Directorate of Health Services, Kerala

Nipah Virus infection- Guidelines

(Adapted from the NCDC interim guidelines, and WHO Bulletins, updated 23.5.2018)

Human Nipah virus (NiV) infection is an emerging zoonotic disease which was first recognized in a large outbreak of 276 reported cases in Malaysia and Singapore from September 1998 to May 1999.

In India, during 2001 and 2007 two outbreaks in human were reported from West Bengal and neighbouring Bangladesh. Large fruit bats of *Pteropus* genus are the natural reservoir of NiV. There was circumstantial evidence of human-to-human transmission in India in 2001.

During the outbreak in Siliguri, 33 health workers and hospital visitors became ill after exposure to patients hospitalized with Nipah virus illness, suggesting nosocomial infection. Nipah cases tend to occur in a cluster or as an outbreak.

EPIDEMIOLOGY

- **Agent:** Nipah virus (NiV) is a highly pathogenic paramyxovirus.
- **Natural Reservoir:** Large fruit bats of *Pteropus* genus are the natural reservoir of NiV. Presumably, pig may become infected after consumption of partially bat eaten fruits that were dropped in pigsty.
- **Seasonality:** was strongly implicated in NiV outbreaks in Bangladesh and India. All the outbreaks occurred during the months of winter to spring (December-May).
- **Incubation period:** varies from 4-21 days.

- **Mode of Transmission:** Transmission of Nipah virus to humans may occur after direct contact with infected bats, infected pigs, or from other Nipah virus infected people. Another route of transmission of Nipah virus has also been identified from its natural reservoir to human: drinking of raw date palm sap contaminated with NiV.

- **Diagnosis:** Laboratory diagnosis of a patient with a clinical history of NiV can be made during the acute and convalescent phases of the disease by using a combination of tests. The designated Nipah virus testing facility for Kerala is MCVR Manipal.
- **Clinical features:** Fever, Altered mental status, severe weakness, Headache, Respiratory distress, Cough, Vomiting, Muscle pain, Convulsion and Diarrhoea.

  In infected people, Nipah virus causes severe illness characterized by inflammation of the brain (encephalitis) or respiratory diseases.

  In general, the case–fatality rate is estimated at 40–75%; however, this rate can vary by outbreak and can be up to 100%.

- **Treatment:** Currently there is no known treatment or vaccine available for either humans or animals. However **Ribavirin**, an antiviral may have a role in reducing mortality among patients with encephalitis caused by Nipah virus disease. It is not recommended for prophylaxis. Intensive supportive care with treatment of symptoms is the main approach in managing the infection in people.

CASE DEFINITIONS

❖ Suspected Nipah Case

- Person from an area/ locality affected by a Nipah virus disease outbreak who has:
  - Acute Fever with new onset of altered mental status or seizure and/or
  - Acute Fever with severe headache and/or
  - Acute Fever with Cough or shortness of breath.

❖ Probable Nipah Case

- Suspected case-patient/s who resided in the same village where, suspected/confirmed case of Nipah was living during the outbreak period and who died before complete diagnostic specimens could be collected.

OR

- Suspected case-patients who came in direct contact with confirmed case-patients in a hospital setting during the outbreak period and who died before complete diagnostic specimens could be collected.

❖ Confirmed Nipah Case

- Suspected case who has laboratory confirmation of Nipah virus infection either by:
  - Nipah virus RNA identified by PCR from respiratory secretions, urine, or cerebrospinal fluid.
  - Isolation of Nipah virus from respiratory secretions, urine or cerebrospinal fluid.

❖ **Definition of a Contact:**

- A close contact is defined as **a patient or a person who came in contact with a Nipah case (confirmed or probable cases) in at least one of the following ways.**
  - Was admitted simultaneously in a hospital ward/ shared room with a suspect/confirmed case of Nipah virus disease.
  - Has had direct contact with the suspect/confirmed case of Nipah virus disease during the illness including during transportation.
  - Has had direct contact with the (deceased) suspect/confirmed case of Nipah virus disease at a funeral or during burial preparation rituals.
  - Has touched the blood or body fluids (saliva, urine, vomitus etc.) of a suspect/confirmed case of Nipah virus disease during their illness.
  - Has touched the clothes or linens of a suspect/confirmed case of Nipah virus disease.

These contacts need to be followed up for appearance of symptoms of NiV for the longest incubation period (21 days).

GUIDELINES FOR LABORATORY SAMPLE COLLECTION AND DIAGNOSIS

Laboratory Diagnosis:

Laboratory confirmation of a suspect/probable case can be made during the acute and convalescent phases of the disease by using a combination of tests**.** The designated Nipah virus testing facility for Kerala is MCVR Manipal. Samples may also be sent to NIV, Pune which is the referral lab for NiV disease conformation.

Guidelines for Sample Collection and Transportation:

Universal, standard droplet and bio-containment precautions should be followed during contact with excretions, secretions and body fluids of suspected patient for Nipah virus. Adequate bio-safety precautions should be adopted during collection/transport/ storage/ processing of suspected sample.

Sample collection:

The samples should be collected as early as possible (preferably within 4 days) with all bio-safety precautions and accompanied with detailed history of patients on the proforma which can be obtained from the testing laboratory.

Sample collection should be done only AFTER ADMISSION in an appropriately secure isolation facility, and ensuring that the staff member doing the collection is using adequate PPE .

During sample collection wear complete disposable Personal Protective Equipments (N 95 mask, double surgical gloves, gowns, goggles, foot cover, etc). Wash hands with soap and water at least for 30 seconds and then clean hand using 1-2 ml alcohol based hand sanitizer before and after collection of samples.

The recommended samples are

- Throat swab in viral transport medium.
- Urine 5 ml in universal sterile container.
- Blood in red vacutainer (5ml).
- CSF (1-2 ml) in sterile container.

