

Interim guidance for handling patient specimens with suspected or confirmed Andes virus

Transport of specimens

Specimens from patients with suspected or confirmed hantavirus pulmonary syndrome (HPS) should be transported in accordance with dangerous goods regulations. National regulations should follow the WHO Guidance on regulations for the transport of infectious substances 2023-2024 (available from: [who.int/publications/i/item/9789240089525](https://www.who.int/publications/i/item/9789240089525)).

According to the regulations, the shipper is responsible for classifying the specimens. Packaging must be carried out strictly according to the triple-packaging principle, in order to prevent any risk of leakage or contamination during transport.

At this stage our recommendations for categorising specimens are as follows:

- Category B (UN3373) for domestic shipping of all patient specimens, using standard P650 packaging.
 - If the patient specimen is derived from a patient tested positive for Andes virus by molecular method, use P620 packaging as an extra precaution when shipping to another domestic laboratory.
- For international shipping, patient specimens will be classified as Category A or Category B based on a documented risk assessment of the sample type, suspected pathogen, clinical history and likelihood of containing the infectious substance.
- Category A (UN 2814) for all virus isolates, domestic and international shipping.

If the specimen is inactivated, using a validated method, it is no longer considered an infectious substance. Depending on the inactivation method, for example if hazardous chemicals are added, the inactivated sample can be classified as other than infectious dangerous goods.

Samples should be transported to the laboratory for diagnostic confirmation within 24 to 48 hours of collection. During transit, maintain the samples at a controlled temperature of +4 to 8 °C. For transport durations exceeding 48 hours, ship the samples on dry ice and ensure full compliance with all applicable dangerous goods regulations, including those specific to dry ice (UN1845).

Biosafety considerations

Andes virus (ANDV) may cause hantavirus cardiopulmonary syndrome (HCPS/HPS), a rapidly progressive illness with high fatality rate. ANDV should be classified as a Risk Group 3 pathogen in line with the EU Directive 2000/54/EC on the protection of workers from risks related to exposure to biological agents at work. Importantly, ANDV is also the only orthohantavirus clearly associated with person-to-person transmission.

It is imperative that each laboratory perform their own risk assessment based on materials to be handled in combination with procedure to be performed as well as the availability of control measures, including available laboratory facilities and internal procedures in place.

Please note: Propagation of virus, including handling of cultures, should always be performed at a Biosafety Level 3 (BSL3) laboratory.

In general, inactivation and open handling of patient specimens from high and low risk contacts could as a basic requirement be handled in a class II biosafety cabinet at a biosafety level 2 laboratory if using heightened control measures to minimise risk of aerosol generation and spill during procedures, and potential exposure of laboratory personnel.

As always, good microbiological practice and procedure (GMPP) must be applied including good general behaviours and aseptic techniques, in line with WHO laboratory biosafety manual (available at who.int/publications/i/item/9789240011311) and national provisions.

Some examples of heightened control measures can be the following:

- Opening secondary packaging in a class II biosafety cabinet, adopting a well-established protocol and training for managing incidents and safe procedures for transfer of specimen within the laboratory setting.
- According to the laboratory's risk assessment, personnel should wear appropriate personal protective equipment, especially for handling specimens before inactivation.
- Additional control measures should be considered for certain procedures, including aerosol-generating procedures, according to the local risk assessment.
- If centrifugation of non-inactivated specimens is required, safety cups with lids or sealed rotors should be adopted. Importantly, loading and unloading of non-inactivated samples from safety cups should be performed inside the class II biosafety cabinet.
- All waste potentially contaminated with ANDV should be decontaminated before disposal by using an approved method, such as autoclaving or chemical disinfection.