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BEST PRACTICE

Biosafety Considerations for Laboratory Testing for Andes Virus

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Background

This interim guidance has been developed in response to recent Andes virus (ANDV), a type of hantavirus, infections affecting passengers and crew linked to the MV Hondius cruise ship. Refer to Rapid risk assessment: Hantavirus (Andes virus) outbreak on international cruise ship for risk categorization.[1] Although limited human-to-human transmission has been reported with ANDV, it has occurred primarily after close, prolonged contact with symptomatic individuals[2] and has not been observed in clinical laboratory settings during routine handling of patient specimens. The risk to the general public in Canada remains low[3], and ANDV is not considered a pathogen with pandemic potential.[1]

This guidance was developed by the Ontario Laboratory Medicine Program Microbiology Committee and the BCCDC Public Health Laboratory and through review of existing national and international reports and guidance as of May 17, 2026. This guidance has been reviewed by and reflect a consensus endorsement among members of the Canadian Public Health Laboratory Network (CPHLN) Council. Where applicable, the recommendations are intended to be consistent with South American guidance and experience related to ANDV, while being adapted for the Canadian laboratory and public health context.

Scope

This guidance provides interim laboratory direction to support safe routine diagnostic testing specifically for ANDV while minimizing disruption to laboratory operations. It does not include guidance or recommendations related to:

- Other hantaviruses that may also cause hantavirus pulmonary syndrome (HPS) or those that cause haemorrhagic fever with renal syndrome (HFRS)
- Clinical assessment, evaluation of exposures or infection prevention and control measures related to ANDV. Refer to Infection Prevention and Control Precautions for Hantavirus (Andes Virus) for more information
- Specific diagnostic testing guidance for ANDV and other hantaviruses. Refer to the provincial public health laboratories and the National Microbiology Laboratory testing guidance
  - Molecular Detection of Andes virus[4]
  - Detection of antibodies against Andes virus by ELISA[5]
  - Laboratory Testing for Andes Virus[6]
  - Hantaviruses – Serology and PCR[7]

Andes Virus Summary

ANDV is a single stranded, negative sense, enveloped RNA virus belonging to the family *Hantaviridae*. It primarily causes hantavirus pulmonary syndrome (HPS), which is characterized by a prodrome of fever, malaise and myalgia, and gastrointestinal symptoms lasting 3–6 days, followed by cardiopulmonary decline over 2–48 hrs, including pulmonary oedema and shock. The incubation period ranges from 1 to 8 weeks and is typically 2–4 weeks. The estimated case fatality rate is approximately 30%.[8]

Transmission of ANDV

To date there have been no documented laboratory-acquired infections associated with routine clinical diagnostic testing of specimens from patients infected with ANDV.

ANDV transmission occurs primarily through inhalation of aerosolized excreta (urine, saliva, or respiratory secretions) from infected rodents from disease endemic countries. Limited human-to-human transmission has been described, predominantly in South America, and has typically been associated with close, prolonged, unprotected contact with symptomatic individuals.[2,8]

Laboratory Testing for ANDV

Patients with compatible symptoms and relevant epidemiological risk factors (e.g., exposure linked to the MV Hondius cruise ship cluster) should be managed according to local and regional IPAC practices[9] and should undergo ANDV testing[6] as soon as possible after symptom onset, alongside other investigations guided by the clinical presentation and differential diagnosis.[10]

Testing for symptomatic and asymptomatic patients should be undertaken in conjunction with local or regional public health guidance and their respective laboratory notification pathways (See also Hantaviruses – Serology and PCR).[6,7] Prior to shipping specimens from suspected or confirmed Andes virus cases, laboratories must notify public health and the provincial public health laboratory to ensure appropriate testing indications, preparation, transport, and response.

ANDV Specimen and Collection Instructions

For suspected acute ANDV infection, both molecular testing and serology are recommended. PCR is most informative early in illness, whereas serology is more useful later in the course of illness and during convalescence. Testing should follow guidance from the relevant provincial public health laboratory.[7]

All specimens are submitted to the National Microbiology Laboratory for confirmatory testing. Multiple specimen types should be considered to optimize diagnostic sensitivity and specificity; at minimum, collect EDTA blood and a nasopharyngeal swab, with other specimen types as indicated (Molecular Detection of Andes virus, Detection of antibodies against Andes virus by ELISA).[4,5]

Specimen Handling and Biosafety Considerations

This section outlines biosafety measures for routine handling of specimens from patients at risk for or confirmed with ANDV infection.

