



How to Protect Yourself from Hantavirus

FACT SHEET 18-031-0317

Just the Facts... Hantavirus Pulmonary Syndrome (HPS), often referred to as "Hantavirus", is a serious, often deadly, respiratory disease caused by a virus that is spread from wild rodents to humans. This disease was first recognized in 1993 in an area shared by New Mexico, Arizona, Colorado and Utah. The specific hantavirus that caused this HPS outbreak was isolated by researchers and named "Sin Nombre Virus" (SNV). As of April 21, 2014, a total of 639 HPS cases have been reported in the United States (Centers for Disease Control and Prevention (CDC)). There is more than one genetic strain of hantavirus causing HPS and a number of different rodent hosts have been identified.

How do people become infected with Hantavirus Pulmonary Syndrome?

In the United States, deer mice (*Peromyscus maniculatus*), cotton rats (*Sigmodon hispidus*), rice rats (*Oryzomys palustris*) and white-footed mice (*Peromyscus leucopus*) are the primary rodents that carry HPS virus. Other rodents that may carry strains of hantavirus include squirrels, chipmunks and other species of rats and mice. There is **no evidence** that the HPS virus is transmitted by common house mice, Guinea pigs, hamsters, gerbils, farm animals, insects, reptiles, birds, dogs or cats.

Hantavirus is carried in the airborne (aerosolized) particles of rodent urine, droppings (feces) and saliva. These particles can attach to dust and dirt and accumulate on surfaces. Breathing in the virus is the most common way of becoming infected. However, infection can also occur by touching the mouth or nose after handling contaminated materials. It is suspected that HPS transmission can occur after ingestion of food or water contaminated with virus-infected rodent urine, droppings or saliva. A rodent's bite can also spread the virus (rare). Hantavirus is not spread from person to person.



The deer mouse (*Peromyscus maniculatus*) one of the rodent reservoirs of HPS found throughout North America.
Map insert: Deer mouse habitat in North America.
Photo and Map: CDC

What are the symptoms of Hantavirus Pulmonary Syndrome?

Early symptoms include fatigue, fever and muscle aches, especially in the large muscle groups such as the thighs, hips, back and sometimes shoulders. There may also be headaches, dizziness, chills and abdominal problems, such as nausea, vomiting, diarrhea and abdominal pain.

Four to ten days after the initial phase of illness, the late symptoms of HPS appear. These include coughing and shortness of breath, with the sensation of, as one survivor put it, a "...tight band around my chest and a pillow over my face" as the lungs fill with fluid. HPS is potentially deadly and immediate medical care is essential once symptoms appear. The CDC reports that about one-third (36%) of the people who get HPS die from the illness.

How can I keep from getting Hantavirus Pulmonary Syndrome?

To reduce the risk of HPS infection, prevention is the best strategy. This simply means taking some very practical steps to minimize contact with rodents and their droppings. The rodents that transmit the virus causing HPS live near people in rural and semirural areas and will occupy woodpiles and any structure. They prefer buildings that are only infrequently occupied, such as barns, outbuildings and summer cottages or cabins closed up for the season.

The chances of being infected outdoors are lower since infected rodent urine and droppings are not typically encountered. In addition, direct sunlight will destroy hantavirus. Although a lower risk, some outdoor precautions should be followed for safety.

To eliminate or minimize contact with rodents and their droppings follow the rule:

AIR OUT, SEAL UP, TRAP OUT and CLEAN UP!

How do I prevent HPS Infection, Indoors?

- Before occupying cabins or abandoned or unused structures, open them up to air out. Look for signs of rodent activity such as droppings and rodent nests. Infested structures should not be used if signs of rodent infestation are found or until they have been properly cleaned and disinfected.
- Preventing rodents from entering or living around your home is very important. Keeping your yard free from trash, litter, junk or debris, which attract rodents looking for food, cover and protection from many predators, is the best way to keep rodents away from your living areas. Seal all entry holes to your home that are 1/4 inch wide or wider with steel wool, cement or wire screening.
- Keep tight-fitting lids on garbage cans and discard uneaten pet food at the end of the day. Set and keep spring-loaded rodent traps. Bait the traps with peanut butter and set near baseboards (rodents tend to run along walls and tight spaces). Use an EPA-approved pesticide product labeled for flea and tick control in the trap area. This is important since fleas and ticks will leave the dead rodents and seek out new hosts, including humans. After trapping, soak the traps thoroughly in disinfectant.
- Cats and dogs have not been shown to spread the hantavirus from a rodent to a person. However, allowing your dog or cat to roam free increases the chance it may come upon a rodent, kill it and bring it home. This indirectly increases the risk of exposure to pet owners.

How do I prevent HPS Infection, Outdoors?

- When planning to sleep outdoors, check potential campsites for rodent droppings or burrows and avoid sleeping near areas that may be frequented by rodents. Avoid sleeping on bare ground; use a mat or elevated cots if they are available.
- Do not disturb rodents, burrows or dens.
- Store foods in rodent-proof containers; all garbage should be promptly discarded in designated waste containers. Use only tap, bottled water or water that has been disinfected by filtration, boiling, chlorination, or iodination for drinking, cooking, washing dishes, and brushing teeth.

How do I safely clean up after rodent infestations?

- Special precautions (use of appropriate respirators, rubber or plastic gloves and protective clothing, etc.) should be used for cleaning homes or buildings with heavy rodent infestations in localities where HPS has been reported. The CDC recommends using a half-face air-purifying (or negative pressure) respirator equipped with an N-100 filter. These are available at most Home Improvement Centers. If you are attempting to deal with such a situation, it is also recommended that you contact the appropriate military, local, state, or federal public health agency for guidance.
- The virus can be killed on contact by most household disinfectants. Make sure the word “**disinfectant**” is written on the label. You can also make a disinfectant by mixing 1 ½ cups of household bleach with 1 gallon of water. Smaller amounts can be made with 1 part bleach and 9 parts water. Spray disinfectant on areas where any rodents have been trapped, where rodent activity has been noted (looking for fecal droppings, urine staining, and nests) and any other items that have been contaminated by rodents. Soak all sweepings and other discarded materials with disinfectant and place in a plastic bag for disposal.
- Launder potentially contaminated bedding and clothing with hot water and detergent, then machine dry on a high setting or hang it to air-dry in the sun.
- When cleaning floors, minimize stirring up the dust (which potentially carries the virus on airborne particles) by first spraying the area with disinfectant, then mopping the floor (do not vacuum) once or twice with a soap and disinfectant solution.
- Disinfect countertops, cabinets, drawers and other durable surfaces by washing them with a solution of detergent, water, and disinfectant, followed by wiping down with a general-purpose household disinfectant. Decontaminate the cleanup equipment in the same fashion.

Those involved in cleaning rodent infested buildings or handling dead rodents are at greatest risk of being exposed to HPS and should use proper procedures.