

Hantaviruses Facts

University of Illinois at Urbana-Champaign • June 2007

What are hantaviruses?

Hantaviruses are a group of viruses carried by wild rodents. The most notorious hantavirus in the U.S. is the Sin Nombre virus (SNV) that was isolated in New Mexico in the summer of 1993, after several people died from an unexplained, acute respiratory illness. SNV and other “new world” hantaviruses can cause disease in humans called hantavirus pulmonary syndrome (HPS). Victims develop flu-like symptoms followed by shortness of breath; death from respiratory failure can occur in as many as 40% percent of the cases. At present, there is no effective vaccine against hantavirus infection. Diagnosis and treatment of HPS are difficult.

As of February 2006, 416 cases of HPS in the United States have been verified and reside in 32 states. The oldest case of HPS caused by SNV was discovered to have occurred in 1959. Thirty-six percent of all reported cases have resulted in death. About three-quarters of patients with HPS have been residents of rural areas.

How are hantaviruses transmitted?

Hantavirus is transmitted to humans when they inhale dust contaminated by droppings, urine or saliva from an infected rodent. This disease can also be transmitted from bites inflicted by infected rodents or from direct contact with rodent excretions followed by touching the mouth or nose prior to hand washing.

Although an unusual outbreak of hantavirus infection in 1995 in Argentina appears to have involved person to person transmission, this type of transmission has never been seen with hantaviruses occurring in the U.S.

Is there a concern for hantaviruses in Illinois and the Midwest?

Two cases of HPS have been reported in Illinois. The first case was found in June of 1996. This individual died from infection with SNV. It is likely that his hantavirus infection resulted from an unusually high exposure to wild rodents and/or their excretions. Several species of wild rodents were trapped from the residence and farm building where the individual lived. The second case was reported in 2005 and the individual survived.

Three out of the five adjacent states to Illinois have also reported HPS cases: two cases have been confirmed in Indiana, one in Wisconsin, and six in Iowa as of February 2006.

Am I at risk of exposure to hantaviruses?

Specific risk factors are poorly defined; however, persons engaging in activities that bring them in contact with rodents and/or their excretions may be at a higher risk for infection. Potentially occupationally acquired SNV infections have been recognized but are infrequent. Among documented U.S. cases of HPS, patients with potential occupational exposures have included grain farmers, an extension livestock specialist, field biologists, and agricultural, mill, construction, utility and feedlot workers. Among U.S. mammalogists and rodent workers with varying degrees of rodent exposure, the seroprevalence of SNV antibodies was 1.14%

The U.S. Public Health Service Centers for Disease Control and Prevention (CDC) has issued guidelines for persons performing ecologic and epidemiologic studies involving populations of rodents that are potentially infected with hantavirus. Recommendations to reduce the risk for exposure to hantavirus also include precautions for persons involved in activities associate with exposure to rodents, rodent excreta, and contaminated dust.

How can I protect myself?

If you are planning on doing fieldwork with wild rodents, disposal gowns or coveralls, rubber gloves, and masks should be worn. All disposable PPE should be placed in a biohazard bag to be autoclaved. If coveralls or gowns are not disposable, they should be removed before leaving the site and laundered properly. Additional information can be obtained from the following references:

Methods for Trapping and Sampling Small Mammals for Virologic Testing, Centers for Disease Control and Prevention, Special Pathogens Branch, U.S. Department of Public Health and Human Services, September, 1995. Available online at: <http://www.cdc.gov/ncidod/dvrd/spb/mnpages/rodentmanual.htm>

Precautions for Workers in Affected Areas Who are Regularly Exposed to Rodents, Centers for Disease Control and Prevention, Special Pathogens Branch, U.S. Department of Public Health and Human Services, June, 2000. Available online at: <http://www.cdc.gov/ncidod/diseases/hanta/hps/noframes/prevent5.htm>

Hantaviruses, continued

Laboratory Management of Agents Associated with Hantavirus Pulmonary Syndrome: Interim Biosafety Guidelines, Centers for Disease Control and Prevention, Morbidity and Mortality Weekly Report, Recommendations and Reports, May 13, 1994. Available online at:
<http://www.cdc.gov/mmwr/preview/mmwrhtml/00031653.htm>.

References

Center for Disease Control and Prevention; National Center for Infectious Diseases
<http://www.cdc.gov/ncidod/diseases/hanta/hps/noframes/generalinfoindex.htm>

Illinois Department of Public Health <http://www.idph.state.il.us/public/hb/hbhanta.htm>