



Mosquito Borne Virus Alert

Kimberley Population Health Unit (KPHU)

13 May 2020

Murray Valley Encephalitis virus and Kunjin virus activity continues to be detected in Kimberley sentinel chicken flocks.

Increases in notifications of Ross River virus and Barmah Forest virus are also reported

Clinicians are asked to be vigilant for presentations of Murray Valley Encephalitis (MVE) and Kunjin virus (Kunjin) following new seroconversions to MVE and Kunjin in the sentinel chicken flocks at Wyndham, Halls Creek and Kununurra. In the previous alert dated 29 April 2020 we reported MVE detections in Broome and Fitzroy Crossing, and seroconversions to both MVE and Kunjin in the Kununurra and Wyndham sentinel chicken flocks. The sentinel flocks in Derby, Fitzroy Crossing, Kununurra and Halls Creek have previously seroconverted to MVE in the past 2 months. The sentinel chicken program in Western Australia provides an early warning of increased mosquito borne virus activity. Positive serum samples from the chicken flocks indicate that resident mosquitos are carrying the virus and could infect people. No human cases of MVE or Kunjin have occurred to date.

MVE, and the closely related West Nile virus Kunjin strain (Kunjin), are flaviviruses that are transmitted by the common banded mosquito. Water birds are the natural reservoir. MVE and Kunjin disease occurs sporadically in the Kimberley with approximately 1-2 notifications every few years; however both have caused outbreaks in the region. Many long term residents of the Kimberley will be immune due to previous exposure. New residents and visitors to the region are most at risk of disease.

Presenting features

MVE and Kunjin usually infects people without producing apparent illness. A very small proportion will develop encephalitis.

MVE symptoms in young children include:

- fever
- floppiness
- irritability
- drowsiness (excessive sleepiness)
- fits.

In older children and adults MVE symptoms include:

- fever
- drowsiness or confusion
- bad headache and stiff neck
- nausea and vomiting
- muscle tremors
- dizziness.

The symptoms for Kunjin disease can be similar to MVE but are generally milder. However, the most common symptoms for Kunjin virus include:

- swollen and aching joints
- rash
- muscle weakness

- fatigue
- enlarged lymph nodes.

A doctor who diagnoses a patient with MVE or Kunjin disease must notify the Department of Health immediately so more can be learnt about where the virus is active and public health action can be taken if necessary. These actions may include implementing mosquito control programs where possible and the issuing of public warnings.

Diagnostic tests

Blood for MVE and Kunjin serology should be undertaken in people with compatible illness during the acute and convalescent phases (2 to 4 weeks) of the illness. A fourfold rise in antibody levels will confirm the clinical diagnosis. If lumbar puncture is performed, CSF (1-3ml) should be sent for flavivirus testing. The volume of CSF should be in addition to the amount required for other tests.

Ross River Virus (RRV) and Barmah Forest Virus (BFV)

As expected towards the end of the wet season, the Kimberley has had an increased number of notifications of Ross River virus (RRV) since February (n=25). Notifications were comparatively low during the same period last year due to lower rainfall. The majority of notifications have been in residents in the Broome post code. Small numbers of Barmah Forest virus (BFV) have also been notified among West Kimberley residents.

RRV and BFV are alphaviruses that are transmitted by the saltmarsh mosquito (*Aedes vigilax*) and the freshwater common banded mosquito (*Culex annulirostris*). RRV is the most common and widespread arbovirus disease in Australia. Approximately one half of those infected will develop symptoms. Disease symptoms are rare in young children.

Presenting Features

Symptoms may include fever, chills, headaches, nausea, polyarthralgia, polyarthritis, myalgia, lymphadenopathy, fine rash and lethargy.

Diagnostic Tests

RRV and BFV serology should be undertaken in people presenting with compatible symptoms on initial presentation with **repeat serology** performed 2 weeks later. RRV and BFV testing is best undertaken by reference laboratories (i.e. Pathwest in WA) as they routinely perform quantitative titres on positive specimens, which means it is possible to ascertain a rise between acute and convalescent serology. This facilitates confirmation of the diagnosis.

Prevention of mosquito-borne diseases

Encourage protection against mosquito bites. To avoid being bitten, Kimberley residents and visitors should be advised to:

- Wear loose-fitting light-coloured clothing with long sleeves when outside
- Apply mosquito repellent containing DEET or picaridin to exposed areas of skin. Lotions and gels are more effective and long lasting than sprays.
- Use mosquito coils, mosquito lanterns, and barrier sprays in patio and outdoor areas near houses
- Take special care during peak mosquito biting hours, especially at dawn and dusk
- Take extra precautions when camping.

For more information

- Clinical information
 - CDNA SoNG: [https://www1.health.gov.au/internet/main/publishing.nsf/Content/78D84F13B0EDE5E4CA257C3500812803/\\$File/MVE-SoNG-2013.pdf](https://www1.health.gov.au/internet/main/publishing.nsf/Content/78D84F13B0EDE5E4CA257C3500812803/$File/MVE-SoNG-2013.pdf)
 - WA Health Fact Sheet: https://www.healthyswa.wa.gov.au/Articles/J_M/Murray-Valley-encephalitis-and-Kunjin-viruses
- Fight the Bite resources including posters to be displayed in clinics and communities can be found here
 - https://www2.health.wa.gov.au/Articles/F_I/Fight-the-Bite-campaign
- Call **9194 1630** and speak to the Disease Control Team – Kimberley Population Health Unit