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**Subject: Advisory on Nipah Virus Infection**

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Nipah virus (NiV) infection is an emerging zoonosis that causes severe disease in both animals and humans and is endemic in South-East Asia. NiV was initially isolated and identified in 1999 in Malaysia and Singapore during an outbreak of encephalitis and respiratory illness among pig farmers and people with close contact with pigs. Since 2018, several outbreaks have been reported with subsequent clustering of cases in family contacts with additional reports of nosocomial transmission in health care settings. An outbreak of Nipah virus (NiV) with 06 laboratory confirmed cases and two (02) deaths has been reported during the September, 2023 by the State Government of Kerala, India. Previously countries including Bangladesh, Malaysia, Philippines, Singapore and India have also reported confirmed cases of Nipah virus in human. Although Nipah virus has caused only a few known outbreaks in Asia, it infects a wide range of animals and causes severe disease and death in people, making it a public health concern.

2. Nipah Virus belongs to family Paramyxoviridae, genus Henipavirus and is an emerging bat-borne zoonotic disease transmits to human through infected animals (Bats and Pigs) or contaminated food with saliva, urine and excreta of the infected animals. It can also be transmitted directly from person to person through close contact with an infected person. Nipah virus infection in humans causes a range of clinical presentations, from asymptomatic infection (subclinical) to acute respiratory infection and fatal encephalitis.

3. After exposure and an incubation period of 5 to 14 days, the infected individual presents with fever and headache, muscle pain, nausea and vomiting, followed by drowsiness, disorientation and mental confusion which may last for 3-14 days. These signs and symptoms can progress to coma within 24-48 hours. Long-term sequel following Nipah virus infection includes persistent convulsions and personality changes. The case fatality rate varies from 40% to 100% as reported from previous outbreaks.

**4. Case Definitions:**

a) **Suspected Case:** Any person with the following criteria:

- Any person presenting with fever and respiratory features (cough, breathing difficulty) with

acute encephalitis symptoms as acute onset of fever AND altered mental status OR seizure  
OR any other neurological deficit

AND/OR

- Epidemiological linkage like ingesting raw date, palm sap OR travel to Nipah endemic areas
- b) **Probable Case:** Any suspected case with epidemiological link or positive serological testing
- c) **Confirmed case:** Any suspected/ probable case with laboratory confirmation of the disease

5. **Laboratory Confirmation:** Procedures for the laboratory diagnosis of NiV include serology, histopathology, PCR and virus isolation. Specimens for virus isolation should be collected every second day of infection and must be processed in appropriate containment facility. For PCR, throat or nasal swabs, cerebrospinal fluid, urine & blood while for serology at least 5 ml of serum is required for serological testing. Tissues samples may be fixed in 10% buffered formalin for 48 hours prior to histological processing while for PCR the sample may be collected in viral transport medium following full biosafety protocol for shipment to the laboratory.

6. **Treatment:** Supportive care is recommended as no specific antiviral are available. Treatment is mostly focused on managing fever and the neurological symptoms. Severely ill individuals need to be hospitalized and may require use of ventilator. The clinical usefulness of ribavirin remains uncertain.

7. **Risk Assessment in Pakistan:** The overall risk of disease occurrence in Pakistan is low. Till date, there is no report of documented animal or human cases of NiV infection in Pakistan. However, there are several factors which could allow NiV emergence in Pakistan like evidences of the presence of Pteropus giganteus species of bats, international travel and long border with India where NiV outbreak has been documented.

8. **Preventive Measures:**

- Currently no NiV vaccine is approved either for humans or animals.
- Raising awareness about the risk factors and mitigating measures are key to reducing the risk of NiV exposure and transmission. The present options to prevent secondary transmissions are active case finding, contact tracing, isolation and quarantine of cases and their contacts.
- Community awareness regarding consumption of fruits only after proper washing and avoiding ingestion of partly consumed fruits which may be contaminated with secretions from fruit bats etc.
- Healthcare professionals should be aware of the case definitions as well as signs and symptoms of NiV and obtain a travel history when assessing patients.
- Health professionals caring for patients with suspected or confirmed NiV infection, or handling specimens from them, should implement standard infection control precautions at all times.

- As human-to-human transmission, in particular hospital (nosocomial) transmission has been reported; contact and droplet precautions should be used in addition to standard precautions
- As the disease transcends beyond one species and has shown to infect humans, it therefore requires the 'One Health approach' in which multiple sectors coordinate and work together to achieve better public health outcomes.
- Suspected NiV case samples with relevant history should be referred to Department of Virology, NIH with prior intimation to CDC NIH
- For early detection and implementation of preventive and control measures, the federal and provincial/regional health departments, Points of Entries (especially the airports under the Border Health Services), hospitals, clinicians and laboratory personals (Public & Private) and livestock and dairy departments are required to stay vigilant and notify the health authorities about any suspected case/event of NiV as per WHO case definition.
- Ministry of NHSRC/Public Health Emergency Operations Center, NIH is closely monitoring the situation and would like to urge the general public not to panic as we have mechanisms in place to prevent, to detect and to respond to such public health event and will keep the stakeholders updated. Please contact NIH for any further information / clarification at [fesd@nih.org.pk](mailto:fesd@nih.org.pk).



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