



Environmental Cleaning and Sanitation Guidelines for Health Care Institutions /Nursing Homes / Infirmaries (COVID-19 and other infectious diseases)

BACKGROUND

Healthcare-associated infections (HAI) are a significant burden globally, with millions of patients affected each year. These infections affect all categories of healthcare settings and it is well documented that environmental contamination plays a major role in the transmission of HAIs in healthcare and other similar settings.

Environmental cleaning and sanitation are therefore fundamental interventions that will prevent and control the effects of such infections.

These interventions involve cleaning and disinfection (when required) of the environment alongside other key sanitation practices. To be effective, environmental cleaning activities must be implemented within the framework of the facility's Infection Prevention and Control (IPC) programme, and not as a standalone intervention.

RATIONALE

Health Care Institutions and nursing homes/infirmaries are considered high risk facilities for the spread of pathogens due to the nature of their operation. This risk ranking is based on the foregoing and this document provides guidelines towards achieving and maintaining the levels of sanitation required for these facilities. In order for the interventions to be effective there must be other key programme elements to support successful implementation which includes leadership support, training, monitoring, and feedback mechanisms.



1. DEFINITIONS

- **Antiseptic:** a substance that prevents or arrests the growth or action of microorganisms by inhibiting their activity or by destroying them. The term is used especially for preparations applied topically to living tissue.
- **Cleaning:** the physical removal of foreign material (e.g., dust, soil) and organic material (e.g., blood, secretions, excretions, microorganisms). Cleaning physically removes, rather than kills microorganisms. It is accomplished with water, detergents and mechanical action.
- **Cleaning solution:** a combination of water and cleaning product (e.g., detergent) in the ratio as specified by the manufacturer for use of the product.
- **Clinical Waste:** Clinical waste means any waste which consists wholly or partly of:
 - Human or animal tissue
 - Blood or other body fluids
 - Excretions
 - Drugs or other pharmaceutical products
 - Swabs or dressings
 - Syringes, needles or other sharp instruments

Some other wastes may be hazardous where it has been in contact with other infectious material e.g. used for a patient with an infectious disease.

- **Contact time:** the time that a disinfectant must be in contact with a surface or device to ensure that appropriate disinfection has occurred. For most disinfectants, the surface should remain wet for the required contact time.
- **Contamination:** the presence of any potentially infectious agent on items such as environmental surfaces, clothing, bedding, surgical instruments or dressings, or other inanimate articles or substances including water, medications, and food.
- **Detergent:** a synthetic cleansing agent that can emulsify and suspend oil. Contains surfactant or a mixture of surfactants with cleaning properties in dilute solutions to lower surface tension and aid in the removal of organic soil and oils, fats, and grease.



- **Disinfection:** a thermal or chemical process for inactivating microorganisms on inanimate objects.
- **Disinfectants:** Chemical compounds that inactivate (i.e., kill) pathogens and other microbes and fall into one of three categories based on chemical formulation: low-level, mid-level, and high-level. Disinfectants are applied only to inanimate objects.

All organic material and soil must be removed by a cleaning product before application of disinfectants. Some products combine a cleaner with a disinfectant.

- **Disinfectant solution:** a combination of water and disinfectant, in the ratio as specified by the manufacturer for the use of the product.
- **Environmental cleaning:** cleaning and disinfection (when indicated) of environmental surfaces (e.g., bed rails, mattresses, call buttons, chairs) and surfaces of non-critical patient care equipment (e.g., IV poles, stethoscopes).
- **Personal protective equipment (PPE):** clothing or equipment worn to protect against hazards (e.g., blood or body fluids).

2. HAND HYGIENE

- Hand washing stations must be:
 - Equipped at all times with running water, liquid soap, disposable paper towel and lined garbage bin. Ideally, this should be so equipped to allow for hands free operation.
 - Placed at the entrance of the facility and strategically throughout the facility for ease of access to all individuals.
 - Present in areas where there is high likelihood of contamination as well as in those areas that require high level of protection from contaminants.
- Hand hygiene instructions should be posted at all hand washing stations.
- All individuals in the facility (patients/residents/visitors/staff) are required to wash their hands upon entering the facility, before entering 'clean' areas and after contact with any contaminant.
- Hand Sanitizer dispensers should also be strategically placed in the facility. The sanitizer or hand-rub alcohol-based hand rubs are to contain at least 62%



alcohol.

