

HANTAVIRUS PULMONARY SYNDROME

Disease Category: Zoonotic

Timeframe to follow-up:

See the link to the Disease Investigation Process document

Signs and Symptoms

Hantavirus pulmonary syndrome (HPS) develops from hantavirus disease. The first phase of the illness, before the syndrome occurs, is the prodromal (febrile) phase of infection. During this period, the individual may begin to experience flu-like symptoms:

- Fever
- Fatigue
- Headache
- Muscle aches
- Chills
- Nausea
- Abdominal pain
- Cough

After the initial phase of infection, the individual will begin to experience cardiopulmonary symptoms, signaling HPS:

- Reduced cardiac output
- Dry coughing
- Shortness of breath
- Pulmonary edema
- Respiratory failure
- Hypotension
- Chest pain

Incubation

Symptoms of hantavirus usually begin to show between 1 and 8 weeks (average is 2 to 3 weeks) after exposure.

Case Classification

Clinical Criteria

The clinical criteria for HPS are satisfied if the individual experiences all phases of illness. After the incubation period, the infected person will have prodromal and eventually cardiopulmonary symptoms. A person can only be clinically diagnosed with HPS if they enter the cardiopulmonary phase and experience one or more of the following clinical features:

- Bilateral diffuse interstitial edema
- Acute respiratory distress syndrome (ARDS)
- Radiographic evidence of noncardiogenic pulmonary edema
- An unexplained respiratory illness resulting in death
- Healthcare record with a diagnosis of hantavirus pulmonary syndrome
- Death certificate lists hantavirus pulmonary syndrome as a cause of death or a significant condition contributing to death

	Confirmed Diagnosis/Laboratory Criteria • Detection of hantavirus-specific immunoglobulin M or rising titers of hantavirus-specific immunoglobulin G, or • Detection of hantavirus-specific ribonucleic acid in specimens, or • Detection of hantavirus antigen by immunohistochemistry in lung biopsy or autopsy tissues
Differential Diagnosis	Key components of both phases of HPS illness make differential diagnosis likely: • Symptoms in the prodromal phase are very similar to those caused by other febrile illnesses, such as the flu, bacterial infections, or inflammatory conditions • Cardiopulmonary symptoms may be the result of a variety of diseases and conditions, such as heart failure or some cancers
<u>Treatment</u>	There are no antiviral therapies that can treat hantavirus infection, but treatment for symptoms should be given at the first indication of illness. This may include: • Fever reducers • Pain relievers • Extracorporeal membrane oxygenation (ECMO) OR intubation • Fluid restriction
Duration	After febrile illness passes and the cardiopulmonary phase (HPS) begins, symptoms usually persist for only 2-5 days.
<u>Exposure</u>	An individual is exposed if they: • Come in contact with rodents, surfaces, or objects contaminated with a hantavirus • Inhale aerosolized droppings, urine, saliva, or birthing material from an infected rodent • Come in close contact with an individual who has contracted ANDV
<u>Laboratory Testing</u>	Local Health Authority can arrange testing if an outbreak is suspected OR for contacts: • Nevada State Public Health Laboratory Serologic assays, PCR, and postmortem autopsies are appropriate for testing. • The CDC and the Nevada State Public Laboratory use an enzyme-linked immunosorbent assay (ELISA) Determining if a person is positive for hantavirus is dependent on the clinical symptoms of HPS as well as the ELISA results, such as: • IgM positive • IgG positive with rising titers • Immunohistochemistry positive, OR • PCR positive

