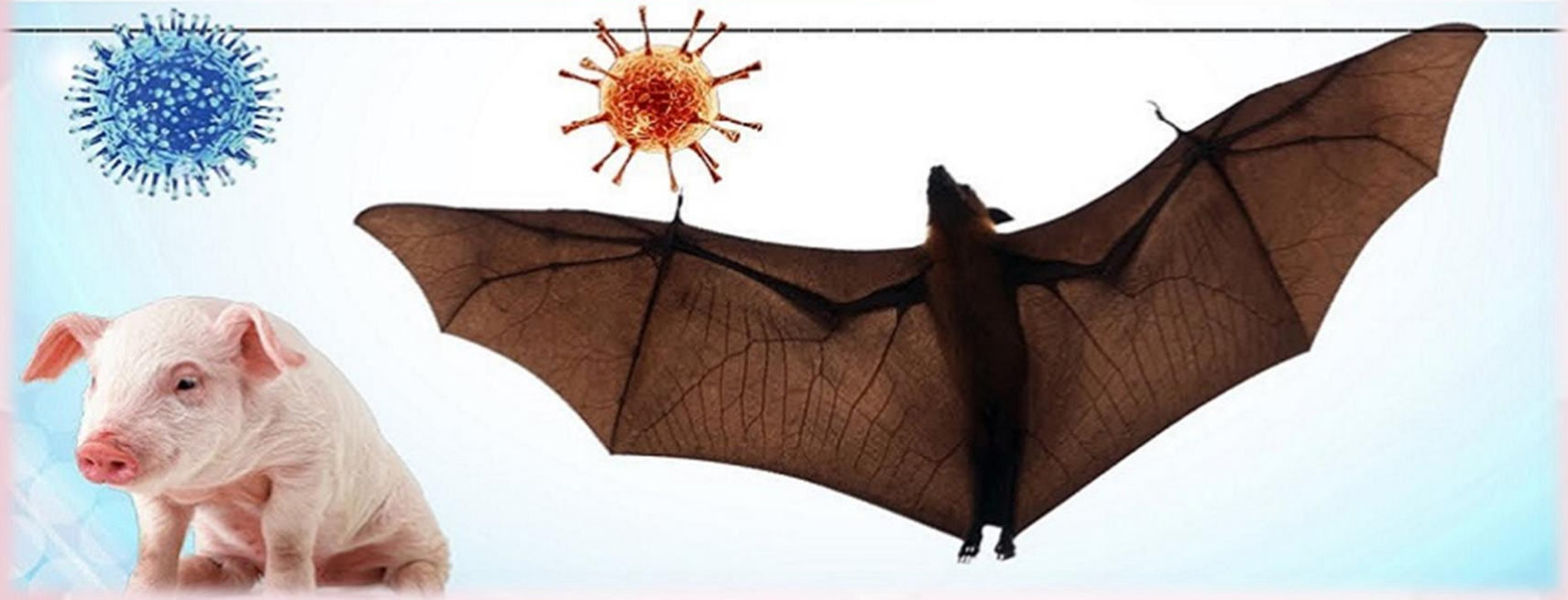

Virus Alert !

An *Update on Nipah Virus*

क्या है NIPAH वायरस?



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.

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The disease was first identified in 1998 during an outbreak in Malaysia while the virus was isolated in 1999.

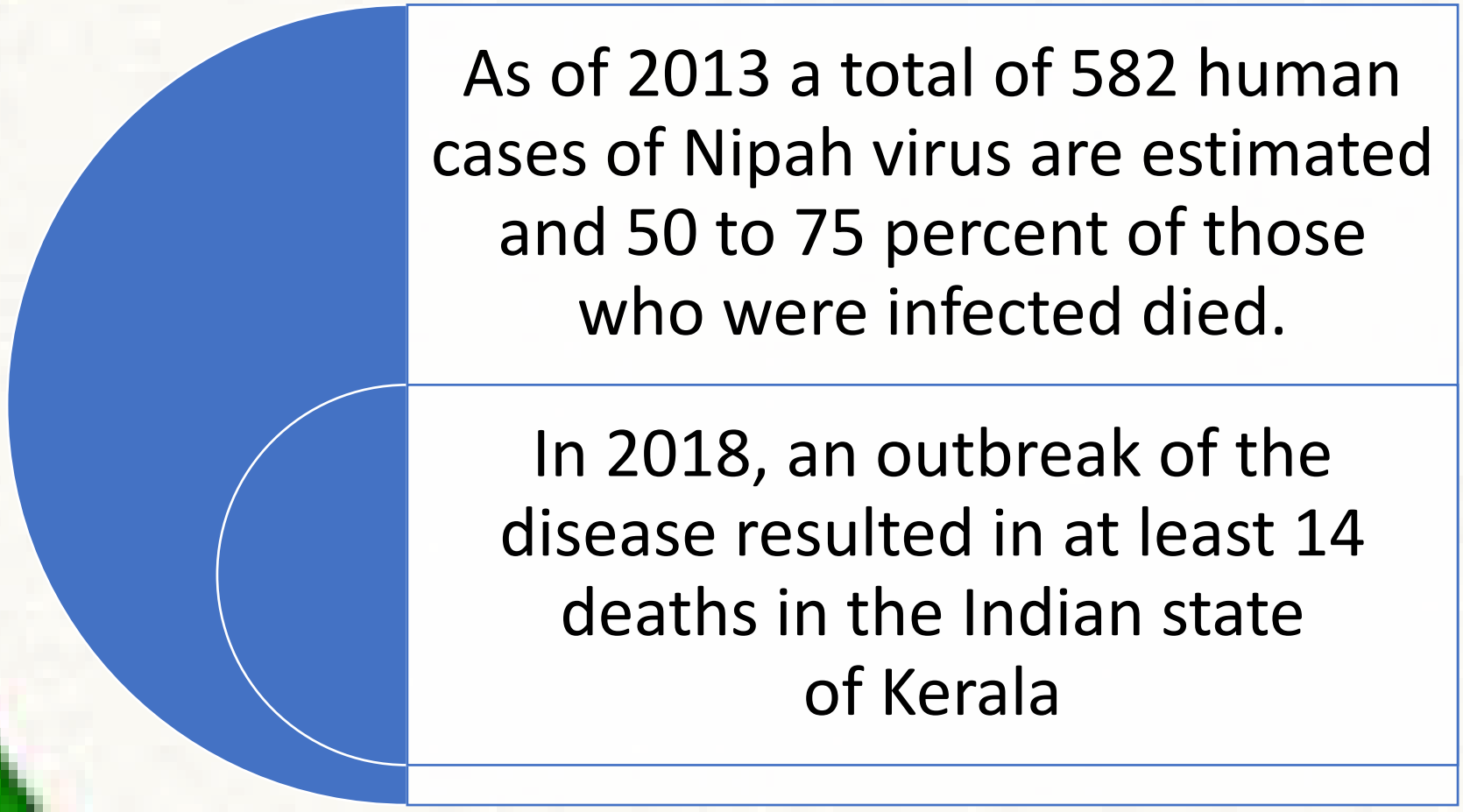
It is named after a village in Malaysia, Sungai Nipah. [Negeri Sembilan]

