

## Hantavirus

*Hantavirus is spread through contact with mice saliva, droppings, feces, urine and nesting material. It causes a rare but very serious lung disease called Hantavirus Pulmonary Syndrome (HPS) and Hemorrhagic fever with renal syndrome (HFRS) among other diseases.*

### Virology

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Hantaviruses are part of the Buynaviridae family. They are enveloped single stranded negative sense viruses. Based on primary hosts, Hantaviruses can be divided into categories Muridae (old world rats and mice), Arvicolinae (voles and lemmings), Sigmodontinae (new world rats and mice). The strains that are pathogenic to humans are Sin Nombre, Black Creek Canal, Laguna Negra, Puumala, Dobrava-Belgrade, Hantaan, Andes, New York and Bayou.

### Clinical Manifestations

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Hantavirus pulmonary syndrome can cause flu like symptoms approximately 2 to 3 weeks after exposure, they include: fever, body aches and drowsiness. As the infection develops other symptoms such as abdominal pain, nausea, vomiting or diarrhea may occur. After about 4-10 days of being symptomatic, the symptoms may increase in severity to shortness of breath, difficulty breathing and coughing. The infection can rapidly advance causing the lungs to fill with fluid, decrease in blood pressure or lung failure. HPS has a mortality rate of 38%.

### Epidemiology of Transmission

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Hantavirus is transmitted through inhaling virus particulate in the air via urine, droppings or nesting materials. The main route of transmission is airborne; it may also be spread from food and surfaces contaminated with rodent urine or droppings. Rarely hantavirus can be transmitted via rodent bites.

### Basic Prevention

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In home, work or when camping aim to eliminate or minimize contact with rodents. Cover any small holes around the perimeter of living or work spaces. Clean or remove food that is easily accessible to rodents or keep food in sturdy plastic or metal containers that can be sealed. When camping, try to keep the campsite clean.

## Prevention Measures

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Routine / Standard Precautions should be implemented with patients who are suspected or confirmed to have Hantavirus infection.

- Patients with HPS cannot spread the virus to humans through direct or indirect contact
- Follow hand-hygiene guidelines by either carefully washing hands with soap and water or using Alcohol-Based Hand Sanitizers (ABHS) after contact
- Use gowns, gloves, face mask and eye protection when in contact with, or caring for patients and for all interactions that may involve contact with the patient or potentially contaminated areas in the patients environment

## Environmental Control Measures

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Products used for disinfection must have an appropriate virucidal claim. Routine cleaning and disinfection should be performed on frequently touched environmental surfaces. There should be prompt removal of blood and body fluids followed by routine disinfection. All patient care equipment should be cleaned and disinfected as per Routine / Standard Practices before reuse with another patient or a single use device should be used and discarded in a waste receptacle after use. If cleaning up rodent droppings or nesting wear gloves, goggles and a mask and ventilate the area for at least 30 minutes. Saturate the droppings and allow soaking for 5 minutes with a solution that is 1 part bleach 10 parts water or follow manufacturer's instructions for commercial disinfectants. Remove waste with a paper towel and dispose. Disinfect other areas that may have been contaminated.

## References:

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1. Public Health Agency of Canada. Hantavirus spp.  
<http://www.phac-aspc.gc.ca/lab-bio/res/psdsftss/hantavirus-eng.php>
2. Health Canada It's your Health- Hantaviruses.  
<http://www.hc-sc.gc.ca/hl-vs/iyh-vsv/diseasesmaladies/hantavirus-eng.php>
3. Centres for Disease Control and Prevention: Facts about Hantaviruses (pdf).  
[http://www.cdc.gov/hantavirus/pdf/HPS\\_Brochure.pdf](http://www.cdc.gov/hantavirus/pdf/HPS_Brochure.pdf)
4. The Canadian Lung Association.  
[http://www.lung.ca/diseases-maladies/a-z/hantavirushantavirus/index\\_e.php](http://www.lung.ca/diseases-maladies/a-z/hantavirushantavirus/index_e.php)
5. Centres for Disease Control and Prevention: Cleaning up After Rodents.  
<http://www.cdc.gov/rodents/cleaning/index.html>