



HANTAVIRUS GUIDE:

CLEAN-UP PROCEDURES AND PROTECTIVE MEASURES



What is Hantavirus?

The disease is known as Hantavirus-Related Acute Respiratory Disease Syndrome (Hantavirus Pulmonary Syndrome). There has been an impressive accumulation of knowledge about this illness in a short time, however, many unanswered questions still remain.

What we know:

- The risk is specifically to those individuals who come in contact with infected rodents and their droppings.
- The risk of infection is slight but is a REAL risk.
- 50% of people infected with the Hantavirus have died.

This guide will provide a brief review of the disease, its symptoms, cause, mode of transmission, treatment and prevention.

RISK

- Hantavirus has been identified as a health risk to the general population in the US, Canada and South America.
- The risk is specifically associated with contact with the deer mouse but this does not rule out other rodents such as: other mice, pack rats, chipmunks or ground squirrels.
- High risk environments will be encountered when disturbing nesting materials, burrows, droppings and surrounding soil, etc.
- The risk is higher in the enclosed environments.
- To date there have been over 170 known cases in the US and 33 in Canada of Hantavirus related illnesses.
- Approximately 50% of affected people did not survive.

If simple and reasonable precautions are followed the risk of contamination is very slight. The best approach for disease control and prevention is through preventing rodent infestations.

TRANSMISSION

- Hantavirus is transmitted in the urine, saliva and feces of the rodent.
- It is transmitted when the rodent secretions are disturbed and the dust created is inhaled into the lungs of a person.
- The virus has also been shown to be transmitted by rodent bites.
- Direct contact with contaminated rodents will increase the risk of the virus inhalation.
- Once outside the body of the rodent the virus likely does not survive for long periods (hours or days). Further studies are being conducted.
- The virus is inactivated by most disinfectants (dilute solution of bleach or most household disinfectants).



Dust suppression and disinfecting of rodent contaminated material are the major principles of prevention.

SYMPTOMS

Only nonspecific symptoms are present before respiratory distress occurs.

Infected individuals have nonspecific flu-like symptoms such as:

- Fever
- Muscle pain and ache
- Cough
- Headache
- Nausea and vomiting

The presence of the above symptoms is not specific for Hantavirus and can be caused by many ailments.

The only **specific** symptom of Hantavirus disease is very serious and is characterized by the sudden onset of difficulty in breathing that rapidly worsens. Individuals experiencing pneumonia like symptoms should seek immediate medical attention and inform care givers of rodent exposure.

PREVENTION

There are four major areas in the prevention of infection with the Hantavirus:

1. Use appropriate rodent control.
 - Controlling the population of rodents in enclosed spaces will obviously greatly minimize the risk.
2. Avoid infested areas and avoid creating dust.
 - Dust suppression (by wetting down infested areas with diluted disinfectant and allowing it to soak for 15 minutes will minimize the airborne contaminants).
3. Use appropriate clean-up procedures.
 - Regular/effective cleaning and sealing procedures for outdoor equipment and work sites where this hazard could exist.
4. Use appropriate personal protective equipment around high-risk environments.
 - Respiratory Protection such as the High Efficiency Hepa (P100) Filter Respirator meets Occupational Health and Safety standards.

RODENT CONTROL

Since rodents are the main carrier, it is important to, whenever possible, avoid an infestation by using appropriate rodent control.



There are several ways to control or minimize the rodent population in an area and some are listed below.

- Keep area clean.
- Proper placements of commercial traps and rodenticides.
- Use a commercial ultra-sonic device in enclosed areas as appropriate.
- Seal all openings of more than quarter inch diameter.
- Use metal flashings at the base of wooden or earthen structures.
- Eliminate food sources and nesting sites by keeping food and garbage covered and stored in rodent proof container.
- Remove spilled foods and dispose of trash promptly away from the facility.
- Cut grass, bush and dense shrubbery within 100 feet of the facility.

Poulin's Pest Control can provide a monthly maintenance program to eliminate and protect against mice infestations.

