

## IN THIS ISSUE: HANTAVIRUS INFECTION

### Introduction

The Washoe County Health District (WCHD) urges providers and our public health partners to be aware of the potential for hantavirus infections during this time of year. Hantavirus is present in deer mice, which are found throughout North America. Though they prefer woodlands, they also reside in desert areas. Infection with hantavirus can produce disease in people resulting in hantavirus pulmonary syndrome (HPS)<sup>1</sup>. The clinical syndrome of HPS was first recognized in 1993 and has since been identified throughout the United States<sup>1</sup>.

We live in a geographic area inhabited by deer mice; thus, hantavirus is endemic in Washoe County. So as residents unpack their holiday décor to deck the halls, it is important to remember that deer mice can take shelter in and around storage containers. Awareness, education and proper precautions are ways in which we can minimize the risk or prevent exposure to hantavirus.

### Epidemiology

Past surveillance has indicated about 17% of deer mice are infected with hantavirus in Washoe County<sup>2</sup>. Statewide, Nevada has had 28 cases of hantavirus reported as of January 2017<sup>2</sup>. Nationwide, cases are reported year around with a peak in spring and summer months. Hantavirus infections have been epidemiologically linked to the following situations<sup>3</sup>:

- Handling equipment that has been in storage;
- Cleaning barns and other outbuildings;
- Occupying or cleaning previously vacant cabins actively infested by rodents;
- Handling mice without gloves;
- Disturbing excreta while hiking;
- Sleeping on the ground;
- Hand plowing or planting.

Exposures may include breathing in the virus which can happen when feces or urine of an infected rodent are stirred up into the air. Touching eyes, nose or mouth after handling rodent droppings or nesting materials that contain the virus. Or via a bite from an infected rodent. Incubation period is anywhere from 7-60 days,

and limited data suggests symptom onset to be from 1-8 weeks after exposure<sup>1</sup>.

Although rare, Hantavirus Pulmonary Syndrome (HPS) is frequently fatal, with a case fatality rate of 38%<sup>1</sup>.

### Transmission

Hantavirus is not transmitted from person to person. It is spread by the aerosolization of the virus in the feces, urine and saliva shed by infected rodents. **It is important to avoid actions that raise dust, such as sweeping or vacuuming as infection can occur when viral particles are inhaled.** Anyone who is exposed to the virus is at risk for the infection, including healthy individuals.

Rodent infestation in and around the home remains the primary risk for hantavirus exposure<sup>1</sup>.

### Signs and Symptoms

There are early and late symptoms, but there is no specific treatment, cure or vaccine for HPS<sup>1</sup>. The early symptoms include:

- fatigue
- fever
- muscle aches
- headaches
- chills
- nausea
- vomiting
- diarrhea
- abdominal pain

Late symptoms appear 4-10 days after initial phase of the illness. They include:

- coughing
- shortness of breath
- tightness in the chest

The symptoms are very similar to those of COVID-19. As the COVID-19 pandemic continues to progress, it is important to remember that not everything that appears to be COVID-19-like is COVID-19. For more information and to access a printable fact-sheet, visit CDC's COVID-19 vs. Hantavirus Pulmonary Syndrome information site at [https://www.cdc.gov/hantavirus/resources/covid-vs-hantavirus.html#anchor\\_1598932018101](https://www.cdc.gov/hantavirus/resources/covid-vs-hantavirus.html#anchor_1598932018101)

## Public Health Recommendations

Rodent control in and around the home is the primary method to prevent infestations. Mice and rats spread over 35 diseases that can be transmitted to humans directly and indirectly <sup>4</sup>. The CDC recommends the following:

**Seal up!** – check inside and outside the house for gaps and holes. Fill gaps with steel wool and caulk.

- Between wall and floor juncture
- Around floor vents and dryer vents
- Around windows and doors
- Around the foundation
- Around holes for electrical, plumbing, cable and gas lines

**Trap up!** – trap rodents around the home to help reduce the rodent population.

- Choose an appropriate trap, traps for catching mice are different from those for catching rats
- Place the trap with the bait site against the wall – rodents prefer to run next to walls
- In areas that are not heavily populated, set the traps in any area of frequent rodent activity
- It is not recommended to use live or glue traps as this can cause the rodent to urinate and this may contain germs

**Clean up!** – eliminate possible rodent food sources by cleaning the home, workplace or campsite.

- Keep food in thick plastic or metal containers
- Clean up spilled food right away
- Keep outside cooking areas and grills clean
- Eliminate possible nesting sites outside the home like hay and wood piles by keeping them at least 1 foot off the ground

If you must clean up after rodents, take precautions before and during the cleanup.

Before the cleanup:

- Trap rodents and seal points of entry to ensure no more rodents get in
- Continue trapping for a week
- Open doors and windows to ventilate the area for at least 30 minutes and leave the area during this period

First clean up urine and droppings:

- **Do not stir up dust by sweeping or vacuuming**
- Wear rubber, latex or vinyl gloves
- Spray the urine and droppings with a mixture of bleach and water and let it sit for 5 minutes

- The recommended concentration solution is 1-part bleach to 10 parts water

- Use a paper towel to pick up the droppings and dispose of them
- After droppings and urine have been removed, disinfect items that have been contaminated

Next, clean and disinfect the whole area:

- Mop floors and clean countertops with disinfectant or bleach solution
- Steam clean or shampoo upholstered furniture and carpets with any rodent exposure
- Wash any bedding or clothing with laundry detergent in hot water

Last, remove gloves and thoroughly wash hands with soap and water. Or use an alcohol-based hand sanitizer when soap and water are not available.

There is no way of knowing if a rodent is infected, therefore taking precautions even when mice or their droppings are not visible, is highly recommended. Avoid all contact with rodents when possible.

For details on the Set up, Trap up and Clean up strategies, visit the CDC Rodents Homepage at [https://www.cdc.gov/rodents/prevent\\_infestations/index.html](https://www.cdc.gov/rodents/prevent_infestations/index.html)



Deer Mouse

### References

1. "Hantavirus Pulmonary Syndrome (HPS)." Centers for Disease Control and Prevention, National Center for Emerging and Zoonotic Infectious Diseases (NCEZID), Division of High-Consequence Pathogens and Pathology (DHCPP). <https://www.cdc.gov/hantavirus/hps/index.html> Accessed 7 December 2020.
2. "Annual Communicable Disease Summary – Vector-Borne Diseases." Washoe County Health District 2018. [https://www.washoecounty.us/health/files/ephp/communicable-diseases/annual-summary/CD\\_Annual\\_2018\\_Final.pdf](https://www.washoecounty.us/health/files/ephp/communicable-diseases/annual-summary/CD_Annual_2018_Final.pdf) Accessed 7 December 2020.
3. "Hantavirus Pulmonary Syndrome – United States: Updates Recommendations for Risk Reduction. *MMWR*. 2002, 51(RR09);1-12. <https://www.cdc.gov/mmwr/preview/mmwrhtml/rr5109a1.htm> Accessed 7 December 2020.
4. "Rodents." July 2010. Centers for Disease Control and Prevention, National Center for Emerging and Zoonotic Infectious Diseases (NCEZID), Division of High-Consequence Pathogens and Pathology (DHCPP) <https://www.cdc.gov/rodents/index.html> Accessed 7 December 2020.