The name is believed to derive from the nine (*sembilan*) villages or *nagari* in the Minangkabau language (now known as *luak*) settled by the Minangkabau, a people originally from West Sumatra (in present-day Indonesia).

Pigs may also be infected and millions were killed in 1999 to stop the spread of disease.

Nipah Virus, Malaysia 1998

- New, high fatality rate
- Misdiagnosed as Japanese encephalitis
- Aggressive control measures were unsuccessful
- Ethnic Chinese farmers sold pigs and spread disease
- Virus isolated after 6 months
- Farmers thought government indifferent to their welfare and health
- Ended with culling of >1M pigs, with devastating effects on farmers' livelihoods
- 265 cases, 105 fatal


As of 2013 a total of 582 human cases of Nipah virus are estimated and 50 to 75 percent of those who were infected died.
In 2018, an outbreak of the disease resulted in at least 14 deaths in the Indian state of Kerala

Epidemiology in India

During 2001 and 2007 two outbreaks in human were reported from West Bengal, neighboring Bangladesh.

There is 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

What is Nipah virus?

TOI

NIPAH VIRUS (NIV) INFECTION IS A NEWLY EMERGING ZOONOSIS THAT CAUSES SEVERE DISEASE IN BOTH ANIMALS AND HUMANS

NiV first identified in 1998 during an outbreak in Malaysia

Fruit bats are natural hosts of NiV

PREVIOUS OUTBREAKS IN INDIA

Jan-Feb, 2001 **Siliguri (WB)**

Cases: **66**

Deaths: **45**

68%

April, 2007 **Nadia (WB)**

Cases: **5**

Deaths: **5**

Fatality rate

100%

In the world Nipah virus first recognized in Malaysia in 1998.

Nipah Virus named after Kampung Sungai Nipah village in Malaysia where first NiV case come out.

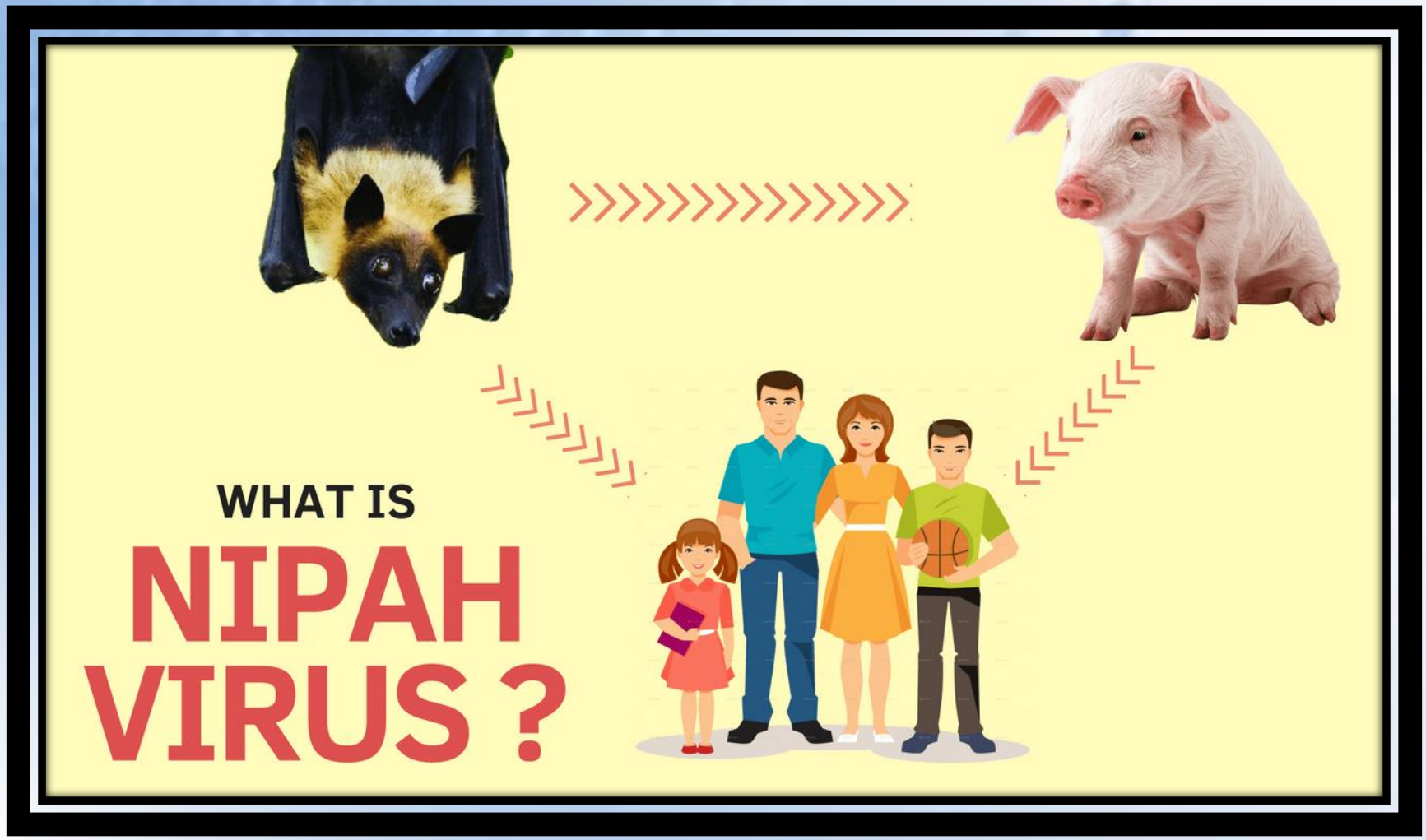
First and foremost spread this virus by pigs and transferred to humans.

