

Cleaning and Disinfection Protocol

Cleaning and Disinfection Protocol for Spore-Forming Bacteria



This document has been developed in accordance with current applicable infection control and regulatory guidelines. It is intended for use as a guideline only. At no time should this document replace existing documents established by the facility unless written permission has been obtained from the responsible facility manager.

PREFACE

Bacteria are a large group of microscopic, unicellular organisms that exist either independently or as parasites. Some bacteria are capable of forming spores around themselves, which allow the organism to survive in hostile environmental conditions. Bacterial spores are made of a tough outer layer of keratin that is resistant to staining, disinfectants, radiation, desiccation and heat. The spore allows the bacterium to remain dormant for years, protecting it from various traumas, including temperature differences, absence of air, water and nutrients. Spore forming bacteria cause a number of diseases, including botulism, anthrax, tetanus and acute food poisoning.

The following table provides examples of Gram Negative and Gram Positive Bacteria and Mode of Transmission of concern for Healthcare settings.

Bacteria	Mode of Transmission	Infective Material
Bacillus anthracis	Acquired from infected animals and animal products	Lesion drainage
Bacillus cereus	Foodborne	Food
Clostridium botulinum	Foodborne	Food
Clostridium difficile	Direct and indirect contact (fecal/oral)	Feces
Clostridium perfringens	Foodborne	Food
Clostridium tetani	Acquired from spores in soil which germinate in wounds	

PREPARATION

Transmission of spore forming bacteria can be attributed to direct and indirect contact with humans, contact with animals or ingesting contaminated food. Appropriate personal protection should be taken for those responsible for the decontamination of a room or area. Appropriate bio-security practices should be applied, including limiting the amount of aerosols generated and disturbance to dust / soil in the area to be cleaned and disinfected.



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PROTECTIVE BARRIERS

Appropriate personal protection should be taken for those responsible for the decontamination of a room or area.

1. Disposable gloves. Gloves should be changed as required, i.e., when torn, when hands become wet inside the glove or when moving between patient rooms.
2. Household gloves can be worn, but they must be discarded when the cleaning is complete.
3. Protective Eye wear (goggles, face shield or mask with eye protection)
4. Masks (surgical or procedural masks sufficient)
5. Gowns

PRODUCTS

All disinfectant or disinfect-cleaner products to be used for cleaning and disinfection of Patient Care Equipment or Devices and environmental surfaces must be approved by Health Canada and carry a Drug Identification Number (DIN). Products claiming to be a disinfectant but do not carry a DIN have not been approved for sale in Canada and should not be used. A Hospital Grade Disinfectant product denotes that the product has been proven efficacious against the three main surrogate bacteria designated by Health Canada for Bactericidal activity; *Staphylococcus aureus*, *Pseudomonas aeruginosa* and *Salmonella enterica* (formerly known as *Salmonella choleraesuis*).

Disinfectant Chemistries Approved for Low Level Disinfection include:

1. Alcohol
2. Accelerated Hydrogen Peroxide
3. Sodium Hypochlorite
4. Quaternary Ammonium Compounds
5. Phenolics

Products registered by Health Canada for use as sporicidal disinfecting agents on environmental surfaces will have proven efficacy and label claims against the two surrogate spore organisms: *Bacillus subtilis* and *Clostridium sporogenes*. For use in Healthcare facilities against *Clostridium difficile* they should also have label claims approved by Health Canada for use as an effective sporicidal agent against *C. difficile* spores.

Disinfectant Chemistries Approved for Sporicidal Surface Disinfection include:

6. Accelerated Hydrogen Peroxide
7. Acidified Nitrate
8. Paracetic Acid
9. Sodium Hypochlorite



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The concentration and contact time for each product will differ. For that reason it is important to read the product label prior to commencing any cleaning and disinfection process.

RECOMMENDED PROCEDURES FOR CLEANING AND DISINFECTION

Summary of Procedure:

In general cleaning and disinfecting activities using the physical motions of cleaning and the use of a Hospital Grade Disinfectant is effective at removing and diluting the spore concentration on environmental surfaces and patient care equipment or devices. However, in an outbreak situation or where transmission from environmental contamination has been confirmed, the use of a sporicidal agent for disinfection after the room has been cleaned should be considered.

