

## 11. Housekeeping and Laundry

Environmental cleaning is a very important part of infection prevention and control in a health facility. If housekeeping is not done systematically and regularly the health care setting can become a reservoir for infectious agents. Patients may spread microorganisms into the health care environment, particularly if they are coughing, sneezing or having vomiting or diarrhea. Bacteria and viruses may survive for weeks or months on surfaces in the environment of the patient. The purpose of environmental cleaning is to reduce the number and amount of microorganisms and therefore reduce the risk of infection to patients and staff.

As one of the essential components of infection prevention and control, environmental cleaning consists of:

- Routine cleaning and disinfection of the health facility using hospital grade cleaners
- Additional cleaning and disinfection of high touch surfaces and medical equipment and devices
- Ongoing education and training of environmental cleaning staff
- Auditing and feedback processes for quality assurance

Health care environmental cleaning principles must be included in all steps of the design and operation of the facility and the organization. This includes decision making about:

- Environmental surfaces and facilities during the design and renovation of health care settings
- Infection prevention and control requirements in the purchase of medical equipment and devices including purchase decisions regarding reusable items versus single use items.
- Staffing supplies and equipment to maintain the level of cleaning standards during routine conditions as well as enhanced cleaning needs during outbreaks e.g. influenza outbreak.



## Hospital versus Hotel cleaning standards

Health care facilities may require two different levels of clean depending on what is happening in the area: hotel clean and hospital clean. Hospital clean (disinfected) is not achievable unless there has already been a hotel clean (tidy) established.

- Hotel component: applies to the area of the facility that is not involved in direct patient care, this may include public areas such as lobbies and waiting rooms, offices, corridors, elevators, stairwells, and service areas. These areas in a health facility usually do not require the same level of sanitation as the assessment, treatment and admission areas. However, in many community health facilities, it is recognized that various levels of patient care may occur in the same space and hence a higher level of cleaning needs to be carried out.
- Hospital component: this is the area of the facility that is involved in patient care. This includes patient units including nursing stations, procedure rooms, bathrooms, clinic rooms, and diagnostic, treatment and admission areas. Areas designated in the hospital component are cleaned with Hospital Clean detail.

## Hotel Clean

- Floors and baseboards are free of stains, visible dust, spills and streaks
- Walls, ceilings and doors are free of visible dust, gross soil, streaks, and handprints
- All horizontal surfaces are free of visible dust or streaks (including furniture, window ledges, overhead lights, phones, picture frames, and carpets)
- Bathroom fixtures including toilets, sinks, tubs and showers are free of streaks, soil, stains and soap scum
- Mirrors and windows are free of dust and streaks
- Dispensers are free of dust, soiling and residue and replaced/restocked when empty
- Appliances are free of dust, soiling and stains
- Waste is disposed of appropriately
- Items that are broken, torn, cracked or malfunctioning are replaced

## Hospital Clean is hotel clean plus...

- High-touch surfaces in patient care areas are cleaned and disinfected with a hospital-grade disinfectant (product has a DIN number)
- Medical equipment is cleaned and disinfected between patients
- Clean first and then disinfect: organic material de-activates disinfectant solutions
- Proper contact time: different products require varying 'wet' times to kill microorganisms
- Proper mixture: the concentration is strong enough to clean but not so strong to be harmful to staff and patients
- Frequent changes in cleaning equipment and solutions
- Use of the proper Personal Protective Equipment (PPE) to protect health care worker

**'Hospital Clean' is important for both patient and staff safety.**



## Cleaning basics



There are three basic rules when cleaning a room or an area.

- 1** Work from the **highest point** in the room to the **lowest point** in the room. For example, environmental cleaning should start by cleaning any ceiling lights and fans, then move down to the objects closest to the floor.
- 2** Work from the **outside walls** of the room to the **center of the room**. For example, clean all the wall attached objects first before the horizontal objects such as counters and sinks. Then, finish up with items that come in contact with clients like chairs and exam tables.
- 3** Work from the **cleanest surfaces** in the room to the **dirtiest surfaces** in the **room**. For example, when cleaning a bathroom start cleaning the mirrors and lights switches, and then move onto cleaning the sink and finish up by cleaning the toilet and then the floor.