Second outbreak in India in 2007

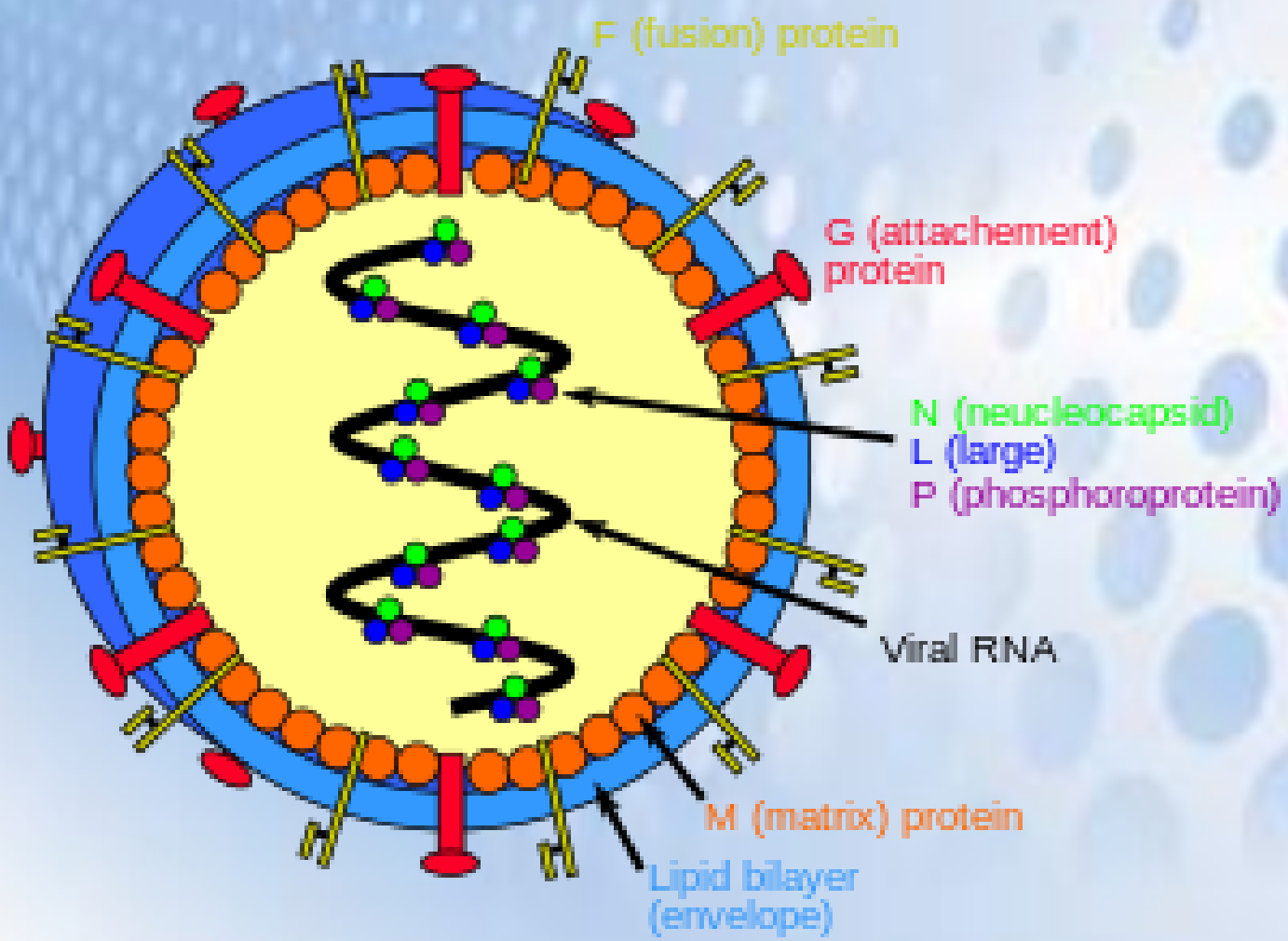
Third outbreak in India in May 2018

The outbreak of Nipah virus in Bangladesh in 2001.

Agent



NiV is a highly pathogenic paramyxovirus



Natural Reservoir

Large fruit bats of *Pteropus* genus are the natural reservoir of NiV.

Some species of fruit-eating bats are natural hosts for the Nipah virus

Seasonality

Seasonality was strongly implicated in NiV outbreaks in Bangladesh and India.

All of the outbreaks occurred during the months of winter to spring (December-May).

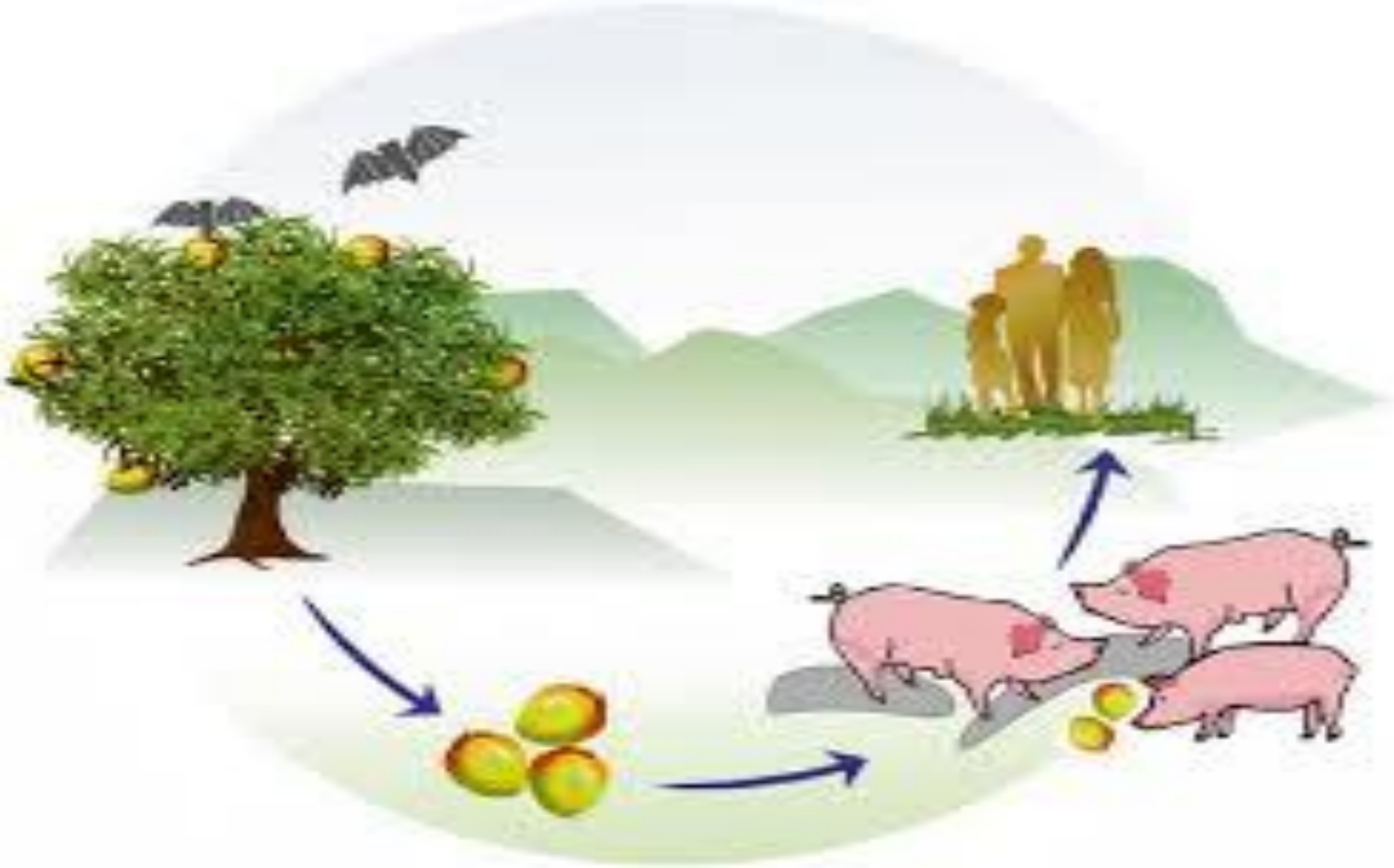
Incubation period: Varies from 6-21 days

