



Delivering a **Healthy WA**



## Murray Valley Encephalitis Environmental Health Guide

### What is Murray Valley Encephalitis?

Murray Valley encephalitis is a rare but potentially fatal mosquito-borne disease. Until recently it was also referred to as Australian encephalitis. It is named because of the large outbreaks that occurred in the Murray Valley region of south-eastern Australia in the 1950's and 1970's. Murray Valley encephalitis (MVE) virus occurs naturally throughout the northern half of Australia, Papua New Guinea and eastern Indonesia. In Western Australia, it is active in the Kimberley and Pilbara regions every year. Occasionally it extends into the Gascoyne, Murchison, northern Goldfields and Midwest regions of WA. It is also active in the Top End of the Northern Territory in most years and rarely it also extends to Central Australia and the inland parts of south-eastern Australia. There is no vaccine to prevent Murray Valley encephalitis, and there is no medical cure.

Kunjin virus is a related mosquito-borne virus that can also cause human disease in Western Australia, but serious disease is much less common. It is also briefly discussed in the pamphlet.

In nature, MVE virus survives in natural cycles involving birds (especially water birds) and some species of mosquito. The only way humans can catch MVE virus is by being bitten by a virus carrying mosquito. The virus cannot be caught directly from other people or birds.

Approximately one person in a thousand will develop disease symptoms after being bitten by an infected mosquito. Most do not develop any disease symptoms at all. Adults who have grown up in areas where MVE virus occurs in the wild are usually immune following infection during childhood. People who are unlikely to have had previous exposure to the virus are at greatest risk of illness, such as very young children or people who have recently arrived in or are visiting the area.

A doctor who diagnoses Murray Valley encephalitis in a patient must inform the Department of Health immediately. Information about human cases, mosquito indicators, and other markers of MVE virus presence allows the Department of Health and local government authorities to implement mosquito control programs and to issue public warnings for people to take preventive measures against mosquito bites.

### Symptoms of Murray Valley Encephalitis

Young children:

- Fever.
- Floppiness.
- Irritability
- Drowsiness (excessive sleepiness)
- Fits

Older children and adults:

- Fever
- Drowsiness and confusion
- Bad headache and stiff neck
- Nausea and vomiting
- Muscle tremors
- Dizziness



The incubation period [the time between being bitten (infected) and becoming sick] varies from five to fifteen days, but symptoms usually appear within eight to ten days after being infected. The disease can be mild or severe but early symptoms are the same in either case, so it is important that patients are seen by a doctor as early as possible. In mild cases, the patient will start to improve after a few days.

Patients with the severe form of Murray Valley encephalitis get worse very quickly with confusion and worsening headaches, increasing drowsiness and possible fits. About a quarter of the people with the severe form of illness will not survive, while others may take several months to recover and some people are left paralysed or with brain damage. There is no way of telling who will get a mild illness with Murray Valley encephalitis and who will get the severe form. Both children and adults can be severely ill.

## Treatment

**People with suspected Murray Valley encephalitis virus should be taken to the nearest hospital.**

Often they will need to be transferred to major hospitals with intensive care facilities because they are seriously ill or because the doctor is concerned that they may deteriorate. There, they will receive treatment and medicine to control convulsions if necessary and until they regain consciousness. If they have been seriously ill, they will often need physiotherapy, speech therapy and other rehabilitation to help their recovery.

Unfortunately, even with appropriate medical care, about a quarter of people who become ill with Murray Valley encephalitis will die.

## What is Kunjin Virus Disease?

Kunjin virus is another mosquito-borne virus that causes similar but generally less severe disease symptoms than MVE virus. In addition to the symptoms listed for Murray Valley encephalitis, Kunjin can also cause joint pain. The biology of Kunjin virus is fairly similar to that described above for MVE virus. As with Murray Valley encephalitis, urgent medical attention and diagnostic tests should be sought for people suspected of having Kunjin virus disease. It must also be notified immediately to the Department of Health.

