

# Japanese Encephalitis Virus (JEV)

Japanese encephalitis virus (JEV) is a mosquito-borne viral disease that can cause reproductive losses and encephalitis in susceptible species. JEV infection is a notifiable disease in humans and in animals. Animals and humans become infected through the bite of infected mosquitoes.

## Life cycle

The normal lifecycle of Japanese encephalitis is between mosquitoes and either waterbirds or pigs who maintain infection in the environment. It may then, on occasion, spill over to horses (which cannot re-infect mosquitoes), and humans (see figure below).

Pigs, both domestic and feral, are amplifiers of the virus. It has been rarely reported in other species such as donkeys overseas and an alpaca was also confirmed infected in 2022 in Australia.

**It cannot be transmitted from person to person.**

Additionally, it cannot be spread by touching infected animals.

Japanese encephalitis is not a food safety concern.

**Commercially produced pork meat or pork products are safe to consume.**

## 2022/23 outbreak

In 2022, cases were detected in humans and piggeries across four states in south-eastern Australia (New South Wales, Victoria, Queensland, South Australia). **This triggered the Australian Acting Chief Medical Officer to declare JEV a Communicable Disease Incident of National Significance on 4 March 2022.**

The One Health response was coordinated by the Department of Health and Aged Care in partnership with the Department of Agriculture, Fisheries and Forestry. This included the implementation of national health policy,

interventions, public messaging, and deployment of extra resources to affected states and territories.

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 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.

**The end of the JEV emergency response was announced on 16 June 2023.**

States and territories are continuing to manage the risk of JEV in line with local arrangements. JEV is still classified as a notifiable disease.

## 2024/25 outbreak

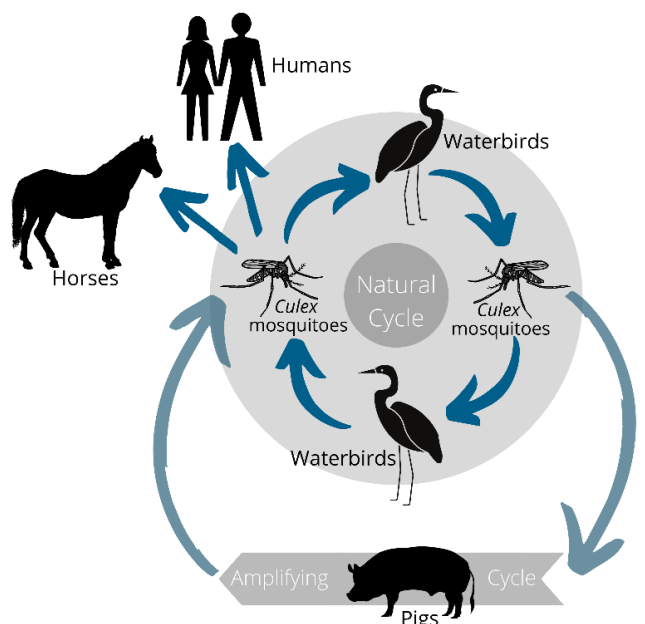
In the 2024/25 season, JEV has been detected in mosquitoes, humans and pigs (both domestic and feral) in NSW, VIC and QLD. More details are on the next page.

## Risk factors

People at high risk of mosquito bites include those who:

- regularly spend time outdoors, (e.g. those involved in feral pig management, hikers)
- are environmental workers
- are living in conditions with limited mosquito protection (e.g. tents, caravans, dwellings with no insect screens),
- work, live, or are visiting a piggery
- work directly with mosquitoes
- are experiencing homelessness.

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.



## Current situation (December 2024 – 20 March 2025):

Overall reported detections:

- Mosquitoes - NSW, VIC, QLD
- Human cases - 2 QLD, 2 VIC, 5 NSW
- Deaths - 2 NSW, 1 QLD
- Domestic pigs - 2 NSW, 1 Vic, >20% piggeries in QLD
- Feral pigs - NSW

Total number of cases may be underestimated as this is dependent on the availability and frequency of testing.

JEV is considered established in mainland Australia, with the risks of transmission likely to vary seasonally and between years, depending on weather and other local factors. This has meant that not all states and regions will be testing for JEV in mosquitoes and/or feral pigs.

## Previous outbreak (February 2022 - 28 February 2023):

Human

- Cases = 35, QLD (2), NSW (14), SA (6), NT (2), VIC (11)
- Deaths = 7, NSW (2), SA (2) VIC (1), NT (1), QLD (1)

Infected piggeries = 79, QLD (17), NSW (30), VIC (23), SA (9)

Mosquito detections = 12, VIC (7), NSW (3), QLD (2)

Feral pig detections = >67, NT (55+), VIC (3), SA (7), WA (2), Cape York Peninsula, QLD

### Other animals

Alpaca = 1 in SA

Sentinel chickens:

- 2021/22 season = 3 (SA from 2 flocks)
- 2023 = 4<sup>^</sup> in WA (3 flocks Kimberley region, 1 flock Pilbara)

*\*Numbers of cases correct as at 28 February 2023 but true numbers may be higher.*

*# Collected between 30 December 2021 and 14 June 2022*

*^Antibodies = prior exposure to JEV*

## Control measures

With large mosquito populations in the environment, it is critical to take additional precautions and protect yourself and others from mosquito bites.

The risk of exposure to mosquitoes and their bites 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

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 and Aged Care](#)
- [Japanese encephalitis - DAFF](#)
- [Science explainer: Japanese encephalitis – CSIRO](#)
- [Integrated mosquito management principles for piggeries](#)
- [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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