West Nile Virus (WNV) Diagnosis

### Potential Exposures to WNV
- Mosquitoes
- Blood transfusion
- Organ transplantation
- Laboratory
- Mother to baby

### Risk Factors for Severe WNV Disease
- Age ≥ 60 Years
- Hypertension
- Diabetes
- Cancer
- Chronic kidney disease
- Alcohol use disorder
- Immunosuppressive drugs or conditions

### Suspected WNV Disease
- **Patient presents with fever and recent exposure (within 2–6 days, up to 14 days)***: Suspected WNV disease
- **WNV Fever**: (20–30% of infections); fever, headache, fatigue, myalgia, nausea, vomiting, occasional rash
- **WNV Neuroinvasive Disease**: (<1% of infections, 10% fatality)
  - **Acute Flaccid Myelitis**: (viral infection of anterior horn cells; 24–48 hours after fever onset); asymmetrical limb weakness, risk of respiratory failure
  - **Meningitis**: headache, neck stiffness, photophobia
  - **Encephalitis**: altered mental status, lethargy, seizures, focal neurologic deficits, movement disorders

### Other Possible Complications (rare):
- Myocarditis
- Rhabdomyolysis
- Optic neuritis
- Uveitis
- Chorioretinitis
- Orchitis
- Pancreatitis
- Hepatitis

### Guillain-Barré Syndrome:
- (immune-mediated demyelinating peripheral neuropathy; 1–8 weeks after infection); symmetrical, ascending weakness, sensory loss, painful paresthesias
Diagnostic Testing Algorithm

Suspected WNV Disease

Is the patient immunocompromised?†

YES  NO

WNV RT-PCR + IgM on serum (and CSF if neurologic symptoms present)

WNV RNA detected?

NO

WNV IgM on serum (and CSF if neurologic symptoms present)

WNV IgM detected?

NO

Repeat IgM on or after day 8 of illness

YES

WNV IgM detected?

YES

WNV Disease

NO

CONFIRMATORY TESTING NEEDED?‡

YES

WNV neutralizing antibodies detected?

YES

Alternative Diagnosis

NO

WNV Disease

WNV IgM can usually be performed at commercial or state public health laboratories. Contact your state or local health department to request specialized testing or if you suspect an unusual route of transmission.

Footnotes

* Symptom onset may be up to 5 weeks following organ transplantation.
† Viral RNA is usually negative by the time patients present with symptoms; however, immunocompromised patients can have prolonged viremia and delayed antibody responses. If patient is on a B-cell depleting immunotherapy (e.g., rituximab), initial testing with WNV RT-PCR is recommended. Patient on B-cell depleting immunotherapies often cannot mount an antibody response, even up to 12 months after discontinuing the drug.
‡ Indications for confirmatory testing by plaque reduction neutralization test (PRNT): possible exposure to cross-reactive flaviviruses (e.g., St. Louis encephalitis virus, dengue virus); atypical or unusually severe presentation or death; suspected unusual route of transmission (e.g., organ transplant, blood transfusion, laboratory); presentation outside of the typical arboviral season (i.e., April–October).