

Indiana Health Alert Network Notification

Arthropod-Borne Viral (Arboviral) Disease Advisory

July 22, 2021

This advisory provides current information on the clinical presentation, diagnosis, and treatment of common arthropod-borne viral (arboviral) diseases in Indiana, such as those transmitted by mosquitoes and ticks. State health officials are urging Hoosiers to take steps to protect themselves from mosquito bites after the West Nile virus was detected in Indiana for the first time this year. So far in 2021, one mosquito sample collected in Vigo County has tested positive for West Nile virus. No cases of West Nile virus disease have been detected so far this year; however, the Indiana Department of Health expects to see further West Nile activity throughout the state as the mosquito season progresses.

Key Points and Recommendations

- Healthcare providers should consider arboviral disease in patients with febrile illness, as well as patients with encephalitis, meningitis, or other neurologic presentations, during mosquito season (May–October in Indiana).
- Healthcare providers should order testing for all endemic arboviruses when patients present with suspected arboviral disease. These include West Nile virus (WNV), eastern equine encephalitis virus (EEEV), California serogroup/La Crosse virus (LACV) and St. Louis encephalitis virus (SLEV).
- Healthcare providers should obtain a thorough travel history for the two weeks prior to the patient's illness onset and consider other arboviral disease endemic in those regions.
- Laboratories should submit specimens with positive or equivocal evidence of serum IgM for one or more arboviruses to the Indiana Department of Health (IDOH) Laboratories for confirmatory testing.
- Arboviral diseases are immediately reportable to the local health department of the county where the patient resides ([410 IAC 1-2.5-75](#)).

Epidemiology

Although arboviral diseases are most common in the late summer months, they can occur any time during the mosquito season, which in Indiana is usually from May through October. Risk for arboviral diseases is present throughout the state and these diagnoses should be considered regardless of where the patient resides.

WNV is the most common arboviral disease reported in Indiana. In 2019 and 2020, large regional outbreaks of EEEV disease occurred in northern Indiana and southern Michigan, prompting IDOH to coordinate aerial application of pesticide for emergency adult mosquito control. Cases of CAL serogroup viral disease (including LACV) are sporadically reported, with a loose regional focus in southeastern Indiana. While SLEV was once commonly reported in Indiana and remains endemic in the United States, no Indiana SLEV disease cases have been reported in the last 10 years.

The table on the next page lists the age groups highest at risk for severe disease when infected with each of the mosquito-borne diseases endemic in Indiana.

	WNV	EEEV	CAL serogroup	SLEV
Highest risk age group	> 60 yr	< 15 and > 50 yr	< 16 yr	> 55 yr

Clinical presentation

Healthcare providers are encouraged to consider arboviral diseases in patients with febrile illness and/or neuroinvasive presentations. Many cases of arboviral disease begin with non-specific flu-like symptoms, including fever, headache, chills and myalgia. This illness may progress to encephalitis, meningitis, paralysis, or other central nervous system manifestations.

Diagnosis

Preliminary diagnosis of arboviral disease is based on the patient’s clinical presentation and exposure history, the time of year, and the current epidemiology of arboviral disease. Initial laboratory screening for arboviral disease is typically done by serologic testing for virus-specific IgM antibodies. IDOH recommends that healthcare providers order serologic tests for all endemic arboviruses in patients with clinically compatible illness. Healthcare providers should obtain a thorough travel history for the two weeks prior to the patient’s illness onset and also consider other arboviral diseases endemic in those regions.

Because some arboviruses can exhibit cross-reactivity on serologic tests, IDOH requests that specimens be forwarded for confirmatory testing in any patient with a positive or equivocal serum arboviral IgM test. IDOH will then coordinate plaque reduction neutralization testing (PRNT) at the Centers for Disease Control and Prevention (CDC) to confirm the acute infection and determine the specific infecting virus.

Tests to detect viral RNA (e.g., reverse transcriptase-polymerase chain reaction [RT-PCR]) can be performed on serum, CSF, and tissue specimens that are collected early in the course of illness and, if results are positive, can confirm an infection without PRNT testing.

Treatment

No human vaccine or specific antiviral treatment is available for the arboviral diseases that are endemic in Indiana. Patients with suspected arboviral disease should be evaluated by a healthcare provider and provided supportive treatment.

For more information

- IDOH Zoonotic and Vector-Borne Disease Program website:
<https://www.in.gov/health/erc/zoonotic-and-vectorborne-epidemiology-entomology/diseases/>

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