

Manitoba Health
Ebola Virus Disease (EVD)
Environmental Cleaning/Disinfection Guidelines for Community Settings

Purpose

To provide direction for cleaning and disinfecting environments in the community that may be exposed to Ebola virus and to reduce opportunities for community transmission of Ebola Virus Disease (EVD) via contact with Ebola virus contaminated fomites. This document is intended to be used by public health officials (Medical Officers of Health, Public Health Inspectors, Public Health Nurses and other employees of Manitoba Health, Seniors and Active Living [MHSAL] and/or Regional Health Authorities).

Scope

This guideline deals with the management of blood and/or other body fluid spills and environmental cleaning and disinfection in community settings, such as in private homes, workplaces, physician offices, and public places used by an individual diagnosed with EVD. This information only applies to a setting where there is a symptomatic person under investigation for EVD, or a person with laboratory confirmed EVD.

Level of Cleaning and Disinfection Required

Once an individual has been confirmed to have EVD, the method of disinfecting the residence or other community setting depends on the symptoms of the individual at the time they were in the applicable location:

- **Cleaning/Disinfection by Residents or Regular Cleaning Staff (in Other Community Settings) –**
The environment is not considered contaminated if the individual with EVD had **ONLY** a fever and did not have gastrointestinal (e.g., diarrhea, vomiting) or hemorrhagic (e.g., bleeding) symptoms. Other household members or regular cleaning staff can clean and launder as usual using detergent and/or disinfectant, and it is not necessary to have the setting cleaned by a contract cleaning company. NOTE: If preferred, a contract cleaning company can be hired to perform the cleaning/disinfection.
- **Cleaning/Disinfection by Contract Cleaning Company –** The environment is considered contaminated if the individual with EVD had a fever **AND** gastrointestinal (e.g., diarrhea, vomiting) or hemorrhagic (e.g., bleeding) symptoms. Public Health and/or assigned authorities should contact a contract cleaning company who will assess the setting and determine the proper disinfection and disposal procedures. Other individuals (e.g., household residents, staff) should avoid

**Manitoba Health
Ebola Virus Disease (EVD)
Environmental Cleaning/Disinfection Guidelines for Community Settings**

contaminated rooms and areas in the setting until after the completion of the assessment and disinfection. *In this situation, other residents or individuals in the location should not handle contaminated materials, and should not touch any body fluids or soiled surfaces and materials. If this is not possible (i.e. majority of setting is contaminated) then other residents or individuals may be required to leave the residence/setting altogether, until it has been completely disinfected. All cleaning and disinfecting is to be done ONLY by the contract cleaning company.*

Table 1. Decision Making Chart for Ebola Virus Cleaning and Disinfection in Community Settings

Category	Criteria	Disinfection and Disposal	Training and PPE
Cleaning/disinfection by residents/staff of the setting NOTE: If preferred a contract cleaning company can be hired to perform the work	Setting where an individual with EVD had a fever ONLY and NO other symptoms	<ul style="list-style-type: none"> • Residents or regular cleaning staff can clean and launder as usual using household detergent and/or disinfectant. • Waste can be discarded as usual 	<ul style="list-style-type: none"> • No training required • Follow cleaning/disinfectant product instructions
Cleaning/disinfection by contract cleaning company	Setting where a person with Ebola had a fever AND additional symptom(s) including diarrhea, vomiting, bleeding	<ul style="list-style-type: none"> • Residence members or property owners should NOT handle contaminated materials • Contact local Public Health or assigned authorities • Contract cleaning company shall conduct disinfection and disposal procedures 	Contract cleaning companies shall follow municipal, provincial and federal policies

For settings that are cleaned by household members or regular cleaning staff, information regarding proper cleaning, disinfection and disposal should be provided by a Public Health Nurse (PHN). For cleaning by a contract cleaning company, information regarding proper cleaning, disinfection and disposal is provided by a Public Health Inspector (PHI).

All of the following instructions apply ONLY to settings that are contaminated by body fluids and require disinfection by a contract cleaning company. They do NOT apply to settings that are cleaned by residents or other regular cleaning staff.

Manitoba Health
Ebola Virus Disease (EVD)
Environmental Cleaning/Disinfection Guidelines for Community Settings

Selection of Cleaning Contractors

Cleaning of Ebola virus contaminated environments should be conducted by a cleaning contractor who is competent in cleaning, disinfecting, handling and discarding infectious agents, and has experience in cleaning biohazards and/or trauma scenes. The contractor(s) must comply with all applicable Occupational Health and Safety (OSH) legislation.

