

Advisory 12.7 Guidelines for Handling Animal that may be Infected with Hantavirus

Purpose:

This policy is to minimize occupational exposure to zoonotic agents. These guidelines are based on practices used on the Centers for Disease Control and Prevention recommendations for areas known to have zoonotic of hantavirus infection.

Determining the level of risk of human acquisition of Hantavirus Pulmonary Syndrome (HPS) in a UC facility or from a UC research project is the responsibility of the University of Cincinnati's Institutional Biosafety Committee (IBTC). When the IBC determines there is a risk of HPS, then hantavirus precautions must be implemented.

Background:

In 1993, a previously unknown infectious disease agent was discovered by a task force of scientists in New Mexico. The agent has been named hantavirus and it has been determined to belong to the Bunyaviridae family of viruses. It is considered a Biosafety Level 4 pathogen. Rodents known to carry the virus include the deer mouse (*Peromyscus maniculatus*), the white-footed mouse (*Peromyscus leucopus*), the cotton rat (*Sigmodon hispidus*), and the Rice rat (*Oryzomys palustris*).

This disease agent occurs naturally throughout most of North and South America. It is thought to be spread by airborne exposure to rodent droppings that have been disturbed, resulting in dust that can be inhaled

Symptoms of the Hantavirus Pulmonary Syndrome include fever, chills, malaise, headaches, nausea, abdominal and back pain, respiratory problems, and gastrointestinal problems. These symptoms usually last for 3-7 days and are followed by a hypotensive phase when blood platelet levels drop and symptoms can lead to tachycardia and hypoxemia lasting 2 days. In the absence of prompt medical attention, its infections are usually fatal. The disease can affect anyone, but given some fundamental knowledge, it can also be easily prevented.

HPS is an infectious respiratory disease caused by the hantavirus, HPS is typically fatal, and nearly one-half of all hantavirus-infected individuals have died. Although no human cases of Hantavirus have been reported from Ohio, at least two cases have been reported from Indiana.

Precautions to be Used when Handling Rodents:

1. Employees and students handling rodents must be informed about hantavirus transmission and symptoms of infection and be given detailed guidance on prevention measures.
2. When handling rodents or handling traps containing rodents, rubber, latex, vinyl,

- or nitrile gloves must be worn. Before removing the gloves, wash gloved hands in a disinfectant or chlorine solution and after removing gloves wash bare hands in soap and water.
3. Employees and students handling rodents must have a medical clearance for respirator use, must receive a baseline evaluation, and must receive a medical examination if they develop a febrile or respiratory illness within 45 days of exposure to rodents. The Cincinnati Health Department must be promptly informed if hantavirus-associated illness is suspected (Karen Evans 513-357-7391 or Carla at 513-357-7392). If hantavirus infection is suspected, serum must be obtained and forwarded to the Cincinnati Health Department for hantavirus antibody testing.
 4. Employees and students must be able to contact on-call medical services for at least 45 days after the last potential hantavirus exposure (University Health Services at 513-584-4457 or the University Hospital Emergency Department at 513-584-5700).
 5. When removing rodents from traps or handling rodents, workers must wear a half-face, tight-seal, negative-pressure respirator or a positive pressure powered air-purifying respirator equipped with N-100 or P-100 filters. Respirator use practices will be in accordance with Occupational Safety and Health Administration (OSHA) regulations 29 CFR 1910.134, which includes a written program specific to respirator use, risk assessment for personal protective equipment, medical clearance to wear respiratory protection, and annual training and fit testing in each approved respirator type.

References:

<http://www.hantavirus.net/>
<http://www.cdc.gov/ncidod/diseases/hanta/hps/noframes/phys/printtechsection.htm>
<http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5109a1.htm>
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Gannon, WL, Sikes, RS, and the Animal Care and Use Committee of the American Society of Mammalogists, Guidelines of the American Society of Mammalogists for the Use of Wild Mammals in Research, Journal of Mammalogy, 2007; 88(3):809-823.

Kelt, DA, Van Vuren, DH, Hafner, MS, Danielson, BJ, and Kelly MJ. Threat of Hantavirus Pulmonary Syndrome to Field Biologists Working with Small Mammals. Emerging Infectious Diseases (<http://www.cdc.gov/eid/content/13/9/1285.htm>)