

epiTRENDS

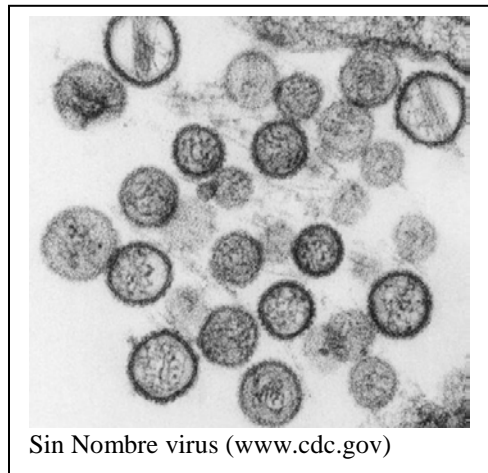
A Monthly Bulletin on Epidemiology and Public Health Practice in Washington

Hantavirus in Washington

Vol. 22 No. 5

A variety of hantaviruses are known to cause human illnesses. Hantaan virus, identified in 1978 from Korea near the Hantan River, causes hemorrhagic fever with renal syndrome. In 1993, Sin Nombre virus was identified in the southwestern United States following an outbreak of severe respiratory illnesses later identified as hantavirus pulmonary syndrome (HPS).

Hantaviruses



Although HPS was first recognized in 1993, retrospective Sin Nombre cases were subsequently identified. In addition to Sin Nombre virus, other hantaviruses occurring throughout the Americas can also cause pulmonary syndromes. While most hantaviruses are named according to their geographic area of identification, the name Sin Nombre (“No Name”) virus was chosen to avoid

further discrimination against Native American communities as occurred in the Four Corners region during the outbreak in 1993.

The reservoir species for hantaviruses are rodents, primarily mice and rats but also voles and other rodents. Deer mice (*Peromyscus maniculatus*) are the reservoir for the Sin Nombre virus. The distribution of deer mice occurs throughout western Canada and United States, extending into Mexico, and cases follow the rodent distribution. The virus is present in excretions including saliva, urine, and feces. Most cases report exposure to rodents or their excretions. In this country, exposures are typically peridomestic, occurring around residences and outbuildings. Sin Nombre virus outbreaks are rare, although in 2012, ten cases were associated with camping in Yosemite National Park in tent-cabins with presence of mice.

5.17



epiTRENDS
P.O. Box 47812
Olympia, WA 98504-7812

John Wiesman, DrPH, MPH
Secretary of Health

Kathy Lofy, MD
State Health Officer

Scott Lindquist, MD, MPH
State Epidemiologist,
Communicable Disease

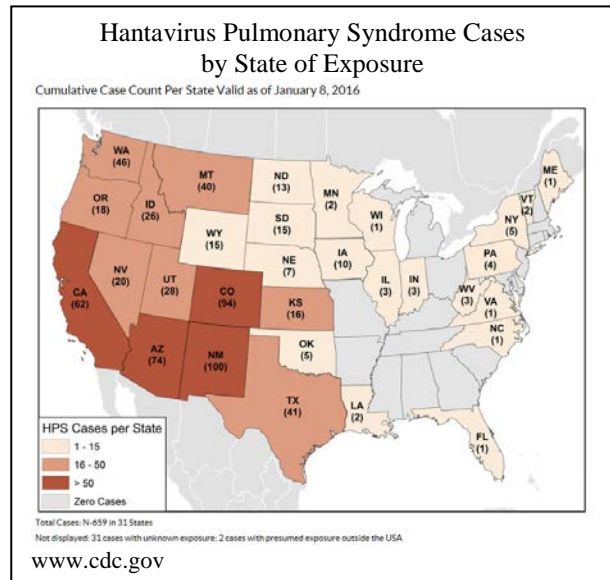
Jerrold Davis, P.E.
Assistant Secretary
Disease Control and Health
Statistics

Sherryl Terletter
Managing Editor

Marcia J. Goldoft, MD, MPH
Scientific Editor

Person-to-person transmission has been documented in the Americas for other hantaviruses, but there is no evidence for Sin Nombre virus to be spread in this way. Exposure is through inhaling suspended dust or particles contaminated with the virus, or through direct contact with hantavirus-infected rodents, or their saliva, urine, droppings, or nesting materials. The virus is not hardy in the environment and is sensitive to ultraviolet light, bleach, and other disinfectants.

