

Hantavirus Pulmonary Syndrome: Frequently Asked Questions

What is hantavirus pulmonary syndrome?

Hantavirus pulmonary syndrome (HPS) is a rodent-borne viral disease characterized by severe respiratory illness and a case-fatality ratio of 30%--40%. *Sin Nombre* virus causes the majority of the HPS cases in the United States, and the deer mouse is the primary reservoir host in California.

Where is HPS found?

Cases of HPS occur sporadically, usually in rural areas where forests, fields, and farms offer suitable habitat for the virus's rodent host (deer mouse). The peridomestic setting, for example, barns, outbuildings, and sheds are potential sites where people may be exposed to the virus.

When do hantavirus cases occur?

Annually, the majority of HPS cases occur in spring and summer; however, the seasonality of HPS can vary by elevation, location, and biome (vegetation), and cases have been identified throughout the winter and early spring.

How do hantavirus infections occur?

Hantavirus infection can occur after exposure to infectious virus in rodent saliva or droppings. When fresh rodent urine, droppings, or nesting materials are stirred up, tiny droplets containing the virus get into the air. This process is known as "air-borne transmission." Infection occurs when you breathe in the virus particles. Hence, it is important to avoid actions that raise dust, such as sweeping or vacuuming dusty old cabins. There are several other ways rodents may spread hantavirus to people:

- If a rodent with the virus bites someone, the virus may spread to that person; however, this type of transmission is extremely rare.
- People may be able to get the virus if they touch something that has been contaminated with rodent urine, droppings, or saliva, and then touch their nose or mouth.
- People can become sick if they eat food contaminated by urine, droppings, or saliva from an infected rodent.

What are potential risky activities for HPS?

Opening or cleaning cabins, sheds, and outbuildings, including barns, garages, and storage facilities, that have been closed during the winter is a potential risk for hantavirus infection, especially in rural settings. Construction, utility and pest control workers can be

exposed when they work in crawl spaces, under houses, or in vacant buildings that may have a rodent population.

How is HPS diagnosed?

Diagnosing HPS in an individual who has only been infected a few days is difficult because early symptoms such as fever, muscle aches, and fatigue are easily confused with influenza or other common viral illnesses. However, if the individual is experiencing fever and fatigue and has a history of potential rural rodent exposure, together with shortness of breath, the individual should seek medical evaluation immediately.

What is the treatment for HPS?

Other than supportive care, no treatment exists for hantavirus infection. The probability of surviving HPS increases with early recognition, hospitalization, and aggressive pulmonary and hemodynamic support.

Can HPS be transmitted from person to person?

The types of hantavirus that cause HPS in the United States cannot be transmitted from one person to another. For example, you cannot get the virus from touching or kissing a person who has HPS. Likewise, you cannot get the virus from a blood transfusion in which the blood came from a person who became ill with HPS and survived. Based on limited information, it appears that symptoms may develop between 1 and 5 weeks after exposure to fresh urine, droppings, or saliva of infected rodents.

Can pets transmit HPS to humans?

HPS in the United States is not known to be transmitted by any types of animals other than certain rodent species. Dogs and cats are not known to carry hantavirus; however, they may bring infected rodents into contact with people if they catch such animals and carry them home. Guinea pigs, hamsters, gerbils, and rodents from pet stores are not known to carry hantavirus.

What can be done to prevent HPS?

Eliminate or minimize contact with rodents in your home, workplace, or campsite. Measures to prevent rodent infestations include: 1) sealing up holes inside and outside the home to prevent entry by rodents, 2) trapping rodents around the homes to help reduce rodent population, 3) cleaning up potential rodent food sources and nesting sites, and 4) taking precautions when cleaning.

How prevalent is HPS in the United States?

HPS is a rare disease. Through December 31, 2011, a total of 587 cases of Hantavirus Pulmonary Syndrome have been reported in the United States. Of these, 556 cases occurred

from 1993-onward, following the initial identification of HPS, whereas 31 cases were retrospectively identified. Thirty-six percent of all reported cases have resulted in death.

Of persons ill with HPS, 63% have been male, 37% female. The mean age of confirmed case patients is 37 years (range: 6 to 83 years). In California, 60 HPS cases have been confirmed; 21 of which were fatalities. In Alameda County, where disease surveillances have been active since 2000, two deer mice have been detected with the *Sin Nombre* virus; two human cases were reported, though the exposures may have occurred outside of the County.

Deer Mouse (*Peromyscus maniculatus*)



The Deer Mouse (*Peromyscus maniculatus*) is a deceptively cute animal, with big eyes and ears. Its head and body measure approximately 2-3 inches (5cm - 7.5cm) in length, and the tail adds another 2 - 3 inches. In color, the deer mouse ranges from grey to reddish brown, depending on age. The underbelly is always white and the tail has clearly defined white sides. The hantavirus strain present in deer mice is Sin Nombre(SNV). The deer mouse is found throughout North America, preferring woodlands, but also appearing in desert areas.