

**Center for Policy, Planning and Evaluation
Division of Epidemiology–Disease Surveillance and Investigation**

August 6, 2018

**Health Notice for District of Columbia Health Care Providers
West Nile virus updates**

SUMMARY

During the first week of July 2018, the DC Department of Health (DC Health) mosquito surveillance program detected mosquitoes carrying West Nile virus for the first time this summer and has continued to detect positive mosquitoes every week since. These mosquitoes were first found at approximately the same time of year West Nile virus was detected in DC mosquitoes last year and fits with our expected annual trend. However, with the incubation period for West Nile virus ranging from 2 to 14 days please keep West Nile virus in your differential diagnosis list moving forward if you have unexplained cases of encephalitis or meningitis. Furthermore, on July 20, 2018, the first confirmed case of West Nile virus occurred in a DC resident. This first diagnosis also fits with our expected seasonal trend of human cases. In 2017 four human cases were diagnosed with the first occurring on July 9, 2017.

In this notice, we describe the infectivity rate, symptoms, testing recommendations and interpretations, and how to report cases to DC Health. Please share this notice with all appropriate staff at your facility.

SYMPTOMS OF MILD ILLNESS

Most people (8 out of 10) infected with West Nile virus do not develop any symptoms. About 1 in 5 people who are infected develop a fever with other symptoms such as headache, body aches, joint pains, vomiting, diarrhea, or rash. Most people with this type of West Nile virus disease recover completely, but fatigue and weakness can last for weeks or months.

SYMPTOMS OF SERIOUS ILLNESS

About 1 in 150 people who are infected develop a severe illness affecting the central nervous system such as encephalitis (inflammation of the brain) or meningitis (inflammation of the membranes that surround the brain and spinal cord).

- Symptoms of severe illness include high fever, headache, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, vision loss, numbness and paralysis.
- Severe illness can occur in people of any age; however, people over 60 years of age are at greater risk. People with certain medical conditions, such as cancer, diabetes, hypertension, kidney disease, and people who have received organ transplants, are also at greater risk.
- Recovery from severe illness might take several weeks or months. Some effects to the central nervous system might be permanent.
- About 1 out of 10 people who develop severe illness affecting the central nervous system die.

CLINICAL TEST RESULT INTERPRETATION CONSIDERATIONS

Laboratory diagnosis is generally accomplished by testing of serum or cerebrospinal fluid (CSF) to detect WNV-specific IgM antibodies. Immunoassays for WNV-specific IgM are available commercially and through some public health laboratories. When interpreting West Nile virus test results please consider the following:

- **Serologic cross-reactivity:** In some instances, arboviruses from the same genus produce cross-reactive antibodies. In geographic areas where two or more closely-related arboviruses occur, serologic testing for more than one virus may be needed and results compared to determine the specific causative virus. For example, such testing might be needed to distinguish antibodies resulting from infections within genera, e.g., flaviviruses such as West Nile, St. Louis encephalitis, Powassan, dengue, or Japanese encephalitis viruses.
- **Rise and fall of IgM antibodies:** For most arboviral infections, IgM antibodies are generally first detectable at 3 to 8 days after onset of illness and persist for 30 to 90 days, but longer persistence has been documented (e.g., up to 500 days for West Nile virus). Serum collected within 8 days of illness onset may not have detectable IgM and testing should be repeated on a convalescent-phase sample to rule out arboviral infection in those with a compatible clinical syndrome.
- **Persistence of IgM antibodies:** Arboviral IgM antibodies may be detected in some patients months or years after their acute infection. Therefore, the presence of these virus-specific IgM antibodies may signify a past infection and be unrelated to the current acute illness. Finding virus-specific IgM antibodies in CSF or a fourfold or greater change in virus-specific antibody titers between acute- and convalescent-phase serum specimens provides additional laboratory evidence that the arbovirus was the likely cause of the patient's recent illness. Clinical and epidemiologic history also should be carefully considered.
- **Persistence of IgG and neutralizing antibodies:** Arboviral IgG and neutralizing antibodies can persist for many years following a symptomatic or asymptomatic infection. Therefore, the presence of these antibodies alone is only evidence of previous infection and clinically compatible cases with the presence of IgG, but not IgM, should be evaluated for other etiologic agents.
- **Arboviral serologic assays:** Assays for the detection of IgM and IgG antibodies commonly include enzyme-linked immunosorbent assay (ELISA), microsphere immunoassay (MIA), or immunofluorescence assay (IFA). These assays provide a presumptive diagnosis and should have confirmatory testing performed. Confirmatory testing involves the detection of arboviral-specific neutralizing antibodies utilizing assays such as plaque reduction neutralization test (PRNT).
- **Other information to consider.** Vaccination history, detailed travel history, date of onset of symptoms, and knowledge of potentially cross-reactive arboviruses known to circulate in the geographic area should be considered when interpreting results.

CONFIRMATORY TESTING FOR WEST NILE VIRUS

- 1) **When testing for vector-borne diseases, first line testing should be performed at your facility or a commercial laboratory, depending on your facility’s capabilities. Confirmatory testing is only available through the Centers for Disease Control and Prevention (CDC).**
 - Confirmatory testing will be performed by the CDC in Fort Collins, CO and can take up to four (4) weeks for results.
 - A list of tests available through the CDC can be found [online](#).
 - *In most cases, CDC testing must be preapproved by DC Health before CDC will process and test the sample*
 - *Patient history including travel and date of onset is required for CDC reference tests*
 - To request confirmatory testing for all vector-borne diseases (*other than Zika virus disease*) through the DC PHL submit a [Notifiable Disease and Condition Report Form](#) online (<https://dchealth.dc.gov/service/infectious-diseases>) and select “Yes” when asked the following:

Are you requesting Public Health Laboratory clinical testing (i.e., not for general surveillance)? Yes
Check if requesting

- If testing is approved, facilities are required to complete both a [PHL Test Requisition Form](#) and [PHL Chain of Custody Form](#) (available on the following [webpage](#)). **Samples without these two forms will NOT be accepted.**
- Final laboratory test results will be sent to your facility by secure fax ONLY. Please ensure your secure fax number is always included on paperwork submitted to DC PHL. Please allow three weeks for final results. If the sample needs additional testing at CDC, additional time will be required, however the DC PHL results will be reported to the provider

REPORTING WEST NILE VIRUS CASES TO DC HEALTH

When you suspect or diagnose a case of West Nile virus report it to DC Health within 48 hours of diagnosis by submitting a [Notifiable Disease and Condition Report Form](#) found on our [website](#)

NEW DC HEALTH MOSQUITO-BORNE DISEASE RESOURCES

The new DC Health mosquito-borne disease [webpage](#) was recently launched. On this [page](#) you will find resources for yourself as well as your patients. Additionally, in the next few weeks DC Health mosquito surveillance results will also start to be posted on this [page](#).

**Please contact the DC Health
Division of Epidemiology–Disease Surveillance and Investigation for more information at:**

**Phone: 202-442-9143 (8:15 am-4:45 pm) | 844-493-2652 (after-hours calls)
Fax: 202-442-8060 | Email: mosquito.info@dc.gov**