

Sterilization & infection control

Environmental cleaning in sterile processing areas

Thorough environmental cleaning limits the number of microorganisms that can be transferred to the patient and the healthcare provider, thus helping to prevent healthcare-associated infections. A team consisting of perioperative nursing, sterile processing, environmental services, and infection prevention staff needs to be established to develop cleaning procedures for all areas of the facility, including the sterile processing area.

Routine cleaning as well as special cleaning procedures for multidrug-resistant organisms, construction, and environmental contamination—such as flooding or spills of chemicals or blood, body fluids, or other potentially infectious materials—should be addressed. These policies and procedures should be reviewed and revised periodically and readily available to personnel performing these tasks.

Some of the aspects to consider are described in this column, but readers should also consult the section on environmental cleaning in the 2014 AORN Perioperative Standards and Recommended Practices.

Cleaning materials

This team should select the cleaning materials to be used. Cleaning chemicals (eg, detergent, disinfectant, or a combination) should be registered and rated as hospital grade by the US Environmental Protection Agency (EPA), according to Recommendation 1 of the AORN Recommended Practices on environmental cleaning. A low-level disinfectant should be used. High-level disinfectants or liquid chemical sterilants should not be used because they are not labeled for this use, and alcohol is not an EPA-registered disinfectant.

The cleaning chemicals should target the microorganisms that need to be removed, and these chemicals should be compatible with surfaces, cleaning materials, and equipment. Follow the cleaning chemical manufacturer's written instructions for use (IFU) for dilution; contact times needed to kill targeted microorganisms; ventilation; types of cleaning materials, tools, and equipment to use; and disposal (also follow local, state, and federal regulations). Consider the cost, personnel ergonomics and safety, and effect on the environment when choosing these products.

Always check the expiration date of the chemicals before using. Clean environmental services with a detergent prior to disinfection. This can be a combined detergent and disinfectant product or two separate products. Always follow the manufacturer's written IFU.

Reusable or disposable cleaning materials (eg, mop heads, cloths) may be used. Microfiber or low-linting cotton cleaning materials are popular. Reusable mops or cloths should be changed after each use and not returned to the cleaning solution container, which would then become contaminated. Disposable mops and cloths should also be discarded after each use to prevent cross-contamination. Disassemble cleaning equipment according to the manufacturer's written IFU, and clean, disinfect, and dry before storage to prevent the growth of microorganisms.

Wet and moist mopping are effective in reducing organic soil on floors. Items that contact the floor for any amount of time, eg, instruments that are dropped when pre-

paring trays for sterilization, should be considered contaminated and re-cleaned.

Follow the SDS (Safety Data Sheet) and standard precautions to prevent contact with blood, body fluids, or other potentially infectious materials when choosing the appropriate personnel protective equipment (eg, gloves, mask or N95 respirator, and protective eyewear).

Terminal cleaning in sterile processing

AORN defines terminal cleaning as “thorough environmental cleaning that is performed at the end of each day when the area is being used.” Both AORN and AAMI (Association for the Advancement of Medical Instrumentation) ST79 recommend that sterile processing be terminally cleaned the same as the operating, delivery, and invasive procedure rooms. AAMI ST79 (Section 3.4) states that the best practice is to provide separate housekeeping facilities for the decontamination and clean areas to avoid transferring contaminants from “dirty to clean” areas.

AORN recommends that terminal cleaning and disinfection of the sterile processing areas “be performed daily when the areas are being used.” Terminal cleaning should not be performed when personnel are actively decontaminating instruments. Cleaning should progress from cleanest to dirtiest areas. Specific AORN recommendations for terminal cleaning (Recommendation IV) are as follows:

- Clean floors with a wet vacuum or single-use mop and a disinfectant using the disinfectant manufacturer’s written IFU contact time to prevent disease transmission. Disinfect floor surfaces in the center of the room (highest level of contamination) before the perimeter (lowest level of contamination). Clean the distribution, preparation and packaging, sterile processing, and sterile storage areas (cleanest work surfaces) before cleaning the decontamination area (dirty work surfaces) to reduce the possibility of contamination of clean areas.
- Damp-dust with an EPA-registered disinfectant and a clean, low-linting cloth from top to bottom all horizontal and other work surfaces and high-touch objects: work tables, countertops, furniture (eg, chairs and stools); sterilizers and sterilizer carts; shelving; sinks; pass-through window; door handles and push plates; telephone and mobile communication devices; computer accessories; and trash and linen receptacles.
- Remove trash from receptacles when full and at least daily.

