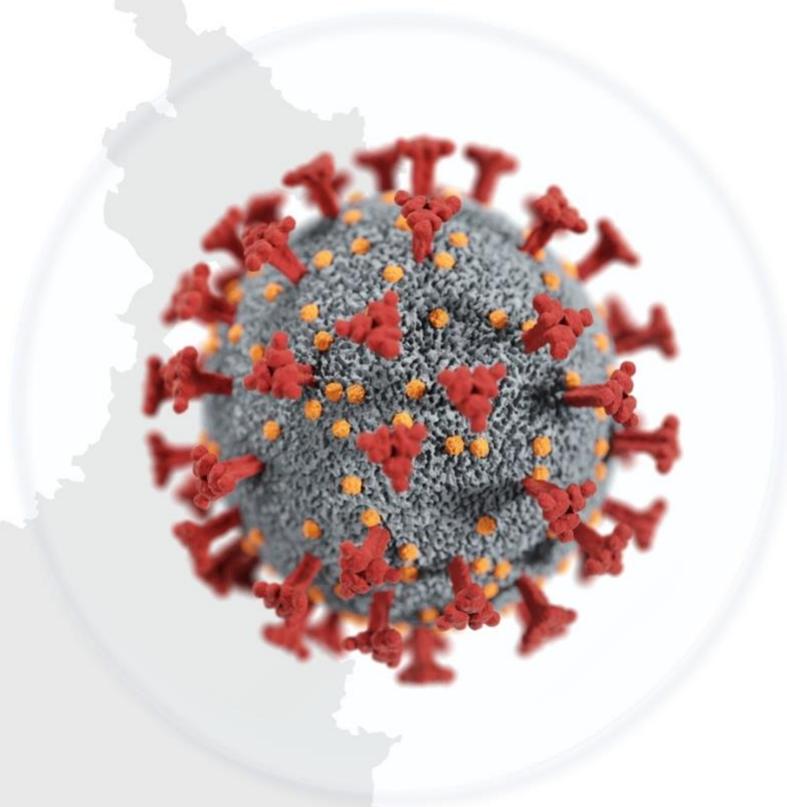


FREE



NIPAH VIRUS OUTBREAK



UPSC Aspirants | Administrators

ULTRA-CONCISE | 8 PAGES

SITOK IAS



Table of Contents

- 1
- CURRENT CONTEXT: WHY IS NIPAH VIRUS IN THE NEWS?**..... 2
- WHAT IS NIPAH VIRUS AND WHERE DID IT COME FROM?** 2
- HISTORICAL OUTBREAKS: A TIMELINE OF SIGNIFICANT EVENTS**..... 3
- TRANSMISSION: HOW DOES THE VIRUS JUMP FROM BATS TO HUMANS?**..... 4
- SYMPTOMS AND CLINICAL PROGRESSION: WHAT HAPPENS TO THE BODY?**..... 4
- DIAGNOSIS AND MEDICAL TREATMENT: HOW DO DOCTORS FIGHT IT?** 5
- ARE THERE ANY VACCINES?** 6
- PREVENTION AND CONTROL: HOW CAN THE COMMUNITY STAY SAFE?** 6
- CONCLUSION: THE PATH AHEAD** 7

Current Context: Why is Nipah Virus in the news?

As of **late January 2026**, the Nipah Virus (NiV) has made a worrying comeback in India, specifically in **West Bengal**. While the state of Kerala has been the usual hotspot in recent years (with outbreaks in mid-2025), the current situation in West Bengal is significant because it involves cases near **Kolkata**.

- **The Kolkata Cluster (2026):** Health officials recently confirmed a cluster of infections in the Barasat area, where medical staff (doctors and nurses) contracted the virus while treating a patient. This has triggered a massive response, with over 190 "high-risk contacts" being traced and quarantined.
- **International Alert:** Because Nipah is so deadly, the news from India has caused several neighboring countries like **Thailand, Nepal, and Vietnam** to start thermal screening at airports for any travelers arriving from West Bengal, fearing a wider regional spread.
- **The "One Health" Urgency:** This outbreak is being used by the WHO and the Indian government to highlight the "One Health" approach, emphasizing that we must monitor wildlife (bats) and human health together to prevent these animal-to-human "spillovers."

