



Government of the Republic of Trinidad and Tobago  
Ministry of Health



# GUIDE TO BEST PRACTICES

## Environmental Cleaning for Prevention of Infections in all Health Care Facilities

JUNE 2020

3rd Edition





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- The Oversight Committee Members from the Pan American Health Organization/World Health Organization [PAHO/WHO] and the Ministry of Health.
- The multidisciplinary team of health professionals for their valuable comments/suggestions.

Special mention must be made to acknowledge the focal point for leading this initiative – Dr. Rajeev P. Nagassar, Specialist Medical Officer Microbiology and Head of Department Microbiology and Member of the National Coordinating Committee to Combat Antimicrobial Resistance.

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# Preface

The Government of the Republic of Trinidad and Tobago through the Ministry of Health has implemented a comprehensive Health Sector Reform Programme. This Programme is aimed at improving the quality of health care by introducing new organizational structures and systems, re-engineering ineffective systems and shifting expenditure to health promotion and disease prevention initiatives.

In keeping with one of the main goals, which is to improve and maintain the quality of health care delivered to the population, the ministry has introduced a sector-wide comprehensive Continuous Quality Improvement [CQI] Programme. Key elements of the CQI Programme include Accreditation and Licensing; Monitoring and Audit; Training and Capacity Building; Risk Management; Quality Management Information Systems [QMIS]; Systems Re-engineering and Evaluation.

In the context of the accreditation and risk management systems of the Quality Programme, the Ministry of Health has introduced a structured programme for the prevention and control of infection since it maximizes patient outcomes and is part of the Ministry's strategy for providing safe, effective and efficient quality health services.

In Trinidad and Tobago, like many other countries in the world, increasing numbers of different organisms are developing resistance to greater numbers of available antibiotics. Increased global travel is bringing more persons into contact with diseases, which are incubating; additionally, there are greater numbers of persons in a state of immune suppression who are more susceptible to invasion by pathogens [organisms causing diseases] or those usually considered non- pathogenic.

It is also well recognized that poor infection prevention and control practices result in patient dissatisfaction, increases patient stay and overall costs including litigation. It is therefore imperative that a holistic approach be instituted to the prevention and control of infection in Trinidad and Tobago. To achieve this goal public and private sector partnership has become absolutely essential. It is also mandatory that all health care facilities implement the infection prevention and control policies and guidelines in order to reduce the risks and improve quality.

The scope of the 3rd Edition of the Infection Prevention and Control Policies and Guidelines for Healthcare Services has been updated in four guidelines:

- **Guideline 1 – Prevention and Control of Healthcare-associated infections**
- **Guideline 2 – Occupational safety and health**
- **Guideline 3 – Sterilization and Disinfection**
- **Guideline 4 – Environmental cleaning**
- **Guideline 5 – Healthcare-associated infections surveillance – To be released at a later date**

As Minister of Health, I give the assurance that patient safety is of utmost importance and that the necessary infrastructure and resources will be made available and I feel confident that you the health care professionals, managers, and support staff will ensure that the goals of the programme are achieved and maintained. We thank the Pan American Health Organization (PAHO) for partnering with us to achieve this revision of our manual.

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**Chief Medical Officer**

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**Minister of Health**

# Introduction

Health care facilities contain a reservoir of infectious agents. Contamination of hospital equipment, medications, and water supplies by hospital pathogens is a well-known cause of epidemics. Maintaining safe, clean, and hygienic health care facilities and minimizing microbial contamination on surfaces, objects, and equipment are essential for reducing the risks of health-care-associated infections. The fundamental principles and requirements of basic cleaning and disinfection remain the same regardless the different types of patients, diseases, and medical interventions.

The purpose of this guide is to standardize cleaning and disinfection procedures in all health care settings, in order to ensure and maintain optimal conditions of hygiene and biosafety for patients, visitors, and for the health care facility's staff. The recommendations presented here represent best practices developed with the goal of helping health care facilities reduce infections. These recommendations are intended to apply to all health care facilities, whether public, private, for-profit, or non-profit, and include hospital care, outpatient consultations, community health centers, doctors' offices, dental offices, and the private offices of other health care professionals.

The instructions and procedures discussed in this document should be adopted in all health care facilities and health services, following the guidelines applicable to specific areas, and based on the size and complexity of the facility and the services supplied. These measures should also be taken into consideration by health authorities responsible for certifying and accrediting health care facilities.



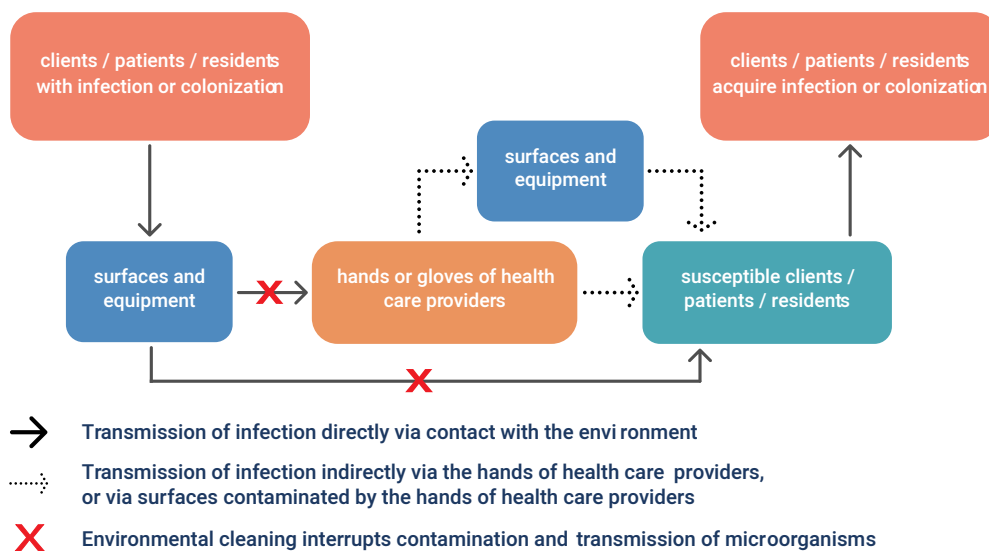
# 1. Basic Concepts

## 1.1. RISKS ASSOCIATED WITH A CONTAMINATED ENVIRONMENT

The cleanliness of a facility not only strengthens the trust that patients feel toward the building and the services provided, but also reduces contamination by health-care-associated pathogens. Cleaning eliminates substances (moisture, dust, organic matter, and chemical deposits) from surfaces conducive to the survival and growth of these microorganisms.

**Figure 1** shows how contamination of the environment can lead to infection. It also shows that it is possible to prevent the direct transmission of patients' microorganisms to surfaces, and then from surfaces to other patients, by effective cleaning of the environment, as shown by the **X**, and by means of hand hygiene, which can interrupt the sequence, shown as **3b**.

Figure 1 – How contamination of the environment can lead to infection



1. The environment becomes contaminated with microorganisms.
2. The microorganisms survive for a sufficient duration to allow transmission.
3. Clients/patients/residents\*
  - a) Acquire the microorganism through direct contact with the environment.OR
  - b) Hands or gloves of health care providers or equipment becomes contaminated through direct contact with the environment and then transmit the microorganism to another client/patient/resident due to lapses in hand hygiene and/or disinfection of shared equipment.
4. Acquisition of a microorganism that results in infection.

\*Note: health care providers can also acquire infection through contact with a contaminated environment.

Source: Ontario Agency for Health Protection and Promotion (Public Health Ontario),  
Provincial Infectious Diseases Advisory Committee (adapted)

The etiology of health-care-associated infections is multifactorial, and many of the factors involved are not yet well understood. We know, however, that the environment plays a considerable role in the transmission of microorganisms. This occurs when patients are infected or colonized by antibiotic-resistant bacteria after entering a room previously occupied by a patient who was infected or colonized by the same organism. It is possible, however, to reduce this type of infection by adopting better cleaning and disinfection practices.

## 2. Best Practices in Environmental Cleaning in Health Care Facilities

### 2.1. GENERAL PRINCIPLES

- Cleaning is performed by mechanical action (manual scrubbing or scrubbing with the aid of a machine) using water and detergents. While this does not kill microorganisms, it physically removes them, thus making it possible to reduce the number of organisms on a surface.



***Scrubbing is one of the keys to cleaning and disinfecting surfaces. Scrubbing makes it possible to eliminate not only visible dirt, organic matter, and other waste, but also microorganisms.***

Best cleaning practices entail specific rules.

#### ***Watch out for dust!***

- Dust contains fungal spores such as *Aspergillus* spp., which can not only create allergic reactions and respiratory problems, but can also cause fatal infections, especially in immunosuppressed patients.
- For this reason, the dispersion of dust when cleaning must be minimized. This means:
  - Not cleaning floors with brooms.
  - Not using household vacuum cleaners.

#### ***From the cleanest to the dirtiest***

Cleaning must be performed from the cleanest areas toward the dirtiest, and from top to bottom.

- Movement should not be back and forth or circular, but unidirectional.
- For example:
  - The ceiling should be cleaned with unidirectional motions.
  - Walls, doors, and windows should be cleaned from the top toward the bottom.
  - Cleaning of the floors of patients' rooms should begin at the innermost side of the room and proceed toward the door.
  - The floors of halls and lobbies should be cleaned from the inside toward the outside, and from back to front, the front being where the entry door is located.

#### ***Proper use of disinfectants and detergents***

- Disinfectants and detergents should be used following the manufacturer's instructions on the label (specifying, for example, dilution, compatibility, length of contact, storage, and expiration date).
- Disinfectants should not be used on all surfaces, but only on those that pose an elevated risk of transmitting microorganisms.
- Do not mix cleaning and/or disinfection products. Such mixtures can be dangerous and can even form toxic gases.

#### ***Cloth items***

- Use a different rag, mop head, or rag mop for each area to be cleaned. If, for example, the area has ten rooms, at least ten rags, gauzes, or rag mops must be used to clean the floor.
- Separate rags and mops according to the type of surface or area being cleaned. Markings should be used to distinguish rags used to clean rooms from those used for toilet and bathing areas.
- Cloth items should be well washed and dried (rags, wipes, cloths, etc.) after use.

### **Other recommendations**

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- Throw out dirty water and solution from pails in an appropriate place after cleaning each area or room. Never dispose the pails' contents in toilets or in a sink used for hand washing.
- Confirm the integrity of surface coatings and identify cracks and other flaws.

## **2.2. CLEANING EQUIPMENT**

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Cleaning consists of eliminating dirt and organic matter. Surfaces can be cleaned with or without microbicidal action (disinfection). The main products used in cleaning are soaps and detergents. Certain products combine a cleaning agent with a disinfectant. The correct use of cleaning and disinfection equipment and materials can reduce labor costs and increase the lifetime of these products, translating to lower expenditures.

Different equipment and supplies are used for cleaning and disinfection, such as equipment for mechanized cleaning of surfaces (scrubber-dryers, floor polishing machines, etc.), window and ceiling cleaning kits, pails, and cloths for use on surfaces.

### **2.2.1. DETERGENTS**

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Detergents are synthetic cleaning agents with a fast-acting emulsion that dissolves grease and removes dirt.

Detergents contain surfactants, substances that facilitate the emulsification of (oily) body fluids with water, as well as proteases (enzymes that break down proteins by cutting their peptide bonds), and bleaching agents.

### **2.2.2. DISINFECTANTS**

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A thorough cleaning of surfaces that are to be disinfected is recommended, since organic matter can sometimes neutralize a disinfectant.

The cleaning can be done:

- In one stage, using an all-in-one cleaner/disinfectant.
- In two stages, using a cleaner, then a disinfectant.

Light and moderate disinfectants are generally used to clean surfaces, while strong disinfectants and sterilizers are, in principle, reserved for medical equipment.

The present document deals with products used to disinfect noncritical equipment and hard surfaces. For information on products used for complete disinfection of semi-invasive and reusable invasive medical equipment, see "Disinfection and Sterilization of Medical Equipment and Supplies."

A disinfectant should not be used for anything other than disinfecting; it should not be used as a general cleaning product unless it is combined with a cleaning product, in an all-in-one cleaner/disinfectant.

#### **Note**

*Antiseptics for the skin should never be used to clean the environment (e.g., alcohol-based hand rub, chlorhexidine gluconate).*

The following is a list of the **hospital disinfectants** most widely used in health care facilities:

- Alcohols (ethyl or isopropyl)
- Sodium hypochlorite
- Improved hydrogen peroxide
- Phenolic compounds
- Quaternary ammonia compounds

**Annex 1** explains the advantages and disadvantages of certain hospital disinfection products.

In principle, health care facilities should use a single type of hospital disinfectant that meets all of its cleaning and disinfection needs. On one hand, this simplifies the cleaning process; on the other, it minimizes the need to train cleaning and hygiene personnel and reduces the risk of errors.

See **Annex 2** for a sample form used to evaluate a disinfection product.

Finally, there is a discussion of the use of detergents or disinfectants on floors and surfaces, explaining that:

- Detergents are more ecologically sound. They are not toxic, and they release less aggressive odors, preventing risk of undesirable respiratory reactions. In addition, they cost less than disinfectants.
- Studies have shown that cleaning floors with a detergent does not increase the risk of infection.
- Unfortunately, detergents do not effectively eliminate microorganisms from surfaces, and detergent solutions can easily be contaminated.

