



Perspective

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Nipah virus outbreak: Public health threats and response priorities

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1. Introduction

Nipah virus (NiV) is a highly pathogenic zoonotic virus that represents a serious threat to global public health due to its high case fatality rate, potential for human-to-human transmission, and the absence of licensed vaccines or specific antiviral therapies. Since its first identification during the Malaysia–Singapore outbreak in 1998–1999, NiV has caused recurrent outbreaks in South and Southeast Asia, particularly in India and Bangladesh[1]. The World Health Organization (WHO) has classified Nipah virus as a priority pathogen because of its epidemic potential and the risk of wider regional spread[1].

NiV is naturally maintained in fruit bats of the Pteropodidae family, which serve as its primary reservoir. Human infection occurs mainly through zoonotic spillover events, including ingestion of bat-contaminated fruit or raw date palm sap, or exposure to infected intermediate hosts such as pigs[2,3]. Human-to-human transmission has also been documented, particularly through respiratory droplets in household and healthcare settings. Therefore, key risk factors include close contact with infected individuals, exposure to livestock, and consumption of contaminated food products[2,3].

Clinically, NiV infection ranges from mild febrile illness to severe encephalitis and acute respiratory distress. Reported case fatality rates vary between 40% and 75%, depending on healthcare access and outbreak response capacity[2,3]. These characteristics make NiV one of the most dangerous emerging zoonotic pathogens, requiring rapid containment and strong preparedness systems.

2. NiV transmission and low risk of widespread outbreaks

Although NiV can spread between humans, transmission remains relatively inefficient compared with highly transmissible airborne viruses such as influenza or SARS-CoV-2. Outbreaks are typically confined to small clusters and generally require close, prolonged contact for onward spread[2].

Epidemiological modelling suggests that the basic reproduction number (R_0) of NiV is below 1, indicating a low likelihood of sustained community-wide transmission[4]. Accordingly, outbreaks have usually been controlled through standard public health

interventions, including rapid isolation, appropriate use of personal protective equipment, quarantine, and intensive contact tracing.

This pattern is supported by recent outbreak investigations. Most recently, a cluster reported in India in January 2026 involved two confirmed healthcare workers, with no further spread detected following quarantine and monitoring of nearly 200 close contacts[5]. Such evidence reinforces that Nipah outbreaks remain controllable and do not demonstrate the rapid global dissemination characteristic of COVID-19.

3. Why Nipah remains a serious threat

Despite its currently limited efficiency of human-to-human transmission, NiV continues to pose a substantial regional threat and a plausible global health concern. As a negative-sense RNA virus, NiV exhibits genetic plasticity, raising the possibility that adaptive mutations could enhance transmissibility in the future. Comparative analyses of NiV lineages have shown that strains circulating in Bangladesh display greater respiratory involvement and more efficient person-to-person transmission than earlier Malaysian strains, suggesting ongoing adaptation to human hosts[6].

In previous outbreaks, One Health consequences from deforestation pushed virus harboring bats into new regions and highlights the required vigilance in regions without previous outbreaks[7]. Furthermore, recurrent spillover events occur in endemic areas characterized by high population density and frequent human–animal interaction, conditions that increase the likelihood of localized

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outbreaks and possible amplification[3,8]. Increasing globalization as well as consumption of intermediate hosts additionally increases the risk for outbreaks. The absence of licensed therapeutics or approved vaccines also underscores continued vulnerability and highlights NiV as a priority pathogen requiring sustained surveillance and research investment[1,6].

4. Vietnam context: Preparedness and remaining gaps

Although the risk of NiV introduction remains relatively low, it cannot be overlooked in Vietnam and other low- and middle-income countries (LMICs) in Southeast Asia. Vietnam has adopted a precautionary preparedness posture for Nipah virus in the absence of documented human cases. The Ministry of Health classifies NiV as a Group A notifiable disease, mandating immediate reporting, strict isolation of suspected cases, and reinforced infection prevention and control measures across healthcare facilities. Surveillance has been intensified at points of entry and within clinical systems, alongside risk communication and healthcare worker training coordinated by national institutes and provincial Centers for Disease Control and Prevention (CDCs). Laboratory readiness includes specimen referral pathways to Biosafety Level-3 laboratories and integration of a suspected NiV case is defined as an individual with relevant epidemiological exposure — including travel from an affected area or contact with secretions of a confirmed case within the preceding 14 days — who presents with compatible clinical manifestations, such as fever with neurological signs, fever with headache, or fever accompanied by respiratory symptoms. Nipah testing within broader encephalitis and severe respiratory surveillance frameworks. Consistent with a One Health orientation, authorities have also strengthened food safety oversight and multisectoral preparedness planning, recognizing that early containment and healthcare-associated transmission prevention remain the primary defenses in the absence of licensed vaccines or specific antiviral therapy[9].