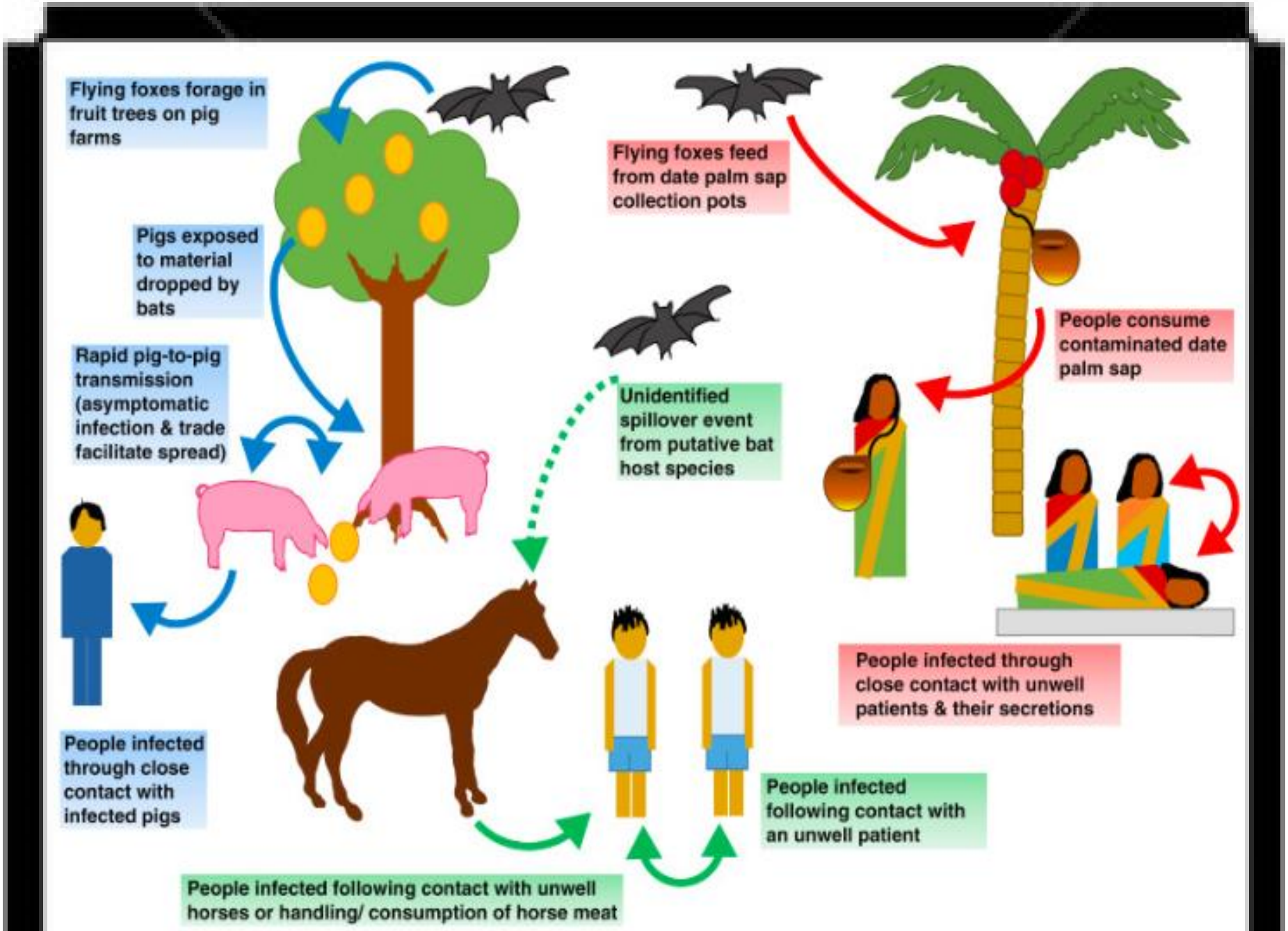
Mode of Transmission:

