

This is an official  
**DHEC Health Advisory**

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10421-DHA-10-04-2018-WNV

## Public Health Surveillance and Laboratory Testing for West Nile Virus, 2018

### Summary

This SC DHEC Health Advisory is provided as guidance to clinicians for West Nile Virus (WNV) testing, the criteria for testing and specimen requirements for WNV testing performed by the SC DHEC Public Health Laboratory (PHL). Residents or visitors to affected regions who develop WNV signs or symptomatology (see below) are encouraged to seek medical evaluation.

### Background

Human cases of WNV are reported each year. WNV is endemic to both the US and South Carolina. Typically, the majority of cases report illness onsets in August through September; however, illness has been reported as late as November. For 2018, SC DHEC has received reports of 11 individuals testing positive for West Nile Virus. Eight individuals were symptomatic while three cases were detected by positive tests through routine blood donation screening. Of the 11 cases, four have been reported from the Pee Dee region and seven have been reported from the Upstate. There has been one West Nile Virus related death this year.

DHEC and local officials are aware of West Nile virus-positive horse and birds in Abbeville, Anderson, Cherokee, Chesterfield, Florence, Greenville, Horry, Lancaster, Laurens, Pickens, Richland, Spartanburg, and Union counties. The State Public Health Entomologist and local mosquito control agencies are taking appropriate measures to reduce the risk of transmission in areas where West Nile virus has been detected.

### WNV Clinical Manifestations

The incubation period for WNV disease is typically 2 to 6 days but ranges from 2 to 14 days and may be up to several weeks in immunocompromised people.

#### **Asymptomatic:**

Most people (up to 80%) who are infected with WNV remain **asymptomatic**.

### **West Nile Fever:**

Approximately 20% usually develop West Nile Fever. Most of these patients can be treated supportively and do not require hospitalization.

- Common symptoms of West Nile Fever are:
  - Fever
  - Headache
  - Fatigue
  - Myalgia or arthralgia
- Occasional symptoms of West Nile Fever are:
  - Truncal Rash
  - Eye Pain
  - Lymphadenopathy
  - GI symptoms

### **Neuroinvasive West Nile Disease:**

Very few patients (<1%) develop neuroinvasive WNV disease, which includes meningitis, encephalitis, and meningoencephalitis. These are usually indistinguishable from similar syndromes caused by other viruses.

Severe neurologic disease due to WNV infection has occurred in persons of all ages, and because year-round transmission is possible in southern states, WNV should always be considered in persons with unexplained encephalitis and meningitis.

- **West Nile meningitis:**  
Symptoms include fever, headache, and nuchal rigidity. CSF pleocytosis is present with a predominance of lymphocytes. Protein is elevated and glucose is normal.
- **West Nile encephalitis:**  
The most severe form of neuroinvasive WNV disease; involves fever and headache with more global neurological symptoms, such as:
  - Altered mental status
  - Confusion
  - Somnolence
  - Coma
  - Focal neurological deficits such as limb paralysis or cranial nerve palsies
  - Tremors, movement disorders
- **West Nile poliomyelitis:**  
**A flaccid paralysis syndrome associated with WNV infection; less common than meningitis or encephalitis.**

*It is important to note that headache alone is not a useful indicator of neuroinvasive disease since it is also a key finding in WNV Fever.*

### **Testing for West Nile Virus**

- Clinicians should include WNV in a differential diagnosis in anyone with a history of travel to an affected area of South Carolina who presents with a febrile illness.
- Any patient who is hospitalized for meningitis, encephalitis or meningoencephalitis that is not secondary to a bacterial, fungal or amoebic etiology should be tested for WNV. If WNV results are negative, testing for other arboviral illnesses is recommended.

- The most efficient diagnostic method is detection of IgM antibody to WNV in serum collected within 8 to 14 days of illness, or IgM antibody in CSF collected within 8 days of illness onset.
- A negative serum IgM result for WNV that is collected early, within 8 days of illness onset, does not definitively rule out the diagnosis of WNV infection. If the clinician's index of suspicion is high for WNV infection, the test should be repeated on a later sample.
- A single serum or CSF IgG is not indicated for the diagnosis of acute disease and should not be performed. However, a four-fold increase in IgG antibody titer between paired acute and convalescent serum samples can be used to confirm recent WNV infection. IgG testing for WNV is not available by the DHEC PHL.
- PCR is not usually used in the diagnosis of WNV in humans and is not offered by the DHEC Public Health Laboratory. PCR has limited usefulness due to the low and transient viremia associated with WNV and has a sensitivity of only about 50%.
- Patients who have given blood and are NAT (nucleic acid amplification test) positive for WNV RNA who are not symptomatic should not be tested for WNV via serology.

