



**Issue date**  
**28 February 2022**

**Distributed to:**

Chief Executives  
Directors of Clinical Governance  
Director, Regulation and Compliance Unit

**Action required by:**

Chief Executives  
Directors of Clinical Governance

**We recommend you also inform:**

Directors, Managers and Staff of:

- Emergency Department
- Intensive Care Unit
- Neurology
- Infectious Diseases
- Paediatrics
- General Medicine
- Public Health Units

**Deadline for completion of action**  
ASAP

**Expert Reference Group, Content reviewed by:**

Representatives from:

- Chief Health Officer
- Infectious Diseases

**Clinical Excellence Commission**

Tel: 02 9269 5500  
Email: CEC-Recalls@health.nsw.gov.au

**Review date**  
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## Increased risk of presentation of Japanese Encephalitis

### Situation

Japanese Encephalitis (JE) Virus has been found in pigs in southeast Australia. Clinicians should consider a diagnosis of JE in patients presenting with unexplained encephalitis/viral meningoencephalitis.

All patients with encephalitis/viral meningoencephalitis should have the usual investigations including an MRI and testing for Herpes Simplex Virus (HSV), Varicella Zoster Virus (VZV) and enteroviral PCR from CSF. If negative for other pathogens and JE is being considered as a diagnosis, the following investigations should be performed: CSF, blood and urine samples (noting volume and transport requirements) to be sent directly to ICPMR

### Background

JE is caused by a mosquito-borne RNA flavivirus called Japanese Encephalitis Virus. The majority of infections are asymptomatic. JE may cause a non-specific febrile illness that may be associated with headache, arthralgia and rash. JE may also cause serious, acute neurological illness characterised by:

- headache
- fever
- convulsions
- focal neurological signs
- depressed level of consciousness

JE may also present as acute flaccid paralysis.

Further information is in the NSW Health Factsheet:

<https://www.health.nsw.gov.au/Infectious/factsheets/Factsheets/japanese-encephalitis.pdf>

### Clinical Recommendations

Heightened awareness for clinical presentation.

For both adults and children, in cases of suspected encephalitis/viral meningoencephalitis without another pathogen diagnosis, especially with MRI/CT findings<sup>1,2</sup> the following samples should be collected:

#### 1. Blood

- Serum – (2-5mls from children, 5-8mls from adults) for acute and convalescent (3-4 weeks post onset) for flavivirus and JEV IgG, IgM and Total Ab
- Whole blood (EDTA tube) for Culture/PCR on acute sample - **AND**

#### 2. CSF (at least 1ml)

- Flavi/JEV PCR and culture
- Flavi/JEV IgG, IgM and Total Ab - **AND**

#### 3. Urine (2-5 mls in sterile urine jar)

- Flavi/JEV PCR and culture



Transport specimens at 4°C. Ensure appropriately labelled request forms with appropriate clinical and epidemiological history. Send urgently (next day). Send to ICPMR Westmead for serology, PCR and culture. Note that some other laboratories may have PCR capacity locally for Flavi/JEV. Refer on samples for confirmation of PCR and for culture, serology and sequencing. Note that culture requires a Biosafety Level 3 laboratory.

This advice is in addition to usual investigations for encephalitis/viral meningoencephalitis including HSV, enterovirus and VZV PCR on CSF and serology.<sup>3</sup>

**It is especially important to exclude bacterial meningitis and HSV as they are treatable.**

### Clinical Escalation

Please discuss any suspected cases with your local infectious disease physician. Infectious disease physicians can seek further specialist advice by contacting the Clinical Microbiologist on call at ICPMR through the Westmead Hospital Switchboard.

### Required actions for the Local Health Districts/Networks

1. Forward this information to appropriate clinicians and departments including ED, Infectious Diseases and Public Health, for action.
2. Ensure a system is in place to document actions taken.
3. **Case Notification** - all cases of encephalitis/viral meningoencephalitis without another pathogen diagnosis should be notified as soon as possible to [NSWH-CDoncall@health.nsw.gov.au](mailto:NSWH-CDoncall@health.nsw.gov.au)
4. Report any clinical incidents in the ims+ and escalate as required.

### Footnotes

<sup>1</sup>The priority for JE diagnosis is for cases of suspected encephalitis/viral meningoencephalitis without another pathogen diagnosis. It is noted that the majority of JE infections are asymptomatic and that there may be other presentations including acute flaccid paralysis, fever, rash and arthralgias.

