

*epi*TRENDS

Epidemiology and Public Health Practice in WA

A Monthly Bulletin on Epidemiology and Public Health Practice in Washington

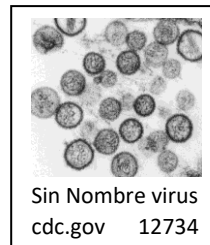
April 2025 Volume 30, Number 4

Hantavirus Infection

Although rare, hantavirus infections can be severe. Prevention measures reduce the risk of disease.

The Agent

Hantaviruses in the United States are among many members of a family of RNA viruses. Members occur in the Americas, Europe, and Asia. The first recognized virus was from Korea near the Hantan River, giving the group its name. In this country almost all hantavirus infections are due to Sin Nombre virus.



Hantavirus infection can result in moderate respiratory illness, a severe pulmonary syndrome, or hemorrhagic fever with renal syndrome; the last occurs in other parts of the world but not in North America. Hantavirus pulmonary syndrome involves an acute illness with a typical incubation period of 2-4 weeks, although as long as 8 weeks. There is a prodrome of fever, fatigue, and muscle aches, and often headache, chills, and gastrointestinal symptoms. After 4-10 days, most of those infected develop pulmonary symptoms.

Recognition of hantavirus infection early in the illness is difficult, since it resembles many unrelated febrile respiratory infections including influenza and colds. Testing is also unreliable in the first 72 hours. Illness usually progresses to hantavirus pulmonary syndrome involving respiratory failure, lung infiltrates, pulmonary edema, and shock. Consider testing a person with consistent symptoms and exposure history, or consistent severe respiratory symptoms without a history or alternative diagnosis. Serology (IgM and IgG), PCR, and immunohistochemistry are available diagnostic methods. Suggestive laboratory results early in the illness are: elevated white blood cell count, circulating immunoblasts (immature myelocytes), hemoconcentration, and decreased platelets. Serial hematologic testing can be done for a suspected case. Treatment is supportive, including monitoring cardiopulmonary function, providing supportive oxygen, and managing fluids and blood pressure. If suspicion for hantavirus is high, a hospitalized patient should be transferred to a facility with ECMO available.



Tao Kwan-Gett, MD, MPH
State Health Officer

Scott Lindquist, MD, MPH
State Epidemiologist,
Communicable Disease

Marcia J. Goldoft, MD
Scientific Editor

You may subscribe, update subscription preferences or unsubscribe to *epiTRENDS* at [Department of Health website](#).

To request this document in another format, call 1-800-525-0127. Deaf or hard of hearing customers, please call 711 (Washington Relay) or email doh.information@doh.wa.gov

Epidemiology

Each hantavirus has one or more primary rodent hosts, which are unaffected by the virus. Virus is shed in urine, feces, and saliva, and spreads to other mice or to humans when droplets or contaminated particles are inhaled or when mice fight and bite each other; occasional cases in humans following bites have also been reported. There is rare spillover to other wild animals. Sin Nombre virus has not been demonstrated to spread from person to person, although such transmission does happen with some hantaviruses in South America.

The main reservoir for Sin Nombre is the deer mouse (*Peromyscus maniculatus*), present in most western states, southern Canada, and central Mexico. Deer mice occur commonly in rural and semi-rural to suburban areas. They have large ears and black eyes, long furry tufted tail, and a light underside including the tail and abdomen. In Washington, sampling of deer mice has demonstrated an average of 14% sero-positivity. In areas where the mice and Sin Nombre virus co-occur, such as Washington state, deer mice should be presumed infected.



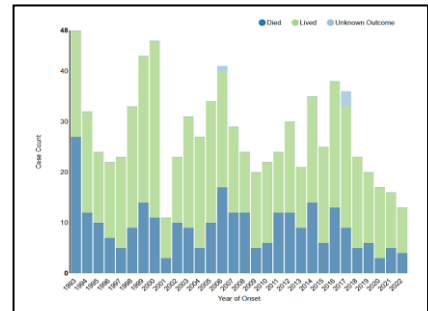
Sin Nombre virus was identified due to a community outbreak in southwestern United States, assisted by indigenous knowledge that suggested outbreaks had occurred during previous periods. Most cases occur singly even when a house or workplace has an identified mouse infestation. Infection tends to occur in the person who disturbs the mice or their fresh excretions, such as vacuuming, sweeping, or moving items to lay traps. Exposures are more common in closed air spaces, including outbuildings or cabins.

A prominent outbreak occurred in a national park during 2012. There were ten cases among visitors staying overnight in tent cabins, where mice were found to nest in the insulation in the walls. Cabins were redesigned to prevent future infestations.

Surveillance for Hantavirus

Through 2022 a total of 864 cases of hantavirus infection had been reported in the United States, averaging 20-40 cases a year, with a third fatal. While most cases were due to Sin Nombre virus, three other hantaviruses have caused human cases in the United States. Males and young adults are more likely to be infected. Cases are more common in spring and summer months, and may increase when deer mice populations increase, reflecting weather changes that support food for the mice.

Hantavirus Cases, United States 1993-2022



Hantavirus is notifiable in Washington State, with cases reported most years (about 2 cases annually). Survival rates resemble the national experience. Identified exposures are more common in eastern counties of the state and are highly varied, such as cleaning garages or cabins, camping, or being in a contaminated living area, work area, or vehicle; Washington residents have also had exposures during out-of-state travel.

During February 2025, the topic of hantavirus reached the media due to a death related to a prominent actor residing in New Mexico. Subsequently, three deaths due to hantavirus in a 2-month period were identified in a county in California, cases not connected with each other and with no obvious exposures. In contrast, the county had a total of 27 cases identified since 1993. To date, only one similar cluster has been identified in Washington, three cases of hantavirus identified in King County in a 5-month period during November 2016-March 2017.

Hantavirus cases are rare, but typically severe. Avoiding rodent exposure at home, in the workplace, or at a campsite is the key to preventing infection. Take steps to prevent rodent infestations and always take precautions when cleaning rodent-infested areas. Activities that raise dust, such as sweeping, vacuuming, or dusting, should be avoided. When cleaning a known or potentially contaminated area, start by airing out the space for at least 30 minutes. Wear gloves when cleaning rodent material, and wash hands afterwards. Spray contaminated areas (e.g., with nests or droppings) with a disinfectant (e.g., fresh 10% bleach solution) and let sit for five minutes before wiping up the material and disposing in a sealed garbage can.

Seal holes and gaps in walls or doors to prevent rodent entry. Use snap traps (not live traps or poisons) to reduce rodent populations. If there are rodent traces, seal food in containers and remove available food sources, including pet food left outside.

Both disease investigators and environmental health staff are typically involved in a hantavirus investigation. Local health jurisdictions can consult with Department of Health for assistance with an investigation or to facilitate hantavirus testing.

Resources

Department of Health resources:

<https://doh.wa.gov/sites/default/files/legacy/Documents/5100/420-056-Guideline-Hantavirus.pdf>

CDC resources: <https://www.cdc.gov/hantavirus/about/>

First hantavirus outbreak: <https://asm.org/articles/2024/october/indigenous-knowledge-solved-mysterious-outbreak>

National park outbreak: <https://pmc.ncbi.nlm.nih.gov/articles/PMC3944872/>

California outbreak: <https://monocounty.ca.gov/cao/page/third-hantavirus-related-death-confirmed-mono-county>