Symptoms of hantavirus infection begin 1-8 weeks after exposure. Hantavirus pulmonary syndrome usually starts with several days of non-specific prodromal symptoms including fever, muscle aches, headache, chills, non-productive cough, and sometimes gastrointestinal symptoms such as vomiting or diarrhea. Cardiopulmonary symptoms resulting in respiratory distress due to pulmonary edema occurs within approximately seven days. Supporting laboratory findings include a decreased plate count, presence of immunoblasts in the blood (myelocytes or metamyelocytes), and hemoconcentration. The white count and liver enzymes may also be elevated. Upon onset of severe symptoms, hospitalization in an intensive care unit may be necessary within a day. About a third of cases are fatal even with medical intervention.



***epi*TRENDS
Monthly Posting
Alert**

To receive monthly e-mail notification of *epi*TRENDS, please register at this website:

<https://listserv.wa.gov/cgi-bin/wa?SUBED1=epitrends&A=1>

Choose the option to join the listserv. Enter your name and email address.

Sin Nombre virus infections less commonly produce milder non-respiratory illnesses. The national case definition for non-HPS hantavirus infection was established in 2015 and includes non-specific viral symptoms (fever, chills, myalgia, headache, and gastrointestinal symptoms) without cardio-pulmonary symptoms. To meet the national case definition for hantavirus infection, laboratory confirmation is required through detection of hantavirus immunoglobulin M (IgM) rising titers of IgG, RNA, or antigen.

Washington Cases

Cases of hantavirus pulmonary syndrome in Washington residents have been identified almost every year starting in 1994, with an average of two cases reported each year and a total of 51 reported

cases through April, 2017. A slight majority of cases are male (59%), resembling the national pattern. The case fatality rate in Washington of around 35% is similar to the national rate.

The natural distribution of deer mice includes Washington State and Sin Nombre virus has been confirmed in deer mice trapped in the state. Exposures for cases have occurred throughout Washington, particularly in the central counties. Most cases have been reported during May through July.

Local health jurisdictions receiving laboratory reports of hantavirus infections can consult with Office of Communicable Disease Epidemiology to arrange confirmatory testing. Hantavirus testing should be considered for a case with unexplained severe respiratory symptoms accompanied by supportive laboratory tests such as a low platelet count or presence of circulating immunoblasts.

Prevention

The best way to prevent hantavirus infection is to avoid direct or indirect contact with wild rodents. Only deer mice are reservoirs for the Sin Nombre virus. The adults are large (body 2-3 inches, tail 2-3 inches), with large eyes and ears, hair along length of the tail, and white hair along the belly and underside of the tail. The mice are most common in rural and suburban environments, rarely occurring in urban areas.



As the summer season approaches, deer mouse exposures can increase as deer mouse abundance increases and humans become more active outdoors. In a rodent-infested area such as a cabin or shed it is important to avoid raising dust, as by sweeping or vacuuming. Such buildings should be aired out for 30 minutes before entering. Before removing dead mice, droppings, or nests, thoroughly soak all rodent-contaminated materials with a one-to-ten part bleach solution or household disinfectant for ten minutes. Wear rubber, latex, or vinyl gloves when cleaning up. Contaminated material should be double bagged and dispose of in the normal trash system. Disinfect or discard any remaining items that might have been contaminated by rodents or their urine and droppings. It is also important to exclude rodents from a house or workplace by sealing holes inside and outside, trapping rodents with snap traps, and eliminating nearby rodent food sources including open food containers, such as pet bowls or livestock feed bins.

Occupational exposures are rare for hantavirus infections but there are reports of job-related cases. Scientific field work, agriculture, construction, and outdoor recreational jobs may pose an increased risk for contact with deer mice and infection with Sin Nombre virus. Similar precautions as outlined above are appropriate to prevent occupational exposure to rodents.

Hantavirus infections are rare in the United States and in this state, with up to five cases reported a year in Washington. Although the risk of hantavirus infection is very low, simple precautions can prevent the risk of exposure and potentially severe illness.

Resources

- Washington State Department of Health
<http://www.doh.wa.gov/YouandYourFamily/IllnessandDisease/Hantavirus>
- Public Health – Seattle & King County
<http://www.kingcounty.gov/depts/health/communicable-diseases/disease-control/hantavirus.aspx>
- CDC Hantavirus page
<https://www.cdc.gov/hantavirus/index.html>
- St. Maurice et al. Exposure Characteristics of Hantavirus Pulmonary Syndrome Patients, United States, 1993–2015. 2017. Emerging Infectious Diseases.
<https://wwwnc.cdc.gov/eid/article/23/5/pdfs/16-1770.pdf>
- CDC Outbreak of Hantavirus Infection in Yosemite National Park
<https://www.cdc.gov/hantavirus/outbreaks/yosemite/index.html>