<u>Control of Contacts</u>	A hantavirus contact is an individual who has been exposed to a person or rodent carrying hantavirus. Controlling contacts is vital for the prevention and management of cases. Symptomatic contacts should be treated the same as a case, meaning they should be: • Removed from their environment and brought to a medical facility • Given preemptive or responsive emergency medical care • Tested for hantavirus infection (if not already) In the case of Sin Nombre virus (SNV) or another hantavirus not transmittable between humans, no person-to-person isolation or workplace exclusion is required for contacts. Instruct them to self-monitor for symptoms (fever, myalgia, dyspnea) for 1–8 weeks. In the case of Andes virus (ANDV), the contact must remain accessible to medical care and avoid all contact with other people who are (1) not medical professionals AND (2) not wearing the proper protective attire. Symptomatic individuals may not return to the place of infection unless the environment is cleared from exposures. Asymptomatic individuals should remain under medical supervision and practice similar protective measures until they receive a negative test.
Key areas of focus during investigation	Investigations into hantavirus disease should be focused on the travel history, food history, and occupational exposures of the inflicted.
Public Health Actions	Reports of hantavirus cases must be made to the Local Health Authority during the regular business hours of the health authority on the first working day following the identification of the case. Local Health Authority to notify Office of State Epidemiology (dpbhepi@health.nv.gov) or call 775-684-5911/775-400-0333 (after hours) if outbreak suspected. For individual confirmed or probable cases: • Confirm diagnosis, if possible • Identify potential exposures • Prepare a case report and submit to the Chief Medical Officer (through OSE) within 7 days after completing the case investigation • Identify potential outbreaks from common sources • Provide education about how to prevent transmission • Connect the individual to avenues of care as early as possible To the best of the local health authority's ability, each step of the investigation should be completed within one working day or in alignment with NAC 441A.
<u>Key Partner Agencies</u>	• Nevada Department of Agriculture • Nevada Health Authority • Centers for Disease Control and Prevention

- | | |
|--|--|
| | <ul style="list-style-type: none">• The Food and Drug Administration |
|--|--|

TABLE OF CONTENTS

TABLE OF CONTENTS	4
DISEASE REPORTING.....	6
A. Legal Reporting Requirements	6
1. Health Care Providers and Health Care Facilities.....	6
2. Laboratories.....	6
3. Local Health Authority (LHA)	6
II. THE DISEASE AND ITS EPIDEMIOLOGY.....	6
A. Background.....	6
B. Etiologic Agent	6
C. Description of Illness	6
1. Prodromal phase (febrile illness)	7
2. Cardiopulmonary phase (sudden, acute onset of HPS - roughly 4 to 10 days into illness progression)	7
D. Disease Burden in Nevada.....	7
E. Reservoirs.....	7
F. Modes of Transmission.....	7
1. Rodent contact (primary mode of transmission).....	7
2. Human contact (Andes only)	8
G. Incubation Period.....	8
H. Period of Communicability.....	8
I. Testing	8
J. Treatment	8
III. EPIDEMIOLOGIC CASE INVESTIGATION.....	9
A. Step 1: Review relevant information about the disease.	9
1. Review scientific information in Control of Communicable Diseases Manual, most recent edition.....	9
2. Review hantavirus pulmonary syndrome most recent case definition (2015 CDC).....	9
B. Step 2: Begin investigating the case.....	9
1. Contact Reporting Source and/or Reported Case.....	9
C. Step 3: Identify potential sources of infection.....	10
D. Step 4: Initiate control measures for case and/or for contacts (see Section IV – Section VI below).....	10
E. Step 5: Provide Education and Prevention messaging to the case and/or contacts (see Section IX below).....	10
IV. CONTROL OF CASE.....	10
1. Management/Exclusions for Specific Groups or Settings	10
2. Exclusion Notifications	11
V. CONTROL OF CONTACTS (if applicable).....	11
1. Management/Exclusions for Specific Groups or Settings	11
2. Exclusion Notifications	12
VI. CONTROL OF CARRIERS.....	12
1. Carrier Management/Exclusions	13
2. Carrier Notifications.....	13

VII. MANAGEMENT OF SPECIAL SITUATIONS/OUTBREAK CONTROL.....	13
1. Sin Nombre Outbreak from Occupational or Recreational Exposures.....	13
2. Andes Outbreak Following Travel to South America	13
3. Foodborne Transmission	14
VIII. PREVENTION.....	14
IX. REFERENCES.....	15
X. ACKNOWLEDGEMENTS.....	15
XI. UPDATE LOG	15

HANTAVIRUS PULMONARY SYNDROME

DISEASE REPORTING

A. Legal Reporting Requirements

□

1. *Health Care Providers and Health Care Facilities*

Health providers and facilities must notify the health authority where provider is located within the first working day after identifying the case. (1) (2) (3)

2. *Laboratories*

Laboratories must notify the health authority within the first working day after identifying the case. (1) If the lab is located outside of Nevada, notify the Nevada Chief Medical Officer through the Office of State Epidemiology (OSE) within the same timeframe. (1) (4)