What is Nipah Virus and Where did it come from?

Before we look at how it spreads, we need to understand the "identity" of this virus. Think of it as a very dangerous member of a specific family of viruses that has a history of jumping from the wild into human civilization.

- **The Biological Identity:** Nipah Virus (NiV) is a **Zoonotic Virus**, which means it is a disease that naturally lives in animals but can "spill over" into humans. Specifically, it is a type of **RNA virus** belonging to the genus *Henipavirus*. Because it is an RNA virus, it has a high mutation rate, which makes it a major concern for scientists who worry about it becoming more contagious in the future.
- **The Discovery in Malaysia (1998):** The virus was first identified in **1998-1999** in Malaysia and Singapore. It started among pig farmers in the village of **Kampung Sungai Nipah** (hence the name). In that first outbreak, pigs acted as the "intermediate host." The pigs caught the virus from





bats and then passed it to the farmers. To stop that first outbreak, over **one million pigs** had to be culled (killed) to break the chain of transmission.

- **The Shift to South Asia (2001 onwards):** Unlike the Malaysian outbreak where pigs were the middle-men, the outbreaks in **India and Bangladesh** (starting in 2001) showed a direct jump from bats to humans. In these regions, the virus is often linked to drinking raw date palm sap, which bats contaminate. This shows that the virus can adapt its "pathway" to humans depending on the local environment and habits.
- **A "Category C" Threat:** The US Centers for Disease Control (CDC) classifies Nipah as a **Category C Bioterrorism Agent**, and the World Health Organization (WHO) lists it as a **"Blueprint Priority Disease."** This is because it has the potential to cause a massive public health emergency, and we currently lack the tools to stop it easily.

Historical Outbreaks: A Timeline of Significant Events

Nipah doesn't happen every day, but when it does, it is usually explosive and localized. Here is a history of where it has struck.

- **1998-1999 (Malaysia & Singapore):** This was the "Origin Story." There were 276 cases and 105 deaths. Most victims were pig farmers. It was initially confused with Japanese Encephalitis (JE), but when the JE vaccines didn't work, doctors realized they were dealing with a brand-new, much deadlier virus.
- **2001 (Siliguri, West Bengal):** This was the first time Nipah was recorded in India. There were 66 cases and 45 deaths (a 68% death rate). A major highlight of this outbreak was that **75% of the cases** happened inside a hospital setting, proving that the virus could spread very easily from one sick person to the nurses and doctors looking after them.
- **2007 (Nadia, West Bengal):** A smaller but extremely lethal outbreak occurred in Nadia, where all 5 people who caught the virus unfortunately passed away. This reinforced the idea that West Bengal is a high-risk zone due to its proximity to Bangladesh.
- **2018 (Kozhikode, Kerala):** This was a landmark outbreak in India. It started with one family and spread to 18 others, leading to 17 deaths. It became famous for the bravery of **Nurse Lini Puthussery**, who died after caring for the first patient. Kerala's quick response in 2018 is now used as a worldwide "case study" on how to contain a virus through strict tracking.
- **2023-2025 (The Kerala Clusters):** Kerala has faced repeated small outbreaks in districts like Malappuram and Palakkad. In **July 2025**, another outbreak was reported in Palakkad, marking the first time the virus was found in that specific district. Each time, the government had to shut down schools and offices to prevent a state-wide disaster.
- **2026 (The Kolkata Crisis):** As of **January 2026**, the focus has shifted back to West Bengal. Five cases have been confirmed near **Kolkata**, including two nurses. This is the first time in nearly two decades that West Bengal has seen a cluster, leading to international travel alerts in neighboring countries like Thailand and Nepal.





Transmission: How does the virus jump from bats to humans?

Understanding how the virus moves is the most important part of prevention. It doesn't just float in the air like a cold; it requires specific types of contact.