3. SAFE DISPOSAL OF WASTE

Considering that not all waste generated in healthcare settings is hazardous, items such as paper and packaging and any material not contaminated with blood or body fluid can be treated in the same way as domestic waste.

On the other hand, clinical waste may prove hazardous to persons coming in contact with it unless rendered safe. It should therefore be segregated at the source to ensure that it is handled and discarded safely.

4. CATEGORIES OF WASTE AND DISPOSAL METHOD

All clinical waste should be separated from the general waste stream at the point of origin. Such waste is identified by the colour of its lining and container, in cases where a different container is used, it has to be clearly marked with the bio-hazard symbol.

The health facility personnel must ensure proper segregation of waste intended for disposal prior to placement in containers. The segregation will include separating sharps from other clinical waste.

5. HOUSEKEEPING

1. A schedule for the daily routine cleaning of the facility should be developed for all areas to be cleaned, including garbage storage area.
2. Cleaning procedures must be established for the facility and strictly adhered to.
3. The housekeeping personnel should receive training in cleaning procedures.
4. All equipment should be thoroughly cleaned at all times.

The waste must be placed in containers that are:

- ❖ Rigid
- ❖ Leak resistant
- ❖ Impervious
- ❖ Robust - to prevent tearing and bursting under normal conditions
- ❖ Properly sealed to protect leakage during transport



All reusable containers must be decontaminated after they are emptied and before reuse. Non-rigid packaging and inner liners must be regulated as medical waste and should not be reused.

Type of waste	Examples	Type of container	Comment
Clinical	Swabs, dressings, Material contaminated with blood/body fluid, Waste from isolation rooms, Human blood and blood products	Suitable red bags placed in holders or rigid lidded polyethylene bins	Bags should be sealed and marked with the point of origin and should not be more than 75% full. Disposal by incineration
Sharps	Needles/ Syringes Scalpels Infusion sets Saws and knives Surgical blades Broken glass Any other items that can cut and puncture	Puncture-resistant container including any hard-plastic container with cover, marked with the Biohazard symbol .	Containers should be sealed and properly labelled . They should be removed when 75% full. Disposal by incineration
Chemical hazardous waste	Inflammable or corrosive chemicals	Segregate from normal waste to prevent inappropriate or illegal disposal	Place in a safe place. Use a cardboard box to facilitate transport

6. RECOMMENDATIONS FOR WASTE STORAGE FACILITIES

The storage area should have an impermeable, hard-standing floor with good drainage (connected to the sewage disposal system); it should be easy to clean and disinfect.

- There should be a water supply for cleaning.
- The storage area should afford easy access for staff in charge of handling the waste.
- It should be secure to prevent access to unauthorized persons and animals.
- Easy access for waste-collection vehicles is essential.
- There should be good lighting and ventilation.
- The storage area should not be situated in close proximity to fresh food stores or food preparation areas.
- A supply of cleaning equipment, protective clothing, waste bags or containers should be located conveniently close to the storage area.

Health facility waste should be transported within the facility by means of wheeled trolleys, containers, or carts that are not used for any other purpose. Waste should be packaged in sealed bags or containers, to prevent spilling during handling and transportation.

7. STORAGE AND HANDLING OF LINEN

Used Linen

- All used linen should be placed in clear plastic bags for transportation to the laundry area. If soiled or wet, then strong impervious plastic bags should be used.
- There should be minimal direct handling of used linen. Sluicing of linen should be undertaken in the laundry not on the ward.
- Laundry staff should be provided with appropriate protective clothing e.g. industrial gloves and plastic aprons.
- Linen is decontaminated during the washing and drying process.

Clean Linen

- Clean linen should be stored in a clean, dry, insect-proof area, and protected from contamination prior to use.

8. ENVIRONMENTAL CLEANING AND SPILLS MANAGEMENT

Cleaning

Cleaning is done to remove contaminants from the environment and minimize the risk of transmission between clients by utilizing the following methods.

Removal of dust

Many micro-organisms will collect in dust which is largely made up of skin scales and fibers from linen and clothing. These are best removed by dry or damp dusting.

