

Communicable Diseases Protocol

Japanese encephalitis

Last updated: 16 September 2016

Public health priority: Urgent

PHU response time: Respond to confirmed cases within a day of notification.

Enter confirmed cases on NCIMS within one working day

Case management: Determine possible exposures

Contact management: Nil

1. Reason for surveillance

- To identify and control cases of disease
- To monitor the epidemiology and so inform the development of better prevention and control strategies.

2. Case definition

A confirmed case requires:

- Laboratory definitive evidence, **and**
- Clinical evidence.

Laboratory definitive evidence

- Isolation of Japanese encephalitis virus, **or**
- Detection of Japanese encephalitis virus by nucleic acid testing, **or**
- IgG seroconversion or a significant increase in antibody level or a fourfold or greater rise in titre of Japanese encephalitis virus-specific IgG proven by neutralisation or another specific test, with no history of recent Japanese encephalitis or yellow fever vaccination, **or**
- Detection of Japanese encephalitis virus-specific IgM in cerebrospinal fluid, in the absence of IgM to Murray Valley encephalitis, Kunjin, dengue, and Zika viruses, **or**
- Detection of Japanese encephalitis virus-specific IgM in serum in the absence of IgM to Murray Valley encephalitis, Kunjin, dengue and Zika viruses, with no history of recent Japanese encephalitis or yellow fever vaccination.

Confirmation of laboratory result by a second arbovirus reference laboratory is required if the case appears to have been acquired in Australia.

Clinical evidence

A clinically compatible febrile illness of variable severity associated with neurological symptoms ranging from headache to meningitis or encephalitis. Symptoms may include headache, fever, meningeal signs, stupor, disorientation, coma, tremors, generalised paresis, hypertonias, and loss of coordination. The encephalitis cannot be distinguished clinically from other central nervous system infections.

3. Notification criteria and procedure

Japanese encephalitis (JE) cases are to be notified by laboratories on diagnosis (ideal reporting by telephone within 1 hour of diagnosis). Only confirmed cases should be entered onto NCIMS.

4. The disease

Infectious agents

Japanese encephalitis is one of the arboviruses (arthropod borne viruses known to be pathogenic for humans). The Japanese encephalitis virus is a member of the genus *Flavivirus*, in the family *Flaviviridae* (Dengue fever, Murray Valley Encephalitis, Kunjin, Kokobera, Stratford, Alfuy and Edge Hill are also *flaviviruses*).

Mode of transmission

JE is transmitted by the bite of an infected mosquito, primarily *Culex* species. The virus is maintained in cycle between mosquitoes and amplifying vertebrate hosts, primarily pigs and wading birds. Humans are incidental or dead-end hosts, because they usually do not develop a level or duration of viremia sufficient to infect mosquitoes.

There is no evidence of direct person-to-person spread.

Timeline

The incubation period ranges from 5 to 15 days.

Clinical manifestations

Less than 1% of people infected with JE experience clinical disease. Symptoms are variable, but typically include fever, anorexia and headache. Vomiting, nausea, diarrhoea, muscle aches and dizziness may also occur. More severe infections may cause neurological dysfunction with photophobia, lethargy, irritability, drowsiness, neck stiffness, confusion, ataxia, aphasia, intention tremor, convulsions, coma and death. Seizures are common in children.

The case-fatality rate is approximately 20%–30%. Among survivors, 30%–50% have significant neurologic, cognitive, or psychiatric sequelae.

The clinical presentation for JE is similar to that of Murray Valley encephalitis (MVE) and Kunjin virus.

Japanese encephalitis has never been present in NSW. The first Australian-acquired cases were detected in Torres Straits Islander people in 1995.

5. Managing single notifications

Response times

Investigation

On same day of notification of a confirmed case begin follow-up investigation and notify the CDB of the case details

Data entry

Within one working day of notification enter confirmed JE cases on NCIMS

Response procedure

The response to a notification will normally be carried out in collaboration with the case's health carers. But regardless of who does the follow-up, PHU staff should ensure that action has been taken to:

- Confirm the onset date and symptoms of the illness
- Confirm results of relevant pathology tests, or recommend the tests be done (encourage the managing doctor to take convalescent sera to confirm the diagnosis)
- Ensure confirmation by a second test if the case has been acquired in a previously unaffected area

- Find out if the case or relevant care-giver has been told what the diagnosis is before interviewing them
- Seek the doctor's permission to contact the case or relevant care-giver
- Review case management
- Identify likely source of infection.

Case management

Investigation and treatment

Supportive treatment only.

Education

The case or relevant care-giver should be informed about the nature of the infection and the mode of transmission.

Exposure investigation

The case should be asked to recall if, in the incubation period, he or she had:

- Been bitten by mosquitoes, **or**
- Visited regions where JE is endemic, **or**
- Participated in recreational or other activities involving exposure to bushland or other mosquito habitat (as in, for example, gardening, bushwalking and picnicking).

Isolation and restriction

None.

Environmental evaluation

None.

Contact management

Identification of contacts

Potentially exposed people are those who may have been exposed to the same source as the case. However, active searching for these people is not usually indicated.

Treatment

Passive immunisation

None

Active immunisation

A vaccine is available but is only recommended for travellers spending ≥ 1 month in rural areas in countries where the disease is endemic or in some parts of the Torres Strait Islands.

Antibiotic prophylaxis

None

Education

Educate the public living in or travelling to endemic areas to minimise exposure to mosquito bites. Information should indicate geographical location of habitats, and periods of maximum mosquito activity and also refer to protective clothing, appropriate repellents and methods of reducing mosquitoes in the home. [Fact sheets](#) are available on the NSW Health website.