



Technical Bulletin

Division of Public and Behavioral Health



Date: June 7, 2017

Topic: West Nile Virus: Update for Healthcare Providers

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To: Health Care Providers and Medical Facilities

Current Situation:

Arthropod-borne viruses (arboviruses) are transmitted to humans primarily through the bites of infected mosquitoes and ticks. The leading cause of domestically acquired arboviral disease in the United States is West Nile Virus (WNV). Humans most commonly become infected with WNV when bitten by an infected mosquito. As an atypical wet season is coming to an end in Nevada and temperatures are beginning to rise, mosquito activity is expected to increase. This increase in mosquito activity is expected to result in an increase in WNV transmission. To date in 2017, there has been one reported human case of WNV in Nevada. This case occurred in Clark County, was an adult over the age of 50, and had the neuroinvasive form of the disease.

Clinical Description:

- The incubation period for WNV disease is typically 2 to 6 days but ranges from 2 to 14 days and can be several weeks in immunocompromised people.
- An estimated 70-80% of human WNV infections are subclinical or asymptomatic.
- Most symptomatic persons experience an acute systemic febrile illness that often includes headache, weakness, myalgia, or arthralgia; gastrointestinal symptoms and a transient maculopapular rash also are commonly reported.
- Less than 1% of infected persons develop neuroinvasive disease, which typically manifests as meningitis, encephalitis, or acute flaccid paralysis.

Diagnosis:

WNV disease should be considered in the differential diagnosis of febrile or acute neurologic illnesses associated with recent exposure to mosquitoes, blood transfusion or organ transplantation, and of illnesses in neonates whose mothers were infected with WNV during pregnancy or while breastfeeding.

- Diagnosis is typically made by testing serum or CSF for the detection of IgM antibody by using the Enzyme Immunoassay (EIA) method. WNV-specific IgM antibodies are usually detectable 3 to 8 days after onset of illness and persist for 30 to 90 days, but longer persistence has been documented. Therefore, positive IgM antibodies occasionally may reflect a past infection. If serum is collected within 8 days of illness onset, the absence of detectable virus-specific IgM does not rule out the diagnosis of WNV infection, and the test may need to be repeated on a later sample.
- IgG antibody generally is detectable shortly after the appearance of IgM and persists for years. A fourfold or greater rise in neutralizing antibody titer between acute- and convalescent-phase serum specimens collected 2 to 3 weeks apart may be used to confirm recent WNV infection and to discriminate between cross-reacting antibodies from closely related flaviviruses.
- Patients who have been recently vaccinated against or recently infected with related flaviviruses (e.g., St. Louis encephalitis, Zika viruses, yellow fever, Japanese encephalitis, dengue, etc.) may have positive WNV results.

- WNV tests are available through Labcorp, Quest, and ARUP. The Nevada State Public Health Laboratory (NSPHL) performs WNV antibody testing on serum only. CSF specimens for WNV can be sent by the NSPHL to the California State Health Laboratory for testing.

Required Specimens:

- Acute and Convalescent Serum: ≥ 2cc (red-top tube) – Send refrigerated
- Cerebrospinal fluid (CSF): 1-2 cc if lumbar puncture is performed.

Treatment:

- No specific treatment is available for WNV disease. Clinical management is supportive 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 intracranial pressure and seizures. Patients with encephalitis or poliomyelitis should be monitored for inability to protect their airway. Acute neuromuscular respiratory failure may develop rapidly and prolonged ventilatory support may be required.

Education:

Please educated your patients, family and friends about WNV prevention

- **Use insect repellents when you go outdoors.** Repellents containing DEET, picaridin, IR3535, and some oil of lemon eucalyptus and para-menthane-diol products provide longer-lasting protection. Repellents should be used according to the label instructions.
- **Take extra care during peak mosquito biting hours.** Take extra care to use repellent and wear long sleeves, long pants, and socks when outdoors from dusk to dawn. Consider staying indoors during these times.
- **Mosquito-Proof Your Home:**
 - Install or repair screens on windows and doors to keep mosquitoes outside. Use your air conditioning, if you have it.
 - Help reduce the number of mosquitoes around your home by emptying standing water from flowerpots, gutters, buckets, pool covers, pet water dishes, discarded tires, and birdbaths on a regular basis.

Reporting: All human WNV cases are required to be reported to the Nevada Division of Public and Behavioral Health (DPBH). When reporting a WNV case, please use the *Confidential Morbidity Report* form:


[http://dphh.nv.gov/Programs/OPHIE/dta/Forms/Public_Health_Informatics_and_Epidemiology_\(OPHIE\)_-_Forms/](http://dphh.nv.gov/Programs/OPHIE/dta/Forms/Public_Health_Informatics_and_Epidemiology_(OPHIE)_-_Forms/)

For More Information: Please contact DPBH M-F 8:00 AM to 5:00 PM at (775)684-5911. The after-hours line can be contacted at (775)-400-0333. WNV virus specific information can be found at

<https://www.cdc.gov/westnile/healthcareproviders/index.html>



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This information was retrieved from the Centers for Disease Control and Prevention:
<https://www.cdc.gov/westnile/>