The name 'Kunjin' comes from one of the Aboriginal clans living near the Mitchell River in north Queensland, from where scientists first isolated the virus.

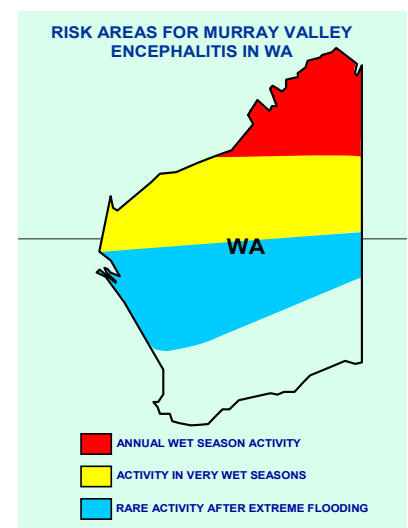
## When and Where can you catch Murray Valley Encephalitis?

MVE virus occurs in the northern half of Australia during and in the months following heavy wet season (summer and autumn) rains. February to April is the season of most risk, but the risk can commence as early as December and extend to June or even July in very wet years.

The main areas of risk in Western Australia are in the Kimberley and Pilbara regions and, less frequently, the Gascoyne, Murchison, northern Goldfields and Midwest. The virus is active in the Kimberley and parts of the Pilbara during every wet season, but in the regions further south it is only active after very heavy summer and/or autumn rainfall.

People residing, visiting or camping near swamps, floodplains, river systems, large irrigation areas or major dams may be at particular risk, especially during the evening and night. However, MVE virus can also be active in other areas when mosquitoes become abundant.

In south-eastern Australia, MVE virus can occur during unseasonably wet summers when the Murray Darling river system floods



## How to Prevent Infection

### Mosquito control

Effective mosquito control is currently not possible in most areas of Western Australia where MVE virus occurs because the mosquito breeding areas which require treatment are large and hard to reach. Some local



governments do carry out insecticide fogging to kill adult mosquitoes but this is only partially and temporarily effective and cannot be relied upon for effective disease prevention.

### **Avoid Mosquitoes**

The main mosquito carrier of MVE virus is most active around sunset and for the first few hours of the evening. Therefore, plan barbecues and sporting events for daytime or early evening rather than after sunset. Adult mosquitoes are very susceptible to desiccation (drying out), so they are much less active during daylight and in windy conditions than at night or on cloudy, humid, still days. Generally, mosquitoes are most active for one to three hours after sunset and again around dawn. It is therefore possible to reduce the risk of contracting mosquito-borne viruses by timing outdoor activities to avoid periods of greatest mosquito activity.

### **Cover up, use Repellents**

Cover up with long, loose-fitting and preferably light-coloured clothing to prevent mosquito bites - remember that mosquitoes can bite through clothing which is tight against the skin (even denim jeans). When outdoors, particularly after sunset, carry an effective mosquito repellent for use if mosquitoes are around. The most effective repellents contain either diethyl toluamide (DEET) at between 5 and 20 per cent (50-200g/litre) or Picaridin, and are most effective in lotion form. Mosquito repellents are an important way of avoiding exposure to mosquito-borne diseases. However, as with all chemicals they should be applied in accordance with the manufacturer's instructions, especially to infants and young children.

### **When Camping**

Make sure caravans, tents and swags are in good repair and are fitted with effective flyscreens. Use a mosquito bed net over your sleeping bag or swag if sleeping under the stars. Even the best repellents only last up to four hours, so they are not effective all night. Cover up and wear a repellent when outside the tent.

## **Further Information:**

For further information on mosquito control and Murray Valley encephalitis prevention, please contact your local government Environmental Health Officer

or

Environmental Health Directorate  
Department of Health  
PO Box 8172  
PERTH BUSINESS CENTRE WA 6849

Telephone: (08) 9385 6001  
Facsimile: (08) 9383 1819

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