Inspection of buildings is necessary to ensure effective rodent control.

CONCERNS AT HOME

Cases of Hantavirus infection have been associated with the following activities in and around the home, farm, cottage or while outdoors.

- Planting or harvesting crops
- Occupying previously vacant cabins or dwellings
- Cleaning barns, cottages and other outbuildings
- Disturbing rodent infested areas while hiking or camping (see section on precautions for hikers and campers)
- Inhabiting dwellings with indoor rodent populations

The best approach for disease control and prevention is through preventing rodent infestations in the home, cottage and work environments (see section on rodent control).

If simple and reasonable precautions are followed, the risk of contamination is very slight.

- Cut grass, bush and dense shrubbery within 100 feet of the home.
- As much as possible keep home, cottage and surrounding buildings rodent-free. See rodent control section.
- Store hay on pallets and use traps or rodenticide continuously to keep hay rodent free. (Use a rodenticide approved for outside use in covered bait stations to protect children and pets).
- Haul away trash, abandoned vehicles, discarded tires and other items that may serve as rodent nesting sites.



PRECAUTIONS FOR CAMPER AND HIKERS

The risk of contamination is specifically associated with contact with rodents, disturbing nesting material, burrows, droppings and surrounding soil. Therefore:

- Avoid coming into contact with rodents and rodent burrows.
- Do not use cabins or other enclosed shelters that are rodent infested until they have been appropriately cleaned and disinfected.
- Do not pitch tents or place sleeping bags in proximity to rodent feces or burrows or near possible rodent shelters (e.g. garbage dumps or woodpiles).
- Use cot with sleeping surface at least 12" above the ground.
- Use tents with floors.
- Keep food in rodent-proof containers.
- Promptly bury all garbage and trash or discard in covered trash containers (in accordance with local requirements).
- Keep woodpiles 100 feet away from cabins and dwellings and if possible elevate at least 1 foot off the ground and use traps or rodenticides.

CLEAN UP PROCEDURES

YOUR COMPANY PREMISES

If employees encounter evidence of rodent infestation such as mice droppings, urine, saliva, nests or burrows during operations and there is the threat of disturbing the rodents or materials and creating airborne dust, the work **MUST BE STOPPED AND APPROPRIATE CLEAN UP PROCEDURES IMPLEMENTED**. (Scenarios include: opening of a pedestal; entering ground level crawl spaces or hand digging).

Follow the Ten Step Clean-up method and Respiratory Fitness Test in this booklet. If heavy infestations (piles of droppings or several dead animals) are encountered, contact Poulin's Professional Pest Control.

CUSTOMER PREMISES

If employees encounter evidence of rodent infestation and there is a threat of dust, etc. during operation on **customer** premises, **STOP WORK** and inform the customer. This same responsibility is in effect in private homes or house trailers.

Clean-up information is usually available to the customer/homeowner by contacting the local Public Health Department or Poulin's Pest Control.

CLEAN UP KIT CONTENTS

The following are the basic contents of a standard clean-up kit. Follow the practices of your particular organization:

- Disposable coveralls



- Gloves
- Goggles
- Spray bottle
- 4" funnel - for pouring bleach into spray bottle
- Germicidal detergent/dry bleach - 1 pkg/disinfectant
- Garbage bags (2)
- Paper towelling
- Hand wipes
- Disposable respirator (Respirators and Fit Check Cups are ordered separately to ensure proper size selection.)
- Hepa filter vacuum cleaner (Note - a regular vacuum may disperse the dust increasing risk of infection.)

Poulin's Pest Control carries a complete line of do-it-yourself rodenticides, respirators and disinfectants at all of our retail stores listed on the front cover. We can also provide mouse proofing and prevention services as well as a safe effective Hantavirus clean-up in your home, cottage or place of business.

