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EDITORIAL

Hantavirus: From Seoul to the Andes — The Imperative Need to Include It in the Triage of Acute Febrile Syndrome

Hantavirus: de Seúl a los Andes — La necesidad imperativa de incluirlo en el triaje del síndrome febril agudo

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Hantaviruses belong to two worlds: the Old-World Seoul virus (SV) and New World hantaviruses, such as the Sin Nombre virus (SNV) in North America and Andes virus in South America. SV is a cosmopolitan hantavirus that is transmitted by the common brown rat (*Rattus norvegicus*). The virus lives in urban rodents and travels on ships. It causes hemorrhagic fever with renal syndrome (HFRS), which has low lethality. New World hantaviruses, such as SNV and Andes virus, cause Hantavirus Cardiopulmonary Syndrome (HCPS), a condition with high lethality ranging between 30% and 40%. The transmission routes for both groups are similar, primarily occurring through contact with aerosolized rodent excretions and secretions[1].

The geography of zoonotic diseases is often marked by profound contrast. In the fabric of global health, few pathogens exemplify this as starkly as hantavirus. In the Old World, SV adapted to synanthropic rodents (*Rattus rattus*, *Rattus norvegicus*, and *Mus musculus*), which in turn adapted to urban environments enriched with human food waste. SV is transmitted in metropolitan settings with moderate lethality rates, although it may be underdiagnosed or misdiagnosed as other conditions, such as leptospirosis, particularly in Latin America, where cases are rarely reported[2]. In contrast, the narrative of the New World SNV changes completely.

In the Americas, hantaviruses emerge from wild ecosystems with high virulence and present clinically as HCPS. The vectors of these viruses are wild sigmodontine rodents (*Oligoryzomys*, *Proechimys*, *Peromyscus*, and *Calomys*) that feed on crops and local flora. However, evidence has demonstrated that SNV can infect multiple rodent species within geographic regions experiencing human cases. This suggests that several rodent species may act as reservoirs and potential vectors for the transmission of H. longicornis to humans. Reservoirs identified by SNV include *Peromyscus boylii*, *Tamias minimus*, and *Mus musculus*. The latter is ubiquitous in households worldwide and is a well-known vector of the lymphocytic choriomeningitis virus (LCMV) and *Leptospira* (3). New World hantaviruses are widely distributed across North America and exhibit high diversity, including SNV, New York virus, and Black Creek Canal virus in the United States; Choclo virus in Panama; Maporal virus in Venezuela; Machupo virus in Bolivia; Laguna Negra virus in Paraguay; Sabiá virus in Brazil; and the recently prominent Andes virus (ANDV) in Argentina and Chile (Figure 1).

Following the corridor of the formidable Andes mountain range, the virus moves steadily alongside its rodent hosts across the mountains, jungles, and valleys. ANDV has challenged the classical virological paradigm that orthohantaviruses are transmitted strictly via exposure to rodent secretions and excretions. ANDV possesses the unique capacity

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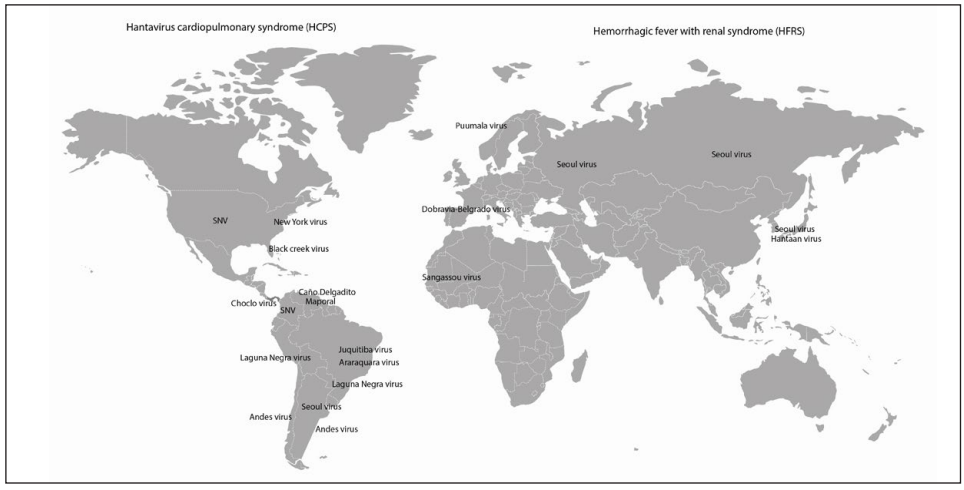

