

# Nipah Virus

**Nipah Virus** (NiV) is a zoonotic virus that can infect and cause disease in a variety of mammalian hosts including pigs, cows, cats, dogs, sheep, goats, horses and humans. Fruit bats are considered to be the major reservoir, with pigs occasionally acting as intermediate hosts. NiV was initially isolated and identified in 1999 from Sungai Nipah, a village in the Malaysian Peninsula where pig farmers became ill with encephalitis. Cases and sporadic outbreaks have been reported in Southeast Asia including Malaysia, Cambodia, Thailand, Singapore, Bangladesh and India, among others. In humans, NiV can cause encephalitis of varying severity, with death resulting in 40-70% of reported cases. NiV infection in humans generally occurs by ingestion of foods that contain the virus (i.e. fresh or fermented date palm sap contaminated with saliva or urine from infected fruit bats or undercooked infected pork), by contact with infected human or animal body fluids where droplet transmission may occur, or by close contact with pigs. Transmission between humans has been reported in some outbreaks within healthcare settings.

## Disease Summary

- **Transmission:**
  - Direct contact with infected animals, such as bats or pigs, or their body fluids (such as blood, urine or saliva)
  - Consuming food products that have been contaminated by body fluids of infected animals (such as palm sap or fruit contaminated by an infected bat)
  - Close contact with a person infected with NiV or their body fluids (including nasal or respiratory droplets, urine, or blood)
- **Incubation Period:** 4 to 14 days but can range up to 40 days
- **Symptoms:** Initial symptoms include fever, cough, sore throat, difficulty breathing, headache, and vomiting for 3 to 14 days and can progress to severe symptoms such as drowsiness, disorientation, seizures, coma, and encephalitis. Meningismus is seen in approximately one third of patients but marked nuchal rigidity and photophobia are uncommon. Some patients have a respiratory illness during the early part of their infections.

## Case Definition

A combination of clinical and epidemiological criteria is used to identify a suspected case. Refer to transmission and symptoms found under Disease Summary.

## Key Screening Steps

1. **Identify:** Assess the patient for signs and symptoms, travel history, and epidemiological criteria. For assistance, contact facility Infection Prevention and Control or on-call hospital epidemiologist.
2. **Isolate:** Provide a mask to the patient, initiate prompt triage and isolation, and follow infection prevention guidance.
3. **Inform:** Notify department and facility leadership, infection prevention and control, and local on-call hospital epidemiologist. Call NYC DOHMH Provider Access Line to ascertain risk: 866-692-3641. If determined to be a Person Under Investigation per NYC DOHMH, call Central Office Special Pathogens Program/Emergency Management: 646-864-5442.

## Infection Prevention

### Hand Hygiene

Perform hand hygiene before and after all patient contact, contact with potentially infectious material, and before putting on and upon removal of PPE, including gloves. Use soap and water for at least 20 seconds or use alcohol-based hand rubs. If hands are visibly soiled, use soap and water.

### Patient Placement

Place patient in a single patient **Airborne Infection Isolation Room (AIIR)**. If an AIIR is not available, isolate patient in a private examination room. Keep door closed and minimize entry and exit.

Limit transport and movement of the patient outside of the room. When outside of the AIIR, patients should wear a facemask to contain secretions.

Keep a log of all persons who care for or enter the rooms or care area of these patients.

### Transmission-based Precautions and PPE

Adhere to **Standard + Airborne + Contact Precautions**. Use gown, respirator, goggles or face shield, and gloves. Follow the **SP Level 1 PPE Donning and Doffing Checklist**.

### Environmental Infection Control

NiV is classified as a **Category A infectious substance**: capable of causing permanent disability or life-threatening/fatal disease in healthy humans if exposure occurs. Keep all waste, supplies, or medical equipment in the patient room until NiV is ruled out.

If NiV is ruled out, clean and disinfect the patient's care area in accordance with routine procedures, using an EPA registered disinfectant with label claims for a non-enveloped virus for appropriate contact time. Although NiV is an enveloped virus and is easier to kill than non-enveloped viruses, using a disinfectant product with a higher potency than what is normally required for an enveloped virus is recommended.

If NiV is ruled in, all cleaning, disinfection, and transport of waste will be **escalated to and managed by vendors with expertise in handling Category A waste**. Once the patient vacates a room, all unprotected individuals, including HCP, should not be allowed in that room until sufficient time has elapsed for enough air changes to remove potentially infectious particles and the room has been cleaned and disinfected by designated vendor.

## Diagnostic Testing

**Consultation and approval from NYC DOHMH is required if specimen collection is warranted.** Laboratory tests using or blood, throat/nasal swabs, urine, and cerebrospinal fluid are used to diagnose Nipah Virus. Further information regarding specimen collection can be found here:

<https://www.cdc.gov/ncezid/dhcpp/vspb/specimens.html>

## Treatment

There are currently no licensed drugs or vaccines that are proven to be effective against Nipah virus infection. Treatment is limited to supportive care.

### Additional Information

- CDC Nipah Virus Website: <https://www.cdc.gov/vhf/nipah/index.html>
- WHO Nipah Virus Fact Sheet: <https://www.who.int/news-room/fact-sheets/detail/nipah-virus>
- Nipah Virus Review: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6409114/pdf/irdr-8-1.pdf>
- Minnesota Department of Health: <https://www.health.state.mn.us/diseases/hcid/hcidspecifics.pptx>