

Hantavirus Infection

COMMUNICABLE DISEASE CONTROL

What is hantavirus infection?

Hantavirus infection is a rare but serious illness. Typical symptoms are flu-like and include fever, headache, nausea, vomiting, muscle aches, diarrhea, abdominal pain and shortness of breath. These symptoms can occur any time between three days to six weeks (usually occurring around 14 days) after exposure. Infection without symptoms is rare. Disease due to infection with North American hantaviruses is called Hantavirus Pulmonary Syndrome (HPS).

Although not believed to be caused by a new virus, the condition was first described in the southern United States in 1993. Hantavirus Pulmonary Syndrome is rare in Canada. Laboratory-confirmed cases of HPS have been reported in Canada since active surveillance began in 1994. As of May 2002, 38 cases of HPS are confirmed to have been contracted in Canada. All of these cases have been in western Canada (two in Manitoba). There have been 15 deaths. Many of these cases were caused by exposure to the virus in or around the home, or during ranch or farm work, with all cases occurring in rural settings.

How is hantavirus infection spread?

The usual host of this virus is the deer mouse, although other rodent species have been shown to be infected. The deer mouse can be pale gray to reddish brown, and has white fur on its belly, feet and underside of the tail. It is found widely throughout the United States and Canada. The deer mouse lives primarily in rural and semi-rural areas, but can also reside in urban centres. Although deer mouse numbers may vary with habitat and location, a recent survey in southern Manitoba found that deer mice were the dominant species representing over 95% of the mice caught. Deer mice frequently invade homes, old buildings or barns, and sometimes cars, riding mowers and grain augers. Surveys in Manitoba have shown that about 11% of deer mice have been infected with the virus, and that infected deer mice are found in many places in the province.

Hantaviruses are rarely, if ever, spread from person to person and this has never been documented in North America. Hantaviruses are not spread from pets or livestock. However, cats and dogs may bring infected deer mice into contact with humans.

The virus spreads to people when they:

- breathe air contaminated by deer mouse saliva, urine or feces containing infectious hantaviruses; or

- accidentally rub eyes, mouth or broken skin with hantavirus-infected deer mouse saliva, urine or feces.

In theory, transmission might also occur by:

- eating food contaminated by infected deer mouse saliva, urine or feces; or
- being bitten by an infected deer mouse.

What safety measures can be taken?

Groups that are likely at an increased risk because of routine activities include:

- homeowners,
- cottagers,
- campers,
- farmers,
- ranchers, and
- hunters.

Specific risk factors that have been associated with contracting HPS in Canada include:

- sweeping or vacuuming areas contaminated with deer mice feces, urine or rodent nests (for example, cleaning cabins, barns, graineries);
- abandoned vehicles;
- handling firewood.

The following precautions are recommended:

1. Points of entry into buildings, such as cracks in the foundation or holes, should be sealed using steel wool, metal roof flashing or cement. Mice can squeeze through cracks as small as a dime.
2. Discourage rodents from living in buildings and homes by using rodent-proof storage containers for food, pet and animal food, grain and garbage. Clean up spilled/dropped food in eating areas. Other measures include:
 - keeping grass short and yards clean;
 - placing wood piles 100 feet or more from the home;
 - removing abandoned vehicles, discarded tires and old, unused buildings that may serve as nesting sites;
 - securing garbage with tight-fitting lids;



- using snap-traps to remove mice from homes; and
 - the use of poison. Poisons can be dangerous and should be used with caution and on a short-term basis while other measures take effect. If poison is used, it should be placed out of reach of children, pets or livestock.
3. Handle dead rodents (or nests) while wearing plastic or rubber gloves. Wet carcasses (or nesting materials) with bleach disinfectant (one part household bleach plus nine parts water, e.g., 100 ml bleach plus 900 ml water); allow 10 minutes for disinfectant to act, and place in doubled plastic bags. Burning is another option as is deep burial (two feet). Clean all traps, wash plastic or rubber gloves with disinfectant before taking them off and wash hands with soap and water after handling carcasses or traps. Testing rodents for the presence of hantavirus is not recommended.
 4. When cleaning up areas/objects contaminated by rodent urine, feces or nests:
 - *open* windows and doors for 30 minutes before and after disinfecting;
 - *dampen* areas contaminated with rodent droppings with bleach disinfectant (see 3 above); however, if area is carpeted use a mixture of water, detergent and commercially available disinfectant such as Lysol. Commercial-grade steam cleaning or shampooing is also an alternative for carpets;
 - *remove* droppings by damp mopping (i.e., wiping area with a mop or cloth dampened with disinfectant), preferably twice. NEVER REMOVE DROPPINGS BY SWEEPING OR VACUUMING;
 - *wear* plastic or rubber gloves, as well as full-length clothing during clean-up to minimize contact with skin;
 - *use gloves* to handle soiled clothes and *wash laundry* with hot water and detergent, or soak it in hot, soapy water until it can be washed. Put in dryer on high-setting, or allow to dry in the sun;
 - *if dust cannot be avoided* in an area that has to be cleaned, respirator equipment with N-100 filters should be used as a minimum (available from safety equipment stores). For extremely dusty and lengthy exposures, other options are available (check with safety equipment stores or Workplace Safety and Health, 945-6848). The use of goggles in these situations is also advised;
 - respirators are not considered protective if facial hair interferes with the face seal, since proper fit cannot be assured. Fit testing is available where respirators are sold; and
 - *thoroughly wash* hands and face after cleaning any area or objects (e.g., clothing, dishes, etc.) contaminated by rodent droppings.
 5. Camping or outdoor activities can expose people to rodents and their droppings. Avoid playing on hands and knees or camping in grass or other areas where there is evidence of rodents such as tunnels, nests, dead mice, feces, etc. Do not

stay in cabins that have obvious signs of rodent activity (e.g., droppings or chewing damage) unless they are properly cleaned (See 4 above). Store food in rodent-proof containers. Handle firewood with care since deer mice frequently live in or around woodpiles.

6. Store-bought pets such as gerbils, mice, rats and others are safe. Parents should warn children not to play with wild (live or dead) rodents, or their nests.
7. If you have flu-like symptoms three days to six weeks following an exposure to rodents, you should contact a doctor immediately. Advise your doctor of the possible exposure. The diagnosis of hantavirus infection is made on the basis of symptoms and blood tests.

For more information:

Contact your local public health office in your Regional Health Authority. If you do not know your Regional Health Authority contact Health Links at 788-8200 or 1-888-315-9257. For work-related issues contact Workplace Safety and Health at 945-6848.

Web site: <http://www.gov.mb.ca/health/publichealth/>



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