

West Nile Virus (WNV) Technical Bulletin for Health Care Providers

General Description

- West Nile Virus (WNV) is a seasonal infection that usually begins in June and continues through October with a peak incidence usually in August.
- Most persons who become infected with WNV develop no clinical illness or symptoms.
- The incubation period for WNV infection is thought to range from about 2 to 14 days, and up to 21 days in immunosuppressed persons.
- WNV should be considered in the differential diagnosis for persons with febrile illness or neuroinvasive disease who have recently been in an area with active mosquito activity.

Clinical Manifestations

A. West Nile Fever

West Nile Fever requires, at minimum, the presence of a documented fever, as measured by the patient or clinician, the absence of neuroinvasive disease (see below), and the absence of a more likely clinical explanation for the illness. Involvement of non-neurological organs (e.g. heart, pancreas, liver) should be documented using standard clinical and laboratory criteria.

B. Neuroinvasive Disease (West Nile Meningitis and Encephalitis)

Neuroinvasive disease requires the presence of fever and at least one of the following, in the absence of a more likely clinical explanation:

- Acutely altered mental status (e.g. disorientation, obtundation, stupor, or coma), **OR**
- Other acute signs of central or peripheral neurologic dysfunction (e.g., paresis or paralysis, nerve palsies, sensory deficits, abnormal reflexes, generalized convulsions, or abnormal movements), **OR**
- Pleocytosis (increased white blood cell concentration in cerebrospinal fluid [CSF]) associated with illness clinically compatible with meningitis (e.g., headache or stiff neck).

C. Other Clinical Manifestations

A small subset of symptomatic patients show laboratory evidence of infection (see below) but do not meet the clinical descriptions of West Nile Fever or Neuroinvasive disease described above. For example, laboratory-confirmed acute WNV cases showing malaise and headache without fever or Neuroinvasive disease, and without another known case of illness, would fall under this category. These cases should be reported as West Nile Virus (other clinical manifestations).

Laboratory Tests and Procedures Used In the Diagnosis of West Nile Infection

Laboratory Diagnosis of West Nile Infection:

Laboratory specimens should preferably be collected within 8 to 14 days of illness onset or within 8 days of illness for CSF specimens. A person is considered to be infected if any of the following are found:

- Four-fold or greater virus-specific serum antibody titer, **OR**
- Isolation of virus from or demonstration of specific viral antigen or genomic sequences in tissue, blood, cerebrospinal fluid (CSF), or other body fluid, **OR**
- Elevated virus-specific immunoglobulin (IgG) antibodies in the acute or convalescent serum specimen as measured by VN or HI, or IgG enzyme immunoassay (EIA), **OR**
- Virus-specific immunoglobulin M (IgM) antibodies demonstrated in serum by IgM antibody-capture enzyme immunoassay (EIA). If IgM antibody is detected in CSF, this strongly suggests central nervous system infection since IgM does not cross the blood-brain barrier.

Other tests/procedures associated with West Nile Infection:

- Total leukocyte counts in peripheral blood are mostly normal or elevated with lymphocytopenia and anemia.
- Hyponatremia is sometimes present, particularly among patients with encephalitis.
- Examination of the cerebrospinal fluid (CSF) shows pleocytosis, usually with a predominance of lymphocytes. Protein is elevated and glucose is normal.
- Computerized tomography is not useful in the diagnosis of WNV infection, but is useful in excluding other etiologies of acute meningoencephalitis.
- Magnetic Resonance Imaging (MRI) is effective but will yield nonspecific abnormal results in only 25% to 35% of cases.

Further Information

Reporting of Cases:

- Clark County: 702-759-1300
- Washoe County: 775-328-2447
- Carson City, Douglas, Lyon Counties: 775-887-2190
- All Other Counties or States: 775-684-5911

Centers for Disease Control and Prevention:

<http://www.cdc.gov/ncidod/dvbid/westnile/index.htm>

US Geological Survey:

http://diseasemaps.usgs.gov/wnv_us_human.html