

What is Nipah Virus?

Nipah Virus (NiV) is a zoonotic virus that can cause severe disease in animals and humans. It belongs to the *Henipavirus* genus within the *Paramyxoviridae* family. Fruit bats (specifically *Pteropus* species, also known as flying foxes) are the natural reservoir of NiV, while pigs can serve as intermediate hosts. Other animals can be infected including cows, goats, cats, dogs, horses, and sheep. NiV was first identified in 1999 during an outbreak among pig farmers in Sungai Nipah, Malaysia, where cases of encephalitis were reported. Since then, outbreaks have occurred in South and Southeast Asia, including Bangladesh, India, Malaysia, Singapore, Cambodia, Thailand, and the Philippines. Human infections are most commonly the result from: consumption of fruits or fruit products (such as raw date palm juice) contaminated with urine or saliva from infected fruit bats, direct contact with infected animals or their body fluids, or close contact with infected humans or their body fluids, particularly among caregivers and healthcare workers. In humans, NiV can cause illness ranging from asymptomatic or mild disease to acute respiratory infection and fatal encephalitis, with case fatality rates reported between 40-70%. Transmission between humans has been documented in several outbreaks, especially within families and healthcare settings.

Clinical Presentation & Disease Summary

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| Transmission: | <ul style="list-style-type: none">• 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: | <ul style="list-style-type: none">• 4 to 14 days• Incubation periods as long as 45 days have been reported• Individuals are not contagious prior to symptom onset |
| Signs and Symptoms: | <ul style="list-style-type: none">• Symptoms range from asymptomatic to severe• Fever, cough, sore throat, headache, difficulty breathing, and vomiting for 3 to 14 days• Symptoms can progress to severe symptoms such as dizziness, drowsiness, disorientation, seizures, and encephalitis.<ul style="list-style-type: none">○ Those with these symptoms can fall into a coma within 24-48 hours.• Some patients have a respiratory illness during the early part of their infections. |
| Complications: | <ul style="list-style-type: none">• Atypical pneumonia and acute respiratory distress• Encephalitis• Death• Residual neurological conditions• Relapses or delayed neurological symptoms can occur months or years after initial infection• Seizure disorder and personality changes |

When to Suspect a Patient has Nipah

Early diagnosis of Nipah infection can be challenging due to its non-specific early symptoms. Suspect Nipah virus in an individual who has one or more symptoms of Nipah Virus (listed above) **AND** one or more of the following exposure risk factors within 2 weeks of symptoms onset:

- Travel to/residence in a country known to have circulating Nipah virus. Outbreak map located [here](#)
- Known/suspected exposure to ill or dead person with suspected/confirmed Nipah virus, including by:
 - Contact with bodily fluids (e.g., blood, sweat, saliva, urine, vomit, feces) without appropriate PPE
 - Contact with bodily fluids or contaminated objects with appropriate PPE if there is concern for a breach in PPE
- Having a history of consuming raw date palm sap or contaminated fruit
- Having direct contact with infected animals (e.g., bats, pigs) or their body fluids

Key Steps for Frontline Clinical Staff

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| Identify | <ul style="list-style-type: none"> • 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. |
| Isolate | <ul style="list-style-type: none"> • Provide a mask to the patient and initiate prompt isolation and triage. Follow infection control prevention guidance. |
| Inform | <ul style="list-style-type: none"> • Notify dept/facility leadership, Infection Prevention & Control, on-call hospital epidemiologist. • Notify jurisdictional health department immediately (via the 24-hour Epi-On-Call contact list) and follow jurisdictional protocols for patient assessment. |

Infection Prevention and Control

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 the patient in a private examination room. Keep the door closed, minimize entry and exit, and avoid entry without appropriate PPE.
 - Keep a **log** of all persons who care for or enter the room or care area of the patient.
- Limit movement of the patient outside of the room. When outside the room, **patient should wear a facemask**.

Transmission-Based Precautions & Personal Protective Equipment

- Adhere to **Airborne + Contact Precautions in addition to Standard Precautions**.
 - Use gown, respirator, goggles or face shield, and gloves.
- If Nipah is confirmed, healthcare providers should use PPE according to [clinically unstable VHF guidance](#).

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. Management of laundry, food service utensils, and medical waste should also be performed in accordance with routine procedures.
- If NiV is **RULED IN**, all cleaning, disinfection, and transport of waste must be [managed as 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 (if applicable) or staff.

Diagnostic Testing

- **Consultation and approval from jurisdictional health department is required for disease-specific diagnostic testing.** Call jurisdictional health department [24-hour Epi-On-Call contact](#).
- Nipah infection can be diagnosed during illness or after recovery.
- During early stages of infection, test for Nipah using real time polymerase chain reaction (RT-PCR) from throat and nasal swabs, cerebrospinal fluid, urine, or blood.
- Later in the course of illness and after recovery, test for antibodies using an enzyme-linked immunosorbent assay (ELISA)
 - <https://www.cdc.gov/nipah-virus/hcp/clinical-overview/index.html>

Treatment and Immunization

- There are currently no licensed drugs or vaccines that are proven to be effective against Nipah virus infection.
- Treatment is limited to supportive care, including, rest, hydration, and treatment of symptoms
- Treatment options in development:
 - m102.4, an immunotherapeutic treatment which has completed phase 1 clinical trials.
 - M102.4 has been used on a compassionate use basis.
 - Remdesivir has helped prevent Nipah when given to exposed nonhuman primates. May complement immunotherapeutic treatments like m102.4.
 - Ribavirin was used in a small number of patients in the 1999 Malaysian Nipah outbreak, however, it's efficacy is unclear.

Contact: SystemBiopreparedness@nychhc.org

References:

- [CDC Nipah Virus](#)
- [CDC Nipah - For Healthcare Providers](#)
- [WHO Nipah Virus Fact Sheet](#)
- [Nipah Virus Review](#)