The cleaning contract company is responsible for providing a safe system of work, and selecting and providing personal protective equipment (PPE) to protect its workers from exposure to the Ebola virus and from chemical hazards due to the cleaning and disinfection agents. The company is also responsible for providing workers with proper instruction, training and supervision. This includes:

- Safe putting on and removing of PPE using a methodical sequence, hand hygiene and a trained observer/monitor
- Safe use of PPE (e.g. not to touch or adjust PPE when working in the contaminated area)
- Ongoing training of putting on and removing of PPE according to their approved procedures
- Safe management of accidental exposure (e.g. accidental contact with blood/body substances, PPE failure)
- Maintaining a log of staff who have been in the contaminated environment and communicate this with the public health authorities

Staff from the MHSAL Health Protection Unit and/or Office of Disaster Management can assist in finding a qualified contract cleaning company.

Principles of Cleaning and Disinfecting

Overview of Cleaning Process

- Remove grossly contaminated items.
- Clean up blood or other body fluid spills following the spill management process.
- Clean the toilet, using an appropriate disinfectant
- Perform final cleaning and disinfection using an appropriate disinfectant.
- Store and dispose of biomedical waste, according to Transportation of Dangerous Goods (TDG) regulations.

Manitoba Health
Ebola Virus Disease (EVD)
Environmental Cleaning/Disinfection Guidelines for Community Settings

Non-porous Surfaces (e.g. door handles, tile floors): Health Canada recommends products with the following approved criteria:

- Registered in Canada with a Drug Identification Number (DIN)
- Labeled as a “broad spectrum virucide” claim and/or acknowledge effective testing against any of: Adenovirus type 5, Bovine Parvovirus, Canine Parvovirus and Poliovirus type 1.

Porous Surfaces (e.g. linens, carpet, mattress, pillows):

- Follow procedure for “Grossly Contaminated Items” below.

Cleaning and Disinfection Process

Passenger Vehicles

A vehicle that has transported a symptomatic individual suspected of having EVD should be quarantined after all passengers and staff have disembarked. If the symptomatic individual tests positive for Ebola virus, cleaning and disinfection must be undertaken on all areas in the vehicle that potentially were contaminated by the case during travel. The public health authorities will take a detailed history on the movements of the case while in transit to determine potentially contaminated areas.

Appropriate PPE should always be used when cleaning and disinfecting vehicles potentially contaminated with Ebola virus. Only people who have been trained in the correct use of PPE should undertake cleaning and disinfection of the vehicle using an appropriate disinfectant as described above.

Grossly Contaminated Items

If items are grossly contaminated (e.g. seats or carpets covered in blood or other body fluids) and difficult to clean properly, they need to be removed and treated as biomedical waste. The items should be cleaned and disinfected as much as possible prior to removal to reduce the bioburden. The items should then be placed in a leak-proof container. The container should be stored in a room that is not being used until it can be collected for disposal. The container should be transported according to Transportation of Dangerous Goods (TDG) regulations. Individuals removing these items (if different from the contract cleaning company) need to be instructed in the safe use of PPE prior to

Manitoba Health
Ebola Virus Disease (EVD)
Environmental Cleaning/Disinfection Guidelines for Community Settings

commencing removal. A trained observer should also be on-site to ensure there are no breaches.

Blood or Other Body Fluid Spills

If the contract cleaning company has procedures that differ from those described below, the alternate procedures must be approved in advance by the public health authorities.

- i. Put on appropriate PPE for EVD and begin cleaning/disinfection process (described below) as soon as aerosols have been allowed to settle.
- ii. Gather and use appropriate tools (e.g., tongs or forceps) for spills involving sharps or broken glass.
- iii. Establish a spill parameter (contain the spill and section off area immediately, as appropriate).
- iv. Clean spill area removing the organic material, cleaning the area, and disinfecting the area.
 - Gently cover the spill with dry absorbent pad(s); **remove** organic material. Discard in biomedical waste container.
 - Cover spills of potentially contaminated material from the outside-in with an incontinence/absorbent pad saturated with disinfectant. Allow pad(s) to soak for the required contact time specified on the product label.
 - Do not splash or spray disinfectant.
 - Wipe up with absorbent material soaked in disinfectant.
 - **Clean** spill from outside-in. Start at one end of the affected area and move in one direction until all surfaces have been cleaned. Do not use a circular motion.
- v. Dispose as biomedical waste.
- vi. **Disinfect** after cleaning by pouring disinfectant directly onto the spill area.
 - Cover and saturate the spill area. Refer to product label for required contact time.
 - Wipe the area with disposable absorbent material and dispose of as biomedical waste.
 - Remove outer gloves with caution and discard. Do not remove other PPE until finished cleaning.
- vii. Mop area with disinfectant using a fresh mop head.
- viii. Allow the surface to air dry completely.

