

# Japanese Encephalitis Virus (JEV)

Japanese encephalitis virus (JEV) is a mosquito-borne viral disease that can cause reproductive losses and encephalitis in susceptible species. The normal lifecycle of Japanese encephalitis is between mosquitoes and either waterbirds or pigs, which may then, on occasion, spill over to horses, and humans (see figure below).

Pigs, both domestic and feral, are amplifiers of the virus. Whilst horses can be infected with JEV, they cannot reinfect mosquitoes. Overseas, there has also been rare reports of the disease in donkeys. An alpaca was also confirmed infected in the recent outbreak in Australia.

Animals and humans become infected through the bite of infected mosquitoes. **It cannot be transmitted from person to person.** Infection is maintained in the environment in pigs (both feral and domestic) and birds. JEV infection is a notifiable disease in humans and in animals. Health authorities across Australia are on the alert for human cases.

Japanese encephalitis is not a food safety concern.

**Commercially produced pork meat or pork products are safe to consume.** Additionally, it cannot be spread by touching infected animals.

## Recent outbreak

**The Australian Acting Chief Medical Officer declared JEV a Communicable Disease Incident of National Significance on 4 March 2022.** This triggered the implementation of national health policy, interventions, public messaging, and deployment of extra resources to affected states and territories. The Department of Health

and Aged Care in partnership with the Department of Agriculture, Fisheries and Forestry coordinated a national One Health response to the outbreak.

It is not known how the virus came onto mainland Australia. The movement of infected mosquitoes or migratory waterbirds may have played a part in the virus' spread, combined with recent rain events. Previously, incursions of JEV in Australia have occurred in northern Australia - the Torres Strait Islands, on the tip of Cape York and the Tiwi Islands.

Risks of local infections are high among people who engage in outdoor activities near significant mosquito populations, particularly near waterways.

Individuals in affected regions with direct exposure or close proximity to domestic pigs and mosquitoes; and high-level occupational exposures are being prioritised for vaccination. The Australian Government is working closely with the states and territories to support the distribution of vaccine doses to at-risk population groups and obtain vaccine supply.

**On 16 June 2023, the Chief Medical Officer stood down Australia's CDINS declaration for Japanese encephalitis virus.** States and territories will continue to manage the risk of JEV in line with local arrangements. JEV is still classified as a notifiable disease.

It is important that land managers continue with coordinated and collaborative feral pig management programs to reduce risks of mosquito infection with JEV from feral pigs.

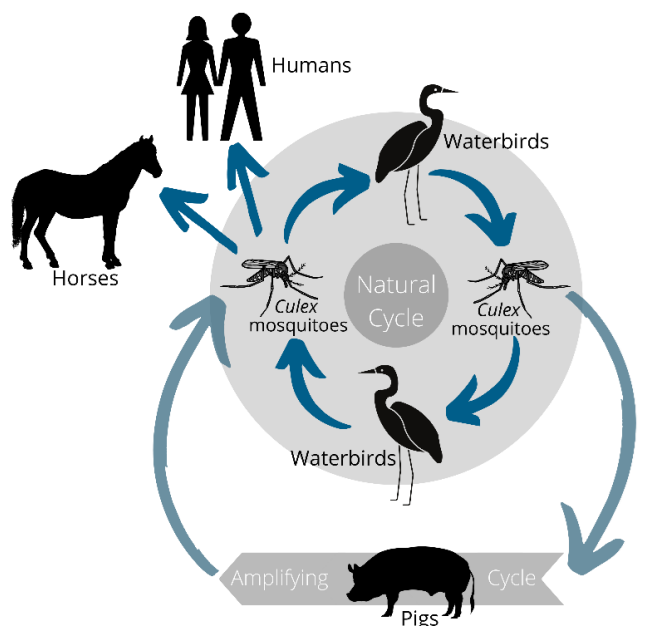


Photo credit NSW DPI



Photo credit Stephen Doggett, NSW Health

## Status of Japanese Encephalitis Virus in Australia between February 2022 to 28 February 2023

Thirty-five human cases of JE have been confirmed, in QLD (2), NSW (14), SA (6), NT (2) and Vic (11). Seven people have died of JE: NSW (2), SA (2) and one each in Vic, NT and QLD.