3. *Local Health Authority (LHA)*

LHA's must notify the Office of State Epidemiology (OSE) within 7 days after completing the case investigation. (5)

II. THE DISEASE AND ITS EPIDEMIOLOGY

A. Background

Hantavirus pulmonary syndrome (HPS) is an acute zoonotic respiratory illness caused by most hantaviruses found in North, South, and Central America, although hantaviruses are known causes of diseases worldwide. The main risk factor for HPS is exposure to hantavirus-carrying rodents and/or their droppings, urine, or saliva. The case fatality rate for the disease is significant, around 36%. HPS may also be referred to as hantavirus cardiopulmonary syndrome (HCPS). (6) (7) (8) (9)

B. Etiologic Agent

The Orthohantavirus genus, which is part of the Hantaviridae family in the Bunyavirales order, includes numerous viruses associated with human hantavirus disease. In North America, severe HPS predominately results from infection with Sin Nombre virus (SNV). Milder, South and Central American genotypes include Andes virus (ANDV), Laguna Negra virus and Choclo virus. Hantaviruses are transmitted to humans from rodents, each of which carries a primary hantavirus. SNV, for example, is spread mainly by the deer mouse. ANDV is the only hantavirus known to be transmissible from human to human. (7) (10)

C. Description of Illness

There are two primary phases to developing HPS after the incubation period has passed and symptoms of hantavirus infection (typically by SNV or ANDV) begin to show.

Hantavirus Pulmonary Syndrome

July 2026

7



1. *Prodromal phase (febrile illness)*

Early symptoms of hantavirus infection that may be clinically nonspecific: fever, fatigue, headache, muscle aches, chills, nausea, abdominal pain, and/or other flu-like symptoms.

2. *Cardiopulmonary phase (sudden, acute onset of HPS - roughly 4 to 10 days into illness progression)*

Cardiac output is significantly reduced and the lungs of the infected begin to fill with fluid. This causes dry coughing, shortness of breath (dyspnea), pulmonary edema, respiratory failure, and other deadly respiratory symptoms to occur. Chest pain is common and hypotension usually occurs within 24 hours of initial observation.

- The likelihood of progressing into the cardiopulmonary phase is variable between species of hantavirus. Those infected with SNV or ANDV have up to an 80% chance of reaching this phase
- Although the cardiopulmonary phase of the illness typically only lasts between 2 and 5 days, it is the most critical point of infection. 36% of individuals who develop respiratory symptoms may die
- If a patient does not develop cardiopulmonary symptoms, they are not considered to have HPS (8) (9)

D. Disease Burden in Nevada

HPS is endemic to Nevada. In the past decade, there has been an average of 1 or 2 cases per year following no specific pattern. In 2025, there was an unusual spike in cases (5), leading to a 400% increase over the annual baseline. Between 2012 and 2016 there were 0 cases of HPS in Nevada.

See the [Nevada Office of State Epidemiology Communicable Disease Dashboard](#) for Nevada specific data on hantavirus pulmonary syndrome (Monitoring Zoonotic Diseases in Nevada section).

E. Reservoirs

Rodents are the natural reservoirs for all hantavirus diseases. In North, South, and Central America, there are many different species of rodents that carry the etiologic agents necessary for HPS. SNV is most commonly transmitted by the deer mouse. ANDV is usually transmitted by long-tailed rice rats found in Argentina and Chile. ANDV (only) may also be transmitted between humans. (10) (11)

F. Modes of Transmission

The transmission of hantavirus can occur through (1) rodent or (2) human contact.

1. *Rodent contact (primary mode of transmission)*

Infected rodents shed hantavirus in their feces, urine, and saliva. If surfaces with these secretions are disturbed by air currents or sweeping, the virus can become aerosolized and inhaled. Touching contaminated objects and immediately touching the mouth or nose can also lead to infection as well as the consumption of

contaminated food. Although rare, bites or scratches by hantavirus-carrying rodents may also spread the virus. (6) (10)

2. **Human contact (*Andes only*)**

The Andes virus (ANDV) is the only known hantavirus that can be transmitted between humans. Prolonged contact is required for the virus to spread (i.e. touching, hugging, sexual contact, etc.) as it is speculated to be transmitted by oral fluids. There have also been cases of ANDV infection through the consumption of breast milk. (10) (11)

G. Incubation Period

After exposure to a hantavirus, it typically takes between 1 and 8 weeks for symptoms to occur (average is 2-3 weeks). (9)

H. Period of Communicability

Not specified by the CDC.

