Riverland Academy of Clinical Excellence

FACT SHEET

Japanese Encephalitis Virus (JEV) serosurvey results

About Japanese Encephalitis Virus (JEV)

JEV is spread by mosquitoes which have been infected through biting infected pigs or water birds. Spread (direct or indirect) between humans does not occur. Most people who are infected with JEV have no or mild symptoms. Around 1 in 250 to 1 in 1000 people infected become severely unwell with inflammation of the brain which can cause a permanent disability or death.

JEV is an endemic infection in parts of Asia and the Torres Strait region of Australia. It was detected for the first time in southern Australia in early 2022. The factors that contributed to the spread of JEV to southern Australia are uncertain, however it is likely that warm and wet weather conditions contributed to increased mosquito and waterbird abundance in southern Australia. JEV is prevented by avoiding mosquito bites, and vaccination.

Between 1 January 2021-17 October 2023, there were 10 reported JEV cases in South Australia (SA) including two deaths.

Purpose of the serosurvey

The purpose of the serosurvey was to gain a better understanding of the level of exposure to JEV in the community. Testing of volunteers from the population was undertaken to inform our public health response to JEV.

How the serosurvey was conducted

People in and around the Riverland and Murraylands were invited to provide a blood sample to test for JEV antibodies and complete a short questionnaire. These regions were chosen as they were considered the areas of highest risk for JEV in SA. This was based on a combination of factors including where human cases may have been infected; presence of high numbers of mosquitoes and waterbirds; and where JEV and other mosquito-borne viruses have been detected in animals.

Blood was analysed for antibodies against JEV at the Institute of Clinical Pathology and Medical Research (ICPMR) at Westmead, New South Wales. Humans develop antibodies after infection by JEV or by being vaccinated against JEV. In some cases, past infection to other mosquito-borne viruses can make the interpretation of JEV test results more difficult.

The analysis excluded participants who had received a JEV vaccine or had been born in, or travelled for over 1 month to, a country where JEV transmission occurs. This was to best estimate the infection rates from local acquisition of JEV in Australia.

Study results

Blood was collected from 249 participants aged 8 to 87 years from 16 December 2022 to 4 April 2023. Each participant completed a questionnaire. Of the 249 participants in total, 16 were excluded from the analysis as they were vaccinated against JEV or had travelled to a country where JEV is endemic.

	249 people gave a blood sample and completed a questionnaire. 233 of these people were included in the final analysis.
	The age of participants in the study ranged from 8 years to 87 years.
	**1 in 17** participants (6%) included in this study had evidence of JEV antibodies.
	All participants who tested positive for JEV antibodies lived in either the Riverland or Murraylands.

Included in the final analysis, there were 14 participants out of 233 who tested positive for JEV antibodies, indicating that 1 out of 17 participants (6%) had evidence of JEV infection.

Limitations of analysis

These results should be interpreted with caution as characteristics of participants that volunteered may differ from the whole population, and this study is relatively small which limits the precision with which we can draw conclusions about spread of JEV in the population. The true frequency of exposure to JEV is likely to be anywhere between 1 in 10 and 1 in 30 people in the region. Additionally, as antibodies persist for many years, infection may have occurred elsewhere in Australia or during short travel overseas rather than in the Murraylands or Riverland.

What do these results mean?

These results provide evidence to suggest that JEV infection has occurred in the population living in the Riverland and Murraylands over and beyond the notified cases in SA. Protective measures against mosquito bites and vaccination against JEV are important tools to protect the population against JEV disease. These results will be used with other information to inform public health actions.

For information about how to protect yourself and your family visit www.sahealth.sa.gov.au/fightthebite

For more information

Riverland Mallee Coorong Local Health Network I Riverland Academy of Clinical Excellence (RACE)

sahealth.sa.gov.au/RMCRACE