



Hantavirus Cleaning and Disinfection Protocol

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

Hantavirus pulmonary syndrome (HPS) is a deadly disease transmitted by infected rodents through urine, droppings, or saliva. Humans can contract the disease when they breathe in aerosolized virus. HPS was first recognized in 1993 and has since been identified throughout the United States. Although rare, HPS is potentially deadly. Rodent control in and around the facility and in the home remains the primary strategy for preventing Hantavirus infection.

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

INFECTIOUS AGENT^{1,2}

NAME: *Hantavirus*

SYNONYM OR CROSS REFERENCE: Hantavirus Pulmonary Syndrome (HPS), Hemorrhagic fever with renal syndrome (HFRS), Hemorrhagic nephrosonephritis, Epidemic Hemorrhagic Fever

CHARACTERISTICS: *Bunyaviridae*, enveloped (lipid), single stranded RNA. Hantavirus can probably survive <1 week in indoor environments and much shorter periods (perhaps hours) when exposed to sunlight outdoors.

HEALTH HAZARD

PATHOGENICITY: HPS is characterized by fever, myalgia, GI complaints then onset of respiratory distress and hypotension. Mortality is approximately 40-50%. HFRS is characterized by an abrupt onset of fever lasting 3-8 days, conjunctival infection, lower back pain, headache, abdominal pains, anorexia and vomiting. Hemorrhagic manifestation appears from day 3-6. Fatality is approximately 5-15%.

EPIDEMIOLOGY: Hantavirus infections are associated with domestic, occupational, or recreational activities that bring humans into contact with infected rodents, usually in rural settings. Known Hantavirus infections of humans occur primarily in adults. HPS cases occur throughout the year, but greater numbers are reported in spring and summer. However, in North America, the absolute risk of Hantavirus infection to the general public is low; only 20–50 cases of HPS have been confirmed annually in the United States since the disease was described in 1993.

HOST RANGE: Field rodents (mice and rats), humans

INFECTIOUS DOSE: Not known

¹ Public Health Agency of Canada, Material Safety Data Sheet: Infectious Substances, Hantavirus

² MMWR, Hantavirus Pulmonary Syndrome



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MODE OF TRANSMISSION: Human infection occurs most commonly through the inhalation of infectious, aerosolized saliva or excreta. Persons visiting laboratories where infected rodents were housed have been infected after only a few minutes of exposure to animal holding areas. Transmission can occur when dried materials contaminated by rodent excreta are disturbed and inhaled, directly introduced into broken skin or conjunctivae, or possibly, when ingested in contaminated food or water. Persons have also acquired HFRS and HPS after being bitten by rodents. High risk of exposure has been associated with entering or cleaning rodent-infested structures. Person-to-Person transmission of Hantavirus has not occurred in North America, however person-to-person transmission has occurred in Argentina.

INCUBATION PERIOD: From 3 – 60 days, average 14 – 30 days

PREPARATION

Transmission of Hantavirus most commonly occurs through the inhalation of infectious, aerosolized saliva or excreta. 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.

PROTECTIVE BARRIERS

1. Disposable gloves. Gloves should be changed as required, i.e., when torn, when hands become wet inside the glove and 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 (N95)
5. Gowns

PRODUCTS

Accelerated Hydrogen Peroxide Surface Disinfectant (sold as 7% Virox 5 Concentrate, Virox 5 Ready-To-Use and/ or Virox 5 Wipes, 7% PerCept Concentrate, PerCept RTU or PerCept Wipes, 7% Accel Surface Cleaner Disinfectant Concentrate, Accel RTU or Accel Wipes) and 0.5% Accelerated Hydrogen Peroxide Tuberculocidal Surface Disinfectant (sold as Accel TB TRU or Accel TB Wipes)

1. Preparation of solution - Pre-mix and label from a controlled location 7% AHP Concentrate at a ratio of 1:16 (0.5% AHP).
2. Place mixed solution in either a labeled - flip top 1Litre bottle or a small hand bucket.
3. AHP RTU is ready to use (0.5% AHP).
4. AHP Wipes are ready to use (0.5% AHP).