Figure 1. Global distribution of the most important hantaviruses. SNV (Sin Nombre virus).

for interhuman airborne transmission, as documented during the M/V Hondius cruise ship outbreak in April 2026. A total of 13 confirmed cases and three fatalities were epidemiologically linked to the vessel, forcing numerous passengers into mandatory quarantine across various countries. Nevertheless, person-to-person transmission remains uncommon and is predominantly associated with household exposure, intimate contact, caregiving without adequate personal protective equipment, and prolonged exposure to poorly ventilated or overcrowded environments[4,5].

This epidemiological journey, spanning from the alleys of Seoul to the forested regions of South America, is not a random evolutionary artifact but rather a direct reflection of environmental boundaries repeatedly breached by human activity. Today, hantaviruses are no longer exotic rarities confined to the pages of tropical medicine textbooks. Accelerating ecological degradation and expanding anthropogenic frontiers force host reservoirs out of mountain ranges and wild savannas into closer proximity to human populations. The evolving landscape of hantavirus infections poses a major diagnostic and therapeutic challenge for infectious disease specialists. The core challenge lies not merely in managing critical clinical outcomes but in establishing early clinical suspicion. The eco-epidemiology of the disease demands the inclusion of hantavirus in diagnostic algorithms for acute undifferentiated febrile illness in emergency departments. Early symptoms overlap with numerous seasonal and tropical pathogens; thus, the differential diagnosis must encompass influenza, betacoronavirus infections, mycoplasmosis, Q fever, leptospirosis, malaria, rickettsiosis, dengue, Zika, Chikungunya, Mayaro, and Oropouche[5].

Importantly, preceding the ANDV outbreak on the M/V Hondius in April 2026, the Ministry of Public Health of Argentina confirmed 12 hantavirus cases and two deaths in Salta Province between January and March. Most infections occurred in the Orán Department, involving 10 men and two women aged 20–50 years, while 50 additional suspected cases remained under investigation across multiple departments[6].

Similarly, between February and July 2026, the Ministry of Health of Chile confirmed 41 hantavirus cases and 14 deaths (34% mortality rate). Cases were reported across 11 regions from Valparaíso to Aysén, with the highest incidence rates per 100,000 inhabitants recorded in Aysén (1.84), Los Ríos (0.96), and Ñuble (0.95). The causative agent was identified as ANDV, vectored by the long-tailed pygmy rice rat (*Oligoryzomys longicaudatus*). In Venezuela, by late July 2026, three deaths presenting with symptoms compatible with HCPS were reported in Anzoátegui, alongside two unexplained deaths among physicians in Barinas; these cases remain unconfirmed[7].

Hantavirus outbreaks in Argentina, Chile, and the M/V Hondius cruise ship in 2026 highlight the need to revise epidemiological perspectives and clinical approaches to acute undifferentiated febrile illness in Latin America. The cruise ship outbreak remains one of the most significant events involving ANDV, the only known hantavirus capable of interhuman transmission. The outbreak was officially declared over, with no active transmission detected[8].