Apply the solution to either the surface or device surface or to cloth. Clean all hand contact surfaces in the room ensuring that the cloth is changed when soiled. Place used cloth in a marked plastic-lined waste receptacle. Disinfect all hand contact surfaces of the room by applying the disinfectant and allowing for contact time as per the product label. Allow surfaces to air dry or wipe dry if surfaces are still wet after the contact time as been achieved. Periodic rinsing of soft surfaces such as vinyl or naugahyde is suggested as well as equipment regularly handled by hand.

1. Gather all equipment, cleaning solutions and materials required to clean the patient care devices.
2. WASH hands and put gloves prior to cleaning the devices. Personal protective equipment should be changed if torn or soiled.
3. Visible or gross soil present and/or blood or body fluid spills must be removed prior to cleaning. [See Protocol for Cleaning & Disinfecting a Blood or Body Fluid spill.]
4. As appropriate clean all surfaces in the patient room, including the patient care equipment or devices using a detergent or enzymatic solution. Where appropriate, dismantle the devices to ensure that all surfaces can be cleaned and move all objects to ensure all environmental surfaces have been cleaned. To ensure that cross contamination does not occur use clean cloths for each device to be cleaned. If using an open bucket system, ensure that solutions do not become contaminated (NO DOUBLE DIPPING).
5. If using a 1-Step Cleaning-Disinfecting Solution a separate cleaning step is not necessary unless the surfaces are visibly soiled. To ensure disinfection occurs, the cleaner-disinfectant solution may need to be applied multiple times in order to achieve the contact time as specified on the product label.



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6. To disinfect all surfaces of the patient care devices and environmental surfaces, apply the disinfectant and allow surfaces to remain wet for the appropriate contact time as specified on the product label.
7. If using a sporicidal agent ensure that the product has been diluted appropriately as per label use instructions and that the appropriate contact time for Sporicidal efficacy is met.
8. For cleaning and disinfection of *C. difficile* rooms current practices recommend twice daily cleaning.
9. Soiled rags should be placed in a bag for laundering. Disposable cloths should be disposed as regular waste in garbage bags.
10. Remove and discard gloves, WASH hands.

RECOMMENDED PROCEDURES FOR CLEANING AND DISINFECTION OF BLOOD & BODY FLUID SPILLS

Appropriate personal protective equipment should be worn for cleaning up a body fluid spill. Gloves should be worn during the cleaning and disinfecting procedures. If the possibility of splashing exists, the worker should wear a face shield and gown. For large spills, overalls, gowns or aprons as well as boots or protective shoe covers should be worn. Personal protective equipment should be changed if torn or soiled, and always removed before leaving the location of the spill, and then wash hands.

1. WASH hands and put on gloves.
2. If the possibility of splashing exists, the worker should wear a face shield and gown. For large spills, overalls, gowns or aprons as well as boots or protective shoe covers should be worn. Personal protective equipment should be changed if torn or soiled and always removed before leaving the location of the spill.
3. Apply the Disinfectant Solution to spill.
4. Blot up the blood with disposable towels. Dispose of paper towel in plastic-lined waste receptacle.
5. Spray or wipe surface with the Disinfectant Solution to the area and ensure the appropriate contact time is met as specified on the product label. Wipe dry with disposable paper towel. Discard paper towel as above.
6. Remove gloves and dispose in plastic-lined waste receptacle.
7. WASH hands.



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DISPOSAL OF INFECTION MATERIAL

All cleaning cloths gloves and handled tools used for the decontamination of a suspected Avian Flu virus case must be placed in a clearly marked plastic lined waste receptacle. Decontaminate all wastes before disposal; steam sterilization, chemical disinfection and or incineration.

REFERENCES

Best Practices for Testing, Surveillance and Management of *Clostridium difficile* in all Healthcare Settings, Provincial Infectious Diseases Advisory Committee (PIDAC), May 2010.

Best Practices for Cleaning, Disinfection and Sterilization in All Health Care Settings, Provincial Infectious Diseases Advisory Committee (PIDAC), February 2010

Best Practices for Environmental Cleaning for Prevention and Control of Infections in All Health Care Settings, PIDAC, December 2009

Guide to the Elimination of *Clostridium difficile* in Healthcare Settings, APIC, 2008

Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings, HICPAC, 2007

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