



Best Practices of Environmental Health Guideline Workshop

All Healthcare Providers Have a Role in Maintaining a Clean & Safe Environment

Introduction

HAs are one of the most relevant public health problems worldwide. It is obvious that environmental contamination in healthcare settings plays a significant role in the transmission of HAs and outbreak incidents consequently. Therefore, environmental health related measures are a fundamental approach to infection prevention and control (IPC).

The purpose of the guideline

Is to provide useful information for healthcare professionals in an effort to offer a safe environment and to ensure that quality healthcare services will be administered to the patients.

The key program elements for effective environmental health program include the following components :

- 1. Organization /administration component.**
- 2. Staffing and training of housekeeper component.**
- 3. Policy and procedure component.**
- 4. Quality monitoring and auditing component.**

The responsibility for ensuring that cleaning of the environment in a health care facility is performed according to best practices and health care facility policy belongs to all staff involved in environmental cleaning, from the front-line environmental service workers to supervisors.



Common monitoring methods are either :

- Visual assessment
- Environmental cleaning performance observation
- Environmental marking
- Adenosine triphosphate (ATP)

Environmental surfaces

When selecting surfaces for use in clinical areas within health care settings, surfaces with the following characteristics are recommended, as these characteristics minimize the risk of microbial contamination:

- **Cleanable**
- **Easy to maintain & repair**
- **Resistant to microbial growth**
- **Nonporous**
- **Seamless**

Cloth furnishing

Cloth surfaces such as curtains, pillows, mattresses or soft furnishings are used in clinical areas,

Cloth surfaces with the following characteristics are preferred, as these characteristics minimize the risk of microbial contamination:

- **Seamless (where possible) or have double-stitched seams.**
- **Easy to access (e.g., removable covers) for cleaning.**
- **Have foam cores that are resistant to mold.**
- **Durable and able to tolerate repeated cleaning with detergents and disinfectants, without damage.**
- **Quick drying.**
- **Easy to maintain, repair or replace.**
- **Covered with fluid-resistant fabric.**

Bedside privacy curtains

Privacy bedside curtains must be removed, cleaned and disinfected immediately if they become contaminated with blood or body fluids, or are visibly soiled or according to routine schedule.

Privacy bedside curtains used for all patients including patients under isolation precautions should be changed following discharge or transfer of the patient and before a new patient is admitted to that room or bed space or when required.



Carpeting

- Carpeting has been associated with an increased risk of health care-associated infection rates in immunocompromised populations.
- Carpets collect dust and debris and are more difficult to maintain than floors. Because the dust in carpets contains fungal spores that may induce asthma attacks and cause fatal infections in immunocompromised patients, carpets are not recommended.
- Compared to hard-surface flooring, however, carpeting is harder to keep clean, especially after spills of blood and body substances.

Develop and maintain a master list of facility-approved environmental cleaning products in the facility cleaning policy.

Minimize the number of different environmental cleaning products in use at the facility.

Manage environmental cleaning products according to the product's material safety data sheet (MSDS).

Ensure that environmental cleaning products are selected that do not damage the surfaces, equipment intended to be cleaned and disinfected and are compatible with them.

Ensure that standard operating procedures or instructions are available for the preparation, use, and disposal of environmental cleaning products.

Method of selecting the environmental cleaning products (e.g., detergents, disinfectants)

Environmental Cleaning and Disinfection Required Supplies, Equipment's, Health Care and Utility Room Design

Soiled (dirty) and clean utility/supply rooms:

- It is an essential environmental cleaning principle that clean and soiled (i.e., dirty , used) supplies and equipment should be clearly separated.**

Environmental Cleaning and Disinfection Required Supplies, Equipment's, Health Care and Utility Room Design

Soiled (dirty) utility room

- Should be well-ventilated and illuminated (lighting or window access).**
- Labelled with a biohazard sign on the door.**
- Physically separate from other areas, including clean supply/storage areas.**
- Have a work counter and flushing-rim clinical.**

Environmental Cleaning and Disinfection Required Supplies, Equipment's, Health Care and Utility Room Design

Clean utility room characteristics:

- Separate from and have no direct connection with soiled workrooms or soiled holding areas.**
- Be adjacent to usage areas and easily available to staff.**
- Be equipped with a work counter and dedicated hand washing sink if used for preparing patient care items.**

Environmental Cleaning and Disinfection Required Supplies, Equipment's, Health Care and Utility Room Design

Cleaning equipment:

- Cleaning equipment requires careful and regular cleaning and disinfection to avoid inadvertent cross-transmission of microorganisms during subsequent use.
- Tools and equipment used for cleaning and disinfection must be single-use and, if multi-use should be cleaned and dried between uses (e.g., mops, buckets).
- Cleaning tools and equipment such as mop used in a room or bed space on isolation precautions must be either disposable and discarded after use, or if re-usable, changed immediately after use and transport to the laundry.