## Cleaning Agents and Disinfectants

Cleaning is the removal of foreign material. This includes dust, soil, and organic material that may include blood, secretions and microorganisms. Cleaning physically removes rather than kills microorganisms, reducing the microorganism load on a surface.

Cleaning is accomplished with water, detergents and mechanical action. The key to cleaning is the use of friction to remove microorganisms and debris.

**Routine cleaning is sufficient for most infectious organisms in a health care setting. More frequent cleaning may be required based on the risk assessment.**

Thorough cleaning is required first for any equipment to be disinfected. Organic material may inactivate a disinfectant. Disinfection may be accomplished through a two-step process involving a cleaner followed by a disinfectant, but is more commonly accomplished in the health care setting through a one-step process using a combined cleaner/disinfectant product.

It is most important that a surface be free from visible soil and other substances that could interfere with the action of the disinfectant, before a disinfectant is applied e.g. adhesive products and body fluids. Most disinfectants lose their effectiveness rapidly in the presence of organic matter.

It is important that the selected disinfectant is:

- A hospital grade disinfectant with a DIN number (drug identification number)
- The manufacturer's instructions for dilution and contact time are followed.

Disinfection is a process used on inanimate objects and surfaces to kill microorganisms. Disinfection will kill most disease-causing microorganisms but may not kill all bacterial spores. Only sterilization will kill all forms of microbial life.

A hospital-grade disinfectant may be used for equipment that touches intact skin. Examples include intravenous pumps and poles, blood pressure cuffs, apnea monitors, electrocardiogram (ECG) machine/cables and crutches.



The contamination levels of the disinfectant solution and equipment used for cleaning can be minimized by:

- Starting the cleaning task by performing hand hygiene and wearing disposable gloves
- Ensuring proper mixing of the disinfectant
- Frequently changing the disinfectant solution
- Frequently changing the cleaning cloths, mop heads
- Not dipping a soiled cloth into the disinfectant solution (i.e. no 'double-dipping').

Disinfectant wipes can be used by the primary caregiver at point of care for quick disinfecting of patient equipment between patients. Disinfectant wipes should not be used as a routine cleaning/disinfectant product.

When using disinfectant wipes:

- The active ingredient must be an appropriate hospital-grade disinfectant
- Wipes must be used wet and discarded if they become dry
- Wipes must have an MSDS and be used according to the MSDS (e.g. wear gloves when handling)

### Hospital Grade Disinfectants

Hospital grade disinfectants include:
<b>Alcohols</b> 60-90% ethyl or isopropyl alcohol
<b>Chlorines</b> Sodium hypochlorite (bleach) Calcium hypochlorite See Appendix A for mixing/dilution guidelines
<b>Phenolics</b>
<b>Quaternary Ammonium Compounds (QUATS)</b>
<b>Iodophors</b>
<b>Accelerated Hydrogen Peroxides</b>



## CAUTION

Mixing different cleaners together may result in production of a dangerous solution or gas resulting in severe irritation to skin and lungs.

## Frequency of Routine Cleaning

The frequency of cleaning and disinfecting individual items or surfaces in a particular area depends on:

- Whether surfaces are high-touch or low-touch
- The type of activity taking place in the area and the risk of infection (e.g. examining room vs. meeting room)
- The vulnerability of patients seen in the area
- If there is an outbreak in the facility or the surrounding community
- The amount of body fluid contamination surfaces in the area.

## Storage of Cleaning Supplies and the Care of Utility Rooms

All chemical cleaning agents and disinfectants should be appropriately labeled and stored in a manner that eliminates risk of improper use, contamination, inhalation, skin contact or personal injury. Chemicals must be clearly labeled with Workplace Hazardous Materials Information System (WHMIS) information and a Material Safety Data Sheet (MSDS) must be readily available for each item in case of spills or over exposure.