Manitoba Health
Ebola Virus Disease (EVD)
Environmental Cleaning/Disinfection Guidelines for Community Settings

Cleaning the toilet

- Add approved disinfectant or bleach tablets to achieve a 5000 ppm disinfectant strength (i.e. five bleach tablets = 5 x 1000 ppm).
- Follow manufacturer's instructions for contact disinfection time.
- After disinfection time, ensure the toilet lid is down and flush.
- The toilet's surface and the floor should be cleaned with an approved disinfectant after flushing. If the toilet is visibly soiled after flushing, treat the toilet as a spill and follow spill management processes.

Final Clean and Disinfection

- Cleaning should be performed using a damp cloth. Do not dry sweep or dust. Avoid cleaning methods that create splashes and aerosols.
- Use tools, such as tongs from a spill kit, as much as possible rather than doing clean-up work directly with gloved hands.
- Wipes holding dust and mop heads should be discarded as biomedical waste. Do not shake to clean.
- Clean and disinfect.
 - **Clean:**
 - Horizontal work surfaces and frequently touched surfaces (such as doorknobs, light switches, tap handles, bathroom and kitchen areas) thoroughly with a household detergent and water using a wipe and then rinse.
 - Floor areas with a household detergent and water, using a mop, and then rinse.
 - **Disinfect*:**
 - Horizontal work surfaces and frequently touched surfaces thoroughly with approved disinfectant using a wipe.
 - Floors with approved disinfectant with a fresh mop head.

*If using hypochlorite to disinfect, it must be made fresh. Pour approved disinfectant into a container for surface cleaning and in a clean bucket for mopping. Do not use disinfectants in spray bottles.

- Dispose of all cleaning equipment including buckets, mop handles, mop heads,

Manitoba Health
Ebola Virus Disease (EVD)
Environmental Cleaning/Disinfection Guidelines for Community Settings

cloths into the biomedical waste.

- After cleaning and disinfection work is complete, remove PPE and dispose of as biomedical waste with a trained observer/monitor present.
- Perform hand hygiene after removal of PPE.

Storage and Disposal of Waste

- Porous materials (e.g. linens, carpet, mattress, pillows) should be properly contained and disposed of as biomedical waste, according to TDG regulations (Class 6.2, UN2814, Category A). This requires using a leak-proof primary bag, which is sealed and then placed inside a leak-proof secondary bag, which is also sealed and then placed in a rigid outer packaging.
- Store the properly contained contaminated material in a room that is not being used until it can be collected for disposal.
- If there have been no spills, the room should be cleaned and disinfected with approved disinfectant as per normal cleaning protocols.
- If there has been a spill, follow the spill management process.

REFERENCES

Sagripanti et al. (2010). Persistence in darkness of virulent alphaviruses, Ebola virus, and Lassa virus deposited on solid surfaces. *Arch Virol* 2010; 155:2025-2039.

CDC (2014). Interim Guidance for the U.S. Residence Decontamination for Ebola Virus Disease and Removal of Contaminated Waste. Retrieved on January 7, 2015 from:
<http://www.cdc.gov/vhf/ebola/hcp/residential-decontamination.html>

OSHA (2015). Safety and Health Topics: Ebola. Retrieved January 14, 2015 from:
<https://www.osha.gov/SLTC/ebola/>

Queensland Government (2014). Interim guidelines for Ebola virus disease environmental cleaning in a community setting. Retrieved on January 7, 2015 from:
<http://www.health.qld.gov.au/publications/clinical-practice/guidelines-procedures/diseases-infection/ebola-cleaning-guide.pdf>

US Army Public Health Command (2014). Disinfection and Disposal of household goods belonging to patients infected with Ebola virus disease. Retrieved on January 7, 20
http://phc.amedd.army.mil/PHC%20Resource%20Library/TIP_No_37-032-1014-Disinfection_and_Disposal_of_Household_Goods.p