Environmental Cleaning and Disinfection Required Supplies, Equipment's, Health Care and Utility Room Design

Surface cleaning supplies:

Surface cleaning cloths should be cotton or microfiber (disposable wipes can be used if resources allow).

Have a supply of different colored cloths to allow color-coding: for example, one color for cleaning and a second color for disinfecting. Color-coding also prevents cross-contamination between areas.

Use a cart or trolley with two or three buckets for the mopping process.

It is highly recommended to display a wet floor/caution sign before starting.

Environmental Cleaning and Disinfection Required Supplies, Equipment's, Health Care and Utility Room Design

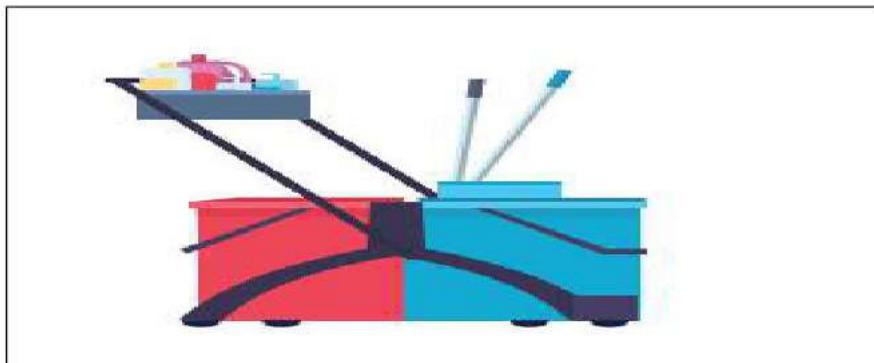
Storage of cleaning supplies:

- All chemical cleaning agents and disinfectants should be appropriately labelled and stored in a manner that eliminates exposure, inhalation, skin contact or personal injury.
- A safety data sheet (SDS) shall be readily available for each item.

Environmental Cleaning and Disinfection Required Supplies, Equipment's, Health Care and Utility Room Design

Cleaning carts and trolleys

- Cleaning carts and trolleys provide several benefits, such as the ability to carry and safely manage all the essential cleaning supplies and equipment and increased occupational safety for cleaning staff.



Environmental Cleaning and Disinfection Required Supplies, Equipment's, Health Care and Utility Room Design

- Three-bucket system (for disinfection): one bucket contains the detergent or cleaning solution; one contains rinse water and one the disinfectant or disinfectant solution.



- Should have a separation between clean and soiled items.
- Should never contain personal clothing or grooming supplies, food or beverages.
- Should be thoroughly cleaned at the end of the day.

Environmental Cleaning and Disinfecting Methods:

High-touch surfaces

Are those that have frequent contact with hands, examples include (but are not limited to) doorknobs, elevator buttons, telephones, call bells.



Environmental Cleaning and Disinfecting Methods:

Low-touch surfaces

Are those that have minimal contact with hands, examples include (but are not limited to) floors, walls, & ceilings.



Environmental Cleaning and Disinfecting Methods:

- High-touch surfaces in care areas require more frequent cleaning and disinfection than minimal contact surfaces.
- Cleaning and disinfection should be performed at least daily and more frequently if the risk of environmental contamination is higher.
- Low-touch surfaces require cleaning on a regular basis, when soiling or spills occur, and when a patient is discharged or transferred

Environmental Cleaning and Disinfecting Methods:

Cleaning & disinfection techniques:

- Daily routine cleaning of the patient room or bed space.**
- Discharge/Transfer patient room cleaning (Terminal Cleaning).**

Environmental Cleaning and Disinfecting Methods:

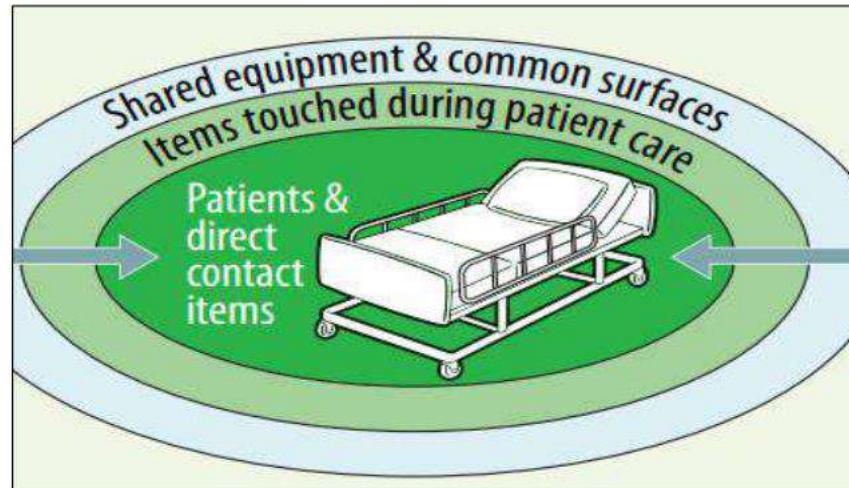
Cleaning & disinfection strategies:

- Proceed from High to Low (Top to Bottom) :**
 - Cleaning bed rails before bed legs.
 - Cleaning environmental surfaces before cleaning floors.
 - Cleaning floors last to allow the collection of dirt and microorganisms that may have fallen.

Environmental Cleaning and Disinfecting Methods:

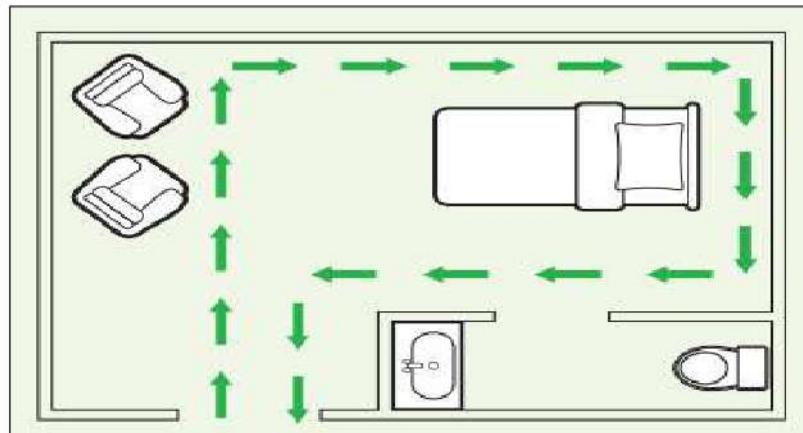
□ Proceed from Cleaner to Dirtier :

- During terminal cleaning, clean low-touch surfaces before high-touch surfaces.
- Clean patient areas (e.g., patient zones) before patient toilets.



Environmental Cleaning and Disinfecting Methods:

- Proceed in a Methodical, Systematic Manner:
 - Proceed in a systematic manner to avoid missing areas—for example, left to right or clockwise.
 - A multi-bed area, clean each patient zone in the same manner—for example, starting at the foot of the bed and moving clockwise.



Environmental Cleaning and Disinfecting Methods:

No-touch disinfection systems :

- **No-touch disinfection systems** are systems that use chemical disinfectants or physical agents to disinfect surfaces and which do not require that the active agent is directly applied to and removed from the surface manually.
- Such as hydrogen peroxide mist or vapor or the use of ultraviolet light to disinfect surfaces.

Cleaning Procedures for Different Hospital Areas :

Cleaning procedures for Operating Room :

- This is a high-risk specialized patient area with a mechanically controlled atmosphere where surgical procedures are performed.

Cleaning procedure for Intensive Care Units (ICU) (Adult, Pediatric, Neonatal) :

- These are high-risk areas because patients may be immuno-compromised by underlying diseases, treatment modalities (e.g., invasive devices), and other life-threatening conditions (e.g., major trauma, stroke), and vulnerability to infection are high.