I. Testing

Serologic assays, RT-PCR, and immunohistochemistry (IHC) on autopsy tissues are standard methods for hantavirus detection. The CDC and the Nevada State Public Health Laboratory (NSPHL) utilize enzyme-linked immunosorbent assays (ELISA) to detect IgM and IgG antibodies to diagnose acute infections. Additional information about testing in Nevada can be found at the [Nevada State Public Health Laboratory](#) website.

Laboratory criteria for a confirmed case require at least one of the following findings in a patient with a compatible clinical presentation:

- Presence of hantavirus-specific immunoglobulin M (IgM)
- Fourfold or greater rise in hantavirus-specific immunoglobulin G (IgG) antibody titers in paired serum samples
- Detection of hantavirus-specific RNA by reverse-transcription polymerase chain reaction (RT-PCR) in clinical specimens
- Detection of hantavirus antigen by immunohistochemistry (IHC) in lung biopsy or postmortem tissues (6)

J. Treatment

Because acute HPS can progress rapidly to severe cardiopulmonary collapse, early clinical suspicion demands immediate transfer to a tertiary facility with intensive care and extracorporeal membrane oxygenation (ECMO) capabilities, even before laboratory results are finalized.

Key clinical management strategies include:

1. Empiric Broad-Spectrum Antibiotics: Initiated during the initial prodromal evaluation to cover potential bacterial pathogens causing acute febrile respiratory illness (e.g., bacterial pneumonia, sepsis) while hantavirus confirmatory testing is pending.

2. Antipyretics and Analgesics: Administered for fever and myalgia during the prodromal phase.
3. Hemodynamic and Fluid Management: Carefully administered fluids (judicious fluid resuscitation) to maintain adequate perfusion without exacerbating pulmonary capillary leak, paired with early inotropic and vasopressor support for hypotension.
4. Advanced Respiratory and Circulatory Support: Supplemental oxygenation, early mechanical ventilation, or venoarterial ECMO (VA-ECMO) at the first signs of rapid decompensation or refractory cardiogenic shock.

There are no specific antiviral therapies to treat hantavirus infection. (6) (9)

Provide most current treatment guidelines from [Red Book](#) to the healthcare provider or refer case to physician for proper treatment for HPS.

III. EPIDEMIOLOGIC CASE INVESTIGATION

The public health authority should begin investigating the case of HPS, step by step, within one working day of notification or in alignment with [NAC 441A](#).

A. Step 1: Review relevant information about the disease.

1. *Review scientific information in [Control of Communicable Diseases Manual](#), most recent edition.*
2. *Review hantavirus pulmonary syndrome most recent case definition ([2015 CDC](#)).*

B. Step 2: Begin investigating the case.

1. *Contact Reporting Source and/or Reported Case*

Upon receiving an initial case report, review lab test results and available clinical details and epidemiologic factors. Please make three attempts to contact the case (text and phone calls) on separate days, at different times of the day (morning, afternoon, late afternoon). Document all attempts to contact a reporting source and/or reported case, preferably in the “Encounters” tab of EpiTrax. Please use case report forms (CRF) to gather accurate information about the case. Focus on the key data elements listed above. Filling out an electronic version of the CRF in EpiTrax (called a Confidential Morbidity Report (CMR) in EpiTrax) is preferred. If used, the completed PDF version should be attached to the CMR in EpiTrax. The CRF should be completed within 7 days of completing the investigation of the case. (5)

C. Step 3: Identify potential sources of infection

The investigation focuses on exposures in the 1-8 weeks before symptom onset. Travel to/from North, South, and Central America puts an individual at risk for hantavirus infection. Specific, sensitive occupations also increase the risk of infection from exposure to hantavirus-carrying rodents and/or their products. (9)