Scheduled cleaning

Scheduled cleaning is a cleaning schedule that defines areas and equipment that should be cleaned on a regular (eg, weekly, monthly) basis.

Price point strategy for orthopedic implants



The New York University Langone Medical Center Hospital for Joint Diseases, New York City, used market data to establish reasonable price points for joint implants. Surgeon support gave the hospital leverage in vendor negotiations, resulting in annual savings of more than \$2 million. Ongoing monitoring is helping the OR maintain cost savings.

Source: Surgical Directions.

AAMI ST79 states:

- Walls, storage shelves, and air intake and return ducts should be cleaned on a regularly scheduled basis and more often if needed.
- Stained ceiling tiles should be replaced, and any leaks causing the stains should be repaired.
- Lighting fixtures or covers should be cleaned at least once every 6 months.

AORN recommends (Recommendation V) a schedule for cleaning the following:

- clean and soiled storage areas
- storage cabinets, sterile storage area (except floors)
- ventilation ducts (including air vents and grills) should be cleaned and filters changed on a routine basis according to the manufacturer's written IFU
- eye wash stations and aerators on faucets should be cleaned and disinfected on a routine basis
- sterilizer service access room
- elevators
- pneumatic tubes and carriers
- lounges, waiting rooms, offices
- environmental services closets

Joint Commission Surveys

The Joint Commission will have on their white gloves while surveying the cleanliness of the department and will be looking for dust bunnies. The Commission will observe and ask about the frequency of departmental cleaning, including:

- daily versus deep cleaning
- behind closed doors and under racks
- hidden corners and high level flat spaces
- behind and around automatic cleaning equipment
- sterilizer service access room, including the tops of sterilizers

The Commission will also ask if the dirty room is clean.

Role of personnel

Designated cleaning responsibilities are important to reduce the number of items that personnel forget to clean. Environmental cleaning service and sterile processing personnel need to decide who is responsible for cleaning what.

In the surgical processing area at Overlake Hospital Medical Center in Bellevue, Washington, Don Williams, CRCST CIS, CHL, manager, has environmental cleaning service staff do the wet mopping, empty the trash, and clean walls, vents, and lights. Sterile processing staff clean all work surfaces on a daily basis: sterilizer carts, sterilizer chambers, and storage shelves and cabinets. This list should be expanded to cover all the areas discussed above.

Quality assurance and performance improvement

These programs provide data to evaluate worker safety and determine whether the performance of environmental cleaning meets benchmark goals of the organization. Process monitoring ensures compliance with regulatory standards (eg, Occupational Safety and Health Administration), recommended practices (eg, AORN, AAMI, Centers for Disease Control and Prevention), manufacturer's written IFU, and the facility's policies and procedures with regard to monitoring of the environmental cleaning and disinfection process as well as reporting and investigation of adverse events (eg, outbreaks, product failures, inadequate cleaning).

AORN states that EVS and SP personnel should receive initial and ongoing

education as well as ongoing competency verification of their understanding of the principles and performance of the processes for environmental cleaning.

To monitor the effectiveness of the environmental cleaning process, AORN states (Recommended Practice X.c) cleaning practices should be measured using qualitative (eg, visual, fluorescent marking) and quantitative measures (eg, adenosine triphosphate cultures) as part of process improvement. Quantitative measures provide more information about cleaning effectiveness faster than a visual method, and they allow you to determine whether problems are improving, stabilizing, or worsening.

Checklists help to prevent human errors or missed cleaning of items, and they facilitate communication between environmental cleaning service and sterile processing personnel. A sample checklist is available in the AORN Environmental Cleaning Tool Kit available on their website.

The three cleaning steps recommended by the AORN environmental cleaning recommended practice (Recommendation VI.b) establish a routine for cleaning so that items are not missed during this process. Following these steps will reduce the risk of cross-contamination of environmental surfaces by limiting the transmission of microorganisms:

- Move from the clean areas into the dirty areas.
- Start from the top and work down.
- Use a clockwise or counter-clockwise method. ❖

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