Cleaning Procedures for Different Hospital Areas

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Cleaning procedure for Special Isolation Units:

- These are high-risk areas in which patients are highly immunosuppressed (e.g., bone marrow transplant, leukemia) and vulnerability to infection is high

Cleaning procedure for Burn Units:

- These are high-risk units where the vulnerability of the patients to infection (immunocompromised) and probability of contamination (e.g., with blood and body fluids) are high

Cleaning Procedures for Different Hospital Areas :

Cleaning procedure for Medication Preparation Areas :

- Areas where medication is prepared (including pharmacy or in clinical areas) are high-risk areas in which a high degree of asepsis is required.

Cleaning procedure for Sterile Services Areas :

- Areas where semi-critical and critical equipment is sterilized and stored in which a high degree of asepsis is required.

Cleaning Procedures for Different Hospital Areas :

Cleaning procedure for Labor and Delivery Wards/Rooms:

- These are high-risk areas because they are routinely contaminated and the vulnerability of patients to infection is high.

Cleaning Procedures for Different Hospital Areas :

Cleaning procedure for Hemodialysis Stations/Areas:

- These are high-risk areas because they are routinely contaminated and the vulnerability of patients to infection is high.

Cleaning procedure for Emergency Department:

- This is moderate to high-risk area because of the number of people who could contaminate the environment and because some patients may be more susceptible to infection. e.g., trauma patients

Cleaning Procedures for Different Hospital Areas :

Cleaning procedure for Transmission-Based Precaution / Isolation Wards:

- These are high-risk areas, especially for environmentally hardy pathogens (e.g., resistant to disinfectants) and for multidrug-resistant microorganisms

Occupational Safety Considerations

These are the best practices for cleaning staff
PPE :

- Always perform hand hygiene immediately before wearing gloves and immediately after removal.
- Train cleaning staff on appropriate use and removal of required PPE for all environmental cleaning procedures and tasks.
- Conduct regular fit-testing for cleaning staff who are required to wear respirators.

Occupational Safety Considerations

Immunization :

- Appropriate immunization protects staff and clients/patients/residents. Environmental service workers and housekeeping staff shall be included in facility policies of staff immunization.



Occupational Safety Considerations

Staff exposure:

- There shall be written policies and procedures for the evaluation of staff (employees or contract workers), including environmental service workers, who could be exposed to blood or body fluids and other infectious hazard.

Cleaning Procedures for Different Hospital Areas:

Flowers and Plants in Patient-Care Areas



- The major group of microorganisms in flower vase water was gram-negative bacteria, such as *Pseudomonas aeruginosa* which is the most frequently isolated organism. Microorganisms from cut flowers or potted plants have been linked with hospital-acquired infections.

Cleaning Procedures for Different Hospital Areas:

Vulnerable patient groups :



- Severely immunocompromised patients such as oncology patients, organ transplantation, stem cells transplantation patients, and other immunosuppressant patients.
- Burn patients.
- Acutely ill patients those admitted in critical areas such as Intensive Care Units.
- Hemodialysis patients.

Cleaning Procedures for Different Hospital Areas:

Environmental control measures :



- Cut flowers and potted plants must be avoided in rooms of the above-mentioned vulnerable groups all the time.
- Flowers and plants are permitted in the rooms of immunocompetent patients only.
- Limit plant care to staff not directly caring for patients.

Environmental Sampling :

Microbiologic sampling of air, inanimate surfaces and water (i.e., environmental sampling) is an expensive and time-consuming process that is complicated by many variables in the protocol, analysis, and interpretation.

Routine environmental microbiological cultures are not recommended



Pest Control:

The presence of cockroaches, flies, maggots, ants, mosquitoes, mice, rats, bed bugs and other pests is an indicator of an unhealthy environment in a healthcare facility.

Environmental health staffs are responsible for coordinating pest control. Although environmental health personnel's play a major role in minimizing pests, facilities should consider contracting licensed professionals to handle toxic pesticides

Conclusion

It is important that environmental health related measures implemented within the framework of a functional IPC program while ensuring that multi-disciplinary approaches are taken to enable engagement and coordination of all required measures.

The best practices contained in this document provide the framework for implementing effective environmental health procedures and program in healthcare facilities.

For further information visit...

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Any Question?