

Cleaning and Disinfection Protocol

Cleaning & Disinfection Protocol for Enveloped Viruses

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.

This protocol has been developed based on current practices for cleaning and disinfection of enveloped viruses.

PREFACE

Enveloped viruses are viruses that possess an envelope or outer coating that is composed of a lipid layer (fat-like substance that is water insoluble). The envelope is needed to aid in attachment of the virus to the host cell. Loss of the envelope results in loss of infectivity. The mode of transmission for enveloped viruses is characterized by the specific virus; however, the most common routes are via indirect or direct contact of infectious virus particles, contact with or inhalation of respiratory droplets. Some enveloped viruses may also be spread via airborne transmission.

Enveloped viruses are easily inactivated by routine surface cleaning and disinfection.

The following table provides examples of Enveloped Viruses and Mode of Transmission of concern for Healthcare settings.

Virus	Mode of Transmission	Infective Material
Coronavirus (ex, SARS-CoV)	Direct and Indirect Contact, Droplet	Respiratory secretions
Cytomegalovirus (CMV)	Sexual contact, Direct Contact	Blood, exposure to mucosal contact with infected tissues, secretions (saliva, breast milk, semen etc), excretions
Ebola Virus	Direct and Indirect Contact, Possibly by airborne if pneumonia present	Blood and body fluids, Respiratory secretions
Epstein-Barr Virus	Direct contact	Oropharyngeal route via saliva, blood products
Hantavirus	Inhalation of infected particles from rodent urine or feces	Urine and Feces
Hepatitis B	Direct (mucosal or percutaneous exposure to infective body	Blood and body fluids



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	fluids) and Indirect contact	
Hepatitis C	Direct contact (sexual or percutaneous)	Blood and body fluids
Herpes Simplex (ex, HS-1, HS-II)	Direct Contact	Skin or mucosal lesions, body secretions and excretions
Herpes zoster (Varicella-Zoster)	Airborne, Direct and Indirect contact	Vesicle fluid, respiratory secretions
Human Immunodeficiency Virus (HIV)	Mucosal or percutaneous exposure	Blood and Body Fluids
Influenza (including A, B, Avian)	Large droplets, Direct and Indirect contact, possibly airborne	Respiratory secretions
Lassa Virus (Lassa Fever)	Direct and Indirect contact (possibly airborne if pneumonia is present)	Blood and body fluids, respiratory secretions, possibly urine and stool
Marburg Virus	Direct and Indirect contact (possibly airborne if pneumonia is present)	Blood and body fluids, respiratory secretions
Monkeypox Virus	Direct Contact (person-to-person)	Vesicle secretions
Measles (Morbillivirus)	Airborne	Respiratory secretions
Mumps (Rubulavirus)	Large droplets and Direct contact	Saliva
Parainfluenza virus	Direct and Indirect contact, large droplets	Respiratory secretions
Respiratory Syncytial Virus (RSV)	Direct and Indirect Contact, Large droplets	Respiratory secretions

PREPARATION

Transmission of enveloped viruses can be attributed to direct and indirect contact, respiratory droplets and airborne transmission. 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 areas.
2. Protective Eye wear (goggles, face shield or mask with eye protection), as needed
3. Masks (surgical or procedural masks sufficient), as needed
4. Gowns, as needed

PRODUCTS

All disinfectant or disinfect-cleaner products to be used for cleaning and disinfection of environmental surfaces and patient care equipment must be approved by either the Environmental Protection Agency (EPA) or Health Canada and carry an EPA or Drug Identification Number (DIN). Products claiming to be a disinfectant but do not carry an EPA number/DIN have not been approved for sale in the US or Canada and should not be used. Disinfectants with a broad spectrum of efficacy against both enveloped and non-enveloped viruses as well as gram-negative and gram-positive bacteria should be considered.

Disinfectant Chemistries Approved for Disinfection of Environmental Surfaces & Patient Care Equipment includes:

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

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: Apply the solution to either the surface or device surface or to cloth. If using a Two-Step Cleaner/Disinfectant, clean all horizontal surfaces in the room ensuring that the cloth is changed when soiled. Appropriately dispose of cloth. If using a One-Step Cleaner/Disinfectant, there is no need to pre-clean all horizontal surfaces unless heavily soiled. Disinfect all horizontal surface 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 with a clean, dry cloth if surfaces are still wet after the contact time as been



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achieved. Periodic rinsing of soft surfaces such as vinyl or naugahyde is suggested as well as equipment regularly handled by hand. Bathrooms within a room should be cleaned last.

1. Gather all equipment, cleaning solutions and materials required to clean the environmental surfaces.
2. WASH hands and put on gloves prior to cleaning the surface. 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 high touch clinical contact and housekeeping surfaces. To ensure that cross contamination does not occur, use clean cloths for each surface being cleaned. If using an open bucket system, ensure that solutions do not become contaminated (NO DOUBLE DIPPING). If using a disposable wipe system, ensure that a new wipe is being used for each surface being cleaned.
5. To disinfect environmental surfaces, apply the disinfectant and allow surfaces to remain wet for the appropriate contact time as specified on the product label.
6. 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.
7. Soiled rags should be placed in a bag for laundering. Disposable cloths should be disposed as regular waste in garbage bags or as specified on the product label.
8. Remove and discard gloves, WASH hands.

RECOMMENDED PROCEDURES FOR CLEANING AND DISINFECTION OF BLOOD AND BODY FLUIDS

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 – wait until the contact time has achieved.
4. Blot up the blood with disposable towels. Dispose of paper towels in plastic-lined waste receptacle.



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5. Spray or wipe surface with the disinfectant solution – ensure the appropriate contact time is achieved. Wipe dry with disposable paper towel. Discard paper towel as above.
6. Remove gloves and dispose in plastic-lined waste receptacle.
7. Wash hands.

DISPOSAL OF INFECTIOUS MATERIAL

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

REFERENCES

Best Practices for Cleaning, Disinfection and Sterilization in All Health Care Settings, Provincial Infectious Diseases Advisory Committee (PIDAC), May 2013

Best Practices for Environmental Cleaning for Prevention and Control of Infections in All Health Care Settings, PIDAC, May 2012

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