

Summary of NSW Japanese encephalitis virus serosurvey results

What is Japanese Encephalitis?

Japanese Encephalitis is a disease caused by the Japanese Encephalitis virus (JEV), which is transmitted by mosquitoes. It is a common infection in the tropical regions of Asia and was detected for the first time in NSW in late February 2022. It exists in a natural cycle between mosquitos and some types of birds. The virus can also infect other animals, such as pigs. It is likely that the warm and wet weather conditions contributed to increased mosquito and waterbird breeding and transmission. Most people who are infected with JEV have no symptoms. 1 in 250 people can become severely unwell and may develop a permanent disability or die.

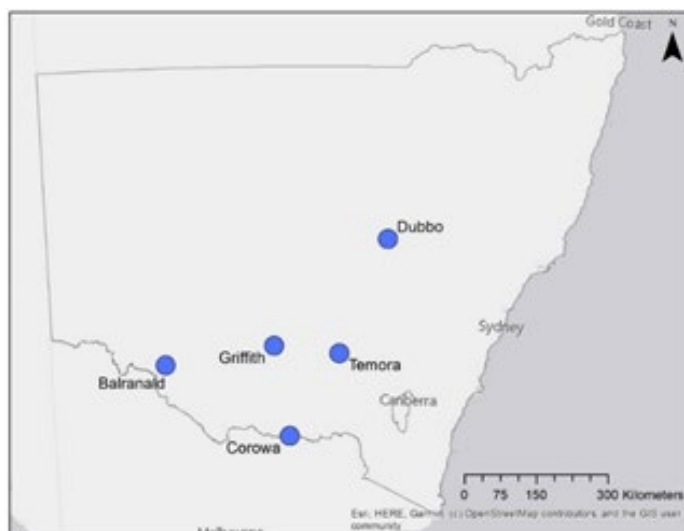
Purpose of the serosurvey

As most people infected with the virus will show no or only minor symptoms, and the virus had never been found south of Cape York Peninsula before, there was very little information available to estimate how many people had been infected with the virus over the 2021-22 summer period. These results are being used to inform the public health response to Japanese encephalitis in NSW such as public mosquito bite prevention messaging. To answer this question, NSW Health, supported by the National Centre for Immunisation Research and Surveillance (NCIRS), conducted a serological (blood test) survey in 5 regional NSW towns.

How this survey was conducted

People living in and around Balranald, Corowa, Dubbo, Griffith and Temora (Figure 1) were invited to provide a blood sample and complete a short questionnaire. These towns were chosen as there was evidence that infected mosquitos had been present in these areas during the earlier months of the year and had a mix of different risk factors for the spread of the virus.

Figure 1. JEV serosurvey locations in NSW, June-July 2022



A total of 1,048 people provided a blood sample for analysis. People who provided blood samples were aged between 4 and 93 years of age, with an average age of 50 years.

Blood samples were tested at the NSW reference laboratory for arbovirus infections, the Institute of Clinical Pathology and Medical Research (ICPMR) at Westmead, to see whether that person had been infected with the virus before or not.

While all residents were eligible to participate, for the purposes of this preliminary report the analysis has been limited to those participants whose result can help understand the risk of being infected in NSW. That is, we excluded anyone who had received a Japanese Encephalitis vaccine before, travelled for more than one month or was born in a country where Japanese Encephalitis virus is commonly found. This is because prior infection or vaccination would likely cause JEV antibodies in the person's blood. In total, there were 917 blood samples from people included for analysis.

Summary of NSW Japanese encephalitis virus serosurvey results



1,048 people gave a blood sample & completed a questionnaire



1 in 11 participants had evidence of JEV infection



Participants aged between **20 – 87** years had evidence of JEV infection



More participants **> 50** years had evidence of JEV infection



Participants from all **5** towns had evidence of JEV infection

- The proportion of participants with JEV antibodies in their blood samples was 8.7% (80/917). This is equal to about one infection for every 11 participants.
- There was evidence of past JEV infection in all 5 towns.
- Participants aged between 20 – 87 years of age had evidence of past JEV infection.

These results suggest there is JEV in rural and regional NSW and residents should take precautionary measures to avoid mosquito bites. The full results of this study will be published on the NSW Health Japanese Encephalitis webpage at a later date.

Limitations on this analysis

- The results should be interpreted as an estimate only as the people who we took blood from came forward voluntarily for testing.
- Proportions of seropositive samples of some towns are based on small participant numbers so the true seroprevalence could be different.
- The estimates may also be biased (ie, too high or too low) if the people who participated in the survey were not representative of all people in the town. For example more people who participated in the study were older on average than all residents in the towns, which may also influence results.

What do these results mean?

These results indicate that JEV was prevalent in these areas of NSW and may have affected a large number of people. These results will be used alongside other studies to understand the factors that increase the risk of JEV infection.

NSW Health recommends that everyone take precautionary measures to avoid mosquito bites, particularly at dawn and dusk. Mosquitos in NSW can carry other viruses such as Murray Valley Encephalitis Virus or Kunjin Virus, not just JEV.

- Using mosquito repellent, and wearing loose and long sleeves/pants are effective ways to protect yourself. Reapply mosquito repellent according to the instructions on the label.
- Avoid keeping stagnant water around your home, such as watering cans or buckets of water as mosquitos can easily breed in a small amount of water.
- If doors or windows are kept open, insect screens are recommended.

JEV vaccination is now available for certain groups of people at higher risk of infection at no cost. Vaccination is an effective way to protect yourself against JEV. To find out more about vaccine eligibility and Japanese Encephalitis visit the NSW Health website: [Japanese encephalitis \(JE\)](https://www.nsw.gov.au/health-and-care-services/conditions-and-diseases/japanese-encephalitis)