Accordingly, the Centers for Disease Control and Prevention (CDC) recommends:

- Using disinfectants to clean horizontal surfaces, especially those that are frequently touched and are in areas with patients or equipment, in isolation rooms (additional precautions), and during epidemics.
- Detergents can be used on floors, except in isolation rooms.

### 2.2.3. SUPPLIES AND EQUIPMENT

Table 1 presents the principal uses of floor cleaning supplies using a mop.

**Table 1 – Description and principal uses of floor cleaning supplies using a mop.**

NAME	USES	TEXTILES & TEXTURES
Mop	Used to wash floors with either of the following: - a string mop capable of (very economically) washing very large surfaces - a flat push-type mop that combines wet mopping and manual washing of the floor in one stage	- Microfibers - Cotton or cotton-polyester - Variable absorbent capacity, and thus variable wet weight
Mop with reservoir for liquid cleaning fluid	Used to wash floors with a mop with reservoir for cleaning fluid that can be made to flow into the applicator at the bottom surface of, or at the front of, the mop	- Cloth made of cotton, cotton-polyester blend, or microfiber.
Mop head	Used to remove dust from the floor with a dry/ moist mop.	- Most often for single antistatic use and/or impregnated with a substance that traps particles - Recyclables, very loose-weave canvas Tightly twisted fibers

Table 2 – Advantages of cleaning with a mop or using a traditional rag mop



Cleaning with a mop



Cleaning with a traditional rag mop

*Advantages*

- Can reduce the risk of accidents caused by cutting devices.
- There is no contact between the cleaning person and the wash solution. This controls dermatitis issues.

- Thanks to the rag mop, this system makes it possible to absorb a large quantity of water. Thus, in the case of an accident it is possible to rapidly recover the water that has spilled on the floor.

*Disadvantages*

- The disadvantages vary, depending on the mop head chosen.
- For example: if a cleaning person uses a flat cloth mop head, it will be necessary to bend down to squeeze the water out, an action that requires the wrists and can lead to musculoskeletal problems.

- It forces the cleaning worker to enter into contact with the solution, and if gloves are not used that can cause dermatitis.
- It can lead to musculoskeletal problems for two reasons:
  - a) Twisting the rag with the hands and repeating this motion several times a day involves the wrists to an extreme extent.
  - b) Bending down to squeeze and rinse the rag can be bad for the back.

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**Important points on the cloths used to maintain surfaces and equipment:**

- In order for the cleaning and disinfection of surfaces not to be a vector of contamination, cloths should be used only once, or should be recyclable after each use and used only once for each room.
- If possible, these cloths should be washed in a washing machine.
- Clean objects should be totally dry when they are ready to be used.
- Clean, dry objects should be stored away from air circulation and humidity. Pre-moistened mop heads or wipes should be stored in their original packaging until they are used.

**Hand-held brush, brush with handle**

Used to scour baseboards and the risers of stairs.



<https://extranet.prodlim.com/equipement-de-nettoyage/>

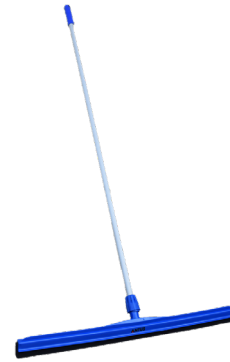


## Floor squeegees

Squeegees have a handle and a rubber blade.

Professional squeegees have handles at least 1.60 meters long, and a base with a longer blade (minimum 60 cm), allowing for more efficiently cleaning a larger surface (faster cleaning and less physical exertion).

These are used along with, or in place of, a water filter vacuum cleaner.



## Pails

- It is advisable to use pails of different colors.
- It is preferable to use pails made of materials that do not corrode over time, and that do not make noise.



## Cleaning cart

The cleaning cart is used to assemble, transport, and store the equipment and supplies needed for cleaning and disinfection.

These devices vary according to the needs of the health care facilities.

They may have:

- A support for a trash bag.
- A place to set the swivel/rotating mop.
- Two to four pails of different colors.
- A container for storing products.
- A mop and pails for washing floors.



<https://www20.anscha.gov.br/segurancadopaciente/index.php/publicacoes/item/seguranca-do-paciente-em-servicos-de-saude-limpeza-e-desinfecao-de-superficies>

It is important to keep the cart clean and organized at all times.

The wringer can be used in places that are difficult to access, and in confined spaces.

<https://www.groupeplg.com/infor-ecom/cc/ItemDetails.jsp?@where.ItemID@EQ=390715>



## Stepladder

The stepladder should have a support platform to improve safety for the user. If possible, it should also have devices on the side to put supplies on.









## Vapor cleaner/high temperature

This is a mobile electric device with a water tank and a pump that feeds the heater and sprays hot water under pressure, or a vapor jet, on the surface to be cleaned.

It is used to clean and disinfect interior surfaces and objects (furniture, bathroom fixtures).

It is recommended for “deep” or periodic cleaning.

Disinfecting electric vapor biocleaner



High-pressure cold water cleaner



<https://www.suprateam.com/bionettoyeur-vapeur/>  
<http://www.sylvier-online.com/materiel-de-nettoyage/nettoyeur-hp-monophasé-alto-120-bars-mc2.html>



## Vacuum cleaner

A vacuum cleaner has an electric motor with a turbine that creates a strong inward air current. The air carries dust and small waste matter to a bag or tank. There are different models of vacuum cleaners, including models that pick-up water and dust.

### Area of use:

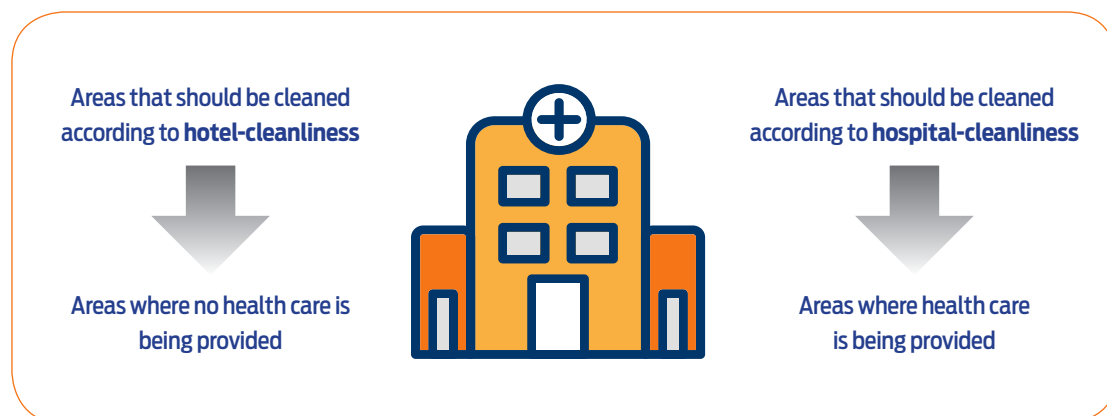
Vacuum cleaners are used to remove dust from carpets, floors, and ventilation grates, especially when moist cleaning is not possible.

The air blown out of the vacuum cleaner produces turbulence, leading to particles settling on surfaces. Its use is therefore not recommended in areas where there is risk of infection since it can trigger epidemics of aspergillosis in patients.

## 2.3. DIFFERENCES IN CLEANING CLINICAL AND NON-CLINICAL AREAS

Health care facilities have distinguishable clinical and non-clinical areas. The approach to cleaning will vary according to which area is being cleaned. Non-clinical areas such as entries and administrative offices require “**hotel-quality**” cleaning. Clinical areas require more in-depth “**hospital-quality**” cleaning. (Figure 2)

Figure 2 – Type of cleaning, according to the patient population



- Baseboards and floors free of smudges, visible dust, streaks, and cobwebs.
- Doors, walls, and ceilings free of visible dust, large, soiled areas, cobwebs, and fingerprints.
- Horizontal surfaces free of visible dust or cobwebs (including furniture, windowsills, light covers, telephones, frames, carpets, etc.).
- Bathroom fixtures, specifically toilets, sinks, bathtubs, and showers free of cobwebs, soiling, spots, and soapsuds. Windows and mirrors free of dust and cobwebs.
- Dispensers free of dust, dirty areas, or residues, and replaced or refilled once empty.
- Equipment used free of dust, dirt and smudges.
- Waste eliminated appropriately.
- Articles that are broken, torn, or cracked, or that do not work, are replaced.

“Hospital-quality” cleaning is most often done with the addition of disinfectants, and with audits and other measures to prevent infections in areas where patient care is provided.

Elements of “**hospital-quality**” cleaning

HOTEL CLEAN

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- High-touch surfaces in areas where patients receive care are disinfected after cleaning with a hospital-quality disinfectant.
  - Noncritical medical supplies are cleaned and disinfected between patients.

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PERIODIC MONITORING AND AUDITING OF CLEANING PRACTICES

## 2.4. FREQUENCY OF BASIC CLEANING

The frequency with which objects or surfaces in an area are cleaned and disinfected varies according to:

- **Surfaces** – *whether they are infrequently or never touched.*
- **The area’s functional activities and associated infection risk** (*e.g., an intensive care unit as opposed to a meeting room*).
- **Vulnerability of patients** *housed in the area.*
- **Likelihood of contamination**, *according to the amount of body fluids contaminating the surfaces.*

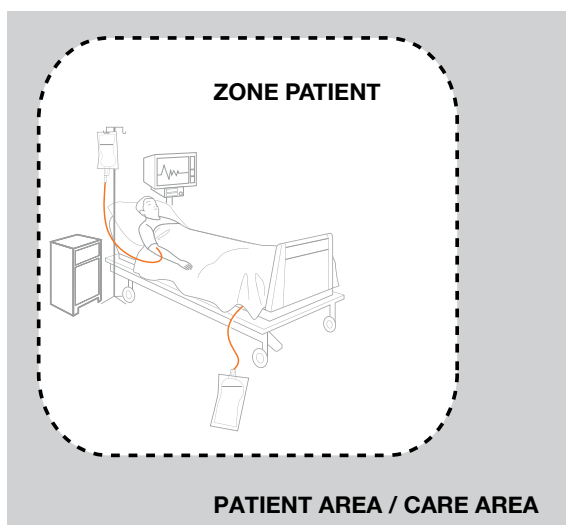
Using these criteria, each area of a health care facility can be evaluated. A risk score is also assigned to the risk associated with cleaning - **Annex xxx.**

## 2.5. HIGH- AND LOW-TOUCH SURFACES

Cleaning of the environment and surfaces is divided into two categories to reflect the frequency with which the surfaces and objects are touched, as well as the infection transmission risk. Thus, high-touch surfaces or objects should be cleaned more often than the surfaces and elements that are handled less often, given the higher risk of contamination.

The “patient area” includes the patient and the patient’s immediate environment (Figure 3). There are many frequently touched surfaces in this area that can rapidly be contaminated by the patient’s microbiota. If the patient area is not properly cleaned, the contaminated surfaces can become a reservoir of microorganisms that are then transmitted to the individual who is in contact with the area.

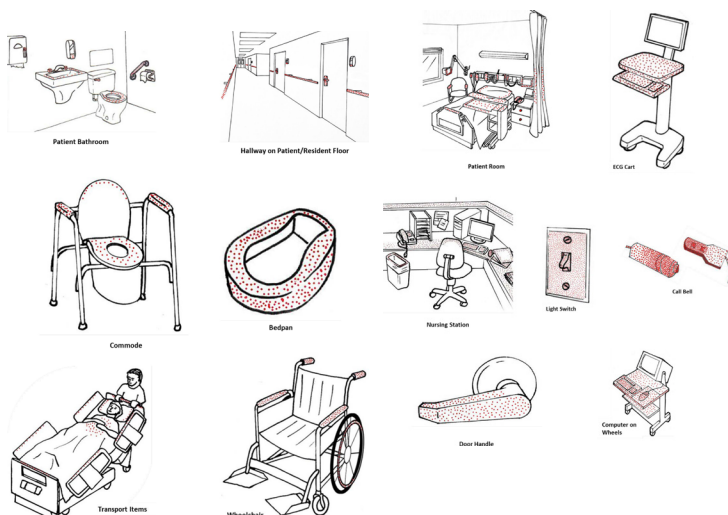
Figure 3 – Geographic conceptualization of the risk of transmission



The **patient area** is a space that includes the patient and the patient’s immediate environment, which contains the surfaces and objects that, temporarily, are exclusively devoted to the patient’s care- in other words the patient as well as all inanimate surfaces touched by the patient or in direct contact with the patient (e.g., bedding, side rails of the bed, chair, night table, intravenous line, vital signs monitor, buttons on medical devices, and every other surface.) The **care environment** is the set of surfaces in a care facility other than the patient area, and includes all of the other patients and their respective areas, as well as the shared environment.

Adapted from: Hygiène des Mains : Manuel Technique de Référence. [http://www.who.int/gpsc/5may/tools/training\\_education/gpsc\\_hhtool\\_TRM\\_2010\\_40\\_fr.pdf?ua=1](http://www.who.int/gpsc/5may/tools/training_education/gpsc_hhtool_TRM_2010_40_fr.pdf?ua=1)

Figure 4 – Examples of high-touch surfaces and objects



Source : Ontario Agency for Health Protection and Promotion (Public Health Ontario), Provincial Infectious Diseases Advisory Committee. *Best Practices for Environmental Cleaning for Prevention and Control of Infections in All Health Care Settings*, 3rd edition.

