

LETTER TO THE EDITOR

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We should concern about Nipah virus epidemic in Bangladesh

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Abstract

The zoonotic Nipah virus (NiV) is very lethal and may spread from animals to people. There is yet no known cure or therapy for NiV. The outbreaks are seasonal in Bangladesh, occurring between December and April, with cases reported almost annually. Since the virus was discovered in Bangladesh in 2001, 341 individuals had been affected, and as of February 2024, 242 fatalities have been documented. The case fatality rate (CFR) for NiV has been estimated to range from 40 to 75% in Bangladesh according to the World Health Organisation (WHO). As a result of the high CFR, difficulties in diagnosing the virus, and lack of specific treatments or vaccines for NiV infection, the WHO rates the overall risk at the national level as moderate. The virus has the potential to become a global public health concern due to its ability to spread from individual to person and beyond the region.

Keywords Nipah virus, Risk factor, Bangladesh

To the Editor,

The NiV is a zoonotic virus that has an extremely high death rate that infects people and other animals. It is spread from animals to people and is a member of the genus *Henipavirus* (Halpin and Rota 2023). Pteropid fruit bats are the main reservoir for the virus, which has produced epidemics in Southeast Asia and Africa (Deka and Morshed 2018). Human infections can cause severe respiratory illnesses, deadly encephalitis, or no symptoms at all. Contamination of food, person-to-person contact, or direct contact with diseased animals or their contaminated tissues are the ways in which the disease is spread. Furthermore, the disease is also transmitted through food contaminated with saliva, urine, and excreta of infected animals (WHO 2024). According to Banerjee et al. 2019, symptoms include fever, headaches, myalgia, vomiting,

sore throat, dizziness, altered consciousness, and neurological indications. According to Epstein et al. 2006, the case mortality rate varies from 40 to 75%. As of right now, there are no particular medications or immunisations available to treat or prevent NiV infection (Singh et al. 2019). The NiV has a high death rate and difficulties in proper diagnosis and outbreak control, which is why the WHO rates the risk of the virus in Bangladesh at a moderate to high level (WHO 2023).

NiV is a disease that has been prioritised for research and development by the WHO and the Coalition for Epidemic Preparedness Innovations for the development of countermeasures. According to recent estimates, there has been an increase in NiV mortality in Bangladesh; in 2024, there were 14 cases and 10 fatalities documented (WHO 2023, 2024). After seven years, this is the largest number of deaths. Additionally, the virus has been found in breast milk for the first time, which may result in transmission from mother to child (CIDRAP 2023). This is a worrying development because the NiV may cause severe encephalitis and has a high CFR of 40% to 75%.

The nation has had seasonal epidemics of NiV infection since the first outbreak was documented in 2001 (Singh et al. 2019; Satter et al. 2023; WHO 2024). There have

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been 242 recorded deaths from 341 NiV cases that have been found in Bangladesh thus far. Of the 64 districts in the nation, 34 have reported cases of the virus, suggesting a widespread effect. The high case fatality rate of 71% in 2023 emphasises how serious the problem is Satter et al. (2023). Bangladesh recorded 14 NiV infections in 2023, with 10 of those cases ending in death (WHO 2023), the highest number of deaths in seven years. Moreover, the bat-borne NiV caused two cases and two fatalities in Bangladesh during the first two months of 2024 (WHO 2024). The virus is still spreading despite efforts to stop it via community involvement, public awareness campaigns, and preventative measures, which might endanger public health worldwide. The control of NiV epidemics in Bangladesh is made more difficult by the absence of suitable vaccinations or therapies.

Bangladesh is very vulnerable to NiV infection because of yearly seasonal outbreaks. According to reports, the CFR of NiV in Bangladesh varies from 40 to 75% depending on the year (Agrawal et al. 2023). Based on 341 recorded human cases between 2001 and February 2024, the CFR for NiV in Bangladesh has been estimated to be 71% (Fig. 1) (WHO 2023). With 14 cases and 10 deaths documented, the new epidemic in 2023 has sparked anxiety since it deviates from the typical pattern. Serious threats to public health are posed by the high case fatality rate of 73% and difficulties in accurately diagnosing patients (WHO 2023). The virus, which is passed from human to human by fruit bats, may also travel from person to person, underscoring the importance of strict infection control procedures. The necessity of supportive treatment and preventative measures such as avoiding the ingestion of infected fruits or raw date palm sap is

highlighted by the lack of particular medications or vaccinations. In order to lessen the threat posed by the NiV in Bangladesh, it is imperative that more surveillance, community involvement, and international collaboration be implemented (WHO 2023; Nazmunnahar et al. 2023).

