NATIONAL INSTITUTE FOR COMMUNICABLE DISEASES
Division of the National Health Laboratory Service

NIPAH VIRUS (NiV) DISEASE PREPAREDNESS

Update for Physicians, Accident & Emergency Practitioners and Laboratorians

Outbreak Response Unit, Division of Public Health Surveillance and Response and Centre for Emerging Zoonotic & Parasitic Diseases and Centre for Respiratory Diseases and Meningitis
National Institute for Communicable Diseases (NICD)
24-hour hotline number 0800 212 552

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An outbreak of Nipah virus (NiV) infection was reported in Kozhikode district in Kerala, India involving six cases, including two deaths as of 16 September 2023. Between 1998 and the present, outbreaks of NiV, a bat-borne paramyxovirus, have occurred in Bangladesh, India, Malaysia and Singapore. Malaysia-Singapore has had one recorded outbreak between 1998 and 1999, whereas Bangladesh has reported outbreaks almost every year since 2001, and India has so far had outbreaks in 2001, 2007, 2018, and 2023. Since NiV transmission requires direct contact with bodily fluids (saliva, blood, urine, respiratory secretions) from infected individuals, the risk of importation of NiV to South Africa is regarded as low. Risk is continuously assessed as the outbreak evolves.

Despite the low risk of importation into South Africa, healthcare workers across the country should be alert for suspected NiV cases (see case definition). Although earlier NiV outbreaks have been modest, the World Health Organization designated NiV infection as an emerging infectious disease with a high risk of becoming a major pandemic due to its high case fatality rate and lack of approved treatments or vaccinations. NiV has been demonstrated to spread from human-to-human depending on the strain of NiV involved in the outbreak. Of the 248 cases of the NiV infection that were detected in Bangladesh between 2001 and 2014, 82 of them considered to have constituted human-to-human transmission. It is important to exclude NiV in cases of acute febrile illness, respiratory symptoms or encephalitis among returning travellers from NiV outbreak affected areas (Pteropus Bats Presence and Nipah Virus Outbreaks | Nipah Virus (NiV) | CDC).

NiV case definition (consideration for testing):

A ***suspected case*** of Nipah virus (NiV):

Any person presenting with

- an acute onset of fever (≥38°C) with new onset of altered mental status or seizure and/or
- fever with headache and/or
- cough or shortness of breath;

AND has an epidemiological link

- who visited or resided in Kerala, India, or a community affected by a NiV disease outbreak (Pteropus Bats Presence and Nipah Virus Outbreaks | Nipah Virus (NiV) | CDC), in the six weeks prior to onset of illness and;
- had direct contact with or cared for suspected/confirmed NiV cases (humans/pigs) in the six weeks prior to onset of illness;

NOTE: Exclude malaria, dengue, chikungunya, zika, leptospirosis, typhoid and common respiratory infections.

Specimen collection for investigation of NiV infection:

1. A more comprehensive guide for specimens is available from the NICD website;
2. Submit the following specimens for investigation:
   1 X clotted blood (red or yellow top tube)
   1 X nasopharyngeal swab (in viral transport media)
   Additional samples: cerebrospinal fluid, urine
3. The specimens should be packaged in accordance with the Guidelines for Regulations for the Transport of Infectious Substances (triple packaging using absorbent material) and transported directly and urgently to:
   Centre for Emerging Zoonotic and Parasitic Diseases, Special Viral Pathogens Laboratory, National Institute for Communicable Diseases (NICD) National Health Laboratory Service (NHLS), 1 Modderfontein Rd., Sandringham, 2131
4. Ensure that the completed NiV infection case investigation form is submitted with the specimens.
5. Samples should be kept cold during transport (cold packs are sufficient).

Transmission of NiV:

- Most human infections during the first known outbreak occurred as a direct result of coming into contact with sick **pigs** or their contaminated tissues.
- Consumption of fruits or fruit products (like raw date palm juice) contaminated with the urine or saliva of infected ***Pteropus*** **fruit bats** was the most likely source of infection in subsequent outbreaks in Bangladesh and India, and during the later outbreaks, NiV spread directly from human-to-human through close contact with people's secretions and excretions (incl. nasal or respiratory droplets, urine or blood).
- **Health care workers and caretakers are more at risk:** In Siliguri, India in 2001, transmission of the virus within a health care setting was also observed; 75% of cases involved hospital workers or visitors. About half of the cases that were recorded in Bangladesh between 2001 and 2008 were caused by **transmission from human-to-human** while nursing infected patients.

Steps to managing a suspected NiV infection case

1. Determine if case meets the case definition for NiV infection
2. Inform the management and infection control officers at the medical facility concerned of the existence of the suspected case of NiV infection.
3. Isolate the patient and apply infection precautions to minimize exposure to health care workers and others.
4. Clinical management is general, supportive treatment (ensuring fluid and electrolyte balance, oxygen inhalation if required), symptomatic treatment (treating fever, convulsions, shock).
5. Discuss the case with the NICD hotline (0800 212 552)
6. Submit specimens and case investigation form to NICD for investigation.
7. Notify the case to the National Director of Communicable Disease Control (CDCC) and the relevant provincial CDCC if not already done.

For more information, visit the NICD website, NiV