<https://www.publichealthontario.ca/-/media/documents/B/2018/bp-environmental-cleaning.pdf>

See **Annex 3** for minimum frequency of cleaning and disinfecting noncritical medical equipment and other objects.

■ Red dots indicate the most frequently and most contaminated areas.

Source : Ontario Agency for Health Protection and Promotion (Public Health Ontario), Provincial Infectious Diseases Advisory Committee. *Best Practices for Environmental Cleaning for Prevention and Control of Infections in All Health Care Settings*, 3rd edition, <https://www.publichealthontario.ca/-/media/documents/B/2018/bp-environmental-cleaning.pdf>

## 2.6. PATIENT VULNERABILITY

- The most infection-prone areas where patients are cared for (with a higher risk of patients' contracting a disease because of microorganisms in the environment) should be cleaned more frequently. In general, these are areas that receive immunosuppressed patients, areas where patients often undergo invasive interventions, or both.
- Examples of areas where there is a risk of patients' contracting an infection: units for the care of transplant patients, neonatal intensive care units, burn care units, thermotherapy units, dialysis units, and operating rooms.

## 2.7. LIKELIHOOD OF CONTAMINATION OF OBJECTS AND SURFACES IN A HEALTH CARE FACILITY

- The likelihood that a surface, equipment or supplies, or a care area will be contaminated also depends on the types of activities carried out in the care area.
- The areas can be categorized according to the risk of contamination (heavy, moderate, light):

Heavy contamination	Moderate contamination	Light contamination
- Surfaces and objects are exposed to large quantities of blood or other body fluids.	- Surfaces and objects are regularly contaminated by blood or other body fluids. - Blood or other organic fluids are contained or quickly removed. - All of the patient rooms and bathrooms should be considered at least moderately contaminated.	- Surfaces are not exposed to blood, other body fluids, or objects that have been in contact with blood or body fluids.

### Note

If body fluids are spilled or contamination occurs (e.g., vomiting in the elevator, blood spills), the area in question should immediately be cleaned.

## 2.8. DETERMINING FREQUENCY OF CLEANING

The following principles should be used to determine the proper frequency of cleaning and disinfection:

- Surfaces and objects subject to frequent contact should be cleaned and disinfected more often than those subject to only infrequent contact.
- Surfaces and objects situated close to more-vulnerable patient populations should be cleaned and disinfected more often than those near less-vulnerable patients.
- Surfaces and items subject to high-level contamination should be cleaned more often than moderately contaminated surfaces and objects, which in turn should be cleaned more often than lightly contaminated surfaces and objects.

Using these criteria, each area or unit in a health care facility can be assessed, with a risk score assigned to it that reflects the risk associated with required cleaning.

## 3. RESOURCES REQUIRED FOR THE CLEANING AND HYGIENE TEAM

### 3.1. ORGANIZATIONAL RESOURCES

- The cleaning and hygiene team should be an autonomous entity run according to well defined authorities and responsibilities.
- Job descriptions for each category of employee should be established. Lack of specific job descriptions makes it more difficult for employees to work effectively.
- A recognized methodology should be used in defining the tasks to be carried out.
- An initial and ongoing training program for employees should be provided and followed.
- Occupational health and safety recommendations should be accessible and should be provided to members of the cleaning and hygiene team.

### 3.2. HUMAN RESOURCES

- The managers and employees of the cleaning and hygiene team should have the training, experience, and knowledge (of products, equipment, techniques, standards, etc.) needed for their work.
- Supervisor or team head: Training is required, and the person should have finished at least secondary school. The person should demonstrate responsibility, leadership, flexibility, strategic thinking, good relationships, ethics, impartiality, good personal contact, and honesty. In addition, the person should have the initiative and spontaneity to act at the appropriate time, and resolve problems, in order to fully meet the safety objectives initially established.
- Personnel responsible for cleaning (cleaning staff): These workers should have at least a primary education to be capable of participating in training on preventing exposure to unnecessary risks, which involves activities such as reading warnings regarding precautions, and reading labels on disinfectants before using them.
- Managers should receive the administrative support they need.
- There should be sufficient personnel (managers, employees) to meet the facility's needs.
- Work should be organized to optimize resources, as well as to meet demands associated with one-time or unforeseen events.

### 3.3. WORKER HEALTH AND SAFETY

Members of the cleaning and hygiene team are exposed to occupational risks, such as those posed by:

- Microorganisms from patients and from the health care environment.
- Chemicals used in the cleaning process.
- Ergonomic stress factors.

Accordingly, health care facilities should work to minimize these risks in order to protect the employees of the cleaning and hygiene team, and to allow them to carry out their work in an optimal and safe environment.

Cleaning and hygiene personnel should:

- Receive initial and ongoing training on preventing and controlling infections.
- Have access to training on the use of appropriate personal protective equipment (PPE).
- Be included in immunization programs for personnel.
- Receive information on how to reduce exposure to blood and body fluids, as well as on how to proceed when exposure has occurred.
- Know the risks associated with chemical products and with the supplies they use, as well as gaining familiarity with the strategies needed to reduce these risks (e.g., appropriate use of PPE when handling chemicals, and awareness of ergonomic issues that arise in selecting and using supplies);
- Know the importance of informing the occupational health and safety staff of any illness of or injury to personnel.

### 3.4. PERSONAL PROTECTIVE EQUIPMENT (PPE)

Members of the cleaning and hygiene team should wear personal protective equipment (PPE) to:

- Protect themselves from microorganisms.
- Protect themselves from chemicals used for cleaning.
- Prevent the transmission of microorganisms from the environment of one patient to that of other patients.

Protecting employees is directly associated with proper use of PPE and implementation of correct techniques when carrying out cleaning activities. Protective equipment is not intended for collective use; each worker should have his or her own equipment, thus ensuring hygiene and safety within health care facilities.

Health care facilities should ensure that:

- There is enough PPE for all members of the cleaning and hygiene team, and that it is made available to them.
- Individual training is provided on the proper use, application, and removal of PPE.
- Members of the cleaning and hygiene team are required to wear an N95 respirator as protection against microorganisms transmitted by aerosols (pulmonary or laryngeal tuberculosis, varicella, disseminated herpes zoster, measles, variola virus).

#### 3.4.1. GLOVES

The use of gloves ensures that employees are protected while performing most cleaning activities. However, it is important to assess each situation and select the gloves that best meet the needs of the activity to be performed.

- **Disposable (single use) gloves** that extend up the forearm are preferable, since they can be used for basic daily cleaning and disinfection activities in patient care areas.

Attention must be given, however, to:

- Disposing the gloves before leaving each location and proceeding to the next one, and to not reusing or washing them.
- Immediately removing gloves when each activity is finished and placing them in the waste containers.



- Vinyl or nitrile utility gloves (made of rubber and specified for multiple uses) are advisable for cleaning bathroom fixtures, handling disinfection products, performing general manual cleaning, and disposing of waste.

- Gloves must be individual, washed with soap and water before moving from one location to the next, and cleaned inside and out at the end of the day.



- Durable gloves are recommended for work in humid environments where durability is required, and for cleaning after the discharge or transfer of patients, as well as after exposure to certain chemical powders and solutions.
- Puncture-resistant gloves are recommended if the task involves a high risk of percutaneous injury (e.g., sorting soiled laundry, handling waste).

It is important to specify that:

- Employees should not wear gloves when moving from one room to another, from one bed space to another, or around other areas of the facility.
- Wearing gloves does not obviate the need for hand hygiene, which is an essential factor in preventing infections. Thus, it is essential to rub hands with alcohol-based hand rub or to wash hands with soap and water before and after using gloves.

### 3.4.2. FOOTWEAR

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It is recommended that waterproof shoes with thick, slip-resistant soles be used during the entire work period, except when washing floors, when work boots are preferable.



### 3.4.3. WORK BOOTS

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Boots (waterproof, with thick, anti-slip soles) are recommended to protect feet and legs during cleaning activities (and activities involving contact with water and chemical products), as well as to prevent falling.



### 3.4.4. APRON

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#### **Note**

*An apron, respiratory protection, and eye protection are not mandatory for basic cleaning activities. However, the PPE requirements set forth in the safety data sheets should be followed when using chemical agents (e.g., by wearing eye protection when mixing chemicals).*

*Furthermore, PPE should be worn when cleaning the environment of a patient whose space is subject to additional precautions.*

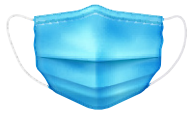


### Eye protection or face shield



- To protect the mucous membranes of the eye, nose, and mouth during activities that require close contact with patients (i.e., under two meters), where there is risk that body secretions may splash or be sprayed (e.g. if the person coughs or sneezes).
- When preparing a dilution that does not come ready to use.
- For cleaning areas above head level, and where there is risk of splashes, dust, or particles.

### A surgical mask should be used:



- If there is a possibility of biological matter or chemical products striking the mucous membranes of the nose or mouth.
- Each time the worker enters the room of a patient with a respiratory infection, where droplets present a risk (e.g., bacterial meningitis, pertussis).
- In areas where use of a mask is recommended.
- In environments with fetid odors.
- When cleaning surfaces in construction or renovation areas, to prevent inhalation of dust.

### N95 or FFP2 masks (respirators with particle filters)



- These are indicated for use in the isolation area of a patient with a respiratory infection (e.g., tuberculosis) that can be transmitted by aerosols.

### Gown



- If there is a risk of contamination to the worker's uniform or clothing (e.g., while cleaning the bed of an incontinent patient).

### Waterproof apron



- When there is a risk of splashes.
- In the presence of chemicals that can burn or irritate the skin.

**Disposable head coverings** for cleaning areas above head level, or where there is a risk of liquid splashes or dispersion of dust.



- To clean places undergoing renovation or construction.
- In areas where all personnel are required to wear such head coverings (e.g., operating room areas, food preparation areas).

Personal protective equipment should be taken off in a way that avoids contaminating the wearer, and then thrown away immediately afterwards.



### 3.5. EXPOSURE OF CLEANING AND HYGIENE PERSONNEL

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- It is important to adopt written policies and methods that offer appropriate guidance to cleaning and hygiene personnel regarding exposure to sources of contamination (blood, body fluids).

### 3.6. MATERIALS AND EQUIPMENT

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- The facility should have a central area for storing equipment and supplies generally used for cleaning and hygiene work.
- A central location should be available for cleaning equipment, with the tools needed to do so safely.
- There should be a sufficient number of satellite areas that are large and safe enough to store supplies, chemical products, and other supplies needed for cleaning and hygiene activities.
- These areas should not be cluttered, ensuring that the team's activities can be performed safely.
- Surface coverings should be smooth, easy to wash, and resistant to the chemical products used, as well as to mechanical stresses.
- Detergents, disinfectants, and other products (window washing equipment, floor finishing products, etc.) must be effective, as safe as possible to people, equipment, and the environment, and must be present in sufficient quantity.
- The supplies, including cleaning cart, cloths, brooms, mops, and stepladders should be in good operating condition, safe, and present in sufficient quantity even during exceptional periods or in an outbreak.
- Electromechanical machines (vacuum cleaners, polishing machines, buffers, etc.) should be available and in good functioning shape and should undergo preventive cleaning on a regular basis.
- Personal protective equipment (PPE) should be sufficient for, and available to, all personnel.
- Protective equipment, containers, and equipment that involves handling, transport, or waste processing should be appropriate for the corresponding tasks and be safe and easy to wash.
- The endpoints where waste is stored (except for general waste) should be large enough for the storage volumes and time periods required, should have limited access, and should be well identified and easy to wash; the biomedical waste facility should be cooled to at least 4°C. Where relevant, a safe place for weighing should be provided.
- In care and diagnostic units, there should be enough places, of sufficient size, to store waste.
- The opinion of the head of the cleaning and hygiene team should be obtained when purchasing furniture, equipment, accessories, and architectural components and coverings.

### 3.7. OPERATIONAL PROCEDURES

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To ensure effective cleaning practices, the principles governing infection prevention and control should be taken into consideration when developing and establishing how often, and the manner in which, work is to be carried out.



This section deals with work methods and appropriate hospital-quality cleaning methods to be adopted for patient rooms and other care areas.

General cleaning practices to be followed at all times are enumerated in Annex 6.

## 4. TYPES OF CLEANING

### 4.1. DAILY CLEANING OF PATIENT ROOMS

The objectives for daily cleaning of patient rooms are as follows:

- Cleaning/disinfection and organizing of the environment.
- Replacement of supplies, as needed (e.g., gloves, alcohol-based hand rub, soap, paper towels).
- Waste collection.
- Identification of equipment and items requiring repair.

This should be carried out daily and whenever necessary.

The procedure includes cleaning:

- The patient area, i.e., the surfaces of all furniture and objects located near the patient.
- All of the room's furniture and horizontal surfaces, with special attention to high-touch surfaces.
- Items attached to the walls, as well as equipment used to administer intravenous medications.