Although reported instances have been relatively fewer in the previous 5 years, ranging from 0 in 2016 to 8 in 2019, the number of cases annually has varied from 0 to 67 since the first case was recorded in 2001 (Nazmunnahar et al. 2023). Furthermore, the outbreak has been a significant concern, with a total of 11 cases reported, resulting in eight deaths in 2023 (WHO 2023). The risk factors for NiV infection in Bangladesh (WHO 2024) include:

- (a) *High case fatality rate:* NiV infection has a high case fatality rate. The Nipah virus infection's early symptoms are non-specific, and the diagnosis is frequently made at the time the symptoms appear. This may make it more difficult to diagnose patients accurately and pose problems for early and efficient infection control, epidemic response, and detection efforts.
- (b) *No approved medication:* NiV infection is not yet treated with particular medications or vaccines, despite the WHO designating Nipah as a priority illness for the WHO Research and Development Blueprint. It is advised to treat severe respiratory and neurological problems with intensive supportive treatment.
- (c) *Consumption of raw date palm sap:* Despite continuous attempts to address food safety and health issues via community involvement and risk com-

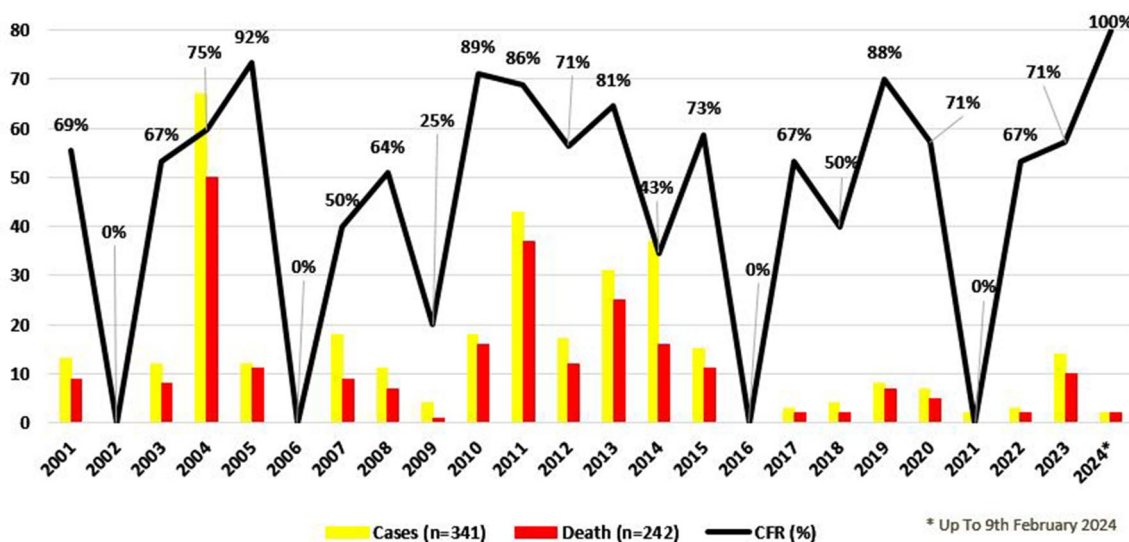


Fig. 1 Number of reported Nipah virus cases and deaths by year, 1 January 2001 to 9 February 2024, Bangladesh

munication, the community continues to consume raw date palm sap.

In order to lower the danger of contracting the NiV in Bangladesh, it is crucial to put preventative measures in place, such as avoiding contact with animals, maintaining good hygiene, and abstaining from eating potentially infected foods. Moreover, Bangladesh is taking a number of steps to stop NiV epidemics (WHO 2023). Among them are:

- (a) *Outbreak Investigation and Contact Tracing*: To quickly identify instances, the National Rapid Response Team is tracking contacts and conducting investigations.
- (b) *Case Management*: Senior physicians are improving case management by allocating specific hospital beds for patients infected with the NiV.
- (c) *Infection Prevention and Control*: Healthcare professionals are trained to use masks and gloves, manage patients locally, and update safety protocols in order to prevent and control infections as much as possible.
- (d) *Risk Communication and Community Engagement*: The goal of ongoing community involvement, risk communication, and advocacy initiatives is to increase public awareness and encourage the adoption of preventative measures.
- (e) *Avoiding Exposure*: Important preventative measures include avoiding contact with ill pigs and bats, avoiding ingestion of infected fruits or raw date palm sap, and following normal infection control procedures when outbreaks occur.

These initiatives highlight the significance of a thorough strategy including case treatment, infection control, risk assessment, community involvement, and surveillance in order to lessen the threat posed by the NiV in Bangladesh.

The syndromic therapy of acute encephalitis syndrome and supportive care are the mainstays of NiV treatment in Bangladesh and there are no vaccines or treatments for this virus. Several of them, including favipiravir, ribavirin, and the monoclonal antibody m102.4, have shown some efficacy against the NiV (Banerjee et al. 2019). To contain outbreaks and guarantee appropriate management of NiV cases, public health initiatives in Bangladesh also prioritise bolstering surveillance systems, prompt interventions, case management, infection prevention and control measures, risk communication, and community engagement (WHO 2023) which should be continued to consciousness and control the spread of NiV. The fact that there

is no known cure or vaccine for NiV infection emphasises how vital supportive care and preventative measures are in combating this illness in Bangladesh.

Abbreviations

NiV	Nipah virus
CFR	Case fatality rate
WHO	World Health Organisation

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