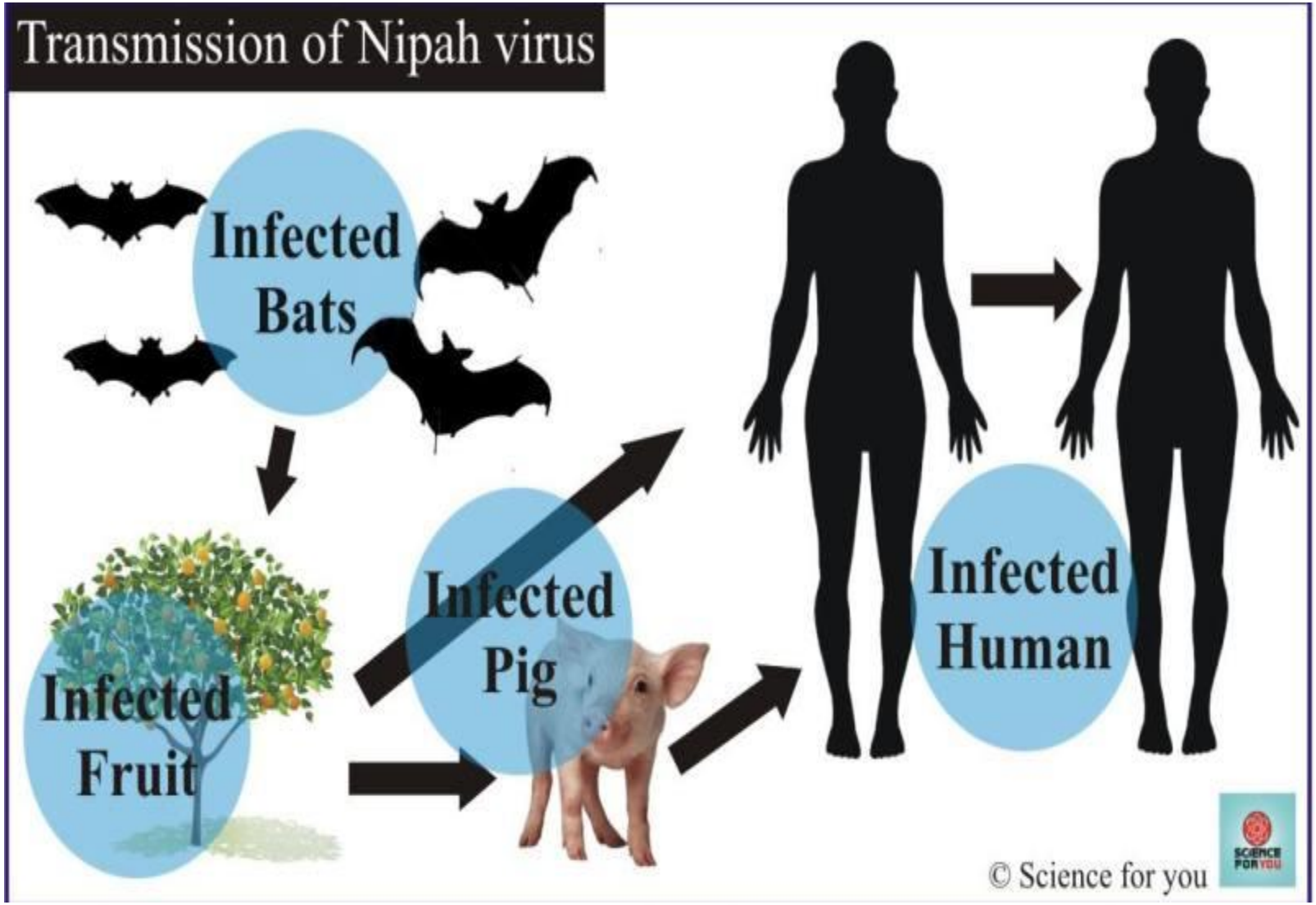
Two routes of transmission of Nipah virus have been identified from its natural reservoir to human:

1. Drinking of raw date palm sap contaminated with NiV and
2. Close physical contact with Nipah infected patients.

The person-to person transmission may occur from close physical contact, especially by contact with body fluids.




Flying foxes forage in fruit trees on pig farms
Pigs exposed to material dropped by bats
Rapid pig-to-pig transmission (asymptomatic infection & trade facilitate spread)
People infected through close contact with infected pigs
Flying foxes feed from date palm sap collection pots
People consume contaminated date palm sap
Unidentified spillover event from putative bat host species
People infected through close contact with unwell patients & their secretions
People infected following contact with an unwell patient
People infected following contact with unwell horses or handling/ consumption of horse meat


Transmission of Nipah virus
Infected Bats
Infected Fruit
Infected Pig
Infected Human
© Science for you

Raw date palm sap

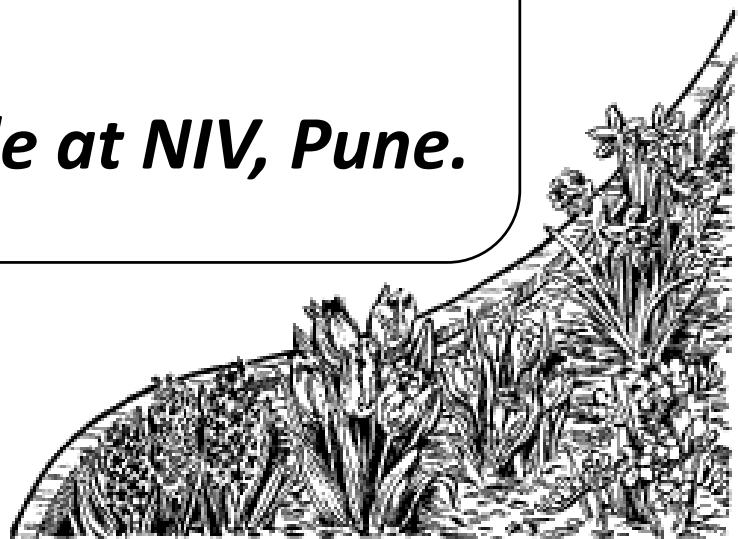
The process of palm tapping involves the cutting of the unopened flower stalk and then fastening a bottle gourd clay or plastic vessel on to it.

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.

Nipah virus is classified internationally as a biosecurity level (BSL) 4 agent.

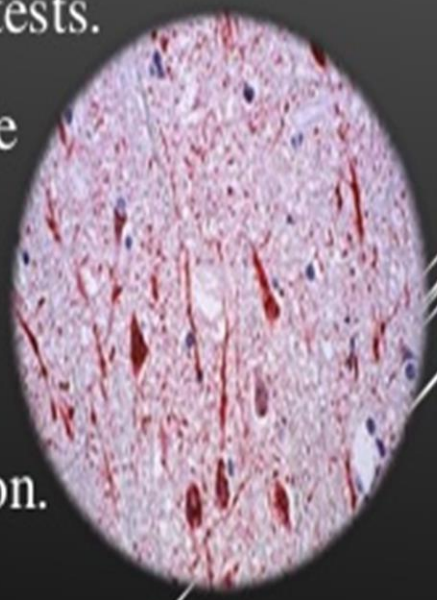
In India, testing facility is available at NIV, Pune.