[See: WHIS Information](#)

An automated dispensing system is helpful to ensure proper dilution and to eliminate the need for mixing of cleaning solutions. If transferring to another container, always use a clean, dry, appropriately sized bottle, label and date the product. The product should be discarded when past the expiry date for stability.

When choosing a tool for cleaning toilets, consideration should be given to equipment that will minimize splashing.

Do not top up bottles with cleaner, disinfectants or hand sanitizer as there is a risk of contamination of the solution.



## General Cleaning Practices for All Health Care Settings

<p><b>Before Cleaning</b></p>	<ul style="list-style-type: none"> <li>• Check for Additional Precautions signs. Follow precautions as indicated.</li> <li>• Remove clutter before cleaning.</li> <li>• Follow the manufacturer’s instructions for proper mixing and required contact time for disinfectant solutions.</li> <li>• Gather materials required for cleaning before entering the room.</li> <li>• Clean hands on entering the room.</li> </ul>
<p><b>During Cleaning</b></p>	<ul style="list-style-type: none"> <li>• Progress from the least soiled areas (low-touch) to the most soiled areas (high-touch) and from high surfaces to low surfaces.</li> <li>• Remove gross soil prior to cleaning and disinfection.</li> <li>• Dry mopping is done before damp mopping.</li> <li>• Minimize turbulence to prevent the mobilization of dust that may contain microorganisms.</li> <li>• Never shake mops inside to minimize dust/dirt in air. Ideally remove large pieces of dust and dirt with gloved hands then remove mop head to be laundered.</li> <li>• Do not “double-dip” cloths.</li> <li>• Change cloths/mop heads frequently.</li> <li>• Change cleaning solutions as per manufacturer’s instructions. Change more frequently in heavily contaminated areas, when visibly soiled and immediately after cleaning a blood and body fluid spill.</li> <li>• Containers for liquid soap and cleaners/disinfectants are disposable. The practice of ‘topping up’ is not acceptable as it can result in contamination of the container and solution.</li> <li>• Vacuum carpets using vacuums fitted with a HEPA filter. Maintain the filter according to the manufacturer’s instructions.</li> <li>• Be alert for needles and other sharp items. Pick up sharps using a mechanical device (if possible) such as tongs and place into sharps container. Report such incidents to the supervisor.</li> <li>• Collect plastic waste bags handling them from the top and do not compress.</li> <li>• Perform hand hygiene before putting on a clean pair of disposable gloves.</li> <li>• Change gloves frequently including when leaving a room or area.</li> <li>• Avoid spraying cleaning solutions onto a surface to reduce exposure to aerosolized cleaning chemical. Spray directly onto cleaning cloth instead.</li> </ul>



After Cleaning	<ul style="list-style-type: none"> <li>• Do not overstock rooms with supplies such as toilet paper and paper towels.</li> <li>• Equipment used for cleaning/disinfecting must be cleaned and dried between uses.</li> <li>• Launder mop heads daily with all washed mops heads being dried thoroughly in dryer before re-using.</li> <li>• Clean the housekeeping cart as well as the carts used to transport waste daily.</li> </ul>
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## Laundry

All linen that is soiled with blood, body fluids, or secretions should be handled using the same precautions as other linen regardless of source or health care setting.

## Laundry Practices

See Laundry Procedure for further details on laundering patient linens (bedding and towels) and environmental cleaning equipment such as mop heads.

## Laundry Staff Protection

Protection of staff handling laundry includes:

- Training for all health care providers and laundry staff in the procedures for handling of soiled linen that includes IPAC and WHMIS training
- Hand washing sink and alcohol hand sanitizer that is readily available in laundry areas
- The provision of appropriate personal protective equipment, (e.g. gloves, gowns and, face protection) to provide protection when handling heavily soiled linen
- Hand hygiene whenever gloves are changed or removed
- Disposal of sharps at point-of-use to ensure that there are no residual sharps in linen; laundry staff are at risk of injury from contaminated sharps, instruments or broken glass that may be accidentally in the laundry bags
- Immunization of laundry staff against hepatitis B due to the high risk of sharps injury and blood and body fluid exposure.