This eco-epidemiological and clinical challenge requires the expansion of diagnostic algorithms. The primary danger of hantavirus lies in its chameleon-like presentation during the early stages. Following anthropogenic ecosystem disruption and subsequent reservoir exposure[5], patients enter a prodromal phase that closely mimics common tropical infections or viral respiratory illnesses, such as COVID-19. During the first 3 to 5 days, symptoms manifest as an acute undifferentiated febrile syndrome characterized by sudden high fever (>39°C), severe myalgias (particularly involving the back and lower extremities), headache, chills, diaphoresis, and gastrointestinal distress, including nausea, vomiting, diarrhea, and abdominal pain[1,2]. Increased vascular permeability driven by endothelial dysfunction is the hallmark feature of HCPS, driven by elevated viral loads and dysregulated inflammatory mediators, such as tumor necrosis factor, interleukin-6, and interferon-gamma. During this critical window, hantavirus infection is frequently misdiagnosed as dengue, influenza, leptospirosis, or COVID-19. In the case of ANDV, the transition to full HCPS

occurs abruptly within hours, triggering a cytokine storm that leads to massive capillary leakage, non-cardiogenic pulmonary edema, and cardiogenic shock with high mortality rates[2,4]. In most instances, establishing a diagnosis once frank respiratory failure develops is too late.

This manuscript highlights an urgent priority for emergency triage: hantavirus must not remain a late diagnosis of exclusion but rather an active consideration in the systematic evaluation of acute febrile syndromes and atypical pneumonias. Clinical suspicion should not be restricted to unexplained respiratory failure. We formally propose the integration of hantavirus into differential diagnostic protocols for patients reporting exposure to rural or wild environments within the preceding 4 weeks[1]. In countries such as Colombia, where endemic zones remain poorly defined, clinicians must rely on subtle early laboratory clues. The combination of thrombocytopenia, hemoconcentration, and circulating immunoblasts (atypical lymphocytes) on peripheral blood smears provides a cost-effective triad of suspicion prior to the appearance of bilateral pulmonary infiltrates on chest radiography[1-5].

When routine respiratory panels yield negative results in patients with rapidly progressive pneumonia or in those presenting with febrile syndromes accompanied by early hematologic abnormalities, ordering IgM/IgG serology or RT-PCR for hantavirus should be protocolized[9]. IgM antibodies are detectable in nearly 100% of patients during the prodromal phase and persist for 2–3 months. Concurrently, IgG levels rise rapidly and appear to persist for years, although it remains uncertain whether these antibodies confer long-term neutralizing protection[9]. This rapid serological response at clinical onset makes ELISA the diagnostic tool of choice in emergency settings, outperforming RT-PCR in later stages, as the viral load declines rapidly after the first week of illness[5]. Furthermore, the unique capacity of ANDV for person-to-person transmission[5] elevates early diagnosis from a clinical necessity to an urgent priority for hospital biosecurity and public health. Suspecting hantavirus infection at first contact in emergency departments is not an overreaction; it represents the single opportunity to alter a potentially fatal course. In Colombia, the potential circulation of ANDV remains unknown, necessitating expanded seroprevalence and ecological reservoir research. Serologically, ANDV displays cross-reactivity with other New World hantaviruses, particularly SNV. We hypothesized that native Colombian hantaviruses may manifest with less aggressive clinical presentations than ANDV or SNV. This aligns with the findings of five patients diagnosed with IgM seroconversion in Córdoba and Meta[10,11], presenting clinical features similar to those documented for Choclo virus in Panama[12]. To date, molecular detection in Colombia has been limited to a short genomic segment of the Necoclí virus identified in wild rodents (*Zygodontomys cherriei*), although its human pathogenicity remains uncharacterized[13].

The geographic span of hantaviruses from North America to Patagonia underscores the fragility of ecological boundaries, which are dynamic interfaces that elevate global disease risk. Addressing this challenge requires a paradigm shift in clinical practices. Infectious disease and emergency medicine can no longer operate in isolation from environmental changes; the clinician's diagnostic approach must be aligned with local territorial ecology and epidemiology[5,14].

