

Nebraska Department of Health and Human Services

Health Alert Network

UPDATE

July 19, 2024

Jamestown Canyon Virus Detected in Nebraska

Summary

- Nebraska's first Jamestown Canyon virus (JCV) positive mosquito pool was identified in Douglas County in mosquitoes collected in June 2024.
- Health care providers should have heightened clinical suspicion for JCV infection in persons with clinically compatible symptoms (similar to West Nile virus).

On June 25, the first Jamestown Canyon virus (JCV) positive mosquito pool was collected in Nebraska in Douglas County by the Douglas County Health Department as part of the DHHS mosquito surveillance program. Limited enhanced testing for JCV in mosquito samples began in 2024 and this is the first positive in Nebraska to be detected. The first mosquito positive pools indicated JCV is circulating in Nebraska and infection in residents is possible.

Epidemiology of Jamestown Canyon Virus Infections in Nebraska

No human cases of JCV have ever been reported in Nebraska. JCV can be spread by many types of mosquitoes, depending on location and time of year. Mosquitoes become infected when they feed on deer or other animals that have the virus in their blood. Infected mosquitoes can then spread the virus to people and other animals by biting them.

Most people infected with JCV do not have symptoms. For people with symptoms, the time from mosquito bite to onset of symptoms ranges from a few days to two weeks. Initial symptoms can include fever, fatigue, headache, cough, sore throat, or runny nose. More severe symptoms can include encephalitis, meningitis, stiff neck, confusion, loss of coordination, difficulty speaking, or seizures. Approximately half of patients with reported JCV are hospitalized and deaths (n = 10) associated with the virus are rare. Between 2011 – 2023, 308 JCV cases were reported in the U.S. from 23 states ([CDC data on JCV](#)). Testing for JCV is not common in Nebraska or the United States, therefore cases of JCV are likely underreported.

When to Consider Jamestown Canyon Virus Testing for a Patient

DHHS reminds health care providers to:

- Consider testing for arboviral infections in persons presenting with undifferentiated febrile illness or signs of unexplained neurological symptoms,
- Ask about recent travel history (both in state and out of state) and recent mosquito bite exposures, and
- Collect appropriate diagnostic specimens.

The clinical syndromes reported below presenting during months when mosquitoes are most active (June – October) among patients should prompt consideration for West Nile virus (WNV) testing in addition to other more common causes of encephalitis and septic meningitis (e.g., herpes simplex virus and enteroviruses), JCV

should be considered in the differential etiology of suspected WNV illness, particularly if WNV testing is negative.

1. Viral encephalitis, characterized by:

- a. Fever $\geq 100.4^{\circ}\text{F}$
- b. CNS involvement, including altered mental status or other cortical signs (cranial nerve palsies, paresis or paralysis, or convulsions) and,
- c. Abnormal CSF profile suggesting a viral etiology (negative bacterial gram stain and culture with a pleocytosis - WBC [between 5 and 1500 cells/mm³] and/or elevated protein level [$>40\text{mg/dl}$]).

2. Viral meningitis, characterized by:

- a. Fever $\geq 100.4^{\circ}\text{F}$
- b. Headache, stiff neck and/or other meningeal signs, and
- c. Abnormal CSF profile suggesting viral etiology (negative bacterial gram stain and culture with a pleocytosis - WBC [between 5 and 1500 cells/mm³] and/or elevated protein level [$>40\text{mg/dl}$]).

3. Poliomyelitis-like syndromes:

- a. Acute flaccid paralysis or paresis, which may resemble Guillain-Barré syndrome, or other unexplained movement disorders such as tremor, myoclonus, or Parkinson's-like symptoms, especially if associated with atypical features, such as fever, altered mental status and/or a CSF pleocytosis. Afebrile illness with asymmetric weakness, with or without areflexia, has also been associated with reported WNV.

4. Unexplained febrile illness:

- a. Especially if accompanied by headache, fatigue, myalgias, stiff neck, or rash.

Diagnosis and Testing of Jamestown Canyon Virus Infections

Diagnosis is usually made via serology, typically by a positive JCV-specific IgM test (or California serogroup IgM test). Ideally, both acute (3 to 10 days after symptom onset) and convalescent (2 to 3 weeks after acute sample) specimens should be collected and tested. Several commercial reference laboratories offer JCV/California serogroup serology testing including ARUP, Mayo Clinic, and Quest Diagnostics. Positive IgM results should be confirmed by plaque reduction neutralization test (PRNT) performed at CDC. Permission from DHHS or local health department to send positive specimens to CDC for PRNT testing is required.

There is no JCV vaccine available and treatment of JCV disease is supportive only. Patients with severe meningeal symptoms often require pain control for headaches, and antiemetic therapy and rehydration for associated nausea and vomiting. Patients with encephalitis require close monitoring for the development of elevated cranial pressure, seizures, and inability to protect their airway. For more information on JCV, please go to the [CDC JCV website](#).

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