
Nipah Virus Infection

Frequently Asked Questions

1. What is Nipah virus infection?

Nipah virus infection is caused by the zoonotic virus, Nipah virus (NiV), a member of the genus *Henipavirus* in the family *Paramyxoviridae*. It is related to the bat-borne virus, Hendra virus and fruit bats (genus *Pteropus*) are known to be natural host and reservoir of NiV. Spillover to animals and the human population can occur and results in a range of clinical presentations, from asymptomatic (subclinical) infection to acute respiratory illness and fatal encephalitis. Once it spreads to people, human-to-human spread can also occur, although this has been very limited involving close contacts. The reported case fatality rate in documented outbreaks between 1999 and 2018 was 40-70%.

2. Where does Nipah virus occur?

The first human outbreak of NiV infection was identified amongst pig farmers in Malaysia in 1998-1999. In 1999, an outbreak was also reported from Singapore amongst slaughterhouse workers. In these outbreaks, close contact with pigs or pig excreta were shown to be a risk factor. No further outbreaks have been recorded from Malaysia or Singapore.

Since 2001, outbreaks of NiV have occurred in Bangladesh, India and the Philippines. In Bangladesh, seasonal outbreaks occur annually during the winter months. In India, outbreaks have been more sporadic, occurring in 2018, 2019, 2021 and in 2023. In 2014, an outbreak of henipavirus, most likely NiV or a virus that is (anti)genetically closely related to NiV, was also documented in the Philippines. Unlike the initial Malaysian outbreak, the subsequent outbreaks have shown limited human-to-human transmission, raising concerns about the potential for NiV to cause a global pandemic. It is thought that other countries in the South Asian and South-East Asian region may be at risk for outbreaks (Nipah Belt), as evidence of the virus in the natural reservoir, *Pteropus* bats, has been widely reported in the region ([Pteropus Bats Presence and Nipah Virus Outbreaks | Nipah Virus \(NiV\) | CDC](#)).

3. How is Nipah virus transmitted?

The NiV can spread to people from direct contact with infected animals, such as bats or pigs, or their bodily fluids (such as blood, urine or saliva). People can also be infected by consuming food products that have been contaminated by bodily fluids of infected animals (this has included palm sap or fruit contaminated by an infected bat). Close contact with a person infected with NiV or their bodily fluids (including nasal or respiratory droplets, urine, or blood) can also lead to infection.

In the first known NiV outbreak, people were likely infected through close interaction with infected pigs. No human-to-human transmission was reported in that outbreak. However, human-to-human spread of NiV has been reported during outbreaks in Bangladesh and India, and mostly involve relatives and caregivers (healthcare settings) of NiV-infected patients, i.e. close contacts.

4. What are the signs and symptoms of Nipah virus infection?

The range of symptoms associated with NiV infection can vary from mild to severe disease, including lower respiratory tract infection, swelling of the brain (encephalitis) and potentially death.

The onset of symptoms typically occurs 4-14 days following exposure to the virus. The illness begins with prodromal signs such as fever and headache, vomiting and myalgia (muscle pain). It also frequently includes signs of respiratory illness, such as cough, sore throat and difficulty breathing. Infected persons may develop an atypical pneumonia. Signs of encephalitis develop within a week, and can include drowsiness, disorientation, and mental confusion, which can rapidly progress to coma within 24-48 hours.

Those who survive the initial infection often struggle with debilitating, long-term neurological sequelae, including memory loss, impaired cognition, seizures, convulsions, and personality changes. Some NiV infections have reportedly been known to remain dormant in people for months or even years before manifesting symptoms and, in extreme cases, resulting in death.

5. How is Nipah virus disease diagnosed?

The symptoms of NiV infection are similar to other diseases causing fever, which makes early diagnosis challenging. However, early detection and diagnosis are vital for proper patient care, to prevent transmission to other people and to contain outbreaks. Infection can be diagnosed during the acute and convalescent stage of the disease. Bodily fluids can be tested during the early stages of the illness, using reverse transcription polymerase chain reaction (RT-PCR) or anti-NiV IgM enzyme-linked immunosorbent assays (ELISA). During convalescence, antibody detection of anti-NiV IgG ELISA can be conducted. The National Institute for Communicable Diseases provides laboratory testing (RT-PCR and or ELISA) for suspected cases of NiV infection (see lab guide on www.nicd.ac.za).

6. How is Nipah virus infection treated?

Currently, there are no approved drugs available for treating a NiV infection. Treatment is supportive and severe respiratory and neurologic complications require intensive care. The World Health Organisation (WHO) has identified NiVregular as a priority disease for the WHO Research and Development Blueprint, largely due to its capacity to transmit from human-to-human and its potential to cause high mortality. Monoclonal antibody therapy is one treatment under development.

7. How can Nipah virus be prevented?

An important part of prevention and control is educating people about NiV routes of infection. As NiV may be spread from human-to-human through close and direct contact, outbreaks can be controlled following rapid laboratory diagnosis and laboratory confirmation of cases. This allows for contact tracing and

monitoring to enable the proactive recognition of any other linked cases of NiV infection. It is recommended that confirmed cases of NiV self-isolate to minimise the risk of transmission. Isolation may be through self-isolation at home if circumstances allow, but cases may be isolated in hospital if required, where infection control measures must be in place to prevent hospital-acquired infections.

8. Prevention of Nipah virus infection

Currently there are no vaccines available specific for NiV infection. Recommended prevention measures in areas where NiV outbreaks have occurred (Bangladesh, Malaysia, India, and Singapore), include regular handwashing with soap and water, avoiding contact with sick bats or pigs and avoiding areas where bats are known to roost. Avoid eating or drinking products that could be contaminated by bats, such as raw date palm sap (there is increased bat contamination of date palms), raw fruit, or fruit that is found on the ground. Avoid contact with the blood or bodily fluids of any person known to be infected with NiV.

NiV can be spread from human-to-human, thus, standard infection prevention and control practices are important in preventing hospital-acquired infections (nosocomial transmission) in settings where a patient has confirmed or suspected NiV infection.

9. What is the risk of contracting Nipah virus in South Africa?

Historically, NiV outbreaks have remained isolated and larger scale community spread have not been noted yet. Nevertheless, as lessons learnt from COVID-19 have illustrated that outbreaks in other parts of the world can fast become a global concern, NiV should be considered as a possible diagnosis in persons presenting with symptoms consistent with NiV infection (see section 4) AND who have recently travelled from areas where NiV outbreaks are reported (such as Bangladesh, Malaysia, India and Singapore), particularly if they had a known exposure (see section 3).

10. Where can I find more information?

Laboratory queries:

Dr Jacqueline Weyer 011 386 6376/jacquelinew@nicd.ac.za

Dr Naazneen Moolla 011 386 6338/naazneenm@nicd.ac.za

Clinical queries (Healthcare workers only):

NICD Doctor on Call 0800 212 552

Outbreak related queries:

NICD Outbreak Team outbreak@nicd.ac.za

Media/Press queries: media@nicd.ac.za

Other:

Guidelines and other useful resources are available on the NICD website: www.nicd.ac.za/nipah
Centers for Disease Control and Prevention, Atlanta, United States of America.
<https://www.cdc.gov/vhf/nipah/index.html>

[Centers for Disease Control and Prevention. CDC Yellow Book 2024, henipavirus infections. https://wwwnc.cdc.gov/travel/yellowbook/2024/infections-diseases/henipavirus-infections](https://wwwnc.cdc.gov/travel/yellowbook/2024/infections-diseases/henipavirus-infections)

World Health Organization. [Nipah virus \(who.int\)](https://www.who.int/nipah)