D. Step 4: Initiate control measures for case and/or for contacts (see Section IV – Section VI below).

E. Step 5: Provide Education and Prevention messaging to the case and/or contacts (see Section IX below).

IV. CONTROL OF CASE

1. *Management/Exclusions for Specific Groups or Settings*

Specific, sensitive occupations for hantavirus infection are not defined by the Nevada legislature, but any stationary or travel-oriented occupation that exposes an individual to rodents or their droppings, saliva, or urine may put them at risk for developing HPS, such as people who work in rural areas with exposure to forests, barns, or fields (high-risk exposure environments). A case of HPS can be defined as an individual who satisfied the laboratory and epidemiologic criteria necessary to be classified as a confirmed or probable case. (1) (6)

Applicable Case Environments	Symptomatic	Asymptomatic
High-risk exposure environments (E.g. Forest, barn, and/or field workers) Childcare/School Medical Facility General Population	If an individual is showing symptoms of HPS, they should <u>immediately</u> be: - Removed from their environment (work, school, public, etc.) and brought to a medical facility - Given preemptive or responsive emergency medical care - Tested for hantavirus infection (if not already) The following infection control practices are dependent on the type of hantavirus infection: - SNV or another hantavirus not transmittable by human contact: The infection does not need to be controlled - remain in an environment where medical professionals and potential modes of	If an individual tests positive for hantavirus but remains asymptomatic, they should: - Remove themselves from their place of work, school, medicine, or leisure - Receive a medical evaluation and care plan from a medical professional The following infection control practices are dependent on the type of hantavirus infection: - SNV or another hantavirus not transmittable by human contact: The infection does not need to be controlled - remain in an environment where medical professionals and potential modes of treatment are easily accessible

	treatment are easily accessible - ANDV: Remain accessible to medical care and avoid all contact with other people who are (1) not medical professionals and (2) not wearing the proper protective attire Symptomatic individuals may not return to the place of infection <u>unless</u> the environment is cleared from exposures. Other people at risk for exposure should not return to the place of infection until the proper measures have been taken to ensure environmental safety.	- ANDV: ANDV may remain transmissible even when asymptomatic - remain accessible to medical care and avoid all close contact with people who are (1) not medical professionals and (2) not wearing the proper protective attire Asymptomatic individuals may not return to the place of infection <u>unless</u> the environment is cleared from exposures. Other people at risk for exposure should not return to the place of infection until the proper measures have been taken to ensure environmental safety.
--	---	--

(13)

2. **Exclusion Notifications**

Specific exclusion notifications for cases of hantavirus infection have not been identified, but the environments listed above are more likely to facilitate transmission and all ANDV cases should be excluded from those locations. (1)

In cases of SNV or other hantaviruses not transmissible between humans, disease response does not require any case-specific control measures.

V. CONTROL OF CONTACTS (IF APPLICABLE)

A contact of HPS is an individual that has been exposed to a case or carrier, typically a rodent or person capable of infecting another individual with hantavirus. (1)

1. **Management/Exclusions for Specific Groups or Settings**

Applicable Contact Environments	Symptomatic	Asymptomatic
High-risk exposure environments (E.g. Forest, barn, and/or field workers)	If a contact case is symptomatic, it should be investigated in the same manner as a case.	If a contact case is asymptomatic, the individual should still be: Removed from the work, school, medical, or public environment
Childcare/School	Refer to the case control section above to	

Medical Facility General Population	identify symptomatic procedures.	• Tested for hantavirus infection • Closely monitored for development of symptoms The following steps are dependent on the hantavirus of interest: • SNV or another hantavirus not transmittable by human contact: no person-to-person isolation or workplace exclusion is required for contacts. Instruct them to self-monitor for symptoms (fever, myalgia, dyspnea) for 1-8 weeks • ANDV: ANDV may remain transmissible even when asymptomatic, so case contacts should remain accessible to medical care and avoid all close contact with other individuals Potential cases at risk for exposure should not return to the place of contact until the proper measures have been taken to ensure environmental safety.
--	----------------------------------	--

(12)

2. **Exclusion Notifications**

Specific exclusion notifications for contacts of hantaviruses have not been identified, but the environments listed above are more likely to facilitate transmission and all ANDV contacts should be excluded from those locations. (1)

In cases of SNV or other hantaviruses not transmissible between humans, disease response does not require any contact-specific control measures.

