



## Hantavirus

Hantaviruses exist worldwide, causing infections in rodents and rarely in humans. The virus, which is primarily transmitted from infected rodents, can cause severe health outcomes in humans.

### General Hantavirus Information

#### *Geographic Distribution*

Many different hantaviruses exist throughout North America, with four main strains causing human illnesses throughout the continental US. The majority of human illnesses have occurred in rural residents of western states.

#### *Hosts*

Certain species of rodents serve as the primary hosts for hantaviruses. The deer mouse (*Peromyscus maniculatus*) is the primary host in the Western US while the white-footed mouse is the primary host in the eastern US. The rice and cotton rat also serve as hosts in the southeastern US. Deer mice are responsible for the majority of human infections.

The virus responsible for disease in the United States cannot be transmitted from human to human. Pets are not known to transmit virus to humans or become sick.

#### *Transmission*

Hantaviruses are shed in the urine, feces, and saliva of infected rodents. Infectious particles are then inhaled or ingested by a susceptible host. Rodents can also become infected through bites of other infected rodents, and humans can be infected through such bites.

Staying or working in enclosed spaces with mice increases the risk for human infection. Disturbing contaminated material (e.g., sweeping, vacuuming, disturbing nests) and inhaling dust is the most common cause of exposure.

#### *Signs and Symptoms*

Rodents infected with hantavirus typically do not show any clinical signs, although they may have a shorter lifespan.

Human signs of infection typically occur 1-8 weeks after exposure.

Early symptoms can include:

- Fever
- Muscle and headaches
- Nausea and vomiting

Later symptoms, typically 4-10 days after early symptom, include:

- Shortness of breath
- Severe Respiratory Disease

#### *Treatment*

If you have any of the symptoms of hantavirus and were recently exposed to rodents or their droppings, tell your healthcare provider.

There is no specific treatment for hantavirus but early supportive care can improve clinical outcomes for people.

#### *Prevention and Control*

In wildlife, scientists have shown that natural habitats with more species of rodents and natural predators have lower rates of hantavirus infection in deer mice populations, so protecting natural ecosystems could reduce or prevent hantavirus risk in humans.

To prevent the disease while in the parks:

- Avoid contact with rodents and their droppings
- Clean promptly when found using appropriate cleaning methods (page 2)
- Prevent rodents from entering buildings by sealing any gap greater than one quarter of an inch.
- Properly store and dispose of food and trash, keep pet food in sealed containers, and keep vegetation at least 18 inches from buildings.

Sunlight and fresh air will quickly inactivate the virus.

### One Health and Hantavirus

Human impacts on the environment, including land development, climate change, and the removal of natural predators, are affecting mouse behavior and habitats. Some of these changes to the land, air, and water promote the transmission and spread of diseases such as hantavirus in mouse populations and can thereby increase human risk.

By protecting natural environments and their ecological properties and processes, we can help protect ourselves from hantavirus.



**OneHealth**

#### **Additional Resources**

[Rodent Management](#) | InsideNPS  
[Written Program Templates](#) | InsideNPS  
[Hantavirus](#) | InsideNPS  
[Hantavirus](#) | CDC  
[Hantavirus](#) | OSHA



The deer mouse is native to most parks in the US. NPS Photo



## Cleanup and indoor Rodent Trapping to Prevent Hantavirus

The following information is intended for light rodent infestations (i.e., rodent activity or droppings) in buildings or other structures. Heavy rodent infestations require more stringent personal protective measures and an approved respiratory protection program (RPP) for cleaning. Contact the NPS Occupational Safety and Health Industrial Hygiene Program at [risk\\_management@nps.gov](mailto:risk_management@nps.gov) for questions or guidance on RPP. If you require cleaning for a heavy infestation, contact your park safety office or the public health consultant assigned to your park for further guidance.

### Directions for cleaning up a light infestation

1. Open windows to ventilate rooms for at least 30 minutes prior to cleaning. Leave the area during this period. Direct sunlight also helps to inactivate the virus. Take care not to stir up dust and NEVER sweep or vacuum.
2. If using bleach, dilute with water to a 1:10 solution or use a pre-made disinfectant. Diluted solutions **MUST** be made fresh daily to be effective. Be sure chosen product is labeled as a disinfectant, has an EPA registration number, and consider how the product may affect the surface to be cleaned prior to use.
3. Wear gloves when cleaning. Re-usable gloves must be disinfected after use.
4. Soak the droppings, nest, rodent, and/or trap thoroughly with disinfectant solution and spray at least a 2-foot area around each. Spray/soak any associated droppings and urine. Allow to sit undisturbed for AT LEAST 10 minutes.
5. Invert a plastic bag over the gloved hand, unfold it over the droppings and/or trap and rodent carcass as you pick up them up, and tie-off or seal bag. Place sealed bag into another plastic bag and seal. Always keep rodent at an arm's length and take care not to stir up dust. Traps can be reused if disinfected and/or left in sun for several hours.
6. Respray any exposed droppings with the disinfectant and then use a disposable paper towel to clean up any visible droppings.
7. Spray gloves (while on hands) and, if disposable, place in plastic bag, seal, and dispose. If a respirator and goggles were worn, lay in direct daylight for at least an hour. **Wash hands with soap and water after gloves are removed.**
8. Dispose of all bagged trash in a regularly emptied or collected receptacle in accordance with local trash policies.
9. Steam clean upholstery, shampoo with a disinfectant, or dispose of heavily contaminated items. Fragile and museum items can be cleared of surface material, sealed in a bag and left for 2-6 weeks to ensure the virus is no longer infectious.

**If you are uncertain of whether the infestation is light or heavy**, contact your park safety manager or public health consultant. Consider factors such as how long a building has been vacant and season of year (with indoor mouse activity highest in the fall and winter months) to help determine the level of infestation. Mice can leave up to 100 droppings per day under certain conditions. Ensuring that daily inspections and clean-up is done during an active infestation is key to both reducing risk, maintaining the ability to detect new infestations, and assess whether the infestation is heavy or light.

### Materials

- Snap traps (10 for a 12 ft x 12 ft room)
- Disinfectant and paper towels
- Plastic bags, small and large (can also use the disposable gloves)
- Gloves (double-layer rubber, latex or nitrile or reusable rubber, nitrile)

### Trapping Tips

- Place bait pan with trigger end of trap directly against wall— leave no space
- Placing two traps side-by-side can increase effectiveness
- Bait with cotton balls if traps will be left for a long period of time; refresh perishable baits such as peanut butter often
- Spring-loaded, multiple kill traps (e.g., Goodnature™ A24) may be a good option for buildings left vacant for long periods of time
- Leave snap traps set to monitor for rodent activity— fall months are highest risk for rodent ingress

### Contact Information:

Disease Prevention Program  
Office of Health and Safety  
[publichealthprogram@nps.gov](mailto:publichealthprogram@nps.gov)

Integrated Pest Management Division  
Wildlife Health Branch  
[IPM@nps.gov](mailto:IPM@nps.gov)



Soak mouse, trap, and any droppings or urine with EPA registered disinfectant and allow to sit for 10 minutes before wiping up.