PRODUCT GERMICIDAL EFFICACY

All products listed above are based upon Accelerated Hydrogen Peroxide – and have a General Virucide Claim against Poliovirus Type 1, Sabin Strain, which includes inactivation of both enveloped and non-enveloped viruses. In addition to the General Virucide Claim, Accelerated Hydrogen Peroxide has been proven to show efficacy against HIV, Human Coronavirus, Human Rhinovirus, Human Rotavirus, Canine Parvovirus, Feline Calicivirus (Norovirus) and the H3N2 strain of Avian Influenza A.



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SUMMARY OF PROCEDURES

Apply solution to either surface or to cloth. Clean all horizontal surfaces in the room ensuring that the cloth is changed when soiled. Place used cloth in a marked plastic-lined waste receptacle. Disinfect all horizontal surface of the room by reapplying the AHP Solution and allowing for a 5-minute contact time. If using cloth & bucket method, once room has been cleaned discard all unused cleaning solution before proceeding to the disinfection step. Allow to air dry or wipe dry if surfaces are still wet after the 5-minute contact time. Periodic rinsing of soft surfaces such as vinyl or naugahyde is suggested.

Bathrooms within a room should be cleaned last.

Recommended Procedures for Housekeeping Activities Detailed Activity.

1. Gather all equipment, cleaning solutions and materials required to clean the room.
2. **WASH** hands and put gloves and mask prior to entering room. Personal protective equipment should be changed if torn or soiled and between patient rooms.
3. Place wet floor sign at the door entrance.
4. Pick up garbage in room and place in regular garbage bag.
5. Strip beds and place linen in regular linen bags. Put soiled linen in regular linen bins. If bins are more than half filled or if there is no bin, leave in the soiled utility room.
6. Basin, bedpan, urinal etc. to be placed in CSR bins in soiled utility room.
7. 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.]
8. Clean all furniture, bed, night table, basin and all bathroom fixtures and all high touch areas, knobs, switches, call bells etc. and everything that is touched by the patient in the bathroom ensuring that clean cloths and solutions do not become contaminated (**NO DOUBLE DIPPING**) with **AHP Solution**. Allow surfaces to remain wet for 30 seconds to achieve the 30-second Broad-Spectrum Sanitizing claim.
9. Disinfect all furniture, bed, night table, basin and all bathroom fixtures and all high touch areas, knobs, switches, call bells etc. and everything that is touched by the patient in the bathroom ensuring that clean cloths and solutions do not become contaminated (**NO DOUBLE DIPPING**) with **AHP Solution**. Reapply the **AHP Solution** and allow surfaces to remain wet for 5 minutes to achieve the Bactericidal and Virucidal claim.
10. Remake beds and restock dispensers.
11. Spot wipe all walls, high to low with **AHP Solution**.
12. Remove and replace cubicle curtains.
13. Soiled rags should be placed in a regular plastic bag and then in regular soiled linen bin or the dirty utility room. Take all garbage bags to the appropriate disposal area.
14. Remove and discard gloves, **WASH** hands prior to leaving room.



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Recommended Procedures for Cleaning & Disinfecting 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 **AHP Solution** to spill – wait 30 seconds.
4. Blot up the blood with disposable towels. Dispose of paper towel in plastic-lined waste receptacle.
5. Spray or wipe surface with **AHP Solution** – wait 5 minutes. 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 a suspected Avian Influenza 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.

Instructions for Confirmatory Testing of 7% AHP Concentrate Surface Disinfectants

The Accelerated Hydrogen Peroxide Test Strip (Part No. AHP500) can be used for confirmatory testing when required by facility protocol. These strips are easy to use dip-and-read reagents strips for a pass or fail determination of the hydrogen peroxide concentration in the 7% AHP Concentrate Surface Disinfectant solution.

1. Remove a test strip and immediately close the container.
2. Dip the test strip into the Diluted AHP solution to be tested for 1-second ensuring that the reaction zone is completely wetted.
3. Remove the test strip and shake of excess liquid.
4. Wait for 120-seconds then compare the reaction zone with the colour scale.

NOTE: The purpose of confirmatory testing is not to extend the shelf life beyond the 30-day claim. Should the test strip show that the Diluted AHP Solution still meets the targeted level of hydrogen peroxide after 30 days the product **MUST** still be disposed to ensure compliance with testing and label claims.



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References:

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