Cleaning should proceed from the cleanest areas to the dirtiest (the bathroom to be cleaned last, after the floor).

The distribution of cleaning tasks in the area close to the patient depends on the facility's routine and procedures. It is important to know who will be performing this work, given the risks involved in the activity, especially when the patient has a drain, probe, etc.

### 4.2. FINAL CLEANING OF PATIENT ROOMS (FOLLOWING PATIENT DISCHARGE OR TRANSFER)

When a patient is discharged or transferred, or dies, the room or bed area must be thoroughly cleaned and disinfected before the next patient occupies the room or bed, so that microorganisms are not transmitted to the new patient.

The cleaning and disinfection process following the discharge of a patient, where additional precautions are not in place, includes the procedure described above, as well as disinfection of the patient's mattress and inaccessible items.

Do not wash walls, scrape and wax floors, remove and clean curtains, or throw out packaged disposable articles left in the drawers.

### 4.3. DESIGNATED CLEANING OF PATIENT ROOMS

In addition to daily cleaning of patient rooms following patient discharge or transfer, other patient room cleaning procedures should be carried out at regular intervals, including the following:

- Dusting upper surfaces in the rooms. This includes dusting all horizontal surfaces and fixed accessories above shoulder level, including air intakes.
- Cleaning baseboards and corners.
- Removal and washing of curtains separating beds.
- Curtains separating beds are to be changed every six months or when visibly soiled.
- Washing window curtains and window coverings.
- Dusting blinds.

#### 4.4. CLEANING WHEN ADDITIONAL PRECAUTIONS ARE IN PLACE FOR A PATIENT

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When additional precautions are in place, cleaning and hygiene staff should use the required PPE specified in the notice on the door.

The cleaning/disinfection procedures should be the same as those performed when cleaning rooms with no additional precautions in place (except for *C. difficile*, norovirus).

Leave the room only when finished (except when requested by a nurse or doctor).

Workers should be familiar with PPE protocols, so as to minimize the risk of contracting and/or transmitting infections:

- **Contact:** perform hand hygiene, then put on apron and gloves immediately before entering; remove gloves and apron when leaving the room. Repeat hand hygiene upon leaving the room.
- **Droplets:** Wear a face protector (e.g., a mask and protective goggles) when working less than two meters from a patient (or when entering the room). Precautions to protect against droplets are often combined with precautions against contact, in which case it is necessary to wear an apron and gloves in addition to face protection, and to put on PPE when entering the room. Take off the face protector after leaving the room, as well as the apron and gloves, and wash hands. Worker should make sure hands are clean before touching his/her face.
- **Aerosols:** Use an N95 respirator. The door should remain closed even if the patient is not in the room. Take off the respirator and all other PPE after leaving the room and closing the door. If the room is urgently needed before there has been sufficient removal of the tuberculosis bacillus from the air, an N95 respirator should be used during cleaning.

##### 4.4.1. BATHROOM CLEANING

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The bathrooms of patient rooms should be cleaned last, after the rest of the room is cleaned, following the principle of starting with clean areas and finishing with the dirtiest.

Frequency:

- The bathrooms of individual rooms should be cleaned every day when cleaning the room.
- Shared bathrooms in rooms with two or more beds should be cleaned at least daily, and two cleanings a day should be the goal, especially in rooms with more than two patients.
- An immediate additional cleaning is required in the case of spills or major contamination of the room's surfaces.
- The walls of the shower should be thoroughly scrubbed at least once a week.
- The bathrooms of emergency rooms are located in very busy areas and can often be contaminated. They should be inspected more frequently than those in other places and cleaned as needed.

##### 4.4.2. CLEANING FLOORS

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- The floors of health care facilities can be made of a number of different materials. It is important to review the manufacturer's recommendations on cleaning particular types of flooring before developing the cleaning protocols.
- These surfaces are seldom in contact with the hands of patients or health workers. In normal situations, it is not necessary to use a disinfectant on them.

## 4.5. CLEANING TECHNIQUES

There are four main techniques for maintaining rooms.

1) Dusting techniques:

- Moist wiping of surfaces
- Moist cleaning/sweeping

2) Floor washing techniques:

- Manual washing
- Mechanized washing

3) Floor treatment techniques

4) Vapor-based cleaning technique

Cleaning and hygiene workers need to know:

- What disinfectant/detergent to use.
- What concentration should be used (and verify this).
- What contact times are recommended (bactericide).
- How often to change cleaning cloths/mop heads.
- The importance of their work in preventing infections.

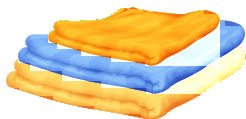
Certain important aspects are emphasized. Annex 10 contains tables with descriptions of techniques involved in maintaining premises.

## 4.6. SURFACE DUSTING TECHNIQUE



*Moist wiping of surfaces involves removing dirt from a surface without putting it back into suspension in the air.*

### Supplies



- Single-use or reusable swabs or clothes can be used, which the worker wets in detergent and/or disinfectant solution; single-use wipes pre-moistened with detergent/disinfection can also be used.
- Use each swab for a particular room or place.
  - Separate swabs by color:
    - Patient area
    - Bathroom sink
    - Bathroom
    - High surfaces



- Confirm the compatibility of the chemical product with the surface coating on which it is to be used.
- Preferably use detergents that do not require rinsing.
  - If a detergent-disinfectant is used, cleaning and disinfection will be done in a single step.
- Alcohol does not clean, and its use should therefore be preceded by cleaning.

## Technique

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Move the wipe over the surfaces with sufficient mechanical action to remove any dirt.



### Notes

- Wipes should be wet enough to ensure proper contact time for the disinfectant. Stop using the wipe if the visible surface remains wet for more than one minute.
- Dispose of the wipe properly. Do not put a wipe back in the clean container.
- Send reusable wipes to the laundry daily.
- Maintain bottles and sprayers daily.
- Increase the frequency of cleaning and disinfection of high touch surfaces close to the patient, in rooms and bed areas where additional precautions are in place.

## 4.7. TWO-PAIL TECHNIQUE FOR FLOOR CLEANING

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This system uses two pails of different colors to aid the process of floor cleaning with sponge mop or traditional rag mop. The two-pail technique is easier for the worker than the single-pail technique, since it avoids repeated back-and-forth trips to the cleaning area for frequent changes of the rinse water solution.

### 4.7.1. FLOOR WET MOPPING OR SWIPING TECHNIQUE

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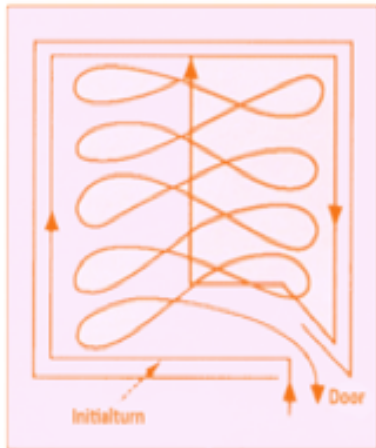
- Damp mopping of floors—an operation to remove non-adherent dirt from smooth dry floors, thus eliminating as much as 90% of the dust, and limiting the amount that is put into suspension in the air.

The damp mopping technique uses a moist rag and scraper.

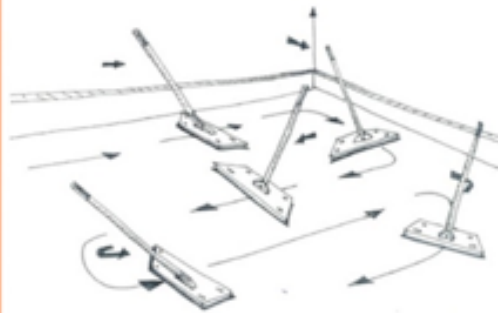
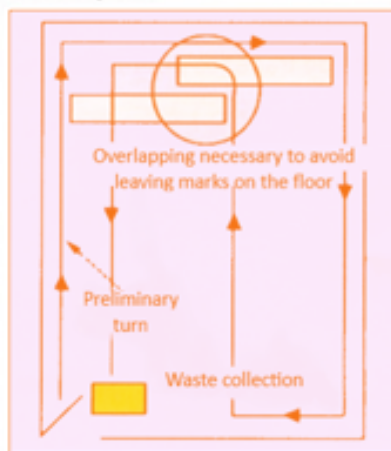
During this phase, the two pails will contain only water.

There are two methods for handling the scraper or mop.

- Mop for use with a sculling motion is well adapted to small surfaces.



- *Push-sweeping*, on the other hand, is better for hallways and other large unobstructed surfaces.



Waste cannot be taken to the entry door;  
it should be picked up inside the environment  
with the aid of a dustpan.



## 4.7.2. MANUAL FLOOR WASHING

As a general rule, all washing operations should be preceded by damp mopping.

### • *Washing technique using soap or detergent*

Involves friction on a surface, with soap or detergent, that removes dirt. In this operation, one of the pails has water while the other has soap or detergent.

The floor must be scrubbed in regular swaths in a figure-eight pattern, with the worker always standing on the dry part of the floor. The mop should be squeezed out as many times as needed before being put back in the wash solution.

### • *Rinsing and drying technique*

The purpose of this is to remove the soap or detergent.

In this step, the mop should be rinsed in the water pail.

Rinse solutions must be changed when they become too dirty.

**The two pails**

Floor cleaning Technique		
<b>Damp mopping</b>	<b>Water</b>	<b>Water</b>
<b>Washing</b>	<b>Detergent</b>	<b>Water</b>
<b>Rinsing and drying</b>	<b>Water</b>	<b>Water</b>

### **Notes**

- Remove gloves when opening or closing doors.
- Gloves should be washed before being taken off, and always at the end of the procedure.
- Don't forget the cleaning equipment and the equipment in the rooms or bathrooms.
- Pails should be washed and dried before being reused.
- A general review should be carried out three times a day: morning, afternoon, and evening.
- Do not leave spots or dirt in the pail for the final cleaning, since they could dry and be difficult to remove later; if this does happen, use a rougher material to scour the pail.
- The cleaning person should remain vertical while carrying out this cleaning technique.

## 4.8. DISINFECTION

Disinfection is used after cleaning a surface soiled with organic matter. Thus, the use of disinfectants in health care facilities should be judicious, limited to environments and situations where its use has proven advantages.

There is a detailed discussion on using detergents or disinfectants on floors and surfaces in Annex 3 along with a list of items required for cleaning and subsequent disinfection.

## 4.9. CLEANING UP SPILLS OF BLOOD AND BODY FLUIDS

Spills of blood and other organic substances such as urine, stools, and vomit should be contained and cleaned up, and the area should be disinfected immediately.

The health care facility should adopt written policies and methods to manage spills of blood and body fluids, including the following:

- Assignment of clearly defined responsibilities for cleaning spills in each area of the health care facility any time a spill of a biological substance occurs.
- Rapid intervention.
- Training of personnel responsible for cleaning the spill.
- Access to PPE, equipment, supplies, and the device that the person cleaning up the spill should use to dispose of the waste.
- Proper waste disposal.
- The steps to follow if an employee is exposed to blood or body fluids.

Strategies for decontaminating spills vary according to the context in which they occur, and the volume spilled.

- Personnel can manage **small spills in patient care areas** by cleaning and then disinfecting.
- For **spills with large quantities of blood or other body fluids**, workers should first remove the visible organic matter using an absorbent material such as disposable general-purpose wipes, which are then put in a correctly labeled well-sealed container, and then clean and decontaminate the area.
- The worker in charge of cleaning the spill should wear gloves and any other PPE appropriate to the task. If there is a possibility of splashing, an apron and face protection should be worn (mask and protective goggles, or face shield).
- The majority of the spilled organic matter should be removed with absorbent material and the surface cleaned to eliminate residual organic matter.
- Sodium hypochlorite in a 1/100 solution (for example, household bleach) is appropriate for decontamination.

More concentrated chlorine solutions (1/10 sodium hypochlorite solution) may not totally deactivate the elevated number of viruses in large quantities of blood, but in the absence of blood these disinfectants can produce complete viral deactivation. This again points to the need to remove most of the organic matter in a large spill before disinfecting the surface.

Managing spills of blood, body fluids, or other infectious substances in medical or clinical-research laboratories calls for stricter measures. In such situations, it is advisable to place absorbent paper on the spill and then apply the disinfectant, in such a way that it reaches the blood or organic liquid and makes cleaning easier. A 1/10 solution of sodium hypochlorite is recommended for this. Gloves should be worn during the cleaning and decontamination procedures. One should also consider using respiratory protection (e.g., an N95 respirator) in such cases, if the cleaning process might generate infectious aerosols.

See **Annex11** to find the quantity of bleach to use in order to obtain the desired concentration of chlorine in the solution.



You will find examples of:

- For cleaning and disinfection protocols for different types of environments or situations, see Annexes 7, 8, 9, 13, and 14.
- For tools to verify effective environmental cleaning, see Annex 15.

## 4.10. CLEANING AND STORAGE OF ENVIRONMENTAL CLEANING EQUIPMENT AND SUPPLIES

### 4.10.1. SEPARATE CLEANING AREAS FOR CLEAN AND SOILED OBJECTS

Clear separation of clean and soiled (i.e. contaminated, used) equipment and supplies is an essential aspect of cleaning protocol.