- **The Natural Reservoir (Fruit Bats):** The virus lives permanently in **Fruit Bats** (specifically the *Pteropus* genus, or Flying Foxes). These bats are the "natural hosts," meaning they carry the virus but never get sick from it. They shed the virus through their saliva, urine, and feces while they fly or eat.
- **Contaminated Food (The "Sap" Connection):** In India and Bangladesh, the most common way to get Nipah is by drinking **raw date palm sap**. During winter, people hang pots on trees to collect the sweet sap. Bats drink from these pots at night and leave the virus behind. If a person drinks that sap without boiling it, they get a direct dose of the virus.
- **The Intermediate Animal Host:** In some outbreaks (like the original 1999 Malaysia case), the virus jumps from bats to **pigs** first. The pigs get a severe respiratory "barking cough" and then pass the virus to the farmers who handle them. While this is less common in India, any domestic animal (like horses or goats) that comes into contact with bat droppings can potentially become a "bridge" for the virus.
- **Human-to-Human Spread:** This is the most dangerous stage. Once a person is infected, their bodily fluids—including respiratory droplets from coughing, blood, and urine—become highly infectious. This usually happens in hospitals ("Nosocomial infection") where family members or nurses care for a patient without wearing full protective gear, not realizing the patient has Nipah.
- **Survival of the Virus:** Research shows that the virus is surprisingly "stable" in certain environments. It can stay active for up to 3 days in fruit juices and nearly 7 days in date palm sap if the temperature is cool (around 22°C). However, it is easily killed by high heat (boiling) or common household disinfectants like soap and bleach.

Symptoms and Clinical Progression: What happens to the body?

Nipah is unique because it often attacks two major systems at once: the lungs and the brain.

- **The Incubation Period (The Silent Phase):** After the virus enters the body, there is a "waiting period" where the person feels perfectly fine. This usually lasts **4 to 14 days**, but in very rare cases, the virus can stay hidden for up to 45 days before the person suddenly falls ill, making it hard to track where they caught it.
- **Early Flu-like Stage:** The illness starts with very "non-specific" symptoms that look like a bad case of the flu. The patient will have a sudden high fever, a splitting headache, muscle aches (myalgia), and a sore throat. At this stage, it is often misdiagnosed as common viral fever or malaria.





- **The Respiratory Attack:** In many patients, the virus quickly moves to the lungs, causing "Atypical Pneumonia." The person will struggle to breathe, have a persistent cough, and may develop Acute Respiratory Distress Syndrome (ARDS), which is a life-threatening condition where the lungs can't provide enough oxygen to the blood.
- **The Neurological Attack (Encephalitis):** The most terrifying part of Nipah is the brain swelling (Encephalitis). As the virus affects the central nervous system, the patient becomes drowsy, disoriented, and confused. They might not recognize their family members or know where they are, which is a clear sign that the brain is under attack.
- **The Final Crisis:** If the brain swelling continues, the patient may start having violent seizures or fits. Within 24 to 48 hours of these neurological symptoms appearing, many patients fall into a deep coma. Because the brain controls the heart and lungs, this often leads to total organ failure and death.
- **Long-term Effects for Survivors:** Even those who survive the infection aren't always fully "cured." Some survivors suffer from long-term neurological issues, such as permanent personality changes, recurring seizures, or "late-onset encephalitis," where the brain inflammation comes back months or even years after they supposedly recovered.

Diagnosis and Medical Treatment: How do doctors fight it?

Because the symptoms look like so many other diseases, doctors have to use very specific laboratory tests to confirm a Nipah case.