Specimens required for routine diagnostic testing do not need to be delayed, referred out or canceled while awaiting ANDV testing results if handled according to appropriate biosafety measures, local risk assessments and the guidance herein.

ANDV is classified as a Risk Group 3 (RG3) pathogen. For routine specimen handling, laboratories should follow existing institutional procedures and standard precautions for RG3 pathogens, using containment level 2 (CL2) routine practices with risk-based enhancements (CL2+) when indicated. Specimens from patients positive or at high-risk for ANDV infection should be labeled according to institutional policy so they can be identified and managed appropriately. Adherence to good laboratory practices and protocols is expected to substantially reduce exposure risk during specimen handling.

This guidance is limited to reinforcing key aspects of good laboratory practice. In particular, aerosol-generating activities (e.g., centrifugation, decapping) should be performed using appropriate containment, such as a biological safety cabinet or closed automated systems, consistent with current institutional practice. Cleaning of the automation machine after running a positive sample may be considered but not required. Any further controls should be determined through local risk assessment and institutional policies.

Examples of good laboratory practices include:

- Perform aerosol-generating procedures in a biological safety cabinet or other closed containment system (for example, closed or covered automation lines)
- Use sealed safety cups or closed rotors for centrifugation, and load or unload them in a biological safety cabinet
- Minimize the use of needles, syringes, and other sharps
- Staff with open wounds, cuts, scratches, and abrasions should cover them with waterproof dressings
- When preparing Gram stain slides, use an appropriate fixation method (for example, methanol fixation) in accordance with laboratory protocols

Use enhanced CL2+ precautions when the risk assessment indicates increased exposure risk. ANDV viral culture must be performed in a CL3 facility. Refer to WHO and Canadian biosafety risk assessment guidance for additional details.[11]

Cleaning and Spills Management

ANDV is an enveloped virus and is readily inactivated by routine hospital-grade and laboratory disinfectants. Examples include 0.5% bleach wipes for surface disinfection and Oxivir or CaviWipes used according to the manufacturer's recommended contact time.

Standard spill management procedures using approved hospital-grade disinfectants are sufficient. Refer to the Canadian Biosafety Handbook for appropriate spill management and concentration and contact time of chemical disinfectants.[12]

Laboratory Waste Management

Laboratory waste of ANDV confirmed cases or clinically suspected cases should be managed in accordance with existing institutional procedures for Category A waste and RG3 pathogens as determined by local policy and risk assessment.

Residual specimens should be managed according to existing institutional procedures for RG3 pathogens. Consult the local or provincial public health laboratory for direction, including whether referral or destruction is appropriate.

Transportation of Specimens Within and Outside the Facility

Within the facility, transportation of specimens from high-risk patients should be hand delivered to the laboratory and not sent via pneumatic tube systems.

For transportation outside the facility, Transport Canada classifies hantaviruses causing hantaviruses causing pulmonary syndrome (HCPS/HPS) and hemorrhagic fever with renal syndrome as Category A.

Thus, clinical specimens from patients at high-risk for ANDV infection should be transported as Category A infectious substances (UN 2814, infectious substance, affecting humans) in accordance with applicable regulatory and institutional requirements. An Emergency Response Assistance Plan (ERAP) is not required.

Ensure your local public health laboratory has been notified before shipping specimens.

Resources

- Martínez VP, Di Paola N, Alonso DO, Pérez-Sautu U, Bellomo CM, Iglesias AA, et al. "Super-spreaders" and person-to-person transmission of Andes virus in Argentina. N Engl J Med. 2020;383(23):2230-41. Available from: https://doi.org/10.1056/NEJMoa2009040
- Centers for Disease Control and Prevention (CDC). Hantavirus pulmonary syndrome - United States, 1993. MMWR Morb Mortal Wkly Rep. 1994;43(3):45-8. Available from: https://www.cdc.gov/mmwr/preview/mmwrhtml/00025007.htm
- Argentina. Ministerio de Salud; ANLIS-Malbrán. Instructivo de envío de muestras para diagnóstico de Hantavirus [Internet]. Buenos Aires: Argentine Republic; 2026 [cited 2026 May 25]. Available from: https://www.argentina.gob.ar/hantavirus-0
- World Health Organization (WHO). Hantavirus outbreak toolbox [Internet]. Geneva: WHO; 2026 [cited 2026 May 25]. Available from: https://www.who.int/emergencies/outbreak-toolkit/disease-outbreak-toolboxes/hantavirus-outbreak-toolbox
- World Health Organization (WHO). Fact sheet: Hantavirus [Internet]. Geneva; WHO; 2026 [cited 2026 May 25]. Available from: https://www.who.int/news-room/fact-sheets/detail/hantavirus