Each patient area should have:

- A room to store soiled items, from patients, that are not sent to a central reprocessing area (e.g., intravenous equipment, commode chairs)
- A separate room to store clean equipment and supplies

The cleaning locations reserved for soiled objects are used to temporarily store equipment and supplies set aside to be cleaned, reprocessed, or destroyed, for the elimination of small quantities of liquid organic waste, and for the rinsing and basic cleaning of medical instruments.

Cleaning and workspaces for soiled items should not be used to store unused supplies.

### 4.10.2. CLEANING OF CLEANING EQUIPMENT

Cleaning equipment itself should also be carefully cleaned and disinfected at regular intervals in order to avoid cross-transmission of microorganisms when the equipment is used.

- The tools and equipment used for cleaning and disinfection (e.g., mops, pails, cloths) should be clean and dry between uses.
- Cleaning tools and supplies used in a patient's room or bed area in which additional precautions are in effect should be cleaned and disinfected before being used in another room or bed space.
- Mop heads should be cleaned every day. All mop heads should be dried completely before being stored.
- Cleaning supplies should be well maintained, clean, and in good condition.

Cleaning carts:

- There should be clear separation between soiled and clean objects.
- Cleaning carts should never contain personal clothing, bags, or boxes with toilet cleaning supplies, food, or drink.
- Carts should be thoroughly cleaned at the end of the day.

### 4.10.3. STORAGE OF CLEANING PRODUCTS

All chemical cleaning products and disinfectants should be correctly labeled and stored in a way that eliminates the risk of exposure, inhalation, skin contact, or bodily injury.

Supplies used to clean toilets (e.g., toilet bowl brushes and scourers) should not be taken from one room to another. If possible, the toilet brush should stay in a patient's room for the duration of that patient's stay. If that is not possible, the possibility of using disposable toilet scourers should be considered. In choosing a tool for toilet cleaning, thought should be given to using products that minimize splashing.

## 4.11. ASSIGNING RESPONSIBILITY FOR CLEANING

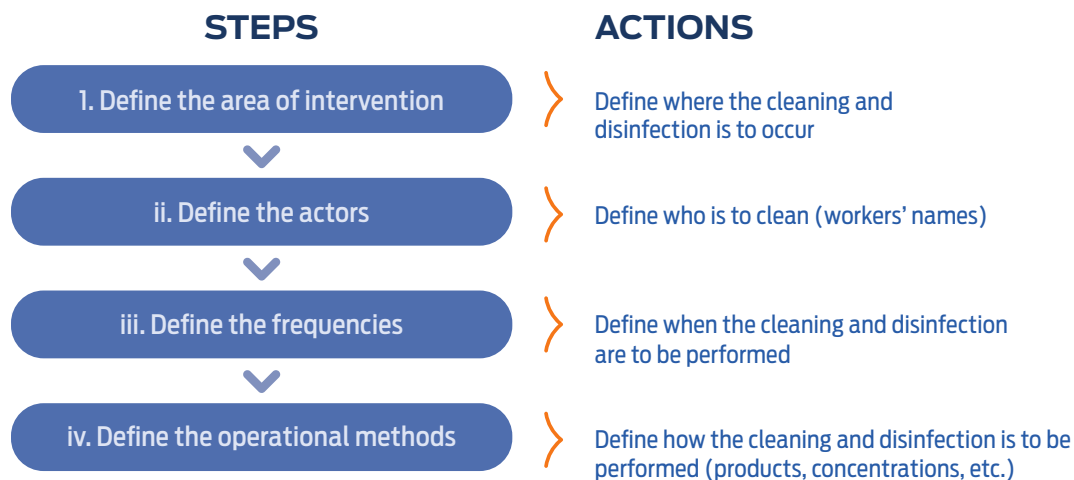
There is often confusion between health workers, and cleaning and hygiene staff, regarding responsibilities for cleaning, particularly with regard to cleaning items within the patient's room. Thus, there is a risk that an entire range of objects will not be cleaned.

It is important to determine how equipment will be cleaned, by whom, and with what frequency; this should be set forth in the written protocols.

## 4.12. CLEANING AND DISINFECTION PLAN

An established cleaning and disinfection plan should be in place, in order to ensure proper processing of all sections of the facility and all objects. It should also include cleaning and disinfection of the cleaning and disinfection equipment itself. This plan must be put in place before cleaning and disinfection begins. The plan should be devised by specially trained staff. (Figure 5)

Figure 5 – How to create an environmental cleaning and disinfection plan



## 4.13. CLEANING SPECIALIZED AREAS

### 4.13.1. OPERATING ROOMS

Cleaning operating rooms requires a team approach, involving nurses as well as cleaning and hygiene staff.

The equipment used to clean the operating room area should be scrupulously cleaned. Similarly, equipment used inside the operating rooms must not compromise the precautions involving air treatment (e.g., use of non-woven fabric rather than equipment that can put particles back in circulation). When not being used, such items should be stored in a place designed for the purpose.

Since blood and body fluids are spread about in an operating room, cleaning and hygiene personnel should use disinfectants that are effective against human immunodeficiency virus (HIV) and the hepatitis B virus (HBV).

There are three distinct times for cleaning operating rooms:

- i. When the room is opened up: before the first operation (surgery)
- ii. Between operations
- iii. At the end of the schedule: after the last operation

The purpose of cleaning when the room is opened up is to eliminate particles that have settled on horizontal surfaces when the room was closed. The horizontal surfaces should be given a moist cleaning/disinfection. This can be done by nursing personnel, who can also clean minor splashes of blood and body fluids during surgery.

After each surgery, the cleaning and hygiene team and nursing staff should use a detergent-disinfectant to do a moist cleaning of the equipment and devices used during the surgery, moving from the cleanest to the dirtiest. Special attention should be given to high-touch surfaces such as the horizontal surfaces of the anesthesia equipment, keyboards, control panel, door handles, covers of laundry containers, waste receptacles, and telephones. Clean clothes or disposable wipes should be used in each case. The cloths or wipes should be changed frequently and after contact with blood and body fluids. The articles removed, sharp objects, objects that pose biological risk, and waste that does not pose any biological risk should be placed in their respective containers and moved to their respective storage areas.

Floors of the operating rooms should be cleaned and disinfected after each surgery. If a cotton mop system is used, a clean mop head and fresh disinfecting solution should be used in each case. It is only necessary to clean a perimeter of 1 to 1.5 meters around the operating table after each surgery unless a larger perimeter of contamination is identified. It is inadvisable to place adhesive mats on the floor at the entry to operating rooms. There is no proof that they help prevent infections.

When the surgical calendar has been completed, splashes of blood and splashes not wiped down during the surgery should be cleaned and all objects in the operating room decontaminated. Personnel should pay meticulous attention to high-touch surfaces. It is advisable that floors be cleaned with a liquid vacuum cleaner and a disinfectant. Ventilation grates, shelves, and cabinets in the operating rooms should be cleaned regularly and when they are dirty. If not removed, dust and particles accumulating in these areas can be in suspension in the air and constitute a source of contamination or infection. Sinks, work rooms, technical areas, and hallways should also be cleaned and disinfected regularly.

See Annexes 13 and 14 for examples of how to clean operating rooms.

#### 4.13.2. HEMODIALYSIS UNIT

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Epidemics of viral hepatitis in dialysis units have been associated with contaminated environmental surfaces (dialysis chair or bed, counters, external surfaces of hemodialyzers, scissors, hemostats, clips, blood pressure cuffs, stethoscopes). These surfaces should be systematically disinfected with a disinfectant after each use. Blood splashes and spills should be cleaned and disinfected immediately with a disinfectant that is effective against *Mycobacterium tuberculosis*, HBV, and HIV, or with a bleach solution diluted at 1/100. Hemodialyzers should be disinfected following the manufacturer's specifications. Waste containers should be lined with plastic bags. The bags should be closed tightly and taken away after treating each patient. Waste containers should be disinfected at the end of each day. Floors should be cleaned and disinfected at the end of each day and whenever visibly dirty.

#### 4.13.3. CLINICAL LABORATORIES

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Laboratories require daily cleaning. Counters should be decontaminated after each work period and after spills. This should be done by laboratory personnel. When the laboratory closes, the cleaning and hygiene team performs a more thorough cleaning. Cleaning and hygiene staff do not clean instruments or equipment. Cleaning schedules for laboratories that are open 24 hours a day require coordination between the cleaning and hygiene team and the laboratory staff.

Infectious waste and non-hazardous waste should be collected at least once a day. Laboratories that function 24 hours a day require more frequent waste removal, perhaps at least once during each work period. Floors should be cleaned and disinfected daily.

#### 4.14. ASSESSING CLEANLINESS

It is the responsibility of all cleaning and hygiene personnel, supervisors, managers, directors, and health workers to ensure that cleaning of the environment follows best practices and is consistent with the facility’s policy. The facility’s management must also ensure the safety and hygienic state of the health care environment.

To ensure that this objective is reached, there should be a quality control program that includes regular evaluations of cleaning and cleanliness. In addition, the health care facility should establish and maintain appropriate updated environmental cleaning policies and methods and hire and maintain a large enough staff of cleaning and hygiene personnel.

There are various methods for monitoring the cleanliness of the health care environment.

- Each method addresses different aspects of the cleaning process and has strengths and limitations (see Annex 16).
- To benefit most from each method, the tools used for monitoring cleanliness should be standardized, applied regularly, and used in collaboration with the cleaning and hygiene team and the infection prevention and control unit.
- The findings should serve to educate and train front-line cleaning and hygiene staff and provide constructive feedback.
- The overall findings should be communicated to the cleaning and hygiene management, the infection prevention and control unit, and the facility’s administration.

##### 4.14.1. VISUAL INSPECTION

In the past, visual inspection was the main method used to measure cleanliness, and even today it remains an important way to ensure “hotel-quality” cleanliness. For patients, as well as for staff, an environment that is not cluttered and that looks clean is important. However, many apparently clean surfaces are contaminated by microorganisms, organic matter, and chemical residues.

When a visual inspection is performed, it is important to use a standardized method to ensure uniformity. The reported findings can include the state of the objects or surfaces that were found to be clean, as a proportion of all objects or surfaces examined. If the same group of objects or surfaces are repeatedly examined, the findings can indicate the quality of the environmental cleaning, provided there is a proper understanding of the method’s limitations.

Method	Description	Advantages	Disadvantages
Visual Evaluation	A trained observer (e.g., cleaning and hygiene supervisor) evaluates the cleanliness of an area after cleaning is performed.	Easy to implement. Useful for determining whether “hotel-level” cleanliness has been achieved. Allows feedback for each member of the cleaning and hygiene team.	Results do not correlate with levels of microbial contamination. Does not ensure that “hospital-quality” cleanliness has been achieved. Findings can vary depending on who the observer is.
Observation of Performance	The supervisor of the cleaning and hygiene team observes employees while they are cleaning.	Easy to implement.	Time-consuming. Labor-intensive. Employees’ performance may not be the same if they are being observed.
Client Satisfaction Surveys	Patients complete a questionnaire and provide feedback on the facility’s cleanliness.	Useful for determining whether the facility’s cleaning methods are being correctly applied. Allows feedback for each member of the cleaning and hygiene team. Useful for ensuring that patients’ needs are met.	Results may not correlate with levels of microbial contamination.

Source: Ontario Agency for Health Protection and Promotion (Public Health Ontario), Provincial Infectious Diseases Advisory Committee. Best Practices for Environmental Cleaning for Prevention and Control of Infections in All Health Care Settings, 3rd edition, <https://www.publichealthontario.ca/-/media/documents/B/2018/bp-environmental-cleaning.pdf>

#### 4.14.2. EXAMINING SURFACES AFTER CLEANING

There are various ways of evaluating the effectiveness of cleaning by examining surfaces after the cleaning has been performed. Each method evaluates different aspects of the cleaning: its thoroughness (environmental marking), removal of organic matter (ATP bioluminescence), and removal of microorganisms (environmental culturing).

See **Annex 17** to become familiar with these evaluation methods.