Detergent and water mixture

This physically removes soil from surfaces and is the best agent to use for cleaning of a soiled environment.

Disinfection

This is generally not recommended for cleaning of the environment except in certain circumstances such as outbreaks of infection where an environmental source is suspected. Disinfectants have a very short action on surfaces which can quickly become re-contaminated.

MOPS AND CLOTHS

These will become contaminated with micro-organisms from the environment and must be laundered after each use. Cloths and mops used in isolation areas or other areas that are highly contaminated must not be used in other parts of the ward/facility.

Cleaning of Spills of Body Fluids

Whenever there is a spill of blood or body fluid (**not urine**) it shall be assumed to be **infectious**.

“Spill Kits” must be readily available for use in **all** sections of the facility. This “Spill Kit” shall include but not be limited to the following:

- Concentrated Hypochlorite solution
- Disposable gloves
- Absorbent towel/cotton/cardboard/newspaper etc.
- Red bio-hazard bags



The following steps should be taken when cleaning a spill:

1. Block the area from passers-by, until clean-up and disinfection is complete.
2. Appropriate personal protective equipment (gloves, plastic apron) must be worn. If sharps are present, such as broken glass, use utility gloves.
3. Cover the spill with paper towels or other absorbent material such as newspaper to soak up the liquid.
4. Use a scoop or tong to clean up the bulk of the spill with the absorbent material and place in a biohazard bag. If any sharp objects are present remove with tong or other mechanical device and place in a sharp's container.
5. Gently pour Sodium Hypochlorite solution onto all contaminated areas of the surface and (if possible) allow to remain on the contaminated area for 5 minutes.
6. Wash the area with detergent solution then rinse clear.
7. Discard all disposable materials and protective clothing into a red bio-hazard bag.
8. If reusable utility gloves were used, wash in soap and water and disinfect by soaking them in a dilute Sodium Hypochlorite (1:10) solution for at least 5 minutes. Check to ensure gloves are intact (no holes or cracks) then hang them to air dry.
9. Thoroughly wash hands with soap and running water. If an injury / exposure occurs while cleaning the spill, an incident report should be made within 2 hours to a supervisor.

9. DECONTAMINATION METHODS

Decontamination using disinfectants

- Disinfectants should only be used where sterilization or heat disinfection is not possible and cleaning with water and detergent is inadequate.
- Disinfectants should be made up in the correct concentration when required in a designated container. They should be discarded immediately after use.
- Equipment should be FULLY immersed in the disinfectant and removed after the recommended time. It must then be rinsed with water to remove remaining disinfectant which may be harmful to the patient.
- Disinfectants are NOT required for environmental cleaning (unless specified - e.g. for an unusual outbreak).

Disinfectant Solutions:

A. Hypochlorite (Sodium Hypochlorite, Bleach)

Hypochlorite is effective against Hepatitis B and C, HIV, other viruses and bacteria, including some spores. However, it is inactivated by organic matter and solutions deteriorate rapidly. Solutions should be diluted from a concentrated solution each day.

Dilutions of hypochlorite and their uses include:

- 1% (10,000 ppm available chlorine): disinfection of large spillages of blood and body fluids (remove blood spill first with disposable paper towels using protective clothing).
- 0.1% (1,000 ppm available chlorine): disinfection of equipment where alternative method not available
- 0.025% (250 ppm available chlorine): disinfecting babies' bottles.

Table 1: Hypochlorite (Bleach) Solution Concentration

	500 ppm (0.05%)	1,000 ppm (0.1%)	5,000 ppm (0.5%)
Bleach/water	1:100	1:50	1:10
Dilution of standard bleach (5.25%) in 1 gallon of water	2 ½ Tablespoons (1/6 cup)	5 Tablespoons (1/3 cup)	25 Tablespoons (1 2/3 cup)

RECOMMENDED DILUTIONS OF SODIUM HYPOCHLORITE (BLEACH)

Dilution is necessary when using a pre-made bleach solution. Table 2 shows how to mix 0.5% solution (5,000 ppm) and 1% solution (1,000%) from pre-made solutions. However, bleach is manufactured to different strengths and decays on storage so available chlorine for different solutions cannot be determined accurately.