- ***For Kozhikkode region, triple pack and deliver to MCVR Site Team at MCH Kozhikkode (Contact person for Kozhikode area at MCH-- Mr. Jazeel Abdul Majeed, Sr Epidemiologist Mob No 9060695136)***
- ***For all other regions in Kerala liaison persons of MCVR are Anup Jayaram, Sr Microbiologist (9482406560) or Chetan Kumar, Logistic administrator (9481291370)***
- ***Samples can also be sent to NIV, Pune after due intimation***

Transportation and Storage of samples:

Samples should be safely packed in triple container packing and should be transported securely under cold chain (2-8°C) to the testing laboratory with prior intimation.

Sample containing vials, tightly closed, should be kept in good quality zip-lock bags wrapped with sufficient absorbent cotton padding so that the material inside, if it leaks should not come out of the bag. The plastic bag should be kept in another Zip-lock bag similarly, which should be sealed with adhesive tape. This carrier should be placed in a hard container sealed with impermeable tape or plaster and placed in thermocol box /vaccine carrier containing ice packs. The case sheets with complete information should be placed in plastic bag and should be pasted **outside the container**.

Samples should be transported at 2-8°C to the MCVR, Manipal within 24 hours.

NiV DISEASE- ADVISORY FOR HEALTH CARE PERSONNEL

1. Wash hands thoroughly with soap and water for 20 seconds after contact with a sick patient.
2. Use appropriate mask and gloves during history- taking, physical examination, sample collection and other care-giving to suspected Nipah cases.
3. Follow Standard precautions for infection control at hospital settings:
   - Hand Hygiene
   - Use of Personal Protective Equipment(PPE)
   - Use disposable items (NG tube, ET tube, oxygen mask) while handling the patient.
   - Safe waste disposal for potentially infected material including used PPE, linen, clothing of patient etc.
4. All suspected cases should be admitted to the designated isolation ward/ facility in the hospital prior to any sample collection. Once the case is suspected of Nipah, bystanders should not be permitted in the ward.
5. Segregate all suspected cases of Nipah from all patients in the isolation ward/ facility.
6. Avoid unnecessary contact with suspected Nipah cases or use barrier nursing Maintain bed spacing of at least 2 meters.
7. Any spillage of bodily fluids in the OP/Ward should be managed as per infection control guidelines.
8. Immediately report admission of a suspected Nipah case to State Surveillance Officer and CSU (IDSP) in the prescribed daily report formats.

9. Mortuary staff should wear PPE while handling a dead body. Designated sealed bag should be used for transportation of the dead body.

- *Draft /interim guidelines document prepared by Nipah Advisory Group , Kerala Health Services and approved for issue by Director of Health Services, Kerala, date: 23.5.2018*
- *As the situation is still evolving, the matter contained in this guideline is subject to modification at regular intervals.*
- *Detailed reference documents for additional information will be emailed to all DMOs and DSOs regularly.*
- *All are advised to check DHS website or contact your DSO for updates, regularly.*

NB: For assistance, or to speak to an appropriate health expert or official, please call 24 x7 Health Dept NHM help line DISHA on 0471 255 2056 , or 1056 toll free at any time.

Standard Operating Procedure for Handling of Dead Body of Nipah Virus infection

Exposure to Nipah virus is highly hazardous. Secretion and excretion from a deceased person are considered to be equally infectious like that of a living infected person. Adequate precautionary measures have to be taken during handling such dead body during transportation, washing and burial or cremation. However due regard should be given to the sentments of the relatives and prevailing local customs.

- The handling of human remains should be kept to a minimum. Remains should not be sprayed, washed or embalmed.
- Personnel handling remains should wear personal protective equipment (gloves, gowns, apron, N 95 masks and eye protection [eye shield]) and shoe cover.
- Heath care worker handling the dead body will provide information to family members to follow basic infection control precautions during transportation and handling of the deceased from hospital to community and at the crematirium or burial site.
- At the hospital or place of death, remains should be placed in air sealed leak-proof, fluid impermeable double layer body bag. The Health worker handing the body should follow basic precautions and wear the Protective equipment(gloves, gowns, apron, N 95 masks and eye protection [eye shield]).
- Protective equipment worn by the person handling the dead body at this time should be removed immediately as per standard protocol for infectious waste disposal, after remains have been placed in a body bag.The personal handling this body will change into new PPE before transportation. The exposed and used PPE should be disinfected in Hypochlorite solution.
- No family relative or friend should be allowed to touch or kiss the dead bodyprior to placing in the air sealed body bag.
- **Transport the body to the burial ground/ crematorium in dedicated herse van.** N 95 masks and gloves should be worn by individuals driving the vehicle that transports human remains. The van should be disinfected after ofloading the mortal remains.
- At the crematorium or the burial ground, rituals if any, should be done at least 3 metres away from the dead body. The mortal remains should not be touched.
- The persons handling the dead body during the burial / cremation should wear personal protective equipments. The health worker accompanying the dead body will assist the persons handling the body to wear and take of the PPE. This PPEs should again be sent for proper disinfection as above.
- In case of burial, the body should be placed in a pit so that the mortal remains are atleast 10 feet below the ground.

- Sharp wastes if any, taken off from the body should be placed in separate designated rigid container (box, bottle etc.) Decontaminate wastes by autoclaving/chemicals [Sodium hypochlorite].
- Decontaminate the mortury and the room where the dead body has been kept (including the room in the ward where the patient has been treated) using 5% hypochlorite or hydrogen peroxide.
- Soak reusable items in 5% bleach solution or in soap/detergent water for 10-30 min

- Hand wash with soap and water (or hand sanitizer) should be done immediately after handling the corpse

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