## ANNEXES

### ANNEX 1 – ADVANTAGES AND DISADVANTAGES OF COMMON HOSPITAL DISINFECTANTS

Product	Description	Advantages
Alcohol (60% to 80%)	<ul style="list-style-type: none"> <li>– Broad spectrum of activity (bactericide, fungicide, virucide, and mycobactericidal)</li> <li>– Rapid action on Gram + and Gram - bacteria (around 30 seconds)</li> <li>– Non-toxic</li> <li>– Inexpensive</li> <li>– Rapid action</li> <li>– Leaves no stain or residue</li> <li>– Resistant to corrosion</li> <li>– Effective on clean medical equipment that can be immersed</li> </ul>	<ul style="list-style-type: none"> <li>– Inactivated by organic material</li> <li>– Evaporates quickly, which may diminish concentration, not appropriate for large surfaces</li> <li>– Flammable – must be stored in a cool, well-ventilated area</li> <li>– Coagulation of proteins; relatively ineffective cleaning action</li> <li>– Hardens and creates bulges in plastic tubes</li> <li>– Can harden rubber or cause deterioration in glues</li> <li>– Damages silicone; causes brittleness</li> <li>– Deactivated by organic matter</li> </ul>
Sodium hypochlorite (bleach)	<ul style="list-style-type: none"> <li>– Broad spectrum of activity (bactericide, fungicide, virucide, and mycobactericidal) and sporocidal activity at high concentrations (e.g. 5,000 ppm for 10 minutes)</li> <li>– Reduction of biofilms at high concentrations</li> <li>– Inexpensive</li> <li>– Rapid action</li> <li>– Easy to obtain in a non-hospital setting</li> <li>– Nonflammable</li> <li>– Does not react to hardness in water</li> </ul>	<ul style="list-style-type: none"> <li>– Corrosive for metals at high concentrations (e.g. &gt; 500 ppm)</li> <li>– Deactivated by organic matter; for blood spills, blood must be removed before disinfection</li> <li>– Irritates skin and mucous membranes; should be used in well-ventilated places because of the possibility of burning oropharyngeal, esophageal, and gastric tissues</li> <li>– Storage must be in hermetically sealed containers not subject to ultraviolet radiation or heat to prevent deterioration; preferable to use immediately after dilution</li> <li>– Discolors clothing and carpets</li> <li>– Leaves salt residues</li> <li>– Releases toxic chlorine when combined with acids or ammonia</li> <li>– Bactericidal effect is also affected by pH, concentration, temperature, presence of ammonia, and addition of other halogens</li> </ul>
Improved hydrogen peroxide 0.5% (7% solution, dilution ratio of 1:16)	<ul style="list-style-type: none"> <li>– Broad spectrum of activity (bactericide, fungicide, virucide, and mycobactericidal)</li> <li>– Rapid action</li> <li>– Not environmentally hazardous</li> <li>– Non-toxic</li> <li>– Does not stain</li> <li>– Non-flammable</li> <li>– Active in the presence of organic matter</li> <li>– Resists corrosion</li> <li>– Excellent cleaning power due to its detergent properties</li> </ul>	<ul style="list-style-type: none"> <li>– Use contraindicated on copper, brass, and other non-ferrous metals</li> </ul>

Product	Description	Advantages
	<ul style="list-style-type: none"> <li>- Broad spectrum of activity (bactericide, fungicide, virucide, and mycobactericidal)</li> <li>- Rapid action</li> <li>- Not environmentally hazardous</li> <li>- Non-toxic</li> <li>- Does not stain</li> <li>- Non-flammable</li> <li>- Active in the presence of organic matter</li> <li>- Resists corrosion</li> <li>- Excellent cleaning power due to its detergent properties</li> </ul>	
<p><b>Accelerated hydrogen peroxide 4% to 5%</b></p>	<ul style="list-style-type: none"> <li>- It is a sporicidal</li> <li>- Non-toxic</li> <li>- Not dangerous to the environment</li> <li>- In gel form to ensure adherence to vertical surfaces for the necessary exposure time</li> </ul>	<ul style="list-style-type: none"> <li>- Expensive</li> <li>- Contraindicated for use on copper, brass, other non-ferrous metals, rubber, and plastic</li> <li>- Contraindicated for use on screens</li> </ul>
<p><b>Hydrogenperoxide 3% (non-aseptic formulations)</b></p>	<ul style="list-style-type: none"> <li>- Non-toxic</li> <li>- Poses no risk to the environment</li> </ul>	<ul style="list-style-type: none"> <li>- Long exposure time</li> <li>- Contraindicated for use on copper, zinc, brass, and aluminum</li> <li>- Must be stored in a cool, dark place</li> <li>- There have been reports that hydrogen peroxide masks the results of ATP bioluminescence</li> </ul>
<p><b>Phenolics</b></p>	<ul style="list-style-type: none"> <li>- Broad spectrum of activity, but no sporicidal action</li> <li>- Nonstinging</li> <li>- Non-flammable</li> <li>- Commercially available with added detergents for one-step cleaning and disinfection</li> </ul>	<ul style="list-style-type: none"> <li>- Not for use in nurseries or equipment contacting infants (e.g. baby scales); associated with neonatal jaundice or hyperbilirubinemia</li> <li>- Not recommended for use on food contact surfaces</li> <li>- Leave residues on surfaces</li> <li>- Can be absorbed by the skin</li> <li>- Absorbed by porous materials</li> <li>- Can cause skin depigmentation</li> <li>- Irritate tissue</li> <li>- Repeated use can make certain synthetic floor coverings sticky</li> <li>- Destroy rubber</li> <li>- React in contact with some plastics and aluminum</li> </ul>
<p><b>Quaternary ammonia compounds</b></p>	<ul style="list-style-type: none"> <li>- Non-corrosive</li> <li>- Appropriate for a variety of surface materials</li> <li>- Work on a variety of surface materials</li> <li>- Persistent microbicidal effect</li> <li>- Good cleaning power</li> <li>- Generally, contain detergent properties</li> <li>- Can be used on food contact surfaces</li> </ul>	<ul style="list-style-type: none"> <li>- Cannot be used to disinfect instruments</li> <li>- Of limited use for disinfection due to a narrow microbicidal spectrum (limited activity against non-enveloped viruses, not mycobactericidal or sporicidal)</li> <li>- When diluted, can encourage the growth of microorganisms</li> <li>- Limited activity in the presence of certain materials (e.g., cotton, hard water, microfibers)</li> <li>- Have been associated with respiratory and cutaneous irritation, and allergic reactions</li> </ul>

Source: Ontario Agency for Health Protection and Promotion (Public Health Ontario), Provincial Infectious Diseases Advisory Committee. Best Practices for Environmental Cleaning for Prevention and Control of Infections in All Health Care Settings, 3rd edition, Toronto (ON) Queen's Printer for Ontario, 2018. <https://www.publichealthontario.ca/-/media/documents/b/2018/bp-environmental-cleaning.pdf?la=en>

## ANNEX 2 – SAMPLE FORM FOR EVALUATING A SURFACE DISINFECTANT PRODUCT

Name:		
Product / Manufacturer:		
Period during which product was tested:      to		
<i>Evaluate the surface disinfectant product in terms of the five characteristics, scoring them on a scale of 1 to 10 (1 meaning very poor, 10 excellent).</i>		
Characteristics	Points to Consider	1 to 10
1. Antimicrobial activity	Does the disinfectant kill the most common microorganisms, including those that cause most infections and outbreaks, and are these of concern at your facility?	
2. Contact time. Time during which the surface is moist	How quickly does the disinfectant product eliminate microorganisms? Does the disinfectant produce visibly moist surfaces for the time indicated on the label?	
3. Safety	Does the disinfectant product have an acceptable toxicity index? Does it have an acceptable flammability index? Does it require a minimum level of PPE? Is the disinfectant compatible with the surfaces in your facility?	
4. Ease of use	Is the odor of the disinfectant acceptable? Does the disinfectant have an acceptable shelf life? Is it in a form that is practical to use for your needs – for example, liquid, spray, refillable, different-size wipes? Does it work in the presence of organic matter? Is it water soluble? Does it clean and disinfect in a single step? Are the instructions for its use simple and clear?	
5. Other factors	Does the product's distributor/vender offer complete and ongoing training, both in person and online? Does the distributor/vender offer customer service (seven days a week)? Is the total cost of the disinfectant acceptable (considering the product's characteristics, cost of preventable infections, and cost per use)? Can the disinfectant help standardize (optimize, increase the efficiency of) the disinfectants used in your institution?	
<b>TOTAL</b>		
<i>Select the best product, i.e., the one that has scored highest for the characteristics evaluated (maximum score is 50).</i>		

Adapted from: Rutile WA, Weber DJ. Selection of the ideal disinfectant. Infect Control Hosp Epidemiol 2014;35:855-65.

### ANNEX 3 – RECOMMENDED MINIMUM CLEANING AND DISINFECTION LEVEL AND FREQUENCY FOR NONCRITICAL EQUIPMENT AND ENVIRONMENTAL ITEMS

The table below relates to noncritical patient care equipment only, i.e., equipment that comes into contact with intact skin. For semi-critical and critical equipment that require high-level disinfection or sterilization, see the document on “disinfection and sterilization.”

This table also deals with environmental surfaces and objects that do not come in contact with skin.

Object	Minimum level of cleaning and disinfection	Frequency (minimum)	Remarks
Apnea monitor Monitor/sensor pad	Light cleaning/disinfection	Between patients When soiled	
Bath seat and raised toilet seat <i>Used for a single patient</i>	Light cleaning/disinfection	When soiled	
Bathtub	Light cleaning/disinfection	After each use	Products with iodine and chlorine can damage bathtub surfaces
Bedrail and extender	Light cleaning/disinfection	Every day	
Blood pressure cuff	Light cleaning/disinfection	Between patients and when visibly soiled	Ideally, remains with the patient until discharge
Breathing hood for newborns	Light cleaning/disinfection	After each use and when soiled	
Call bell	Light cleaning/disinfection	Every day and between patients	
Cardiac monitor	Light cleaning/disinfection	Between patients When soiled	
Cast-cutting blades	Cleaning, or use disposable type	When soiled	Send for sterilization if there has been contact with blood
Chair <i>Including reclining chairs, patient chairs, and shower chairs</i>	Light cleaning/disinfection	Every day and when soiled	
Chamber pot and urinal <i>Dedicated to one patient</i>	Cleaning	After each use, if dedicated to one patient	Remove major solids and liquids before cleaning
Chamber pot and urinal <i>Used for multiple patients</i>	Light cleaning/disinfection	Between patients	Remove major solids and liquids between cleanings
Commode chairs <i>Dedicated to one patient</i>	Light cleaning/disinfection	When soiled	Remove major solids and liquids before cleaning
Commode chairs <i>Used by multiple patients</i>	Light cleaning/disinfection	When soiled Between patients	
Container for measuring urine <i>Used by a single patient</i>	Cleaning	After each use	
Defibrillator	Light cleaning/disinfection	After each use	
Diagnostic imaging: portable machine	Light cleaning/disinfection	When soiled, and on leaving a room where additional precautions are in place	
Diaper	Light cleaning/disinfection	After each use	



Object	Minimum level of cleaning and disinfection	Frequency (minimum)	Remarks
Doppler ultrasound machine, transducers	Light cleaning/disinfection	After each use	Wipe immediately after each use to remove residual ultrasound gel before cleaning
EKG: machine and wires	Light cleaning/disinfection	Between patients	
Electric razor Razor handle and body	Cleaning	As needed	Should only be used for a single patient
Examination table/couch	Light cleaning/disinfection	Between patients When soiled	
Glucometer	Light cleaning/disinfection	After each use	
Ice machine <i>Interior</i>	Light cleaning/disinfection	Every 3 months	Empty and wash thoroughly with a decalcification product
Ice machine <i>Exterior surfaces</i>	Cleaning	Every 3 days	
Intravenous equipment Pumps, stands Warmers	Light cleaning/disinfection	Every day and between patients	
Isolate	Light cleaning/disinfection	Weekly When soiled Between patients	
Laryngoscope, handle	Light cleaning/disinfection	Between patients	Complete disinfection required for laryngoscope blades
Mammography: paddles	Light cleaning/disinfection	Between patients	
Mattress	Light cleaning/disinfection	Clean between patients and when soiled	
Night table	Light cleaning/disinfection	Every day When soiled Between patients	
Ophthalmoscope	Cleaning	Between patients	
Orthopedic equipment Crutches, traction equipment, etc.	Cleaning	Between patients	
Otoscope: handle	Light cleaning/disinfection	Between patients When soiled	Complete disinfection required for ear specula of otoscopes
Pillow	Light cleaning/disinfection	Between patients When soiled	Throw away if torn
Reflex hammer	Cleaning	Between patients	
Resuscitationcart/ cardiac arrest cart	Cleaning	Weekly and after each use	
Saws	Cleaning	When soiled	
Scale for weighing patients <i>Adult</i>	Cleaning	Every day When soiled	
Stethoscope	Light cleaning/disinfection	After each use	Ideally each person uses his/her own stethoscope If stethoscopes are shared, disinfect the earpieces

Object	Minimum level of cleaning and disinfection	Frequency (minimum)	Remarks
Transport equipment Walker	Light cleaning/disinfection	After each use	
Wheelchair			
Trays	Cleaning	After each use	
Ultrasound transducers Handle and wire	Light cleaning/disinfection	Between patients	Complete disinfection for the transducer probes
Used for multiple patients	Light cleaning/disinfection	Between patients	Ideally, dedicated to one patient
Vacuuming equipment	Light cleaning/disinfection	When soiled Between patients	
Wall-mounted oxygen and suction fixtures	Cleaning	Between patients When soiled	
Water pitcher	Cleaning	Every day	

## ANNEX 4 – GENERAL CLEANING PRACTICES IN HEALTH CARE SETTINGS

### Before cleaning

- **Clothing**
  - Use clean and appropriate clothing. Clothing should follow certain specific criteria in cases of patient isolation (additional precautions).
  - Do not wear jewelry or fingernail paint.
  - Have your hair secured.
  - Closed shoes are recommended.
- **Gather the necessary equipment before entering the room.**
- **Follow manufacturer’s instructions for dilution of cleaning and disinfecting products and correct exposure time.**
- **Check for signs indicating what additional precautions should be taken; follow the indicated precautions.**
- **Perform hand hygiene (hand washing or scrubbing with alcohol-based hand rub) and put on the appropriate PPE before entering the room.**

### During cleaning

- **Follow the logical order of operations:**
  - Start with the cleanest areas,
  - move from clean to dirty and from high to low,
  - always cleaning before disinfecting.
- **Avoid agitating surfaces more than necessary, in order to prevent dispersion of dust.**
- **Change cleaning solutions:**
  - following manufacturer’s instructions,.
  - more frequently in heavily contaminated areas,
  - in the presence of visible dirt,
  - immediately after cleaning up blood or organic liquids.
- **Watch for needles and other pointed or sharp objects.**
- **Collect waste, holding plastic bags at the top (do not squeeze bags with your hands).**
- **Perform hand hygiene (hand washing or scrubbing with alcohol-based hand rub): after removing gloves, when leaving the room, and whenever necessary.**

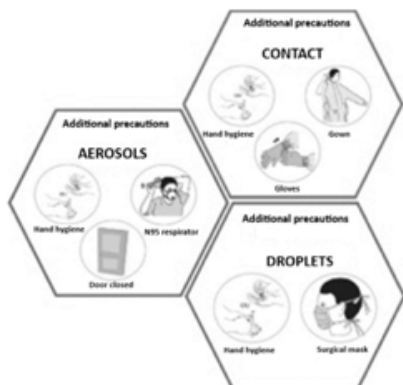
### After cleaning

- **Clean and dry the cleaning and disinfection equipment between uses.**
- **Wash mop heads daily; completely dry mop heads before reusing.**
- **Clean the cleaning cart and waste carts every day**
- **Utility gloves should be:**
  - Individual,
  - washed with soap and water between one location and the next,
  - washed inside and out at the end of the day.