Table 2: Percentage available Hypochlorite dilution solution guide

Percent solution	Dilution Necessary to Achieve:	
	5,000 ppm* (0.5%)	1,000 ppm (1%)
3.5%	1-part bleach to 6 parts water	1-part bleach to 2.5 parts water
5%	1-part bleach to 9 parts water	1-part bleach to 4 parts water
6%	1-part bleach to 11 parts water	1-part bleach to 5 parts water
8%	1-part bleach to 15 parts water	1-part bleach to 7 parts water
10%	1-part bleach to 19 parts water	1-part bleach to 9 parts water
15%	1-part bleach to 29 parts water	1-part bleach to 14 parts water

B. Chlorhexidine

Chlorhexidine is mainly active against bacteria but not against tubercle bacilli. They are mainly used for disinfection of skin where they will have a persistent effect on microbial flora over several hours. Preparations include:

- 4% chlorhexidine digluconate skin cleanser (Hibiscrub) for surgical hand disinfection.
- 0.5% chlorhexidine in 70% isopropyl alcohol (Hibisol) for hand rubs and skin preparation.

C. Alcohols

Ethyl alcohol (70%) or isopropyl alcohol 60-70% are rapid acting surface disinfectants that are effective against bacteria and most viruses. It is highly



effective as a hand hygiene agent or for disinfection of equipment but will not penetrate organic material.

The immersion time depends on the purpose of decontamination:

- Sterilization of surgical instruments: 10 hours; destroys spores; rinse with sterile water and use immediately
- High level disinfection of flexible endoscopes: 10 minutes; rinse and store dry.

10. WASTE DISPOSAL

Waste should be handled in accordance with the general guidelines on waste management. In addition, other waste generated from clients with an infectious disease shall be considered as clinical waste.

1. All body wastes must be flushed in the toilet or sluice sink). Bedpans should be decontaminated in a bedpan washer where possible. If not available, the bedpan should be emptied in the sluice sink, rinsed with running water and fully immersed in a designated container filled with freshly made hypochlorite at 1,000ppm.
2. All other infectious wastes must be placed in red plastic bags. Bags should be tied securely and removed for incineration.
3. Puncture resistant sharps containers must be provided to collect used sharps in the isolation room/area.

11. PROTECTIVE CLOTHING

All Visitors should stop at the Nurses' station/reception area before Entering Patient's Room

Contact Precautions

- Gloves - if in contact with body fluids.
- Plastic aprons (or gowns) - if soiling of clothing likely.

Droplet Precautions

- Gloves - if in contact with body fluids.
- Plastic aprons (or gowns) - if soiling of clothing likely



- Surgical mask - within 1 meter of client

Respiratory Precautions

- Gloves - if in contact with body fluids.
- Plastic aprons (or gowns) - if soiling of clothing likely
- N95 Respirator Mask - for close contact or for cough inducing procedure

N.B. Gloves and apron/gown must be changed between clients to prevent cross infection.

12. EQUIPMENT

1. All equipment used in an isolation room/area must be cleaned and decontaminated when removed.
2. Clients in isolation should not share items which may serve as a vehicle of transmission for infection.
3. Where possible toys should be made of plastic or other wipe-able surfaces and cleaned and decontaminated when removed from an isolation room/area.
4. No special precautions are needed for eating utensils, they can be cleaned with detergent and hot water.

13. TRAINING/EDUCATION

Health care personnel and other relevant staff members must communicate with clients /relatives on a one to one basis about:

- Nature of any illness
- The Infection Prevention and Control (IPC) measures that must be taken and the reasons
- Reason for isolation (if applicable)
- Precautionary measures to be taken to prevent the spread of infection to the family, friends and community.

Patient and client information leaflets and posters should be available (and posters mounted) for infectious diseases such as COVID-19.

Ongoing education should be in place for healthcare workers and other staff members on isolation procedures and IPC measures.



14. DOCUMENTATION REQUIREMENT

1. The patient's charts and records must be up-to-date and kept outside the patient's room/isolation area.
2. Cleaning schedule must be in place for all cleaning activities and kept up-to-date.
3. Cleaning instructions must be documented and posted in strategic locations.
4. If HVAC system is in place maintenance schedule and records must be in place.
5. Records and contract (where applicable) for garbage collection and disposal.

