



Issue date
23 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 Departments
- Intensive Care Units
- Neurology
- Infectious Diseases
- Paediatrics
- General Medicine
- Public Health Units
- Nursing

Deadline for completion of action

24 hours

Representatives from:

Infectious Diseases and Public Health

Clinical Excellence Commission

Tel: 02 9269 5500

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[Internet](#)

[Intranet](#)

Review date
February 2024

Encephalitic Flaviviruses (MVEV, JEV, KUNV) – Update for Clinicians

What's new in this Safety Alert?

This Safety Alert is an update of **SA:008/22** Japanese Encephalitis Virus – Update for Clinicians (now rescinded) to include expanded information about Murray Valley Encephalitis Virus (MVEV) and Kunjin Virus (KUNV).

Situation

Flaviviruses are a type of arbovirus. Some flaviviruses including Japanese Encephalitis Virus (JEV), Murray Valley Encephalitis Virus (MVEV) and Kunjin Virus (KUNV) (a type of West Nile Virus) are a rare but potentially fatal cause of viral encephalitis.

In early 2022, JEV was found for the first time in people, pigs, other animals and mosquitoes in NSW, Queensland, Victoria and South Australia. During the 2021/22 mosquito season, 13 people in NSW developed severe infections and two of whom died.

During the 2022/23 mosquito season there have been a high number of detections of MVEV in mosquitoes and sentinel chickens in regional NSW. There have also been some detections of KUNV. The NSW Arbovirus Surveillance and Mosquito Monitoring Program weekly reports can be found on the [NSW Health website](#). There has been one confirmed case of JEV notified in NSW during the 2022/23 mosquito season.

On 22 February 2023, the first confirmed human case of MVEV of this mosquito season was identified in a person who lives and works in Murrumbidgee LHD.

Assessment

- The incubation period after being bitten by an infected mosquito is as follows:
 - JEV: 5-15 days
 - MVEV: typically 7-12 days (occasionally 5-28 days)
 - KUNV: 5-26 days
- Less than 1% of people develop a clinically significant illness.
- Those at increased risk include individuals engaged in outdoor activities during periods of heightened mosquito activity.
- Symptoms may include fever, headache, myalgia, rash and diarrhoea.
- Severe disease is associated with acute encephalitis/meningoencephalitis (although particularly rare for KUNV). Neurological sequelae include focal deficits such as paresis, cranial nerve pathology and movement disorders. Seizures are common, particularly in children.
- Permanent neurological or psychiatric complications occur in 30-50% of cases with severe disease. The fatality rate can be as high as 30%.
- Supportive care is the mainstay of treatment for JEV/MVEV/KUNV

Diagnostic Recommendations

All patients presenting with suspected viral encephalitis/meningoencephalitis should have the usual investigations conducted, including cerebrospinal fluid (CSF) sampling, if safe and clinically appropriate to do so.

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Where CSF is obtained, it should be tested for Herpes Simplex Virus (HSV), varicella-zoster virus (VZV), enteroviruses and other common causes of meningo-encephalitis by multiplex PCR and culture. Flavivirus testing should be considered in the appropriate clinical context.

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

For both adults and children, in cases of suspected viral encephalitis/ meningoencephalitis where the causative agent remains unidentified, especially with acute and clinically consistent MRI/CT^{1,2} brain changes, the following samples should be sent for analysis (serology/ PCR/ viral culture and sequencing) at the Institute of Clinical Pathology and Medical Research (NSW Health Pathology - ICPMR) at Westmead Hospital:

Blood

- Serum – (2-5 mL from children, 5-8 mL from adults) for acute and convalescent (3-4 weeks post onset) testing for JEV/MVEV/KUNV-specific IgM and total antibodies
- Whole blood (EDTA tube) for JEV/MVEV/KUNV PCR and virus culture on an acute sample **AND**

CSF (at least 1-3 mL)

- JEV/MVEV/KUNV PCR and culture
- JEV/MVEV/KUNV-specific IgM and total antibodies **AND**

Urine (2-5 mL in sterile urine jar)

- JEV/MVEV/KUNV PCR and viral culture.

Transport specimens at 4°C without delay to NSWHP – ICRMR Westmead and enclose an appropriate request form with *relevant clinical and epidemiological history* including symptom onset, vaccination, travel history and country of birth, to guide laboratory interpretation. Send urgently (same/next day) to ICPMR. Viral culture requires a Biosafety Level 3 laboratory.

Clinical Escalation

Please discuss any suspected cases with your local Infectious Disease service. Infectious Disease services can seek further specialist advice by contacting the Clinical Microbiologist on call at NSWHP-ICPMR through the Westmead Hospital Switchboard (**02 8890 5555**).

Encourage prevention where practicable

1. Preventing mosquito bites

This includes the use of mosquito repellents, flyscreens, bed-nets, vapour dispensing units (indoors) and mosquito coils (outdoors), wearing long, loose or permethrin impregnated clothing and removing any water-holding containers where mosquitoes may breed. Preventing mosquito bites also helps prevent against other mosquito-borne illnesses.

2. Vaccination for Japanese encephalitis virus

There is no vaccination for MVEV or KUNV. There are two JEV vaccines registered for use in Australia: Imojev[®] a live attenuated vaccine (single dose) for people 9 months and older, and JESpect[®] an inactivated vaccine (2 doses) for those who are unable to receive live vaccines (immunocompromised or pregnant) or aged between 2 to 9 months of age. Due to supply constraints, the vaccine is currently prioritised to those at highest risk of exposure to the virus. For more information visit: [Japanese encephalitis vaccination](#)

Footnotes

¹The priority for JEV/MVEV/KUNV diagnosis is for cases of suspected encephalitis/viral meningoencephalitis without another pathogen diagnosis. It is noted that the majority of JEV/MVEV/KUNV infections are asymptomatic and that there may be other presentations including acute flaccid paralysis and arthralgia.

²Bilateral thalamic involvement on CT or MRI Brain is classical. Other areas which may be involved includes the basal ganglia, midbrain, pons and medulla.

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Safety Alert 003/23

Required actions for the Local Health Districts/Networks

1. Distribute this Safety Alert to all relevant clinicians and clinical departments for awareness.
2. Be alert to encephalitic flavivirus infection in patients presenting with fever, headache, and new neurological signs.
3. For primary care services, offer JEV vaccination to eligible patients. Vaccination can be given by primary care providers, Authorised Nurse Immunisers and pharmacists (see: [JEV Vaccination](#)). Vaccination can be facilitated by local public health units.
4. Acknowledge receipt and distribution of this Safety Alert within **24 hours** to: <mailto:CEC-MedicationSafety@health.nsw.gov.au>