Source: Ontario Agency for Health Protection and Promotion (Public Health Ontario), Provincial Infectious Diseases Advisory Committee. Best Practices for Environmental Cleaning for Prevention and Control of Infections in All Health Care Settings, 3rd edition, Toronto (ON) Queen’s Printer for Ontario, 2018. <https://www.publichealthontario.ca/-/media/documents/b/2018/bp-environmental-cleaning.pdf?la=en>

## ANNEX 5 – SAMPLE DAILY METHOD FOR CLEANING PATIENT ROOMS

### 1 Assess



Check for notices on additional precautions and follow all such indications.

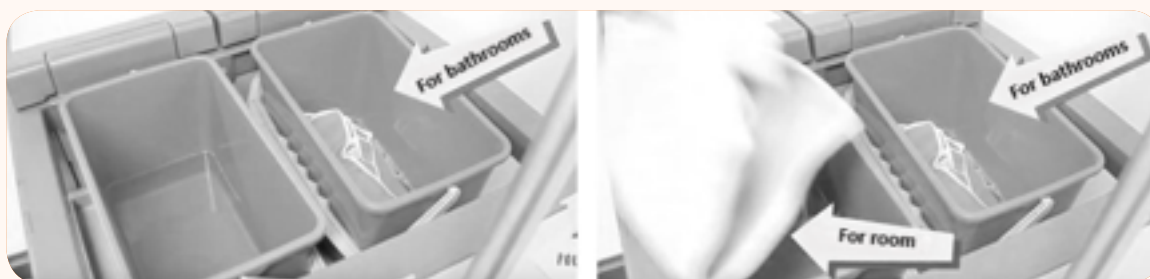
Walk through the room to determine what needs to be replaced (e.g., toilet paper, paper towels, soap, alcohol-based hand rub, gloves, container for pointed and sharp objects) and whether special supplies are needed. This can be done before or during the cleaning process.

Organize before cleaning.



The cleaning cart *must* remain outside the room.

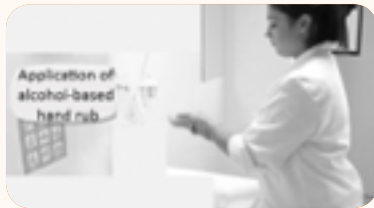
### 2 Gather the necessary equipment



Make sure there are enough clean cloths.

Prepare a fresh disinfectant solution following the manufacturer's directions.

### 3 Hand hygiene



Scrub hands with alcohol-based hand rub OR wash hands with soap and water, followed by drying.



Put on gloves and all required PPE.



Make the area secure before organizing the room.

### 4 Put on gloves and clean the room, moving from the cleanest to the dirtiest areas, and from high to low areas:



The cloth should be refolded frequently so as to always be using a clean surface of the cloth.

Use one or more clean clothes for cleaning each patient's bed space:

- If using a single pail, avoid "double dipping" the cloth(s).
- Do not shake the cloths.
- Change cloths when they are no longer saturated with disinfectant and after cleaning heavily soiled areas such as toilets and sinks.
- If there is more than one patient's bed space in the room, use a clean cloth or cloths for each, and finish cleaning each bed space before moving to the next.



Start by cleaning the doors, door handles, door push plates, and areas of the doorframe that have been touched.

Examine the walls in order to remove visible dirt and clean them as necessary.

Clean light switches.

Clean objects attached to the wall, such as the alcohol-based hand rub dispenser, and the glove box holder.

Examine the bottom portion of interior glass dividers, glass door panels, mirrors, and windows, in order to remove fingerprints and dirt, removing them with window cleaner if necessary.

Examine the separating curtains to remove visible dirt and replace if needed.

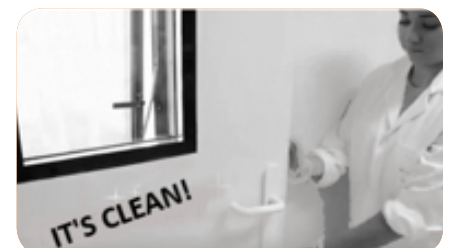
Clean all furniture and all of the room's horizontal surfaces, including chairs, window sills, television, telephone, computer keyboards, night table, and other tables or desks; lift objects when cleaning tables; pay special attention to high touch or frequently touched surfaces.

Wipe anything attached to the walls, such as the cover of the suction jar, the intercom, and the sphygmomanometer, as well as the bracket that supports intravenous equipment.

Clean the rails, bed controls, and call bell.



Clean the bathroom/shower (see Annex 7).  
Clean the floor



## 5 Disposal



Put soiled cloths in the containers reserved for laundry.

Check the container for pointed and sharp objects and change it if it is three-quarters full (do not dust the cover of a container for pointed and sharp objects).

Take out the soiled laundry if the bag is full.

Put visible waste in receptacles.

Dispose of the waste.

6 **Remove gloves and perform hand hygiene** with alcohol-based hand rub; if hands are visibly soiled, wash with soap and water. DO NOT leave the room while wearing gloves or other PPE.

7 **Replenish** supplies as necessary (e.g., gloves, alcohol-based hand rub, soap, paper towels).

8 **Perform hand hygiene** with alcohol-based hand rub.

### Notes

- Cleaning cloths must be changed after cleaning each room, using at least 3 cloths per room; ideally, 5 to 7 cloths.
- Do not put the cloth back in the disinfecting solution after having used it to wipe a surface.
- The waste basket can be cleaned weekly and whenever dirty.
- In patient rooms where additional precautions are in place, frequently touched or high touch surfaces of bed-separating curtains should be sprayed with disinfectant.
- Vinyl shower curtains should be cleaned when visibly soiled or replaced as needed.

## ANNEX 6 – SAMPLE METHOD FOR CLEANING PATIENT ROOM AFTER PATIENT DISCHARGE OR TRANSFER

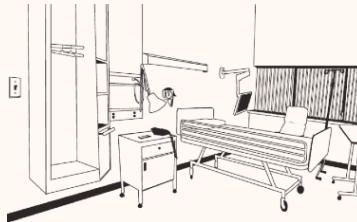
### 1 Assess



Check for notices on additional precautions and follow all such indications.

Walk through the room to determine what needs to be replaced (e.g., toilet paper, paper towels, soap, alcohol-based hand rub, gloves, container for pointed and sharp objects) and whether special supplies are needed. This can be done before or during the cleaning process.

Organize before cleaning.



### 2 Gather together the necessary equipment

Make sure there are enough clean cloths.

Prepare a fresh disinfectant solution following the manufacturer's directions.

### 3 Perform hand hygiene, put on gloves and all other required PPE.

### 4 Remove soiled laundry

Remove the bedding, throwing the laundry in a bag for soiled laundry; roll up the bedding carefully to prevent aerosols.

Inspect the separating curtains, window blinds/curtains/shades; if they are visibly soiled, clean or replace them; in long-term care facilities, change the curtains; in rooms where, additional precautions are in place, remove the curtains to clean and disinfect them;

Remove gloves and wash hands.

## 5 Put on clean gloves and clean the room, moving from clean to dirty areas, and from high to low.

Use one or several clean clothes for cleaning each patient bed space.

- If using a single pail, avoid “double dipping” the cloth(s).
- Do not shake the cloths.
- Change cloths when they are no longer saturated with disinfectant and after cleaning heavily soiled areas such as toilets and sinks.
- If there is more than one patient’s bed space in the room, use a clean cloth or cloths for each, and finish cleaning each bed space before moving to the next.
- Start by cleaning doors, door handles, door push plates, and areas of the doorframe that have been touched.
- Examine the walls in order to remove visible dirt and clean them as necessary.
- Clean light switches.
- Clean objects attached to the wall, such as the alcohol-based hand rub dispenser, and the glovebox holder.
- Examine the bottom portion of interior glass dividers, glass door panels, mirrors, and windows, in order to remove fingerprints and dirt, removing them with window cleaner if necessary.
- Clean all furniture and all of the room’s horizontal surfaces, including chairs, windowsills, television, telephone, computer keyboards, night table, and other tables or desks; lift objects when cleaning tables; pay special attention to high touch surfaces.
- Wipe anything attached to walls, such as the suction nozzle, the intercom, and the sphygmomanometer, as well as the bracket that supports the intravenous equipment.
- Clean any equipment (e.g., the pump and the bracket that supports the intravenous equipment, walkers, wheelchairs).
- Clean the inside and outside of the patient’s wardrobe or locker.

## 6 Clean the bed

- Clean the upper surface and sides of the mattress, turn it over and wash the underside.
- Clean the exposed springs and bedframe.
- Determine whether the mattress has tears or holes, and have it replaced if necessary.
- Clean the headboard and footboard, sides of the bed, call bell, and bed controls; pay special attention to visibly soiled areas and surfaces that are frequently touched by hospital staff.
- Clean all of the lower parts of the bedframe, including the wheels.
- Give the mattress time to dry.



**7 Clean the bathroom/shower** (see Annex 7)

**8 Clean the floors**

**9 Disposal**

Put soiled cloths in the containers reserved for laundry.

Check the container for pointed and sharp objects and change it if it is three-quarters full (do not dust the cover of a container for pointed and sharp objects).

Take out the soiled laundry if the bag is full.

Put visible waste in receptacles.

Close and remove the waste bags; clean the waste basket if it is dirty and insert a clean bag.

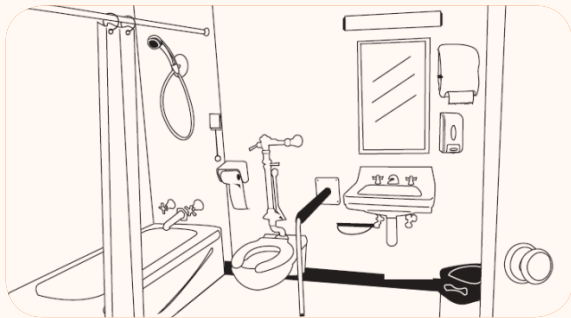
**10 Remove gloves and perform hand hygiene** with alcohol-based hand rub; if hands are visibly soiled, wash with soap and water. DO NOT leave the room while wearing gloves or other PPE.

**11 Remake** the bed and **replace** supplies as necessary (e.g., gloves, alcohol-based hand rub, soap, paper towels, toilet scourer).

**12 Put the cleaned items** (e.g., the pumps and supports for the intravenous equipment, walkers, commode chairs) **back in the clean storage area.**

## ANNEX 7 – SAMPLE BATHROOM CLEANING METHOD

### Work from the clean to the dirty areas:



- Take the soiled laundry off the floor; wipe up spills; take out waste.
- Clean door handle and frame, as well as light switch.
- Clean chrome accessories attached to the wall.

- Clean inside and outside of sink, taps, and mirror; wipe the sink's plumbing; put disinfectant on the inner surface of the sink; make sure the disinfectant is in contact for a long enough time; rinse the sink and dry the sink and toilet.
- Clean all dispensers and frames.
- Clean the call bell and cord.
- Clean the side rails, supports, and shelves.
- Clean the shower taps, walls, and railings, scouring them as needed in order to remove soap residues; check whether there is mold on the grout; put disinfectant on the inside surfaces of the shower/bathtub, including the soap dish, taps, and shower head; make sure exposure to the disinfectant is long enough; rinse, and dry by wiping; inspect the shower curtains and replace them monthly or as needed.
- Clean thoroughly the supports of the chamber pot and toilet, including the handle and the bottom of the water tank; make sure that exposure to the disinfectant is long enough.
- Remove gloves and wash hands.
- Restock paper towels, toilet paper, waste basket bag, soap, and alcohol-based hand rub.
- Report mold, cracks, leaks, or damaged areas, so they can be repaired.