References

1. Public Health Agency of Canada. Rapid risk assessment: Hantavirus (Andes virus) outbreak on international cruise ship. Government of Canada [Internet], 2026 May 8 [cited 2026 May 25]. Available from: https://www.canada.ca/en/public-health/services/emergency-preparedness-response/rapid-risk-assessments-public-health-professionals/rapid-risk-assessment-hantavirus-andes-virus-outbreak-international-cruise-ship.html

2. World Health Organization (WHO). Hantavirus cluster linked to cruise ship travel, multi-country. Disease Outbreak News [Internet], 2026 May 8 [cited 2026 May 25]. Available from: https://www.who.int/emergencies/disease-outbreak-news/item/2026-DON600

3. Public Health Agency of Canada. Media update on Andes hantavirus situation. Government of Canada [Internet], 2026 May 12 [cited 2026 May 25]. Available from: https://www.canada.ca/en/public-health/news/2026/05/media-update-on-andes-hantavirus-situation.html

4. Canadian Network for Public Health Intelligence. Molecular Detection of Andes virus [Internet], 2026 May 25 [cited 2026 May 25]. Available from: https://cnphi.canada.ca/gts/reference-diagnostic-test/4173?labId=1021

5. Canadian Network for Public Health Intelligence. Detection of antibodies against Andes virus by ELISA [Internet], 2026 May 25 [cited 2026 May 25]. Available from : https://cnphi.canada.ca/gts/reference-diagnostic-test/4178?labId=1021

6. Ontario Agency for Health Protection and Promotion (Public Health Ontario). Best Practice Laboratory Testing for Andes Virus [Internet], 2026 May 15 [cited 2026 May 25]. Available from: https://www.publichealthontario.ca/-/media/Documents/Lab/andes-virus-laboratory-testing-best-practice.pdf?&sc_lang=en

7. Ontario Agency for Health Protection and Promotion (Public Health Ontario). Hantaviruses-Serology and PCR [Internet], 2026 May 15 [cited 2026 May 25]. Available from: https://www.publichealthontario.ca/en/Laboratory-Services/Test-Information-Index/Hantavirus-Serology

8. Public Health Agency of Canada. Pathogen safety data sheets: infectious substances - Hantavirus spp [Internet]. Ottawa, ON: Government of Canada; 2021 [cited 2026 May 25]. Available from: https://www.canada.ca/en/public-health/services/laboratory-biosafety-biosecurity/pathogen-safety-data-sheets-risk-assessment/hantavirus.html

9. Ontario Agency for Health Protection and Promotion (Public Health Ontario). Infection prevention and control precautions for Hantavirus (Andes virus) [Internet]. Toronto, ON: King's Printer for Ontario; 2026 [updated 2026 May 15; cited 2026 May 25]. Available from: https://www.publichealthontario.ca/-/media/Documents/H/26/hantavirus-andes-strain-ipac-precautions.pdf

10. European Centre for Disease Prevention and Control (ECDC). ECDC guidance: advice on laboratory testing of Andes virus (ANDV) for high-risk contacts under the MV Hondius outbreak [Internet]. Solna: ECDC; May 14, 2026 [cited 2026 May 25]. Available from: https://www.ecdc.europa.eu/sites/default/files/documents/Advice-laboratory-testing-Andes-virus-high-risk-contacts-Hondius-outbreak.pdf

11. Pan American Health Organization (PAHO). Infection Prevention and Control of Hantavirus Infection, Including Andes Virus Disease, Interim Regional Guidance for Suspected or Confirmed Cases. Washington, DC: PAHO; 2026. Available from: updatedhantavirusguideipcpaho.pdf

12. Government of Canada. Canadian Biosafety Standards for Facilities Handling or Storing Human and Terrstrial Animal Pathogens and Toxins. Third Edition, 2022. Available from: canadian-biosafety-standard-third-edition.pdf

13. Ferrés M, Vial P, Marco C, Yañez L, Godoy P, Castillo C, et al. Prospective evaluation of household contacts of persons with Hantavirus cardiopulmonary syndrome in Chile. J Infect Dis. 2007;195(11):1563-71. Available from: https://doi.org/10.1086/516786

14. Ferrés M, Martínez-Valdebenito C, Henriquez C, Marco C, Angulo J, Barrera A, et al. Viral shedding and viremia of ANDV during acute Hantavirus infection: a prospective study. Lancet Infect Dis. 2024;24(7):775-82. Available from: https://doi.org/10.1016/S1473-3099(24)00142-7

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