

Emerging Trends to Endemic Disease: Nipah Virus Infection in Bangladesh

Nipah virus (NiV) is an RNA enveloped virus, member of Paramyxoviridae family and an emerging zoonotic pathogen. Nipah virus causes severe respiratory illness and brain inflammation (encephalitis) and the fatality rate is reported to be high, between 40 percent and 75 percent among people infected with the virus. In 2024 and 2025, the case fatality rate was 100%.¹ The primary natural carriers are fruit bats (*Pteropus* species); humans can become infected through direct contact with infected bats or other animals, or by consuming food contaminated with bat saliva, urine or faces. “Human-to-human transmission of Nipah virus has also been reported among family and caregivers of infected patients” according to World Health Organization (WHO).²

Nipah virus was first identified in 1999 after an outbreak of encephalitis and respiratory illness among pig farmers and others who had close contact with infected pigs in Malaysia and Singapore. Since then, repeated outbreaks have been recorded in South Asia. Parts of northeast India and several districts in Bangladesh have reported cases, with Bangladesh experiencing outbreaks almost every year since 2001.³

About 348 Nipah virus cases have been reported in Bangladesh since 2001, about half of which occurred among people with a confirmed history of drinking raw palm sap. WHO says outbreak tend to occur on a seasonal basis from the months of December through April. On 3 February 2026, a laboratory-confirmed Nipah virus infection case died in Rajshahi which was confirmed by WHO.⁴

Nipah virus infection most often begins with non-specific symptoms, making early detection difficult. According to the US Centers for Disease Control and Prevention (CDC), the incubation period is generally believed to range from four to 21 days, though longer delays between exposure and illness have been reported in rare cases during previous outbreaks.⁵ Patients typically develop a sudden flu-like illness marked by fever, headache, muscle pain and fatigue. In some cases, respiratory symptoms such as cough, shortness of breath or pneumonia also occur which ultimately leads to Acute

Respiratory Distress Syndrome (ARDS). The most serious and defining complication of Nipah infection is inflammation of the brain, known as encephalitis. Neurological symptoms, including confusion, altered consciousness, seizures or coma, usually appear several days to weeks after the initial onset of illness.⁶

The samples should be collected as early as possible. The samples may be throat swab, urine, CSF, blood etc. In Bangladesh, Nipah virus can be diagnosed by RT-PCR and serological tests.⁷

There is currently no proven, targeted treatment for Nipah virus infection and no approved vaccine to prevent it. Care for patients remains largely supportive, focusing on managing symptoms and complications as they arise.^{8,9}

With no vaccine available, preventing Nipah viral infection relies on awareness and simple protective measures, global health agencies recommend. Public health advice focuses on reducing contact with the virus, whether from bats, animals, or infected people.⁹ Bats are the main carriers of Nipah. People should avoid consuming raw date palm sap or fruits that might have been contaminated by bats, WHO guidelines advise. Boiling fresh date palm juice and thoroughly washing or peeling fruits can reduce risk. Any fruit showing signs of bat bites should be discarded, the health agency advises. People handling sick animals or their tissues, or during slaughtering should wear gloves and protective clothing. Contact with infected pigs should be minimized, and pig farms in areas with fruit bats should take steps to protect feed and enclosures from bats.¹⁰

Its high fatality rate, potential for outbreaks, and lack of a vaccine made it a model for triggering a pandemic. The virus is listed by the WHO as a priority pathogen under its Research and Development Blueprint, which identifies epidemic threats that require urgent research.²

Kazi Yesmin

Professor

Department of Microbiology

Green Life Medical College, Dhaka

Email: kaziyesmin@gmail.com

References:

1. Spiropoulou CF. Nipah virus outbreaks: still small but extremely lethal. *The Journal of infectious diseases*. 2019 May 24;219(12):1855-7.
2. World Health Organization. WHO publishes list of top emerging diseases likely to cause major epidemics. 2005. <http://www.who.int/medicines/ebola-treatment/WHO-list-of-top-emerging-diseases/en/>. Accessed April 17, 2026.
3. Sharma V, Kaushik S, Kumar R, Yadav JP, Kaushik S. Emerging trends of Nipah virus: A review. *Reviews in medical virology*. 2019 Jan;29(1):e2010.
4. Chua KB. Nipah virus outbreak in Malaysia. *Journal of Clinical Virology*. 2003 Apr 1;26(3):265-75.
5. Centers for disease control and prevention. Update: outbreak of Nipah virus-Malaysia and Singapore, 1999. *MMWR Morb Mortal Wkly Rep*. 1999; 48: 335-337.
6. Nikolay B, Salje H, Hossain MJ, Khan AD, Sazzad HM, Rahman M, Daszak P, Ströher U, Pulliam JR, Kilpatrick AM, Nichol ST. Transmission of Nipah virus—14 years of investigations in Bangladesh. *New England Journal of Medicine*. 2019 May 9;380(19):1804-14.
7. Islam MN, Khan SA, Lanszki Z, Ábrahám Á, Akter S, Bhuyan AA, Zana B, Islam MS, Zeghib S, Leiner K, M Rafsan Jani AS. Development of an early warning system for Nipah outbreak prevention: on-site inactivation, PCR surveillance and sequencing in Bangladesh. *medRxiv*. 2026 Mar 20:2026-03.
8. Ang BS, Lim TC, Wang L. Nipah virus infection. *Journal of clinical microbiology*. 2018 Jun;56(6):10-128.
9. Hossain MJ, Gurley ES, Montgomery JM, Bell M, Carroll DS, Hsu VP, Formenty P, Croisier A, Bertherat E, Faiz MA, Azad AK. Clinical presentation of Nipah virus infection in Bangladesh. *Clinical infectious diseases*. 2008 Apr 1;46(7):977-84.
10. Epstein JH, Field HE, Luby S, Pulliam JR, Daszak P. Nipah virus: impact, origins, and causes of emergence. *Current infectious disease reports*. 2006 Feb;8(1):59-65.