VI. CONTROL OF CARRIERS

A carrier in this context is an animal infected with a communicable hantavirus that does not have any discernable symptoms. Carriers should be investigated in the same manner as an asymptomatic case. (1)

1. *Carrier Management/Exclusions*

Humans do not serve as chronic carriers for Orthohantaviruses. Rodents (e.g., deer mice) are the natural reservoirs and persistent excretors of the virus. Carrier control is strictly ecological and structural (9) (12):

- Rodent abatement via trapping, sealing structural entry points greater than 1/4 inch and eliminating food/nesting sources around human structures.
- Safe extermination and wet disinfection of infested domestic or occupational spaces.

2. *Carrier Notifications*

Specific notifications for carriers of hantaviruses have not been identified, but the environments listed above are more likely to facilitate transmission and all ANDV cases should be excluded from those locations. (1)

In cases of SNV or other hantaviruses not transmissible between humans, disease response does not require any carrier-specific control measures.

VII. MANAGEMENT OF SPECIAL SITUATIONS/OUTBREAK CONTROL

Coordinate with senior epidemiology staff to determine if an outbreak is occurring. If so, notify DPBH Environmental Health, local health authorities, or infection control, as appropriate.

1. *Sin Nombre Outbreak from Occupational or Recreational Exposures*

SNV infection and subsequent development into HPS is most likely to occur in North America. Occupations or recreational activities that take place in areas with high rodent/deer mouse activity, such as fields, forests, or infested homes, put individuals at risk for acquiring the virus. If an outbreak occurs from this situation:

- Immediately connect all infected (or suspected) individuals to medical care where they can be tested, monitored, and treated for HPS
- All activities in the location of exposure should cease until the investigation is complete and the area is deemed no longer a threat of infection
- OSE should coordinate with the state health department, the CDC, and potentially the United States Department of Agriculture to help identify the source of the outbreak, make the area of exposure safe for occupants, and implement further prevention measures (10) (13)

2. *Andes Outbreak Following Travel to South America*

ANDV is spread only by rodents found in South America, particularly long-tailed rice rats found in Argentina and Chile. Although rare, ANDV may spread from person to person. For this reason, an appropriate response and quarantine procedure should be executed immediately following infection:

- Immediately connect all infected (or suspected) individuals to medical care where they can be tested, monitored, and treated for HPS
- Identify all possible disease contacts, inform them of the situation, and link them to care
- Follow [quarantine measures](#) specified by the CDC

- OSE should work with state health departments and the CDC to ensure the communicable virus is contained and no longer a threat to public health (11)

3. ***Foodborne Transmission***

Food contaminated with hantaviruses can infect consumers. If foodborne transmission occurs:

- Immediately connect all infected (or suspected) individuals to medical care where they can be tested, monitored, and treated for HPS
- Investigate the source of the outbreak and identify whether the case(s) comes from a singular source or multiple sources
- OSE should work with state health departments, the CDC, and the Food and Drug Administration (FDA) to identify the source(s) of the outbreak and implement measures to prevent additional transmission (6)

VIII. PREVENTION

The investigator should reference the most recent disease specific public educational materials from the CDC. The [Nevada OSE website](#) also provides information about HPS.

There are no confirmed methods to stop the development of HPS after contracting a hantavirus. Therefore, to prevent HPS, hantaviruses should be avoided completely. The following should be considered:

- Avoid contact with rodents, especially in areas that are endemic to hantavirus transmission (North, South, and Central America)
- Be cautious of rodent products (droppings, urine, saliva, and birthing material) and wear the proper protective equipment when in forests, barns, or fields
- Do not make close contact with someone who has or is suspected of having an ANVD hantavirus infection

Immediately seek out testing/treatment by a medical professional if contact or suspected contact with a hantavirus occurs. (9) (10)

