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BEST PRACTICE

Laboratory Testing for Andes Virus

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Introduction

This document outlines information on laboratory testing for Andes virus (ANDV), a hantavirus that can be transmitted to humans by rodents in Southern South America and the only hantavirus with reported person-to-person transmission.[1,2] This document was created in support of the provincial response to the international ANDV outbreak in May 2026. ANDV is described here using currently recommended nomenclature.[3]

Scope

The information in this document is specific to ANDV and should not be applied to other contexts. It **does not** include guidance or recommendations related to:

- Other hantaviruses that cause hantavirus pulmonary syndrome (HPS), such as Sin Nombre virus found in Western Canada,[4,5] or those that cause hantavirus fever with renal syndrome (HFRS), such as the Hantaan virus, in Europe and Asia.[4] For laboratory testing information on non-ANDV hantaviruses, refer to Public Health Ontario's (PHO) laboratory Test Information Index.
- Clinical assessment, evaluation of exposures or infection prevention and control measures related to ANDV. For this information, refer to Public Health Ontario's Hantaviruses webpage.

Coordination of Testing for Andes Virus

If a symptomatic individual is at-risk for ANDV infection as a result of travel to or residence in an endemic area (e.g., Southern South America) or areas experiencing active outbreaks, consult the Ministry of Health Notification Pathway for Special Pathogens for a description of the provincial process that should be followed when managing special pathogens, including ANDV.

Key Considerations

- Requests for ANDV testing require advanced planning, notification and coordination among all relevant stakeholders, including PHO, to ensure the safety of patients, laboratory personnel and other parties involved.
- Testing is to be discussed at a virtual consultation with provincial health system partners, including a PHO Microbiologist. The PHO Microbiologist will provide testing-related information relevant to the request, including any known assay limitations.
- Due to laboratory biosafety considerations, both PHO's laboratory and the local or regional microbiology laboratory providing routine service to the submitting institution must be informed of any suspect ANDV case. This is especially important if other specimens have already been collected and are in transit to the laboratory(ies) or if any testing has already been initiated.

Methods Used to Test for Andes Virus

Molecular and serologic methods can be used to test for ANDV infection, with each assay having optimal performance at different stages of disease.[6]

Both testing methods are currently available at the National Microbiology Laboratory (NML). Specimens should be submitted for both test methods from individuals with acute signs/symptoms of ANDV infection (Table 1).[7] At this time, specimens received at PHO for ANDV testing are forwarded to the NML.

Molecular tests (PCR) are preferred during the early acute stages of infection when individuals are most likely to have detectable viral loads. These assays detect ANDV nucleic acids in clinical specimens collected from individuals suspected of ANDV infection.[7–11]

Serologic tests are considered the gold standard for detecting antibodies raised against ANDV in all stages of infection. These assays detect the host response to infection rather than ANDV itself.[11-13]

Specimens to Collect for Andes Virus Testing

The Ontario Ministry of Health has indicated ANDV is a special pathogen and the Health Systems Emergency Management Branch (HSEMB) will organize a virtual coordination call with provincial health system partners and subject matter experts once the Notification Pathway for Special Pathogens has been activated. A local risk assessment should be conducted at local sites (e.g., hospital laboratory) to ensure that non-ANDV laboratory tests necessary for the care and management of patients under investigation for ANDV can be handled, transported and performed safely with appropriate biosafety measures in place.

The **recommended specimens to collect** for the laboratory diagnosis of ANDV infection in symptomatic individuals are **whole blood and serum** (Table 1). These are well-defined, stable specimen types.[8-11]

Other specimen types may be acceptable for molecular testing only, but their clinical performance is not well established. These must be discussed with a PHO Microbiologist. Refer to Table 1 for the specimen types that can be collected for PCR or serologic testing.

For guidance surrounding patient care and management, including recommended personal protective equipment refer to PHO's Infection Prevention and Control Precautions for Hantavirus (Andes Virus) recommendations.

Preferred Specimens to be Sent to PHO for ANDV Testing

- 2 x EDTA-blood tubes for ANDV PCR
- 1 x serum tube; the same tube can be used for ANDV PCR and ANDV serology
    - A second convalescent serum is recommended 2–3 weeks later
    - Other specimens are not required but are considered acceptable and are investigational. Refer to Table 1 below for additional information on all acceptable specimen types.