### Other measures to take following patient discharge or transfer:

- Change all waste basket bags; clean the waste basket if dirty.
- Clean the walls of the shower.

## ANNEX 8 – HOW TO PREPARE CHLORINE SOLUTIONS

### Example I. Liquid bleach

Liquid bleach can have different concentrations of chlorine.

It is important to know that:

0.5 % solution = 5000 ppm

0.1 % solution = 1000 ppm

All concentrations can be used to prepare a diluted solution, using the following formula

$$\left( \frac{\% \text{ chlorine in liquid bleach}}{\% \text{ chlorine desired}} \right) - 1 = \text{Total parts of water per part bleach}^*$$

Example: To prepare a 0.5% chlorine solution from 3.5% bleach:

$$\left( \frac{3.5\%}{0.5\%} \right) - 1 = 7 - 1 = 6 \text{ parts of water per part bleach}^*$$

\* "Part" here stands for any unit of measure (liter, deciliter, gallon) or any container used to make the combined solution, e.g., a water container.

### Example II. Hypochlorite powder

If this product is used,† calculate the proportion of powder in relation to water by using the following formula:

$$\left( \frac{\% \text{ chlorine desired}}{\% \text{ chlorine in powder}} \right) \times 1000 = \text{Number grams of powder per liter of water}$$

Example: To prepare a 0.5% chlorine solution from calcium hypochlorite (bleach) powder that is 35% active chlorine:

$$\left( \frac{0.5\%}{35\%} \right) \times 1000 = 0.0143 \times 1000 = 14.3 \text{ grams}$$

Thus, you must dissolve 14.3 grams of calcium hypochlorite powder per liter of water to obtain a 0.5% chlorine solution.

† When using powder, the solution obtained will probably be cloudy.

### Example III. Formula for preparing a diluted solution from a concentrated solution

$$\text{Total parts water} = \left( \frac{\% \text{ concentrated}}{\% \text{ diluted}} \right) - 1$$

Example: To prepare a 0.1% diluted solution from a solution with a 5% concentration:

$$1. \text{ Calculate parts of water} = \left( \frac{5.0\%}{0.1\%} \right) - 1 = 50 - 1 = 49$$

2. Take one part of the concentrated solution and add 49 parts of boiled water (filtered if necessary).

The formula for preparing an active chlorine solution from powder is:

$$\text{Grams / liter} = \left( \frac{\% \text{ diluted}}{\% \text{ concentrated}} \right) \times 1000 = 0.0143 \times 1000 = 1$$

Source : World Health Organization, 2014. Interim infection prevention and control guidance for care of patients with suspected or confirmed filovirus hemorrhagic fever in health-care settings, with focus on Ebola

[[https://apps.who.int/iris/bitstream/handle/10665/130596/WHO\\_HIS\\_SDS\\_2014.4\\_eng.pdf?sequence=1&isAllowed=y](https://apps.who.int/iris/bitstream/handle/10665/130596/WHO_HIS_SDS_2014.4_eng.pdf?sequence=1&isAllowed=y)]

Use	Concentration	
	Ppm	%
Blood spill	5000-10000	0.5-1.0
Environmental disinfection	1000	0.1
Baby bottles and pacifiers	125	0.0125
Kitchen and catering equipment	125	0.0125
Partial disinfection of medical equipment	1000	0.1

Source : World Health Organization, Pan American Health Organization, 2016. Decontamination and reprocessing of medical devices for health care facilities. <http://apps.who.int/iris/bitstream/10665/250232/1/9789241549851-eng.pdf>

- The minimum concentration for eliminating mycobacteria is 1000 ppm (0.1 %) for 10 minutes on a clean surface. Objects should not be submerged for over 30 minutes because of the corrosive activity of chlorine solutions.
- Avoid contact with all chlorine sources or solutions and avoid inhaling chlorine vapors.
- Chlorine solutions should always be fresh, i.e., they must be prepared every day (every 24 hours) and kept away from sunlight and heat.

## ANNEX 9 – SAMPLE METHOD FOR CLEANING OPERATING ROOMS BETWEEN INTERVENTIONS

- Prepare a fresh disinfecting solution following the manufacturer’s instructions.
- Wash hands and put on gloves.
- Collect and take away waste.
- Collect and take away soiled laundry.
- Take off gloves and wash hands.
- Use a cloth moistened with hospital disinfectant to clean and disinfect the horizontal surfaces that have been in contact with a patient or with organic liquids, including surgical lamps, blood pressure cuffs, tourniquets, and wires/cords.
- Clean the reflecting portion of surgical lamps.
- Dispose of suction device (and bag, if necessary).
- Clean and disinfect the bed.
- Clean electronic equipment (i.e., screens) following the manufacturer’s instructions.
- Use a moist mop within a perimeter of 1 to 1.3 meters (3 to 4 feet) around the bed (more if the area is contaminated); use a different mop head for each intervention.
- Insert new clean bags for the soiled laundry.
- Before taking equipment into the operating room and returning it, clean wipe with a moist cloth any equipment brought from elsewhere, such as X-ray machines and compressed-gas tanks.
- After cleaning, take off gloves and wash hands.
- Place a “Wet floor” warning sign at the entrance to the room.
- Take off gloves and wash hands.

## ANNEX 10 – SAMPLE CLEANING METHOD AT THE END OF THE OPERATING ROOM DAY

- Prepare a fresh hospital disinfecting solution following the manufacturer's instructions.
- Wash hands and put on gloves.
- Collect and remove waste.
- Collect and remove soiled laundry.
- Wash hands and change gloves.
- Clean and disinfect lighting devices and ceiling rails
- Clean and disinfect all door handles, door push plates, light switches, and controls.
- Clean and disinfect telephones and computer keyboards.
- Check the cleanliness of walls at regular intervals.
- Clean and disinfect all outside surfaces of machines and equipment (e.g., anesthesia carts), allowing the disinfectant to dry completely before putting back the machines or equipment.
- Clean and disinfect all furniture, including wheels.
- Clean and disinfect the outside of closets and doors, especially around the handles.
- Clean and disinfect all horizontal surfaces.
- Clean and disinfect sinks and adjacent walls.
- Clean the floor with a mop, making sure that you move the bed to wash underneath it. Move all furniture toward the center of the room and clean the floor. Follow the manufacturer's instructions on dilution and exposure time of the cleaner and disinfectant. Use a clean cloth or mop head for each room.
- Put all furniture and equipment back in place.
- Wipe trash cans with a moist cloth, dry them completely, and put in a clean bag.
- Report any need for repairs.
- Clean the cleaning equipment and put it in its place of storage.
- Place a "Wet floor" sign at the entrance to the room.
- Take off gloves and wash hands.

## ANNEX 11 – SAMPLE OBSERVATIONAL AUDIT TOOLS

### Procedures and criteria for verifying compliance with protocols

#### Evaluation of compliance with cleaning protocols: patient rooms

Unit: \_\_\_\_\_ Room: \_\_\_\_\_

Observation done by: \_\_\_\_\_

Date: \_\_\_/\_\_\_/\_\_\_ Starting time: \_\_\_\_\_ End time: \_\_\_\_\_

Places	Type of cleaning	Additional precautions:
<input type="checkbox"/> Patient room	<input type="checkbox"/> Daily	<input type="checkbox"/> No <input type="checkbox"/> Yes
	<input type="checkbox"/> Final	<input type="checkbox"/> Contact
		<input type="checkbox"/> Droplets
		<input type="checkbox"/> Aerosols

#### Instructions

The following should be used to standardize the environmental cleaning process.

- Make observations openly (this is not a performance evaluation).
- The explanation given to the patient should include the fact that the observation is being made by a supervisor or infection prevention and control staff, to check the effectiveness of the cleaning process.
- Provide feedback to the employee involved after the cleaning is completed.
- Do not interrupt the cleaning.
- Provide suggestions for improvement based on the results of the audit, so that corrections can be made on the spot.

#### Organizing the cleaning cart

	Yes	No	N/A
The equipment is clean and in good operating order.			
There are enough cloths (for cleaning) and other supplies. The mop heads, mops, brushes, handles, and electromechanical devices are available to the worker, thus facilitating performance of the various steps of the work.			
The pails and supplies are in the cleaning cart, to avoid mixing clean and soiled articles.			

#### Comments:

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### Infection control

	Yes	No	N/A
The employee checks the precautions required and uses the PPE needed for the tasks.			
Hand hygiene: performed with the appropriate technique and in the recommended situations.			
Hand hygiene is performed after taking off gloves.			
Gloves are used properly.			
Cloths (scurers, swabs, cloths) are wet enough to provide the disinfectant's proper contact time.			
Separate linens for each room and location.			
The surfaces of furniture or accessories are cleaned using a clean surface of cloth.			
From clean to dirty: for example, the patient room is cleaned before the bathroom.			

### Infection control

	Yes	No	N/A
Appropriate organization of the preparation area. The employee brings into the room all equipment and supplies needed.			
The employee does not leave the room during the cleaning.			
The employee correctly cleared the preparation area, including the disinfection tools used, and removed the mop heads.			

### Are the following articles correctly cleaned or disinfected?

1. Was the targeted area cleaned/disinfected?
2. Were the appropriate tools and techniques used?
3. Was the product's contact time achieved?

	Yes	No	N/A
Controls and levers			
Night table			
Bed table			
Light switch			
Chair			
Handle			

	Yes	No	N/A
Bathroom taps			
Door handle, bathroom			
Switch, bathroom			
Toilet seat			
Toilet handrails			
Flusher			



### Was the room cleaned in the appropriate sequence?

	Yes	No	N/A
<b>Patient room: daily cleaning</b>			
<input type="checkbox"/> <b>Start:</b> Check precautions, wash hands, put on appropriate PPE			
<input type="checkbox"/> <b>Disinfect and inspect:</b> Bedside area → , Other areas in patient room → Bathroom.			
<input type="checkbox"/> <b>Waste:</b> collect and remove waste. Change the sharps container if three-quarters full. Hand hygiene after removing waste.			
<input type="checkbox"/> <b>Floors:</b> damp mopping			
<input type="checkbox"/> <b>Restocking:</b> Do not wear gloves			
<b>Patient room: final cleaning</b>			
<input type="checkbox"/> <b>Start:</b> Check on precautions, wash hands, appropriate PPE			
<input type="checkbox"/> <b>Strip the room:</b> collect and remove soiled laundry, waste, sharps container (if necessary), blue ware, curtains (if necessary).			
<input type="checkbox"/> <b>Clean the room:</b> High dust → disinfect bed → start at door and work around room disinfecting all furniture and fixtures, patient equipment, windows, and trash cans → bathroom.			
<input type="checkbox"/> <b>Floors:</b> damp mopping			
<input type="checkbox"/> <b>Set up the room again:</b> wash hands. Remake the bed and provide whatever supplies are needed (do not wear gloves).			

Did you speak with the cleaning and hygiene team after the audit?

Yes  No

Comments:

<https://www.picnet.ca/wp-content/uploads/British-Columbia-Best-Practices-for-Environmental-Cleaning-for-Prevention-and-Control-of-Infections-in-All-Healthcare-Settings-and-Programs.pdf>

## ANNEX 12 – EVALUATING CLEANING BY EXAMINING SURFACES AFTER CLEANING

Method	Description	Advantages	Disadvantages
Environmental marking	Before cleaning, environmental surfaces are marked with an invisible tracer agent that can only be seen with a special light . After cleaning, a trained observer can determine whether the cleaning has successfully removed the tracer agent. If the tracer has not been removed from a smooth surface, this may indicate that the surface was not cleaned.	<p>Facilitates direct evaluation of the thoroughness of the cleaning (i.e., the proportion of surfaces effectively cleaned).</p> <p>Helps determine what frequently- and infrequently contacted surfaces have been cleaned well and which have not.</p> <p>Associated with rapid improvement when constructive feedback is given.</p> <p>Easy to implement.</p> <p>The results are easy to understand.</p>	<p>Does not directly measure microbial contamination.</p> <p>Does not measure the quality or intensity of the cleaning (a single wipe will remove the marker).</p> <p>Does not determine whether the unmarked surfaces have been properly cleaned.</p> <p>The texture of surfaces can affect removal of the tracer.</p>
ATP bioluminescence	<p>Adenosine triphosphate (ATP) is a substance present in all living cells.</p> <p>Surfaces can be tested after cleaning to establish the quantity of ATP present.</p>	<p>Makes it possible to evaluate the presence of residual organic matter after cleaning.</p> <p>Gives quantitative results.</p> <p>Provides rapid and direct feedback.</p>	<p>Does not directly measure contamination.</p> <p>Certain cleaning products and materials could damage the test material (e.g., microfibers, bleach, hydrogen peroxide, quaternary ammonia compounds, etc.).</p> <p>Does not evaluate the quality of the cleaning on unmarked surfaces.</p> <p>The results are not comparable from one system to another because of lack of uniformity.</p>
Environmental microbiology	Culture samples can be taken on surfaces after cleaning to determine whether there are bacteria.	Provides the only direct means of measuring contamination by viable microorganisms (level of bacterial contamination, type of bacteria present).	<p>Costly</p> <p>Long delay</p> <p>Not standardized</p> <p>Does not evaluate bacterial contamination outside of the small areas tested.</p>

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