

New Mexico Department of Health (NMDOH) Epidemiology and Response Division
New Mexico Scientific Laboratory Division (SLD)
Diagnosis and Laboratory Testing for West Nile Virus Infection
Recommendations for Medical Providers
5/26/05

Surveillance by the New Mexico Department of Health, physicians, veterinarians and local mosquito control agencies demonstrated significant West Nile virus (WNV) activity in most New Mexico counties last year. Female mosquitoes (mainly of the *Culex* genus) can over-winter and remain infected with the virus so it is expected that WNV will be found in most New Mexico counties again this year.

Clinical Presentation

Most WNV infections (80%) are clinically inapparent. The majority of symptomatic infections will be characterized by a mild-moderate febrile illness with headache, myalgia, and occasionally a rash. Neurological involvement (i.e., neuroinvasive disease) may include meningitis, encephalitis or a myelitis presenting as an acute, asymmetric flaccid paralysis.

Diagnostic Testing

- The most efficient diagnostic method is detection of IgM antibody to WNV in serum or cerebrospinal fluid (CSF).
- Demonstration of WNV IgM antibody in CSF is considered diagnostic confirmation of WNV infection and strongly suggests central nervous system infection.
- Demonstration of WNV IgM antibody in serum is diagnostic, however, false positives and cross-reactions can occur especially in patients recently vaccinated against or infected with related flaviviruses (e.g., St. Louis, yellow fever, Japanese encephalitis, dengue).
- **WNV-specific IgM in serum has been shown to persist in some patients >500 days after primary infection.** Positive serologic tests must be considered in relation to clinical presentation. NMDOH estimates that approximately 1% of New Mexico residents will have detectable WNV-specific IgM from a previous infection.
- **Due to low specificity, WNV IgG antibody tests are not useful in the diagnosis of acute WNV infection. A WNV IgG positive test result, either alone or in conjunction with a negative WNV IgM test, is not diagnostic for acute infections and is NOT considered a case of WNV.**

Considerations for when to test for WNV:

1. Encephalitis cases of unknown etiology.
2. Patients with acute flaccid paralysis, myelitis or neurological symptoms following a febrile illness.
3. Patients with onset of compatible illness within 2 weeks of receiving blood products.
4. Pregnant or breast-feeding women with a compatible febrile illness and exposure history.
5. Aseptic meningitis cases of unknown etiology, although at this time of year, many such cases are caused by enteroviruses. CSF testing by PCR for enterovirus is recommended. **The Scientific Laboratory Division (SLD) will not do testing for enteroviruses.**
6. Clinically compatible illness during transmission season. Providers should consider the clinical value in testing patients with mild fevers of unknown origin in the absence of neurological signs. **NMDOH and SLD will not test these patients, but testing at private commercial laboratories is available using reliable assays.**
 - **NMDOH does NOT recommend WNV testing of asymptomatic persons concerned about exposure, mild uncomplicated febrile illness, or screening of asymptomatic pregnant or breast-feeding women.**

Referring Specimens to New Mexico Department of Health (NMDOH) For West Nile Virus Testing

1. Clinicians **MUST** first consult with NMDOH Epidemiology and Response Division for WNV testing at the Scientific Laboratory Division (SLD).

Please call us to discuss the case and the need for testing before directing your laboratory to submit specimens. To refer suspected cases, call **505-827-0006** and fax a completed case report form to **505-827-0013**. **Patient specimens will not be processed by SLD unless first approved by the Epidemiology and Response Division.**

Several private commercial laboratories provide WNV testing using reliable assays. There will be a cost charged to the patient for testing at these laboratories.

2. Specimens will be accepted for testing at SLD from patients with any of the following clinical syndromes:

A. Viral Encephalitis:

- Encephalopathy (depressed or altered level of consciousness, lethargy, or personality change), and one or more of the following:
- Fever ($T \geq 38^{\circ}\text{C}$), seizure(s), focal neurologic findings, CSF pleocytosis, abnormal EEG, abnormal neuroimaging.

B. Aseptic meningitis:

- Fever ($T \geq 38^{\circ}\text{C}$)
- Headache, stiff neck and/or other meningeal signs
- Abnormal CSF profile suggesting viral etiology (negative bacterial stain and culture; pleocytosis; elevated total protein)

C. Acute Flaccid Paralysis Syndrome (atypical Guillain-Barré Syndrome)

- Acute asymmetric motor deficits (weakness) with
- Fever ($T \geq 38^{\circ}\text{C}$) and/or CSF pleocytosis

3. What specimens to send:

- CSF: ~2 ml. Store frozen. All CSF specimens should be accompanied by serum specimens.
- Serum: 5-10 ml of blood in red top tube, spun, separated, and stored refrigerated. OR
- Serum: 5-10 ml of blood in marbled top serum separator tube stored refrigerated.

Label specimens with patient's name, date of birth, date of specimen collection, and specimen type.

SEND SPECIMENS TO:

**New Mexico Department of Health
Scientific Laboratory Division
700 Camino de Salud NE – PO Box 4700
Albuquerque, NM 87196-4700
Virology (505) 841 – 2535**

INCLUDE A COMPLETED SLD SUBMISSION FORM REQUESTING SEROLOGIC TESTING FOR WNV (WRITE IN UNDER "OTHER")