There are 10 probable human cases of JE reported across multiple jurisdictions which are under investigation; in SA (4), VIC (3), and QLD (3).

JEV was confirmed in 79 piggeries: in QLD (17), NSW (30), Vic (23) and SA (9).

There were 14 JEV detections in mosquito samples collected between 30 December 2021 and 14 June 2022 in VIC (7), NSW (3) and QLD (2). The primary mosquito vector is suspected to be *Culex annulirostris*.

JEV was positively identified in feral pigs in the NT (55+), Vic (3), SA (7), WA (2) and a small number of feral pigs in Cape York Peninsula, QLD, and in an alpaca in SA.

In the 2021/22 season, SA reported 3 JEV positive sentinel chickens from 2 flocks. In 2023, prior exposure to JEV was also detected in WA in sentinel chickens across 3 flocks in the Kimberley region and 1 flock in the Pilbara.

*\*On 21 September 2022, the Communicable Diseases Network Australia (CDNA) endorsed a revised outbreak case definition to include cases identified from 1 January 2021. This has resulted in two historical cases from 2021 being included in the outbreak reporting. 1 previously confirmed case for Victoria was reclassified as Murray Valley Encephalitis virus infection. Numbers of cases were correct as at 28 February but true case numbers may be higher.*

### Control measures

With large mosquito populations across much of the east coast, it is critical to take additional precautions and protect yourself and your people from mosquito bites.

The risk of exposure to mosquitoes and their bites by people can be reduced by:

- Applying mosquito repellent containing picaridin, DEET or Oil of Lemon Eucalyptus (OLE), also known as PMD.
- Wearing long, loose fitting clothing when outside, and ensuring that accommodation, including tents, are properly fitted with mosquito nettings or screens
- Vaccination
- Controlling mosquitoes by eliminating breeding sites.

People who are involved in controlling feral pig populations, including land managers and hunters, should take steps to protect themselves from risks of mosquito bites, and continue to use effective biosecurity measures.

A [guidance document](#) prepared for pig producers and licenced pest controllers to control mosquitos in piggeries is also applicable for other agricultural sectors and land managers.

Do not apply chemicals that are not registered for use on: products being produced, in feed, on surfaces animals may contact, or in a way that might result in chemical drifting onto animals. Seek professional advice if you are unsure about how to use a chemical.

### Signs to look for in humans and pigs

#### Humans

Severe illness from JEV in humans is rare and most people will have no symptoms at all.

Symptoms in people usually begins with sudden onset of fever, headache, and vomiting. A very small proportion of people infected, less than 1%, may develop a serious illness, such as encephalitis, and experience symptoms including neck stiffness, severe headache, and coma, and more rarely, permanent neurological complications or death.

Anyone experiencing these symptoms should seek urgent medical attention.

#### Pigs

In pigs, the most common clinical signs are mummified, stillborn or weak piglets, some with neurological signs. If infected after birth, piglets can develop encephalitis which presents as paddling or other neurological signs in the first six months of life.

Adult sows do not generally show signs of disease. Boars may experience infertility and congested testicles.

***If you see any feral pigs behaving abnormally, or with symptoms of JEV, contact your local veterinarian or call the national Emergency Animal Disease Watch Hotline on 1800 675 888 to report it.***

### For more information, visit:

- [Japanese encephalitis virus \(JEV\) - Australian Government Department of Health](#)
- [Japanese encephalitis - DAWE](#)
- [Expert commentary: Japanese encephalitis - CSIRO](#)
- [Integrated mosquito management principles for piggeries v1](#)
- [Japanese encephalitis AUSVETPLAN - Animal Health Australia](#)
- [Emergency Animal Diseases Guide - field guide for veterinarians](#)
- [Japanese Encephalitis Fact Sheet- Wildlife Health Australia \(WHA\)](#)

Website: [www.feralpigs.com.au](http://www.feralpigs.com.au)

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