Nipah virus - Test

DIAGNOSIS

- Laboratory diagnosis is made during the acute and convalescent phases of the disease by using a combination of tests.
- Virus isolation attempts and real time polymerase chain reaction (RT-PCR) from throat and nasal swabs, CSF, urine & blood should be performed in the early stages of disease.
- Antibody detection by ELISA can be used later on.
- In fatal cases, immunohistochemistry on tissues collected during autopsy may be the only way to confirm diagnosis.



Sample Collection and Transport Guidelines:

- Nipah virus being a BSL-4 agent, universal, standard droplet and bio-containment precautions should be followed during contact with excretions, secretions and body fluids of suspected patient.

- Adequate biosafety 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 biosafety precautions and accompanied with detailed history of patients on the performa which can be obtained from the testing laboratory

(Presently National Institute of Virology Pune in public sector is the testing laboratory which is diagnosing Nipah virus infection based on molecular detection of viral RNA and antibody detection by ELISA).

During sample collection wear complete disposable Personal Protective Equipments (N 95 mask, double surgical gloves, gowns, goggles etc).

Wash hands with soap and water atleast for 30 seconds and then clean hand using 1-2 ml alcohol based hand sanitizer before and after collection of samples

The samples may be as follows

- Throat swab in viral transport medium
- Urine 10 ml in universal sterile container
- Blood in plain vial (atleast 5ml)
- CSF (atleast 1 ml) in sterile container

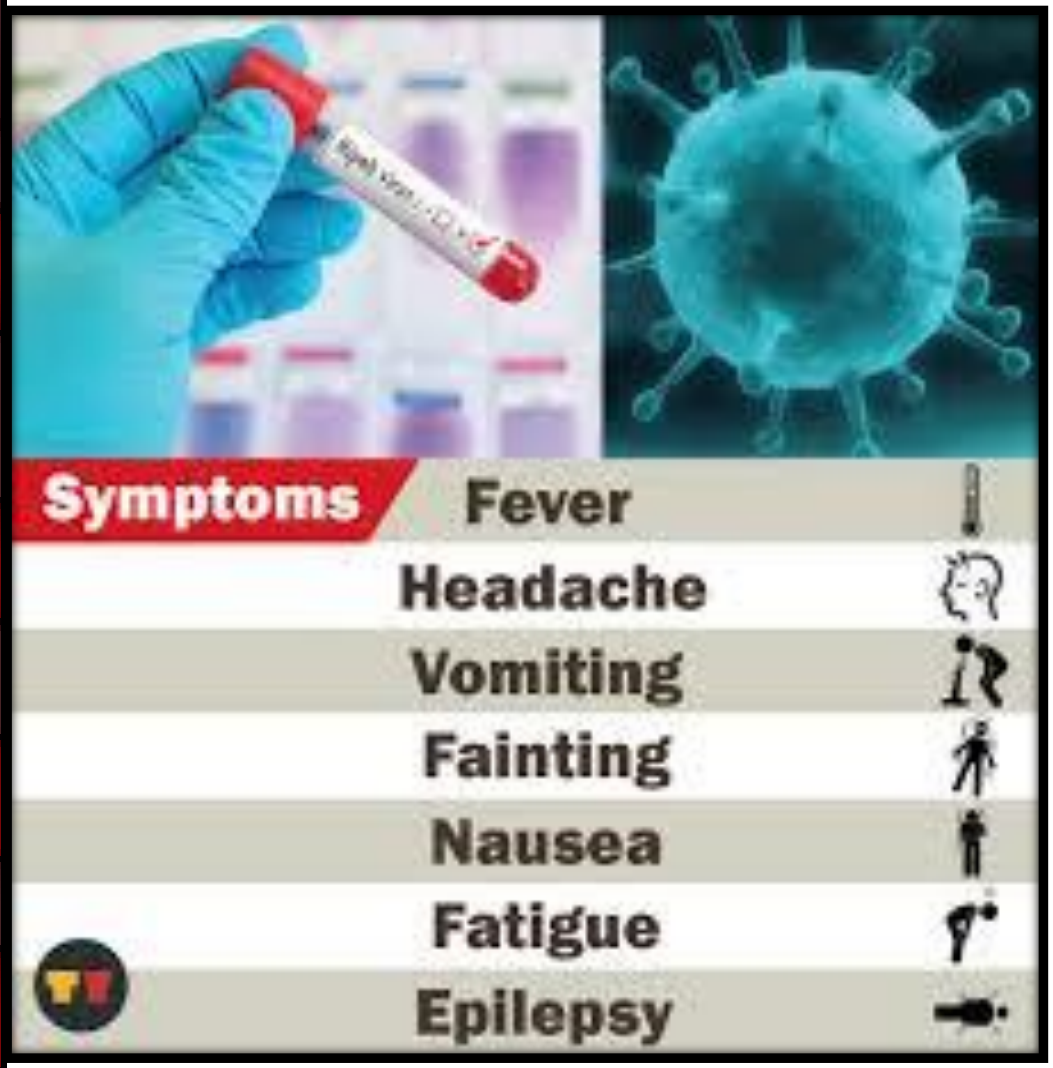
Transportation and Storage of samples:

Samples should be safely packed in triple container packing and should be transported under cold chain (2-6°C) to the testing laboratory with prior intimation. Before dispatching the sample disinfect the outer surface of container using 1:100 dilution of bleach or 5% Lysol solution.

Sample containing vials should be kept in good quality plastic bags tide with rubber bands so that inside material if leaks should not come out of bag. The plastic bag should be kept in another container which should be sealed with adhesive tape. This carrier should be placed in another plastic bag sealed with rubber bands and placed in thermocol/vaccine carrier containing ice. The case sheets with complete information should be placed in plastic bag and should be pasted outside the container.

