

# 2023 Pennsylvania West Nile and Other Arbovirus Testing Guidance

**When to consider West Nile virus (WNV) or other Arbovirus (such as Eastern equine encephalitis virus, St. Louis encephalitis virus, Jamestown Canyon virus, La Crosse encephalitis virus, Zika virus, dengue virus, chikungunya virus, Powassan virus, Heartland virus, Bourbon virus) testing for your patient:**

Remember to ask about each patient's recent (past three weeks) travel history and potential exposures, as this can help determine for which arbovirus to test. The following clinical syndromes presenting during summer months (see exception on Powassan below) among patients with no recent travel history should prompt consideration for WNV testing:

## **1. Viral encephalitis, characterized by:**

- a. Fever  $\geq 38^{\circ}\text{C}$  or  $\geq 100.4^{\circ}\text{F}$
- b. CNS involvement, including altered mental status (altered level of consciousness, confusion, agitation, or lethargy) 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<sup>3</sup> and/or elevated protein level [ $>40\text{mg/dl}$ ]).

## **2. Viral meningitis, characterized by:**

- a. Fever  $\geq 38^{\circ}\text{C}$  or  $\geq 100.4^{\circ}\text{F}$
- b. Headache, stiff neck and/or other meningeal signs, 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<sup>3</sup> 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 reported in association with WNV.

## **4. Unexplained febrile illness:**

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

Consider Powassan testing, especially if there are symptoms above outside of the mosquito season which runs May through October in Pennsylvania, or if patient mentions exposure to a tick bite. Please note, deer ticks are common in Pennsylvania and people often do not notice they've been bitten. Powassan should not be excluded from consideration if a person does not recall a tick bite and if symptoms are compatible.

In addition to other more common causes of encephalitis and septic meningitis (e.g., herpes simplex virus and enteroviruses), other arboviruses (e.g., Eastern equine Encephalitis virus, St. Louis encephalitis virus, Jamestown Canyon virus, La Crosse Encephalitis virus, Powassan, Heartland, or Bourbon viruses) should also be considered in the differential etiology of suspected WNV illness. 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.

## Who tests for West Nile and other arboviruses?

The Pennsylvania Department of Health, Bureau of Laboratories (BOL) can perform IgM and IgG testing for West Nile virus. The Centers for Disease Control and Prevention (CDC) can perform PCR and IgM/IgG testing for all other arboviruses including Eastern equine encephalitis virus, St. Louis encephalitis virus, Jamestown Canyon virus, La Crosse encephalitis virus, Powassan virus, Heartland virus, Bourbon virus.

Several commercial labs also test for arboviruses including ARUP (Associated Regional and University Pathologists), LabCorp, Mayo Clinic, and Quest Diagnostics.

Any testing requests for CDC must be sent through BOL first (see below for instructions on shipping).

## Where do I send the specimen for testing?

For sending a specimen for testing at BOL or CDC (through BOL), follow the arbovirus specimen collection and submission instructions here:

<https://www.health.pa.gov/topics/Labs/Pages/West-Nile.aspx>

## Does BOL test for travel related arboviruses such as Zika, chikungunya, and dengue?

BOL can perform PCR testing for Zika, chikungunya, and dengue viruses. Antibody testing for these viruses can be performed at commercial labs. For requesting chikungunya and dengue testing at BOL, please fill out the [BOL West Nile Virus and Other Arboviruses form](#).

For requesting Zika testing, please fill out the [Zika Virus Specimen Submission form](#) and see the CDC guidance on the latest [testing guidelines for Zika](#).

## What are the vectors of these diseases?



**Mosquito**

West Nile virus  
Eastern equine encephalitis virus  
St. Louis encephalitis virus  
Jamestown Canyon virus  
La Crosse encephalitis virus  
Zika virus  
dengue virus  
chikungunya virus



**Tick**

Powassan virus/Deer tick virus  
Heartland virus  
Bourbon virus

For more information on these vectorborne diseases, visit the Pennsylvania Department of Health's [vectorborne disease website](#).

