

IN THIS ISSUE: TWO CASES OF HANTAVIRUS IN WASHOE COUNTY – WHAT TO KNOW

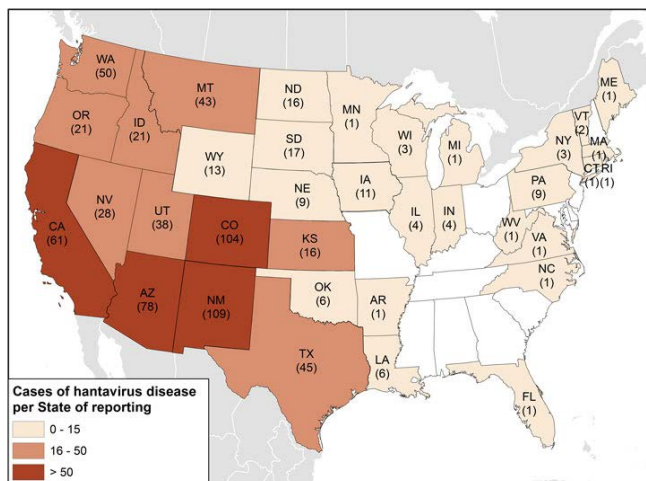
Two Cases of Hantavirus in Washoe County – What To Know

Two confirmed cases of Hantavirus Pulmonary Syndrome (HPS) were reported to the Washoe County Health District (WCHD) in August of 2019. These are the first cases of hantavirus reported in Washoe County since 2017. This Epi News will provide background information on hantavirus, its occurrence in Washoe County, prevention, and recommendations for clinicians.

Background ^{1,2}

Hantavirus Pulmonary Syndrome (HPS) is a rare respiratory disease that can cause illness in humans. The Sin Nombre Virus (SNV) is the hantavirus that causes most cases of HPS in the United States. Nearly all cases (96%) have occurred in states west of the Mississippi River. The disease is spread by breathing in or touching viral particles after exposure to infected rodents, most commonly deer mice. This typically occurs when working or recreating in areas where mouse droppings, urine, or saliva may have collected or when cleaning up rodent droppings or nesting material. Hikers and campers may be at higher risk if they are in areas that are common for heavy rodent infestation such as old cabins and barns.

Figure 1. Cumulative Case Count through January 2017 per State Based on Data Collected by the Nationally Notifiable Disease Surveillance System (NNDSS).²



Hantavirus symptoms develop anywhere from 1-8 weeks after exposure. Initial symptoms can include fever, muscle aches (especially in the large muscle groups such as thighs, hips, or back), fatigue, headache, abdominal pain, vomiting, diarrhea, chills,

and dizziness. Late symptoms develop 4 to 10 days after initial symptoms and include shortness of breath and fluid buildup in the lungs. Anyone with these symptoms after coming in contact with deer mice or their waste should seek medical attention immediately. While there is no specific treatment for hantavirus, if infected individuals are recognized early and receive medical care in an intensive care unit, their outcomes may improve.

Hantavirus in Washoe County

Prior to 2017 hantavirus was rarely reported in Washoe County, with four confirmed cases of HPS reported between 1995 and 2006. During this time there was never more than one case reported in a given year and only one fatality. However, between 2017 and 2019 four confirmed cases of HPS were reported; two cases in 2017 and two cases in 2019. Two of the four cases (50%) were fatal. Altogether the mortality rate for HPS in Washoe County is 38%, which is similar to the national disease mortality rate (36%) reported by the Centers for Disease Control and Prevention (CDC).²

The reservoir for hantavirus is the deer mouse (*Peromyscus maniculatus*). This mouse is commonly found throughout Washoe County. After two cases of HPS were reported in 2017, WCHD Environmental Health staff trapped 21 deer mice in Washoe County and tested them for Sin Nombre Virus (SNV); 4 (19%) tested positive. This figure is similar to previous WCHD surveillance data gathered between 2002-2004 and 2010-2012 which found that on average 17% of local deer mice were infected with SNV.

While HPS is rare, all persons should take precautions when entering spaces where mice may have been, such as storage places, garages, sheds, cabins, and barns due to the regular presence of hantavirus-infected mice in our community.

Figure 2. Deer Mouse Habitat in North America.³



Prevention⁴

The best prevention methods are to eliminate or reduce your exposure to rodents and to take appropriate precautions when cleaning in areas with mouse activity. For example:

- Do not sweep or vacuum an area with rodent urine, droppings, or nesting material.
- A solution of 1 part bleach to 10 parts water should be used when cleaning urine and/or droppings. Let it set for 5 minutes before cleaning the area.
- Wear rubber, latex, or vinyl gloves when cleaning up urine, droppings, or nesting materials. Also wear respiratory protection.
- Identify areas where mice are getting in and set traps.
- Identify and plug openings that may allow rodents entry.

For additional information on how to safely clean up after rodents, visit <https://www.cdc.gov/rodents/cleaning/>.

If you have been around rodents and have symptoms of fever, deep muscle aches, and severe shortness of breath, see your doctor immediately. Be sure to tell your doctor that you have been around rodents—this will alert your physician to look closely for any rodent-carried disease, such as HPS.¹

Recommendations for Clinicians

- **Hantavirus is a reportable condition in Nevada.** If you suspect a patient has HPS, contact your local health department right away. If you are a provider in Washoe County, call WCHD at 775-328-2447 or fax to 775-328-3764.
- 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. However, if the individual is experiencing fever and fatigue and has a history of potential rodent exposure, together with shortness of breath, this would be strongly suggestive of HPS.¹

- **Test options** for hantavirus include:⁵
 - *Serology:* Acute- and convalescent-phase sera should reflect a four-fold rise in IgG antibody titer OR the presence of IgM in acute-phase sera. (Note: an acute-phase serum sent as an initial diagnostic specimen may not yet have IgG.)
 - *Polymerase Chain Reaction (PCR)*
 - *Immunohistochemistry (IHC)*
- Laboratory testing should be performed or confirmed at a reference laboratory:
 - The Nevada State Public Health Laboratory (NSPHL) can provide serology and PCR testing for hantavirus. Should you have any questions regarding specimen collection, storage, or transportation, please call NSPHL at 775-688-1335.

References

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