10 STEPS TO HANTAVIRUS CLEANUP

1. Put on disposable clothing and gloves (found in Hantavirus Kit).
2. Put on goggles and disposable respirator mask and test the mask for proper fit (ensure goggles effectively protect eyes and do not interfere with the seal of the respirator).
3. Mix disinfectant solution in spray bottle.
4. Gently spray droppings/rodent nesting materials with the bleach, ensuring they are completely soaked - **AVOID CREATING DUST.**
5. Allow sprayed material to sit for 15 minutes. If circuits or cabinets cannot be sprayed, dampen some towelling and leave on affected area for 15 minutes before removing.
6. Remove the soaked materials carefully, using gloved hands.
7. Disinfected materials should be swept up or vacuumed with a hepa filter vacuum cleaner.
8. Place the disinfected materials into Bag #1 and tie shut. Place Bag #1 into Bag #2. While continuing to wear gloves, remove goggles, disposable respirator mask and disposable clothing and place them in Bag #2. Remove gloves carefully and place them in Bag #2. Seal Bag #2 and place it in the garbage for disposal.
9. Clean hands with hand cleaner. Be sure to wash hands and face with soap prior to eating or smoking.
10. To prevent re-infestation, seal any openings used by the rodents to gain entry to the facility and replace any damaged parts.
11. Notify the supervisor or manager of the infestation.



Remember that the chances of getting Hantavirus disease are very low, but the consequences of getting it are very serious.

RESPIRATOR

The Centre for Disease Control and National Institute of Occupational Safety and Health recommend the use of HEPA (P100) quality filters for respiratory protection against the Hantavirus.

Respirators come in various sizes and it is important to use a respirator that has been fitted to your face. Follow the respiratory training practice of your company.

It is very important that workers are aware of how to achieve the maximum protection afforded by the approved respirator. This protection depends mainly on the seal between the wearer's face and the respirator face piece. In order to prevent inward leaks of contaminated air, the wearer must be clean-shaven where the face piece contacts the skin of his/her face. Unusual facial contours, scars and other skin conditions, i.e. eyeglasses and missing dentures, may also interfere with the seal.

FIT CHECKING: SIX STEPS TO FITTING YOUR RESPIRATOR

1. Cup respirator in either hand with moulded nose section away from you and the straps freely draped below your hand.
2. Position mask on your face. Be certain that the narrow-formed section rests comfortably on the bridge of your nose.
3. With your other hand, draw the top strap over and position at the crown of your head. Next, draw the bottom strap over your head and position is as show at the base of your head.
4. Adjust both straps as necessary to achieve a tight comfortable fit.
5. The respirator should be fit checked prior to entering hazardous environments. Follow the respirator training practices of your company or refer to the manufacturer's recommendations. The following are two techniques which can be used to check the fit of your respirator.
 - Put on the size or respirator you have chosen according to the instructions on the box.
 - Using your hands, cover the filter surface of the respirator, exhale and inhale to create a slight positive or negative pressure. If air leakage occurs, readjust the face piece and straps and retest.
 - If a fit check-up is supplied with your respirator perform below steps.
 - Hold the fit check cup in either hand with the moulded nose section up and hard plastic shell side away from you.



- Position the fit check cup on your respirator being certain that the nasal areas of the cup rests against the nasal area of the respirator. The entire bottom edge of the foam flange around the edge of the fit check-up should contact the entire periphery of the respirator area where the flange meets the respirator shell.
 - Inhale deeply to create a negative pressure. (You should be unable to inhale). If this does occur or if leakage occurs around the flange, reposition the cup on the respirator and repeat the above procedure again until a fit is achieved.
 - If a proper fit is not achieved, see your supervisor for advice regarding respirator fitness and work assignment.
6. You should leave the work area immediately and either reposition or replace the respirator if:
- Breathing becomes difficult.
 - It is contaminated.
 - You sense irritation, smell or taste contaminants.
 - Dizziness or other distress occurs.
 - Respirator becomes damaged.

The respirator must be fit tested prior to goggles or glasses being applied to face. An effective seal cannot be achieved with facial hair. Therefore, an employee must be clean-shaven when using a tight-fitting respirator.