## Appendix A: Preparing Household Bleach As a Disinfectant

The solution must be made fresh daily to preserve strength.

Standard household bleach solution ranges from 5% to 6% sodium hypochlorite solution (50,000 ppm available chlorine).

When to be used	Level required	Examples of mixing bleach solution
<p><b>Semi critical items:</b> Items that may accidentally penetrate skin and come in contact with blood or body fluids.</p> <ul style="list-style-type: none"> <li>• Blood, feces, body fluids and some items that may contact sterile items</li> </ul> <p>Surface must be cleaned before disinfection.</p> <p>Contact time &gt; 10 minutes</p>	<p><b>High-level Disinfection</b></p> <p>1:10 dilution of bleach</p> <p>5000 ppm</p> <p>1 part bleach to 9 parts water</p>	<p>50 ml bleach with 450 ml water</p> <p>or</p> <p>¼ cup bleach with 2¼ cups water</p>
<p><b>Semi critical items:</b> Use on semi critical items that may accidentally penetrate skin and come into contact with blood and body fluids.</p> <ul style="list-style-type: none"> <li>• manicure/pedicure items, foot tubs</li> </ul> <p>Contact time &gt; 10 minutes</p>	<p><b>Intermediate-Level Disinfection</b></p> <p>1:50 dilution of bleach</p> <p>1000 ppm</p> <p>1 part bleach to 49 parts water</p>	<p>10 ml bleach with 490 ml water</p> <p>or</p> <p>2 tsp. bleach with 2 cups water</p>
<p><b>Semi critical items:</b> Use for semi critical items that may come in contact with mucous membranes.</p> <ul style="list-style-type: none"> <li>• Toys</li> </ul> <p>Contact time &gt; 2 minutes</p>	<p><b>Intermediate-Level Disinfection</b></p> <p>1:100 dilution of bleach</p> <p>500 ppm</p> <p>1 part bleach to 99 parts water</p>	<p>80 ml with 8 litres of water</p> <p>or</p> <p>1/3 of a cup with 2 gallons of water</p>

When to be used	Level required	Examples of mixing bleach solution
<p><b>Non critical items:</b></p> <ul style="list-style-type: none"> <li>• Laundry, mop heads and cleaning clothes</li> </ul> <p>Contact time: Full wash cycle</p>	<p><b>Low-Level Disinfection</b></p> <p>1:100 dilution of bleach</p> <p>500 ppm</p> <p>1 part bleach to 99 parts water</p>	<p>80 ml with 8 litres of water</p> <p>Or</p> <p>1/3 of a cup with 2 gallons of water</p>
<p><b>Non critical items and contact surfaces;</b></p> <ul style="list-style-type: none"> <li>• Combs, brushes, floors</li> </ul> <p>Items that come in contact but do not penetrate intact skin or those that do not ordinarily touch the patient.</p>	<p><b>Low-Level Disinfection</b></p> <p>1:500 dilution of bleach</p> <p>100 ppm</p> <p>1 part bleach to 499 parts water</p>	<p>5 ml bleach with 2½ litres water</p> <p>or</p> <p>1 tsp bleach with 10 cups water</p>

**Bleach concentration calculator:** By entering the necessary numbers, the calculator below will give you the amount of bleach to add to water to achieve the concentration recommended for the disinfection task to be accomplished.

[See: Bleach Calculator](#)

To use the bleach calculator enter the:

1. Volume of solution required
2. Desired concentration of sodium hypochlorite
3. Concentration of bleach solution being used (found on the label of the bleach product)
4. Press “enter”

Adapted from:  
 APIC Guidelines for Selection and use of Disinfectants  
 Public Health Ontario