<sup>2</sup> Suggestive CT/MRI findings include inflammatory changes of the deep grey matter (basal ganglia and thalami) and brainstem.

<sup>3</sup> [Consensus guidelines for the investigation and management of encephalitis in adults and children in Australia and New Zealand](#)

*Japanese encephalitis is a rare but serious infection of the brain caused by a virus that is transmitted through mosquito bites. It occurs in many parts of Asia.*

# Japanese encephalitis (JE)

Last updated: 17 January 2017

## What is Japanese encephalitis?

Japanese encephalitis (JE) is a rare disease caused by the Japanese encephalitis virus. It is spread to humans by infected mosquitoes.

## What are the symptoms?

The majority (about 99%) of JE infections in people cause no symptoms. Some infected people experience an illness with fever and headache. Those with a severe infection may experience neck stiffness, disorientation, tremors, coma, convulsions (especially in children) and paralysis. JE can cause permanent neurological complications or death.

Symptoms (if they are to occur), usually develop 5 to 15 days after being bitten by infected mosquitoes.

## How is it spread?

JE is spread by the bite of infected mosquitoes. Certain types of mosquitoes can become infected with JE. Humans are not able to pass the virus to other humans.

## Who is at risk?

JE occurs throughout most of Asia and parts of the western Pacific. Transmission primarily takes place in rural agricultural areas, often associated with rice cultivation and flooding irrigation. For most travellers the risk of acquiring JE is very low. People at the greatest risk of becoming infected are those who are staying more than a month in rural areas in countries where the disease is endemic or in some of the Torres Strait Islands.

## How is it prevented?

A Japanese encephalitis vaccine is available for people aged 12 months and older and is recommended for travellers spending one month or more in rural areas of high-risk countries for JE. For more detailed JE vaccination advice see the [Australian Immunisation Handbook](https://immunisationhandbook.health.gov.au/vaccine-preventable-diseases/japanese-encephalitis/) (<https://immunisationhandbook.health.gov.au/vaccine-preventable-diseases/japanese-encephalitis/>) and consult with your GP or travel medicine clinic.

Even if you have been vaccinated it is still important to protect against mosquitoes and reduce the risk of diseases they transmit. Prevention measures include:

- covering-up with a loose-fitting long sleeved shirt and long pants when outside
- applying mosquito repellent to exposed skin
- taking special care during peak mosquito biting hours. The mosquitoes that transmit diseases such as JE, dengue, chikungunya and Zika will also bite through the day.
- removing potential mosquito breeding sites from around the home and screen windows and doors
- taking extra precautions when travelling in areas with a higher risk of mosquito-borne diseases.

In addition to the general protection measures above, overseas travellers should also:

- stay and sleep in rooms with fly-screens or air-conditioning
- use a bed net if the area where you are sleeping is exposed to the outdoors. Bed nets are most effective when they are treated with a pyrethroid insecticide, such as permethrin. Pre-treated bed nets can be purchased before travelling, or nets can be treated after purchase.
- avoid known areas of high mosquito-borne disease transmission or outbreaks.

For more detailed information on reducing the risk of mosquito bites at home and while travelling see the [Mosquitoes are a Health Hazard](#) factsheet ([www.health.nsw.gov.au/Infectious/factsheets/Pages/mosquito.aspx](http://www.health.nsw.gov.au/Infectious/factsheets/Pages/mosquito.aspx)). This also includes more information on mosquito repellents.

See the [Staying healthy when travelling overseas](#) fact sheet for further information on travel ([www.health.nsw.gov.au/Infectious/factsheets/Pages/Staying-healthy-when-travelling-overseas.aspx](http://www.health.nsw.gov.au/Infectious/factsheets/Pages/Staying-healthy-when-travelling-overseas.aspx)).

See the Smartraveller website ([www.smartraveller.gov.au](http://www.smartraveller.gov.au)) which also has health information for specific destinations.

### How is it diagnosed?

JE infection is usually diagnosed from measuring levels of antibody in samples of blood or spinal fluid.

### How is it treated?

There is no specific treatment available for JE.

### What is the public health response?

Laboratories diagnosing cases of JE must notify the local public health unit. Public health units follow up each case to determine where the person acquired the infection. This information is important to assist identifying if transmission is occurring in areas considered to be low-risk and to prevent transmission.

For further information please call your local Public Health Unit on **1300 066 055** or visit the NSW Health website [www.health.nsw.gov.au](http://www.health.nsw.gov.au) .