- **The Gold Standard RT-PCR Test:** Just like with COVID-19, the main way to find the virus is through a Real-Time Polymerase Chain Reaction (RT-PCR) test. Doctors take swabs from the throat, nose, or collect samples of blood and urine to look for the actual genetic material (RNA) of the virus.
- **Testing the Brain Fluid:** In cases where the brain is affected, doctors may perform a "lumbar puncture" to collect Cerebrospinal Fluid (the liquid around the brain and spine) to see if the virus has crossed into the nervous system.
- **Antibody Testing (ELISA):** Later in the illness, or after someone has recovered, doctors use a test called ELISA to look for antibodies. This tells them if the person's immune system has fought the virus. This is very helpful for "retrospective" studies to see how many people in a village actually had the virus.
- **The Lack of a Specific Cure:** Currently, there is **no approved antiviral drug** specifically designed to kill the Nipah virus. While some drugs like *Ribavirin* or *Remdesivir* have been tried in emergencies, they haven't been proven to work perfectly against Nipah in humans yet.
- **Intensive Supportive Care:** Since there is no "magic pill," treatment is all about keeping the patient alive so their body can fight back. This includes using ventilators for breathing, giving intravenous (IV) fluids to keep them hydrated, and using anti-seizure medications to prevent brain damage during fits.





- **Experimental Treatments:** During recent outbreaks in India, the government has imported "Monoclonal Antibodies" (mAbs) from Australia. These are lab-made proteins that act like a super-powered immune system. They are still experimental but are given to "high-risk" patients on a compassionate-use basis to try and lower the death rate.

Are there any vaccines?

No Licensed Vaccine (Yet): There is currently **no vaccine approved** for general public use anywhere in the world. However, 2026 is a big year for science. A vaccine candidate called **PHV02** is starting "Phase II" human trials in Bangladesh right now. Another vaccine, **ChAdOx1 NipahB** (developed by the University of Oxford), is also being tested in India and Bangladesh.

Prevention and Control: How can the community stay safe?

Since we cannot treat the disease easily, the entire focus of the government and the public must be on stopping the virus from entering the human population in the first place.

- **Safe Fruit Consumption:** People living in areas with bats are strictly advised not to eat "windfall" fruits (fruits found lying on the ground). Any fruit that has even a tiny bite mark or scratch should be thrown away, as it could be contaminated with bat saliva. All fruits should be washed thoroughly and peeled before eating.
- **The Date Palm Sap Precaution:** In states like West Bengal and Kerala, the tradition of drinking raw toddy or sap is a major risk. The simplest life-saving rule is to **boil the sap** before drinking it. Boiling kills the virus completely. Farmers are also encouraged to use "bamboo skirts" to cover the collection pots so bats cannot get inside.
- **Strict Hospital Protocols:** Because hospitals are "amplification points" where one patient can infect many nurses, the use of Personal Protective Equipment (PPE) is mandatory. This includes N95 masks, gloves, and gowns. Any suspected Nipah patient must be kept in a "Negative Pressure" isolation room to prevent droplets from reaching other wards.
- **Safe Burial Practices:** Even after death, the body of a Nipah victim remains infectious. In India, the government has created strict protocols where the body is wrapped in leak-proof bags, and the family is allowed to see the face only from a distance. Standard ritual washing of the body is prohibited to prevent the virus from splashing onto the mourners.
- **Livestock Management:** For farmers, it is important to ensure that pig pens or animal sheds are not located directly under trees where fruit bats roost. If a pig or a goat appears sick with a cough or neurological signs, it must be isolated immediately, and the authorities must be informed to prevent a larger "zoonotic" spillover.
- **Public Awareness and Transparency:** One of the most effective tools is simple education. By telling people exactly how the virus spreads and what the symptoms are, the government can





prevent panic. When people are aware, they report symptoms early, which allows doctors to isolate them before they can infect their neighbors or family.

Conclusion: The Path Ahead

The Nipah virus is a stark reminder that as humans expand into wild areas, we are coming into more frequent contact with "hidden" viruses in nature. For a country like India, which has a high population density, Nipah represents a significant national security threat to our health system.

The way forward requires a permanent "Surveillance System" where we regularly test bats and domestic animals, not just humans. We also need to speed up the development of a universal Nipah vaccine, which is currently in human trials but not yet ready for the public. Until then, our best defense remains **vigilance, early detection, and the simple act of washing our fruits and boiling our juice.**