Table 1: Specimens for Laboratory Testing of Andes Virus

Testing Method	Specimen Type	Specimen Information
PCR	Whole Blood	• 2 x EDTA-Blood tubes (minimum volume of 5 mL per tube) • Heparin or citrate tubes can be used as alternatives • This is a **required** specimen type for ANDV testing
	Respiratory swabs (e.g., NP swab)[8]	• 1x swab in universal transport media • Refer to PHO's Nasopharyngeal Collection for Viral PCR Webpage for container details • These specimens are not required for ANDV testing and are considered investigational.
	Other body fluids (e.g., urine)[8,11]	• Collect 2 to 3 mL of body fluid in sterile container • These are not required specimens for ANDV testing and are considered investigational.
	Tissues	• Submit fresh or frozen tissues in a sterile container • Formalin-fixed and paraffin embedded tissues are acceptable • This is not a required specimen type for ANDV testing.
Serology	Serum	• Paired acute and convalescent serum specimens • 1x red top or serum separator tube with blood per collection (minimum volume of 5mL per tube) • Collections should be separated by at least 2 to 3 weeks • This is a **required** specimen for ANDV testing

Notes on ANDV Specimens to Collect and Submission

- Safely collect the appropriate number of specimens for testing and label with a minimum of two patient identifiers. Refer to PHO's Criteria for Acceptance of Specimens for the list of identifiers. The patient's first and last name, date of collection, and one other unique identifier such as the patient's date of birth or Health Card Number should be included at minimum. Failure to provide this information may result in rejection or testing delays.
- Each specimen submitted to PHO for ANDV testing must be accompanied by a separate PHO laboratory General Test Requisition for each specimen and one Vector-borne and Zoonotic Virus Testing Intake Form per patient. The clinical information and relevant travel and exposure histories for zoonotic viruses must be provided. Requests received without the form, forms submitted with insufficient information or insufficient justification for testing are subject to cancellation.

Handling and Transportation of Specimens to PHO

Andes virus (*Orthohantavirus andesense*), along with other hantaviruses, is classified as a Category A infectious substance according to federal guidelines (2.36(3)).

Specimens from individuals who are suspected or confirmed to have ANDV infection must be transported in accordance with Transportation of Dangerous Goods (TDG) regulations and must always be handled, offered for transport and shipped as Category A infectious substances, using Category A packaging (Type P620).

Individuals who are involved in the packaging, handling, or transport of specimens, including Category A infectious substances, must have valid TDG training and certification. It is the submitter's responsibility to ensure that all staff involved in specimen handling are appropriately trained and certified under TDG requirements.

Results and Interpretation

All results for ANDV testing, including negative results, should be interpreted in the context of the clinical and epidemiologic information available.

Refer to the PHO Test Information Index for specific information regarding possible results and their interpretation.

Notes on ANDV Test Performance and Result Interpretation

Information from previous ANDV outbreaks in South America indicate that whole blood is the preferred specimen type for PCR and is most sensitive in the days following symptom onset.[8-11] Infected individuals may test PCR positive in whole blood or buffy coat for up to 29 days.[8] Other specimen types may also be acceptable for testing shortly after the onset of symptoms (e.g., urine, nasopharyngeal swabs, oral fluids, etc), however their performance is not well described and limited information indicates that viral loads decline rapidly after symptom onset.[8]

Symptomatic individuals may be IgM reactive several days after the onset of symptoms.[11,12] Seroconversion may be demonstrated by a detectable rise in antibody titers between acute and convalescent serum specimens. An isolated reactive IgG result (in the absence of a reactive IgM) may be indicative of ANDV infection, however, it may also indicate a previous exposure to or infection with a non-ANDV hantavirus (e.g., Sin Nombre virus), depending on risk factors.