While sustained community transmission remains unlikely under current conditions, ecological and health-system factors could permit localized outbreaks following spillover events. Delayed recognition of cases, close contact in caregiving settings, and healthcare-associated exposure represent key pathways for amplification. The widespread presence of animal reservoirs and increasing human–animal interface further support a persistent risk of re-emergence. Continuous surveillance, rapid isolation, and strengthened infection prevention measures are therefore essential to reduce the likelihood and impact of future outbreaks.

5. Conclusions

Although NiV represents a severe zoonotic threat with high mortality and theoretical pandemic potential, current evidence does not suggest that it will cause a global pandemic like COVID-19. Outbreaks remain localized, human-to-human transmission is limited, and standard containment measures have proven effective. A digitally enabled, One Health–governed, Points of Decision–centered approach—focused on key operational choices (*e.g.*, isolate now *vs.* later; test *vs.* refer; trace *vs.* wait; escalating infection prevention and control immediately *vs.* maintaining routine measures)—offers Vietnam and similar LMICs a pragmatic pathway to keep NiV outbreaks small, protect healthcare workers, and prevent amplification. Response priorities should focus on

early detection, prevention of bat-to-human spillover, strengthened healthcare preparedness, and accelerated vaccine and therapeutic development.

Conflict of interest statement

The authors declare that there is no conflict of interest.

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Data availability statement

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

Authors' contributions

Trieu Vo L, Huynh G conceptualized and designed the manuscript. Trieu Vo L and Vuong NM were responsible for gathering relevant literature and supporting data. Vuong NM, and Evans E drafted the initial manuscript. Trieu Vo L contributed substantially to the writing and editing process. Trieu Vo L, Vuong NM and Huynh G revised the manuscript for important intellectual content. All authors reviewed and approved the final version of the manuscript.

References

- [1] World Health Organization. *Nipah virus – Fact sheet*. 2024. [Online]. Available from: <https://www.who.int/news-room/fact-sheets/detail/nipah-virus>. [Accessed on 2 February 2026].
- [2] Luby SP. The pandemic potential of Nipah virus. *Antiviral Res* 2013; **100**(1): 38–43.
- [3] Ang BSP, Lim TCC, Wang L. Nipah virus infection. *J Clin Microbiol* 2018; **56**(6): e01875–17.
- [4] Luby SP, Gurley ES, Hossain MJ. Transmission of human infection with Nipah virus. *Clin Infect Dis* 2009; **49**(11): 1743–1748.
- [5] Ahmad T, Raina S. Nipah: Two health workers infected, sparking quarantine of 200 and widespread airport screening. *BMJ* 2026; **392**: s200.
- [6] Lo MK, Rota PA. The emergence of Nipah virus, a highly pathogenic paramyxovirus. *J Clin Virol* 2008; **43**(4): 396–400.
- [7] Singh DK, Ragesh PR, Kumar S. Impact of deforestation and environmental degradation on Nipah virus outbreaks: A critical review. In: Srivastava HM, Arora G, Shah FA (Eds). *Advances in computational methods and modeling for science and engineering*. Cambridge (MA): Morgan Kaufmann; **2025**, pp. 269–276.
- [8] Wang L, Lu D, Yang M, Chai S, Du H, Jiang H. Nipah virus: Epidemiology, pathogenesis, treatment, and prevention. *Front Med* 2024; **18**(6): 969–987.
- [9] Ministry of Health (Vietnam). *Guidelines for Diagnosis and Treatment of Nipah Virus Infection*. Decision No. 493/QĐ-BYT (13 Feb 2026). [Online]. Available: https://bvdkaclieu.gov.vn/upload/1000079/20251211/661_Quyet-dinh-3644-QĐ-BYT_408797bbbb.pdf. [Accessed on 2 February 2026].

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