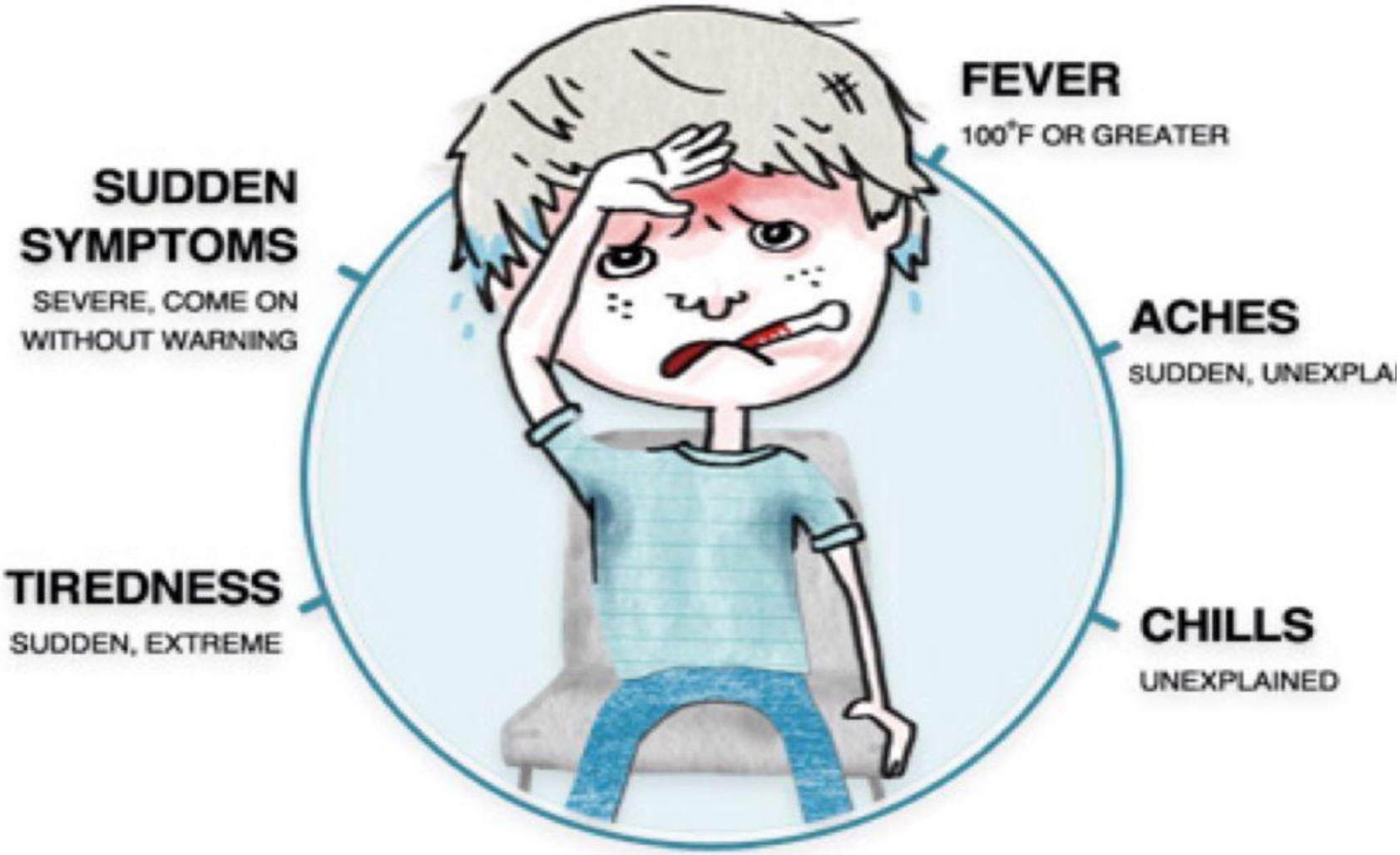
Samples should be transported at 2-6°C if they arrive at the laboratory with 48 hours; if shipping time is expected more than 48 hours, the samples should be sent using dry ice. Samples should not be held at -20°C for long periods. The sample must be stored at – 70°C if storage is required for longer period.