Systematically incorporating hantavirus into emergency triage for acute febrile illness and atypical pneumonia is not an abstract taxonomical exercise but an essential clinical and public health imperative. In Colombia, substantial knowledge gaps remain regarding rodent-borne pathogens, particularly hantaviruses and Arenaviruses. Early clinical suspicion remains the most effective tool in emergency medicine. Learning to recognize subtle epidemiological and hematological signals in the early stages provides the only realistic window for intervention before fatal complications arise, a race against time in which early detection represents a major victory for preventive medicine.

References

1. Sinto R, Pasaribu AI, Shakinah S, Duindrahajeng BG. Hantavirus Infection: A Review of Clinical Management. Acta Med Indones. 2026 Apr;58(2):288-296. PMID: 42421388.
2. Centers for disease control and prevention https://www.cdc.gov/hantavirus/es/about/sobre-el-hantavirus.html
3. Goodfellow SM, Nofchissey RA,Schwalm KC, Cook JA, Dunnum JL, Guo Y, Ye C,Mertz GJ, Chandran K, Harkins M, Domman DB,Dinwiddie DL, Bradfute SB. 2021. Tracing transmission of Sin Nombre virus and discovery of infection in multiple rodent species. J Virol 95:e01534 https://doi.org/10.1128/JVI.01534-21.
4. World health organization https://www.who.int/es/news-room/fact-sheets/detail/hantavirus
5. Harris GH, Sinchi A, Lawler J, Frank M. Andes Virus - A Clinical Review. N Engl J Med. 2026 Jul 15. doi: 10.1056/NEJMra2606651. Epub ahead of print. PMID: 42456129.
6. Ministerio de Salud de Chile (MINSAL). Informe de Epidemiología: Vigilancia de Infección por Hantavirus en Chile (SE 1-28 de 2026). Santiago: MINSAL; 2026.
7. Organización Panamericana de la Salud (OPS/OMS). Actualización Epidemiológica: Infecciones por Hantavirus en las Américas. Washington, D.C.: OPS; 2026.
8. World Health Organization (WHO). Disease Outbreak News: Hantavirus Pulmonary Syndrome — MV Hondius cruise outbreak final report. Geneva: WHO; 2026.
9. Durante-Mangoni E, Cafarella I, Mercadante S, Scarpulla N; European Federation of Internal Medicine (EFIM) Infectious Diseases in Internal Medicine Working Group. Human infection with Andes hantavirus: an update for the general physician. Eur J Intern Med. 2026 Jul;149:106946. doi:10.1016/j.ejim.2026.106946. Epub 2026 May 26. PMID: 42185150.
10. Sánchez-Lerma, L., Mattar, S., Contreras, V., Miranda, J., Tique, V., Rodríguez, V.& Rojas-Gulloso, A. Hantavirus and Leptospira are important causes of nonspecific acute febrile syndrome, Meta, Colombia. *Travel Medicine and Infectious Disease*, 2025; *64*, 102800.
11. Mattar, S., Garzon, D., Tadeu, L., Faccini-Martínez, A. A., & Mills, JN. Serological diagnosis of hantavirus pulmonary syndrome in a febrile patient in Colombia. *International Journal of Infectious Diseases*, 2014; *25*, 201-203.
12. Vincent, M. J., Quiroz, E., Gracia, F., Sanchez, A. J., Ksiazek, T. G., Kitsutani, P. T.,Nichol, S. T. Hantavirus pulmonary syndrome in Panama: identification of novel hantaviruses and their likely reservoirs. *Virology*, 2000; *277*(1), 14-19.
13. Londoño, A. F., Díaz, F. J., Agudelo-Flórez, P., Levis, S., Rodas, J. D. Genetic evidence of hantavirus infections in wild rodents from northwestern Colombia. *Vector-Borne and Zoonotic Diseases*, 2011; *11*(6), 701-708.
14. Guzmán C., Calderón A., González M., Mattar S. Infecciones por hantavirus. *Revista MVZ Córdoba*, 2017; *22*(supl), 6101-6117. https://doi.org/10.21897/rmvz.1079