Nebraska Department of Health and Human Services

Health Alert Network

UPDATE

October 2, 2025

Cache Valley Virus Detected in Nebraska

Summary

- Nebraska's first Cache Valley virus (CVV) positive mosquito pools of 2025 have been detected in Adams, Platte, and Lancaster counties.
- Health care providers should have heightened clinical suspicion for CVV infection in persons with clinically compatible symptoms that test negative for West Nile virus.
- CVV is widely found in mosquitoes across the United States. Testing in mosquito samples for CVV began in Nebraska during the 2024 surveillance season.

Epidemiology of Cache Valley Virus Infections in Nebraska

Cache Valley virus (CVV) was first detected in mosquitoes in Utah in 1956 and has since been shown to circulate widely in multiple types of mosquito populations across North America. While the transmission cycle is not fully understood, mosquitoes become infected after feeding on deer or other mammals with CVV in their blood. Infected mosquitoes can then spread CVV to mammals, including people, by biting them. Human cases of CVV are exceedingly rare, with fewer than 10 human cases having been reported in the United States, although diagnostic testing for CVV remains limited (see below). No human CVV cases have ever been reported in Nebraska.

Most people infected with CVV remain asymptomatic. For those with symptoms, the time from mosquito bite to symptom onset is unknown but is suspected to range from a few days to two weeks. Initial symptoms can include fever, fatigue, headache, nausea, vomiting, and sometimes rash. More severe symptoms can include encephalitis, meningitis, stiff neck, confusion, loss of coordination, difficulty speaking, or seizures. Due to the low number of cases reported, an accurate case fatality rate cannot be calculated; however, fatalities due to complications from CVV infection have been documented. Testing for CVV is not currently available at commercial laboratories in the United States and can only be performed at the CDC Arboviral Diseases Branch through consultation with local and state health department authorities.

When to Consider Cache Valley 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, particularly during the summer and fall months.
- Ask about recent travel history (both in-state and out-of-state) and recent mosquito bite exposures.
- Collect appropriate diagnostic specimens (see below).

The clinical syndromes reported below in presenting patients during months when mosquitoes are most active (June – October) 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). CVV

should be considered as a differential etiology if WNV testing is negative and other common etiologies have been ruled out.

1. **Viral encephalitis, characterized by:**
    a. Fever ≥ 100.4°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/mm^3] and/or elevated protein level [>40 mg/dl]).
2. **Viral meningitis, characterized by:**
    a. Fever ≥ 100.4°F,
    b. Headache, stiff neck, and/or other meningeal signs, and
    c. Abnormal CSF profile suggesting viral etiology (*see above*).
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 Cache Valley Virus Infections

Diagnosis by the CDC Arboviral Diseases Branch is made via PCR or a CVV specific IgM serology. Ideally, both acute (3–10 days after symptom onset) and convalescent (2–3 weeks after acute sample) serum specimens should be collected and tested. In patients with neurologic symptoms, a CSF specimen, in addition to an acute serum specimen, should be collected and tested. Positive IgM results (CSF and/or serum) are confirmed by the CDC Arboviral Diseases Branch using a plaque reduction neutralization test (PRNT). **DHHS permission is required to send specimens to CDC for diagnostic testing and WNV infection should first be ruled out.**

There is no CVV specific vaccine or treatment available; treatment consists of supportive care 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.

Additional Information

CDC Clinical Testing and Diagnosis

CDC Clinical Signs, Symptoms, and Treatment

Nebraska DHHS Mosquito Surveillance Map

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