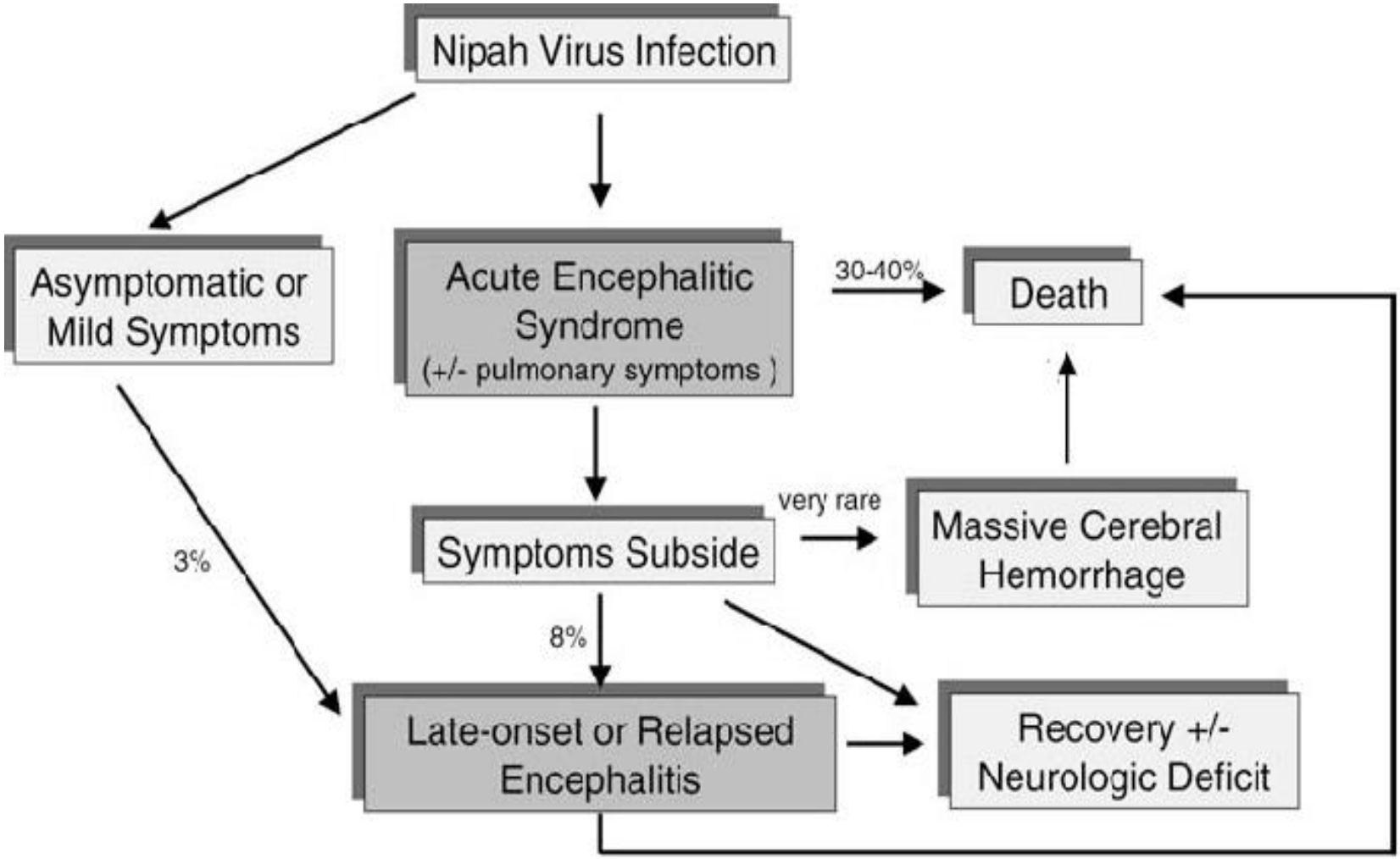
Clinical features



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 upto100%.


FEVER
100°F OR GREATER
SUDDEN SYMPTOMS
SEVERE, COME ON WITHOUT WARNING
ACHES
SUDDEN, UNEXPLA
TIREDNESS
SUDDEN, EXTREME
CHILLS
UNEXPLAINED


Nipah Virus Infection
Asymptomatic or Mild Symptoms
Acute Encephalitic Syndrome (+/- pulmonary symptoms)
30-40%
Death
3%
Symptoms Subside
very rare
Massive Cerebral Hemorrhage
8%
Late-onset or Relapsed Encephalitis
Recovery +/- Neurologic Deficit

Surveillance

A systematic surveillance system is a necessary method to identify clusters of encephalitis cases resulting early detection of Nipah outbreaks.

Objectives of surveillance

- Identify clusters of acute encephalitis cases
- Investigate clusters of cases for quick detection of Nipah outbreak

Case Definitions

Suspect Nipah Case :

Person from a community affected by a Nipah outbreak who has:

- Fever with new onset of altered mental status or seizure and/or
- Fever with headache and/or
- Fever with Cough or shortness of breath

Probable Nipah Case

Suspect case-patient/s who resided in the same village where confirmed case-patient/s were living during the outbreak period and who died before complete diagnostic specimens could be collected.

Suspect 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.

- **has slept in the same household as a case**
- **has had direct physical contact with the case (alive or dead) during the illness**
- **has had direct physical contact with the (deceased) case at a funeral or during burial preparation rituals**
- **has touched the blood or body fluids (saliva, urine, sputum etc.) of a case during their illness**
- **has touched the clothes or linens of a case**

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

Management

Currently there is no known treatment or vaccine available for either people or animals.

However Ribavirin, an antiviral may have a role in reducing mortality among patients with encephalitis caused by Nipah virus disease.

Intensive supportive care with treatment of symptoms is the main approach to managing the infection in people.

Precautions

Nipah:
Precautions to be taken

- All health workers, kin of those affected should use NH95-grade masks
- Lab technicians and nurses asked to use personal protection equipment (PPE) to stay safe

- Wash hands with spirit-laced cleansers every 20 seconds if in close contact with a patient

If affected

- Seek treatment immediately
- Do not panic as recovery is not impossible
- Ensure personal hygiene
- Keep away from those not affected
- Use masks and sanitizers, as advised by doctors
- Be in isolation wards or in personal quarantine

Prevention of
Nipah Virus:

- Avoid eating fruits bitten by brids and animals

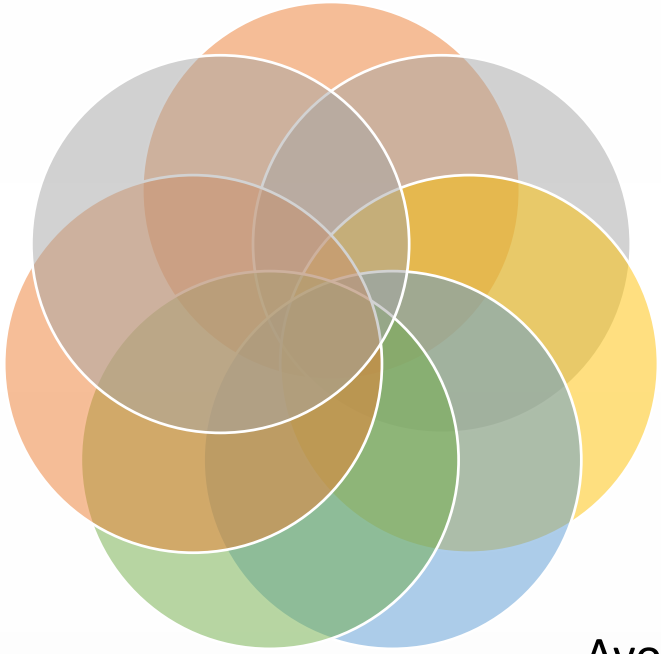
- A Maintain personal hygeine

- Avoid staying in places where bats are found in large numbers

Avoid close (unprotected) physical contact with infected people

Thoroughly wash and peel fruits before consuming

Wear NH95-grade and higher masks



Boil freshly collected date palm juice before consuming

Wash hands regularly with soap

Avoid being around anima pens

Avoid consuming partly eaten fruits or unpasteurised fruit juices

NiV in kerala


Kerala
On
High
Alert
ET
NOW
KERALA


तेज़
मौत का
चमगादड़


RARE VIRUS SPREAD
BY FRUIT BATS

The travel history of Mohamed Sadiq, the first to die from the Moosa family which lost four members to the virus.

He was working in the Middle-East and his mother had told officials that he suffered from some stomach ailment.


CMO: SURGERY
UNIT CHIEF ORTHO
DMO: ORTHO
DMO: ANESTHESIA
UNIT CHIEF ENT
DMO. ENT
UNIT CHIEF ENT
UNIT CHIEF OPTH
DMO: OPTH
F NURSE
YUPSI IG ASST


GROUP BANGALORE

Fake messages and false information….cause of panic


NIPAH
ISOLATION
WARD

Lini Puthussery, a 31-year-old nurse who died after attending to those infected by the deadly Nipah virus in the state.

NIPAH VIRUS

Is Kerala Safe for Tourists?


Thanks!