



HANTAVIRUS PULMONARY SYNDROME (HPS)

➤ What is Hantavirus Pulmonary Syndrome (HPS)?

Hantavirus Pulmonary Syndrome (HPS) is a rare, but frequently fatal, illness caused by a virus shed by deer mice (*Peromyscus maniculatus*). This bulletin outlines steps you can take to minimize your risk of becoming infected with rodent-borne virus.

➤ Hantavirus in Riverside County

The Vector Control Program, in collaboration with the State Department of Health Services Vector-Borne Disease Section, actively conducts hantavirus surveillance throughout the unincorporated territory of Riverside County. Although Hantavirus has been detected in deer mice throughout the county, no human cases have been reported in Riverside County thus far.

➤ Which Animals Carry Hantavirus?

The only rodent in California that is known to transmit the virus is the deer mouse (*Peromyscus maniculatus*). It is 4 to 7 inches long from head to tail, grey to brown in color with white fur on the belly and underside of tail, and has large ears.

Infectious deer mice do not appear to show any signs of illness. There is no way to tell an infected rodent from a non-infected rodent by visual inspection. It is also difficult at times to differentiate deer mice from other rodents. Therefore, all rodents should be treated as potentially infectious and regarded with proper precautions.

Deer mice are abundant throughout California, especially in rural and semi rural areas. These mice will readily enter people's homes, work places, and other buildings for food and shelter. You can tell if a building is rodent infested by sighting live mice (especially at night) or observing carcasses, droppings, urine stains, nests, or signs of rodent chewing.

➤ Exposure to Hantavirus

A person can be infected by inhaling airborne particles of urine, droppings, or saliva from infected rodents. A person can also be exposed by touching their nose, mouth, or eyes after handling infected rodents, nests, or droppings. Rodent bites may also pose a risk.

➤ Risks of Hantavirus

The risk of exposure to Hantavirus occurs anywhere that mice are present. Persons may become infected in and around their home, at their work place, or while visiting recreational areas.



Your highest risk of contracting Hantavirus comes from exposure to rodent droppings or secretions. Most cases have been acquired in rural and semi rural settings where deer mice commonly invade human dwellings. Activities that increase risk of exposure include:

- occupying or cleaning rodent-infested barns, sheds, or other buildings
- having direct contact with rodents or rodent materials while hiking or camping
- living in or visiting areas where there has been an increase in the rodent population
- working in enclosed spaces infested with rodents

➤ **Symptoms of Hantavirus Pulmonary Syndrome (HPS)**

The early symptoms of Hantavirus pulmonary syndrome include fever, headache, muscle aches, vomiting, and abdominal pain. These symptoms may last a few hours to several days. As the illness progresses, the lungs fill with fluid, making breathing difficult. Respiratory failure can follow rapidly. Over 40% of the known patients have died.

➤ **What To Do If You Think You're Infected**

Contact your physician immediately if you become ill with flu-like symptoms 1 to 6 weeks after exposure to rodents or their excretions. Inform your physician that you have been in areas of rodent activity so that proper analytical blood tests can be conducted for confirmation of exposure.

➤ **Is There a Cure for Hantavirus?**

There is no specific treatment for Hantavirus infection other than early diagnosis and good medical care.

➤ **Prevention of Hantavirus Exposure Where You Live and Work**

Learning how to avoid rodents and their excretions is the best defense against Hantavirus exposure.

Rodents occupy areas in and around human dwellings looking for food, water, and harborage. You can reduce your risk of exposure at home and work by taking the following precautions:

- Keep food in sealed containers or in the refrigerator.
- Clean up spilled food immediately. Use garbage containers with tight-fitting lids.
- Keep counters, cupboards, and dishes clean.
- Do not leave pet food out overnight.



➤ **Trapping and Rodent-Proofing**

- Spring-loaded snap traps and EPA-registered baits should be used continuously to kill rodents. Use traps appropriate for the size of rodent (small traps for mice, large for rats). Wear gloves to dispose the rodent and trap in a garbage bag. **DO NOT USE LIVE TRAPS** because handling live rodents may significantly increase your risk of exposure to Hantavirus.
- Avoid using rodenticides in dwellings that have not been rodent-proofed. Rodents dying inside inaccessible areas may expose occupants to undesirable odors and nuisance vectors.
- Thoroughly inspect the exterior of buildings for any holes or spaces through which rodents might enter. Use steel wool or concrete to block any holes larger than ½ inch in diameter.
- Place 3-5 inches of gravel under the base of buildings to discourage rodent burrowing.
- Place metal roof flashing around the base of buildings to act as a rodent barrier.
- Relocate woodpiles, vegetable gardens, trash cans, and animal feed at least 100 feet from human dwellings. Hay bales, woodpiles, and trash cans should be elevated off the ground.
- Remember to keep baits and traps out of the reach of children and pets.

SAFETY PRECAUTIONS FOR CLEANUP

Remember that Hantavirus is transmitted primarily by inhalation of aerosols contaminated with virus from rodent secretions. Therefore, it is very important to minimize stirring-up materials into the air while cleaning.

- Ventilate the affected area the night before cleanup by opening doors and windows.
- Use rubber gloves.
- Apply household disinfectants at maximum recommended concentrations for rodents, rodent droppings, nests, contaminated traps and surrounding area and allow at least 15 minutes contact time before removal.
- Clean the affected area with sponge or mop. **DO NOT SWEEP OR VACUUM.**
- Double-bag the disinfectant-soaked rodent and clean-up materials (newspaper, paper towels, etc.) securely in plastic bags and seal.
- Before removing gloves, wash gloved hands in disinfectant, and then in soap and water. Thoroughly wash hands with soap and water after removing gloves. Dispose of gloves and clean-up materials with other household waste.



➤ **Where You Camp or Hike**

- If cabins have been unoccupied, open all windows and doors and air-out before occupying them.
- Inspect for rodents and do not use cabins if you find any signs of rodent infestation until the building has been cleaned up using appropriate safety precautions.
- Check the area for rodent droppings and burrows before sleeping outdoors.
- Do not disturb rodents, burrows, or dens.
- Avoid sleeping near woodpiles or garbage areas that may be frequented by rodents.
- Avoid sleeping on bare ground; use elevated cots or mats if available.
- Store food in rodent-proof containers and promptly discard all garbage.

Additional Information and Websites

If you should have questions or need additional information you can call the Vector Control Program at (951) 766-9454 or log onto these following websites:

State of California Department of Health Services– www.dhs.ca.gov

Centers for Disease Control and Prevention – www.cdc.gov

*Document available in an alternate format upon request