

## Editorial

### “Nipah Virus” Awareness Development is the Only Measure to Prevent Deadly Outcome

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Nipah virus infection is a zoonotic disease transmitted from bat to human. It is a RNA virus belonging to family Paramyxoviridae<sup>1</sup>. The name ‘Nipah’ comes from Sungai Nipah (Nipah River village) of Malaysia where it first emerged in 1998. In March 1999, a cluster of 11 similar cases was detected in Singapore among abattoir workers who were in contact with pigs imported from the outbreak regions of Malaysia. Nipah virus was isolated from both affected patients and the pigs. Most of the patients presented with encephalitis with high mortality rate (39%). They all had a history of contact with sick pigs. Pigs were infected by consuming partially eaten fruits by bats and their droppings. At that time fruit bats were identified as the natural reservoir of Nipah virus<sup>2,3</sup>. There was no evidence of human to human transmission from these outbreaks<sup>4</sup>. Eventually, Pteropus bats were shown to be the reservoir of infection in Malaysia<sup>5</sup>. Since then there have been several outbreaks in South and Southeast Asia.

In Bangladesh, the 1st case of Nipah virus infection was reported in 2001 in Meherpur district but Nipah virus was detected in 2004. Since then Nipah outbreak is reported almost every year. Initially Nipah cases were detected in 20 districts up to 2011, subsequently the infection has spread to other districts and up to 2021, Nipah cases were found in 32 districts of Bangladesh. Highest number (71) were detected from Faridpur district followed by Rajbari (30), Naogaon (25) and Lalmonirhat district. Bangladesh health authorities reported three Nipah virus cases in 2022. According to the Institute of Epidemiology Disease Control and Research (IEDCR) two cases were reported in Naogaon district and one case was reported in Rajbari district.

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This brings the number of cases reported in the country to 335 since 2001<sup>6-9</sup>.

Unlike Malaysia, transmission in Bangladesh occurs through various routes. Drinking raw date palm sap is the most common form of transmission of infection from bats to human. Outbreaks coincide with sap harvesting season (December–May). The date juice harvester usually makes an overnight collection by tying a pot in the tree after shaving one side of the upper most trunk. Infrared camera photographs have shown Pteropus bats have been visiting date palm trees and lick the sap streams being used for collection. Bats may also contaminate the sap collection pots with urine or faeces<sup>8</sup>. Human-to-human transmission is also another important mode of transmission in Bangladesh and has been identified in all outbreaks. The largest human to human outbreak occurred in Faridpur in 2004. Here Nipah virus is transmitted via droplet infection and Nipah virus RNA has been detected in the saliva of patients. Other possible pathways include living under a bat roost, where bat urine may infect surroundings. Domestic animals may also serve as a route of transmission from bats to humans. Pigs show high seroprevalence against Nipah virus in Bangladesh though they have not been implicated in outbreaks there. After 2011, another risk factor was identified which is consumption of Tari, a traditional liquor prepared by fermenting raw date palm juice<sup>9,10</sup>.

As there is no definite treatment of Nipah encephalitis public awareness is very important for prevention of transmission of this deadly disease. Government of Bangladesh has taken major initiative to combat this situation by Nipah surveillance programme and also by publishing national guideline for treatment of NiV infection.

Currently Nipah surveillance is functioning in 8 Government Medical College Hospitals and two general hospital covering 8 divisions. Besides this hospital-based surveillance, IEDCR is running “Event Based Surveillance” through IEDCR hotline numbers and media monitoring. After getting information through hot line numbers or media monitoring, IEDCR verifies the information and respond to that event. In the

hospital-based surveillance system the case is selected according to case definition described in the national guidelines. A combination of active and event-based surveillance system has a significant role for detection of Nipah outbreak as well as associated risk factors. As surveillance system explores viral epidemiology and pathophysiology, extensive surveillance particularly in low prevalent areas is required for detection of more cases if any and search for more risk factors and mode of transmission. Despite all these measures, the death toll is still high. So attention is required for early detection of this deadly viral infection, updating management guideline and training of healthcare professionals.

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