The diagnostic performance of PCR and serologic assays has not been well established in asymptomatic populations and requires further investigation.[11] Limited data has demonstrated that ANDV nucleic acids have been detected in the blood of asymptomatic household contacts of symptomatic or confirmed cases up to two weeks prior to symptom onset.[8,12]

It is important to recognize that a negative ANDV test result in asymptomatic individuals—regardless of specimen type—does not definitively rule out infection or the possibility of subsequent viral shedding[11,12] Testing of asymptomatic individuals may therefore be considered on a case-by-case basis. Currently (as of May 13, 2026), asymptomatic testing would still require activation of the Notification Pathway for Special Pathogens.

References

1. Martinez VP, Di Paola N, Alonso DO, Perez-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
2. Ortiz N, Pinotti JD, Andreo V, Gonzalez-Ittig RE, Gardenal CN. Orthohantavirus rodent hosts and genotypes in Southern South America: a narrative review. PLoS Negl Trop Dis. 2025;19(9):e0013489. Available from: http://doi.org/10.1371/journal.pntd.0013489
3. Bradfute SB, Calisher CH, Klempa B, Klingstrom J, Kuhn JH, Laenen L et al. ICTV virus taxonomy profile: Hantaviridae 2024. J Gen Virol. 2024;105(4): 001975. Available from: https://doi.org/10.1099/jgv.0.001975
4. Drebot MA, Jones S, Grolla A, Safronetz D, Strong JE, Kobinger G, et al. Hantavirus pulmonary syndrome in Canada: an overview of clinical features, diagnostics, epidemiology and prevention. CCDR. 2015;41(6):124-31. Available from: https://doi.org/10.14745/ccdr.v41i06a02
5. Warner BM, Dowhanik S, Audet J, Grolla A, Dick D, Strong JE et al. Hantavirus cardiopulmonary syndrome in Canada. Emerg Infect Dis. 2020;26(12):3020-24. Availabe from: https://doi.org/10.3201/eid2612.202808
6. Pan American Health Organization (PAHO). Technical paper No. 47: hantavirus in the Americas: guidelines for diagnosis, treatment, prevention and control [Internet]. Washington DC: PAHO; 1999 [cited 2026 May 15]. Available from: https://iris.paho.org/handle/10665.2/40176
7. Whitmer SLM, Whitesell A, Mobley M, Talundzic E, Shedroff E, Cossaboom CM, et al. Human Orthohantavirus disease prevalence and genotype distribution in the US, 2008-2020: a retrospective observational study. Lancet Reg Health Am. 2024;37:100836. Available from: https://doi.org/10.1016/j.lana.2024.100836
8. Ferres M, Martinez-Valdebenito C, Henriquez C, Marco C, Angulo J, Barrera A et al. Viral shedding and viraemia of Andes virus 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
9. Vial C, Martinez-Valdebenito C, Rios S, Martinez J, Vial PA, Ferres M et al. Molecular method for the detection of Andes hantavirus infection: validation for clinical diagnostics. Diagnostic Micro Infect Dis. 2016;84(1):36-9. Available from: https://doi.org/10.1016/j.diagmicrobio.2015.07.019
10. European Centre for Disease Prevention and Control (ECDC). Hantavirus-associated cluster of illness on a cruise ship: ECDC assessment and recommendations (6 May 2026) [Internet]. Stockholm: ECDC; 2026 [cited 2026 May 15]. Available from: https://www.ecdc.europa.eu/sites/default/files/documents/TAB-hantavirus-06052026.pdf
11. Galeno H, Mora J, Villagra E, Fernandez J, Hernandez J, Mertz GJ et al. First human isolate of Hantavirus (Andes virus) in the Americas. Emerg Infect Dis. 2002;8(7):657-61. Available from: https://doi.org/10.3201/eid0807.010277
12. Vial PA, Ferres M, Vial C, Klingstrom J, Ahlm C, Lopez R et al. Hantavirus in humans: a review of clinical aspects and management. Lancet Infect Dis. 2023;23(9):e371-82. Available from: https://doi.org/10.1016/S1473-3099(23)00128-7
13. Godoy P, Marsac D, Stefas E, Ferrer P, Tischler ND, Pino K et al. Andes virus antigens are shed in urine of patients with acute hantavirus cardiopulmonary syndrome. J Virol. 2009;83(10):5046-55. Available from: https://doi.org/10.1128/JVI.02409-08

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