## References and Additional Information

- CDC West Nile virus information page: <https://www.cdc.gov/westnile/index.html>
- DHEC For Health Care Professionals – West Nile virus: <http://www.scdhec.gov/Health/FHPF/DiseaseResourcesforHealthcareProviders/WestNileVirusClinical/>
- DHEC West Nile virus information page: <http://www.scdhec.gov/westnile/>

## DHEC Contact Information for Reportable Diseases and Reporting Requirements

Reporting of West Nile Virus disease is consistent with South Carolina Law requiring the reporting of diseases and conditions to your state or local public health department. (State Law # 44-29-10 and Regulation # 61-20) as per the DHEC 2018 List of Reportable Conditions available at:

<https://www.scdhec.gov/sites/default/files/Library/CR-009025.pdf>

Federal HIPAA legislation allows disclosure of protected health information, without consent of the individual, to public health authorities to collect and receive such information for the purpose of preventing or controlling disease. (HIPAA 45 CFR §164.512).

<b>Regional Public Health Offices – 2018</b>			
<b>Mail or call reports to the Epidemiology Office in each Public Health Region</b>			
<b>MAIL TO:</b>			
<b><u>Lowcountry</u></b> 4050 Bridge View Drive, Suite 600 N. Charleston, SC 29405 Fax: (843) 953-0051	<b><u>Midlands</u></b> 2000 Hampton Street Columbia, SC 29204 Fax: (803) 576-2993	<b><u>Pee Dee</u></b> 145 E. Cheves Street Florence, SC 29506 Fax: (843) 661-4859	<b><u>Upstate</u></b> 200 University Ridge Greenville, SC 29602 Fax: (864) 282-4373
<b>CALL TO:</b>			
<b><u>Lowcountry</u></b> <b>Berkeley, Charleston, Dorchester</b> Phone: (843) 953-0043 Nights/Weekends: (843) 441-1091  <b>Beaufort, Colleton, Hampton, Jasper</b> Phone: (843) 322-2453 Nights/Weekends: (843) 441-1091  <b>Allendale, Bamberg, Calhoun, Orangeburg</b> Phone: (803) 268-5833 Nights/Weekends: (843) 441-1091	<b><u>Midlands</u></b> <b>Kershaw, Lexington, Newberry, Richland</b> Phone: (803) 576-2749 Nights/Weekends: (888) 801-1046  <b>Chester, Fairfield, Lancaster, York</b> Phone: (803) 286-9948 Nights/Weekends: (888) 801-1046  <b>Aiken, Barnwell, Edgefield, Saluda</b> Phone: (803) 642-1618 Nights/Weekends: (888) 801-1046	<b><u>Pee Dee</u></b> <b>Chesterfield, Darlington, Dillon, Florence, Marlboro, Marion</b> Phone: (843) 661-4830 Nights/Weekends: (843) 915-8845  <b>Clarendon, Lee, Sumter</b> Phone: (803) 773-5511 Nights/Weekends: (843) 915-8845  <b>Georgetown, Horry, Williamsburg</b> Phone: (843) 915-8804 Nights/Weekends: (843) 915-8845	<b><u>Upstate</u></b> <b>Anderson, Oconee</b> Phone: (864) 260-5581 Nights/Weekends: (866) 298-4442  <b>Abbeville, Greenwood, McCormick</b> Phone: (864) 260-5581 Nights/Weekends: (866) 298-4442  <b>Cherokee, Greenville, Laurens, Pickens, Spartanburg, Union</b> Phone: (864) 372-3133 Nights/Weekends: (866) 298-4442
<p><b>For information on reportable conditions, see</b>  <a href="https://www.scdhec.gov/health-professionals/report-diseases-adverse-events/south-carolina-list-reportable-conditions">https://www.scdhec.gov/health-professionals/report-diseases-adverse-events/south-carolina-list-reportable-conditions</a></p>		<p><b><u>DHEC Bureau of Disease Control</u></b>  <b>Division of Acute Disease Epidemiology</b>                  2100 Bull St • Columbia, SC 29201                  Phone: (803) 898-0861 • Fax: (803) 898-0897                  Nights / Weekends: 1-888-847-0902</p>	

Categories of Health Alert messages:

<b>Health Alert</b>	Conveys the highest level of importance; warrants immediate action or attention.
<b>Health Advisory</b>	Provides important information for a specific incident or situation; may not require immediate action.
<b>Health Update</b>	Provides updated information regarding an incident or situation; unlikely to require immediate action.
<b>Info Service</b>	Provides general information that is not necessarily considered to be of an emergent nature.