

Nipah Virus Infection: Bangladesh Perspective

*Akhter M

Nipah virus (NiV) is a member of the genus *Henipavirus* in the family *Paramyxoviridae*. NiV infection is a fatal zoonotic disease transmitted to humans through infected animals (such as bats), or food (raw date palm sap, fruits) contaminated with saliva, urine, and excreta of infected animals. It can also be transmitted directly from person to person through close contacts.¹ Fruit bats (*Pteropus species*) are the natural hosts for NiV. The virus was first identified during an outbreak of encephalitis among pig farmers in Malaysia and Singapore in 1998 to 1999. Nipah virus was named after 'Kupmung Sungai Nipah' a village in Malaysia where the virus was isolated first. Since then sporadic outbreaks have been reported in South and Southeast Asia particularly in Bangladesh and India.^{2,3,4}

Bangladesh is one of the major endemic zone of NiV infections since the first outbreak in 2001. After that clusters of cases are found almost every year, especially during the winter months when raw date palm sap is widely available throughout the rural Bangladesh. We have noticed several hundred cases with a case fatality rate (CFR) exceeding 70%.⁵ Unlike the Malaysian outbreaks, which was associated with pigs as intermediate hosts, outbreaks in Bangladesh involve direct bat-to-human transmission and occasional person-to-person transmission, particularly in household and healthcare facilities.⁶

The incubation period of NiV infection is 3 to 14 days and in rare cases even up to 45 days. The clinical spectrum of NiV infection ranges from asymptomatic infection to rapidly progressive fatal disease and even death. Primarily there are nonspecific symptoms which include fever, headache, myalgia, dizziness, and vomiting. As

the disease progresses patients may develop altered consciousness, seizures, and neurological deficits (Acute Encephalitis). Respiratory manifestations such as cough, dyspnea, and acute respiratory distress syndrome are also common in the Bangladesh strain, making the clinical presentation somewhat different from previous Malaysian outbreaks.⁷ Many cases may deteriorate rapidly, progressing to coma within 1 to 2 days, and death often occurs within a week.⁸

Laboratory diagnosis of a patient with a clinical history of NiV infection is made by using a combination of tests. The main tests used are real-time polymerase chain reaction (RT-PCR) from body fluids and detection of IgM or IgG antibodies via ELISA. These tests are done during the acute and convalescent phases of the disease.⁹ Confirmation of diagnosis by laboratory tests is essential because the clinical features may mimic other viral encephalitis or severe respiratory infections.

There is no specific and effective antiviral therapy or licensed vaccine for NiV infection. Management is supportive which include intensive care, control of seizure and maintenance of airway and mechanical ventilation for respiratory failure. Some experimental therapies and monoclonal antibodies are being investigated, but they are not widely available for clinical use.⁸

The prognosis remains poor, with CFR ranging from 40% to 75%.¹⁰ Survivors may suffer from long-term neurological consequence, including persistent seizure or personality changes.¹¹

The epidemic potential of NiV remains a constant global health concern. NiV has been classified as a 'priority pathogen' by international health organizations because of its high mortality,

potential for human to human transmission, and absence of effective treatment or vaccine.^{9,10} Although sustained community transmission has not yet been observed, the possibility of viral evolution and wider spread cannot be ignored.

Preventive strategies are therefore important, particularly in endemic areas like Bangladesh. Public health measures include avoiding of raw date palm sap drinking, using physical barriers such as bamboo skirts and nets to prevent bats from contaminating sap collection pots, strengthening surveillance systems, and ensuring strict infection-control practices in healthcare settings.^{1,12} Community awareness campaigns, early case detection, and rapid outbreak response remain essential components of Niv disease control.

Nipah virus infection is a persistent public health challenge in Bangladesh. Continued vigilance and surveillance, public education, and patronizing research are essential to reduce the risk of future outbreaks and to develop effective therapeutic and preventive strategies against this notorious infection.

Professor Dr. Marufa Akhter,

Professor, Department of Biochemistry
Ad-din Sakina Women's Medical College, Jashore.
ORCID iD: 0000-0001-5348-0448

***Correspondence:** E-mail: drmarufabio@gmail.com

References

1. Luby SP, Gurley ES, Hossain MJ. Transmission of human infection with Nipah virus. *Clin Infect Dis*. 2009;49(11):1743-1748.
2. World Health Organization. Nipah virus [Internet]. Geneva: World Health Organization; 2026 Jan 29 [cited 2026 Mar 13]. Available from: <https://www.who.int/news-room/fact-sheets/detail/nipah-virus>
3. Chua KB, Goh KJ, Wong KT, et al. Fatal encephalitis due to Nipah virus among pig-farmers in Malaysia. *Lancet*. 1999;354(9186):1257-1259.
4. Lo MK, Rota PA. The emergence of Nipah virus, a highly pathogenic paramyxovirus. *J Clin Virol*. 2008;43(4):396-400.
5. Hsu VP, Hossain MJ, Parashar UD, et al. Nipah virus encephalitis reemergence, Bangladesh. *Emerg Infect Dis*. 2004;10(12):2082-2087.
6. Gurley ES, Montgomery JM, Hossain MJ, et al. Person-to-person transmission of Nipah virus in Bangladesh. *Emerg Infect Dis*. 2007;13(7):1031-1037.
7. Ang BSP, Lim TCC, Wang L. Nipah virus infection. *J Clin Microbiol*. 2018;56(6):e01875-17.
8. Clayton BA. Nipah virus: transmission of a zoonotic paramyxovirus. *Curr Opin Virol*. 2017;22:97-104.
9. World Health Organization. Nipah virus infection. Geneva: WHO; 2025.
10. Luby SP. The pandemic potential of Nipah virus. *Antiviral Res*. 2013;100(1):38-43.
11. Kulkarni DD, Tosh C, Venkatesh G, et al. Nipah virus infection: current scenario. *Indian J Virol*. 2013;24(3):398-408.
12. Sazzad HMS, Hossain MJ, Gurley ES, et al. Nipah virus infection outbreak with person-to-person transmission in Bangladesh. *Epidemiol Infect*. 2013;141(8):1630-1636.