, follow the same space organization and processes already described.
- Once instruments are sterile and packaging is dry, store the cassettes and pouches in a disinfected, non-porous plastic container with a green lid.
- Regularly decontaminate the inside and outside of the green-lidded container, as well as the lid, to prevent cross-contamination from touching contaminated surfaces.

- This off-site sterilization process requires that you have a full day's instrument set-ups ready with a couple of spares (for changes in treatment, and if something is dropped).

General Guidance

Remember, in the outreach environment it can be more challenging to keep children's little fingers away from dangerous spaces.

- Make sure you can keep contaminated instruments, biohazard bags and sharps containers reasonably away from access by patients. This is particularly true if you are processing contaminated instruments in your garage or other home space.
- If you can organize your workspace for easy monitoring of patients, that's ideal.
- Using containers that have lids, are color-coded and secured, helps with management in limited spaces.
- Set up procedure tubs that allow you to work quickly, and also manage the patient and work environment well.
- Be aware of the weight of equipment and lift it carefully, or ask for help.
- Make sure you have access to water in your work area. A faucet and sink is ideal, especially so you can set up an eyewash station.
- Dispose of biohazard in accordance with city/town, county and state regulations. These can vary greatly, so make sure you're familiar with them. Often, small amounts of biohazard correctly labeled is appropriate for disposal in regular trash; but you must verify before doing so.

Handwashing

- Remember that before and after each patient care, handwashing is essential. If your hands are not contaminated with visible material, hand sanitizer is appropriate.
- Once your hands have visible debris on them, you must do soap and water washing.
- Wash your hands after cleaning up, disinfecting, processing instruments and sterilization.