IX. REFERENCES

1. REPORTING OF COMMUNICABLE DISEASES - 441A.225. *NAC CHAPTER 441A - INFECTIOUS DISEASES; TOXIC AGENTS*. [Online] November 2021. [Cited: July 23, 2025.] <https://www.leg.state.nv.us/nac/nac-441a.html#NAC441ASec225>.
2. REPORTING OF COMMUNICABLE DISEASES - 441A.230. *NAC CHAPTER 441A - INFECTIOUS DISEASES; TOXIC AGENTS*. [Online] November 2021. [Cited: January 19, 2024.] <https://www.leg.state.nv.us/nac/nac-441a.html#NAC441ASec230>.
3. REPORTING OF COMMUNICABLE DISEASES - 441A.240. *NAC CHAPTER 441A - INFECTIOUS DISEASES; TOXIC AGENTS*. [Online] November 2021. [Cited: July 23, 2025.] <https://www.leg.state.nv.us/nac/nac-441a.html#NAC441ASec240>.
4. REPORTING OF COMMUNICABLE DISEASES - 441A.235. *NAC CHAPTER 441A - INFECTIOUS DISEASES; TOXIC AGENTS*. [Online] November 2021. [Cited: July 23, 2025.] <https://www.leg.state.nv.us/nac/nac-441a.html#NAC441ASec235>.
5. DUTIES AND POWERS RELATING TO THE PRESENCE OF COMMUNICABLE DISEASES. *NAC CHAPTER 441A - INFECTIOUS DISEASES; TOXIC AGENTS*. [Online] November 2021. [Cited: July 23, 2025.] <https://www.leg.state.nv.us/nac/nac-441a.html#NAC441ASec290>.
6. CDC. Clinician Brief: Hantavirus Pulmonary Syndrome (HPS). *Centers for Disease Control and Prevention*. [Online] May 8, 2026. <https://www.cdc.gov/hantavirus/hcp/clinical-overview/hps.html>.
7. CDC. Hantavirus Pulmonary Syndrome (HPS) 2015 Case Definition. *Centers for Disease Control and Prevention*. [Online] April 16, 2021. <https://ndc.services.cdc.gov/case-definitions/hantavirus-pulmonary-syndrome-2015/>.
8. CDC. About Hantavirus. *Centers for Disease Control and Prevention*. [Online] May 13, 2024. <https://www.cdc.gov/hantavirus/about/>.
9. Harkins, Michelle and Vial, Pablo A. Hantavirus infections: Clinical features, diagnosis, and management of hantavirus cardiopulmonary syndrome. *UpToDate*. [Online] June 17, 2026. https://www.uptodate.com/contents/hantavirus-infections-clinical-features-diagnosis-and-management-of-hantavirus-cardiopulmonary-syndrome?search=hantavirus%20pulmonary%20syndrome%20etiology&source=search_result&selectedTitle=1~18&usage_type=default&displa.
10. Vial, Pablo A and Harkins, Michelle. Hantavirus infections: Epidemiology, transmission, and prevention. *UpToDate*. [Online] July 20, 2026. https://www.uptodate.com/contents/hantavirus-infections-epidemiology-transmission-and-prevention?search=is%20hantavirus%20endemic%20to%20nevada&source=search_result&selectedTitle=2~150&usage_type=default&display_rank=2&searchCorrelationId=9eddc9bf-04a9-46.

11. CDC. About Andes Virus. [Online] May 29, 2026.
<https://www.cdc.gov/hantavirus/about/andesvirus.html>.
12. CDC. Interim Guidance for Public Health Assessment and Management of People with Potential Exposure to Andes Virus. *Centers for Disease Control and Prevention*. [Online] June 22, 2026.
https://archive.cdc.gov/#/details?url=https://www.cdc.gov/hantavirus/php/emergency-guidance/index.html&CDC_AAref_Val=https://www.cdc.gov/hantavirus/php/emergency-guidance/.
13. Torres-Pérez, Fernando, et al. Sin Nombre Virus Infection in Field Workers, Colorado, USA. 2010. *Emerging Infectious Diseases* 16(2).

X. ACKNOWLEDGEMENTS

This document was developed based on the content and format of the disease (6) investigation guidelines of several state and local health jurisdictions:

- Oregon Health Authority Investigative Guidelines
- Washington State Department of Health Reporting and Surveillance Guidelines
- Washoe County Health District Epidemiology and Communicable Disease Program Investigation of Communicable Disease Manual

The Nevada Office of State Epidemiology would like to acknowledge the work of these great partners.

XI. UPDATE LOG



Ihsan Azzam, Ph.D., M.D.
Chief Medical Officer

8/21/2026

Chief Medical Officer Approval Date

Hantavirus Pulmonary Syndrome

July 2026
17