Water safety (chlorine residual readings) and water supply records (if or when water is trucked to the facility).



15. PERSONAL PRECAUTIONS FOR ISOLATION ROOM / AREAS

Droplet Precautions

Anyone entering room **MUST**

<p>Perform Hand Hygiene</p> 	<p>1. Clean Hands Thoroughly with antibacterial soap and water or hand sanitizer.</p>
	<p>2. Put on Mask for close contact with patient 3. Remove and discard Mask before leaving room.</p>
	<p>4. Put on Gown and Gloves before entering patient's room/bedside. 5. Remove Gown and Gloves before leaving patient's room/bedside.</p>
<p>Perform Hand Hygiene</p> 	<p>6. Clean Hand Thoroughly with antibacterial soap and water or hand sanitizer on leaving the room.</p>



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16. FOOD SAFETY CONSIDERATIONS

Contracted caterers and food retailers are responsible for:

- ✓ Ensuring that their organization have robust systems in place to ensure food safety for the service they provide.
- ✓ Implementing and maintaining a comprehensive, effective, documented food safety management system such as the HACCP (Hazard Analysis Critical Control Point) principles, and appropriate staff training, instruction and supervision, based on the Ministry of Health and Wellness guidelines and respective regulations.

Food Storage

Food must be stored in an appropriate area, covered and away from sources of contamination and at the appropriate temperature. It is the responsibility of the ward housekeeper (or person nominated by the ward manager if no housekeeper) to check dates and dispose of food as necessary to avoid the storage of out of date food.

Refrigerated & frozen storage

- ✓ High risk foods must be stored in the refrigerator, by law maintaining a food temperature of between 0 °C and 8 °C at all times (target air temperature 5°C or below). Freezers should hold at -18°C, maximum of -22°C.
- ✓ Temperature is to be monitored and recorded daily and corrective action taken and recorded as required.
- ✓ All refrigeration units should be in a good state of repair to facilitate cleaning.
- ✓ Specific guidelines must be followed for the production, chilling, storage and transport of all foods

Storage of food brought in to the Facility /Institution

Clients and their visitors should be strongly discouraged from bringing any food on to the ward other than ready to eat non-perishable snacks and non-alcoholic bottled or canned drinks.



Food brought in by staff

Foods brought in by staff should not be stored with food and drink designated for patient consumption due to the risk of cross contamination.

Storage in catering areas including ward kitchens is therefore not permitted.

Staff food should be stored either in a designated staff fridge or cool bags/boxes should be used.

Food Service to Clients

The service of food to clients must begin immediately once the food arrives. Delays could lead to both bacterial growth and deterioration. If not consumed immediately, cold food should be placed in the refrigerator on arrival to the kitchen area and should not be removed until just before serving.

Cooked and reheated foods should be kept at a temperature of 60°C or above prior to service. Once re-heated, foods not served must be treated as food waste and disposed of accordingly.

Hand Hygiene

All food handlers are required to wash their hands before and after contact with food. Hands must be washed properly using liquid soap and running water and then dried thoroughly using disposable paper towel.

Hand wash stations are for hand washing only and must not be used for any other purpose.

Protective Clothing

- All main catering food handlers shall wear the uniform / protective clothing as provided.
- Uniform will be kept clean and in good repair by the food handler and will be changed into at work and not worn outside of the workplace to and from work.



Equipment

All equipment purchased for use in kitchens that provide food for clients, staff and the public must meet minimum public health criteria to ensure food safety.

The type and range of equipment and facilities provided in food handling areas must allow for:

- ✓ effective cleaning and disinfection where necessary
- ✓ minimal risk of contamination of food
- ✓ food temperatures to be maintained and monitored.

Pests

Pests present a health risk to both clients and staff and the presence of pests is contrary to the Food Hygiene Regulations. Premises should have a pest control plan and be regularly checked by a certified pest control contractor and any recommendations made by them should be acted upon.

Pest infestation or signs of pest infestation of any kind must be reported immediately to the person in charge so the appropriate measures can be instituted to deal with the problem. Food must be protected from contamination by pests- that is, kept covered in pest proof containers, and food contact surfaces and equipment sanitized before use.