



NEW YORK CITY DEPARTMENT OF

HEALTH AND MENTAL HYGIENE

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Commissioner

2018 DOHMH Alert #14: West Nile Virus: Detection of First Human Case and Positive Mosquito Pools in 2018

June 29, 2018

Please distribute to staff in the Departments of Internal Medicine, Pediatrics, Family Medicine, Neurology, Infection Control, Infectious Disease, Emergency Medicine, Critical Care, Obstetrics and Gynecology, Oncology and Laboratory Medicine

- **The first case of West Nile virus (WNV) in 2018 has been identified in a Manhattan resident who presented with encephalitis.**
- **WNV has also been detected in mosquitoes in several areas of the city.**
 - **Mosquito activity in New York City usually peaks in July.**
 - **Mosquito precautions should be taken city wide, especially in individuals at higher risk of adverse outcomes of WNV**
- **WNV disease should be suspected in patients presenting with viral meningitis or encephalitis, acute flaccid paralysis, and/or symptoms compatible with West Nile fever, particularly now through October 31.**
 - **The most sensitive screening test for WNV in humans is IgM enzyme immunoassay on cerebrospinal fluid and/or serum. Testing is widely available at commercial laboratories.**
 - **PCR testing, while confirmatory, is less sensitive. However, it may be the best option for patients who are severely immunosuppressed and unable to mount a detectable immune response.**
- **Advise patients, especially adults 50 years and older or persons with weakened immune systems, to protect themselves from mosquito bites.**
- **Report all cases of encephalitis or any laboratory evidence of current or recent infection with WNV or other arboviral infection to the Health Department.**

Dear Colleagues,

The first human case of West Nile virus (WNV) in 2018 was recently reported in a Manhattan resident and the virus has also been detected in mosquitoes collected from multiple areas in the city. You can monitor WNV activity in NYC at <http://www1.nyc.gov/site/doh/health/health-topics/west-nile-virus-activity.page>.

West Nile Virus Activity in Manhattan

A Manhattan resident over the age of 50 was confirmed to have been infected with WNV. The patient developed encephalitis in mid-June and was hospitalized, but has since been discharged. This is the earliest identification of a human case of WNV in NYC since surveillance began in 1999. Across the United States, a total of 10 cases of WNV disease have been reported this year (as of June 26, 2018).

The Health Department has begun widespread larviciding and enhanced mosquito surveillance activities. To date, there have been positive mosquito pools identified in all boroughs but Brooklyn. This emphasizes the need for city-wide mosquito precautions, especially for those at higher risk of adverse outcomes of WNV disease.

West Nile Virus Surveillance and Reporting

The Health Department reminds medical providers to be alert for possible cases of WNV disease now through October 31, the peak adult mosquito season. Consider WNV in any patient with unexplained encephalitis, viral meningitis, or acute flaccid paralysis, as well as in patients with symptoms compatible with West Nile fever, which can include fever, maculopapular rash, headache, fatigue, weakness, joint and muscle pain, as well as nausea, vomiting and diarrhea.

Laboratory Testing

Specimens for serologic testing for WNV should be sent to a commercial laboratory or your hospital laboratory, if available. The most sensitive screening test for WNV in humans is IgM enzyme immunoassay (EIA) on cerebrospinal fluid (CSF) and/or serum. WNV-specific IgM antibodies are usually detectable within 8 days of symptom onset.

Viral RNA testing using polymerase chain reaction (PCR) can be done on CSF and serum but it is less sensitive than the immunoassay. A positive PCR result confirms infection. Always attempt to submit serum for serology when submitting specimens for PCR as a negative PCR does not necessarily rule out infection. PCR testing on CSF, or serum or plasma may be useful for **severely immunocompromised** patients and the only way to diagnose WNV infection in individuals who are unable to mount detectable humoral immune responses. Immunohistochemical (IHC) staining is also available when brain tissue is available. Health care providers wishing to submit CSF from patients with encephalitis to the New York State Wadsworth Center for the viral encephalitis PCR panel must adhere to the submission guidelines, which are available online (links listed below). In special cases, the NYC Health Department can assist with testing or transporting specimens to Wadsworth, e.g., cases potentially due to an unusual source of transmission, such as transfusion, transplant or laboratory exposure.

Updated “Guidelines for West Nile Virus Testing and Reporting Cases of Encephalitis and Viral Meningitis, West Nile and other Arboviral Infections” are attached and also available online at: <http://www1.nyc.gov/assets/doh/downloads/pdf/wnv/wnv-testing-instructions.pdf> . This document includes a list of commercial laboratories that provide West Nile virus serologic testing, viral PCR or viral isolation testing, and links to the Wadsworth Center guidance for submitting CSF and serum for the PCR Viral Encephalitis* and Arboviral Serology* panels.

Viral Encephalitis PCR Summer Panel and Arboviral Serology Screen testing* at Wadsworth Center’s Viral Encephalitis Laboratory (VEL)

PLEASE NOTE: Always attempt to submit serum for serology along with specimens submitted for the Arboviral PCR panel.

Instructions, forms and information for submitting specimens to the Wadsworth Center VEL for viral encephalitis PCR testing can be found at

<http://www.wadsworth.org/programs/id/virology/services/encephalitis>:

- 1) Collection and submission of specimens for viral encephalitis testing

* The PCR Summer Viral Encephalitis Panel includes: *arboviruses (West Nile, St. Louis encephalitis, Eastern equine encephalitis, California serogroup (including La Crosse and Jamestown Canyon), and Cache Valley viruses, adenovirus, cytomegalovirus, Epstein-Barr virus, enterovirus (all serotypes including echovirus and Coxsackie virus, poliovirus and others), herpes simplex viruses 1 and 2, human herpes virus 6, and varicella zoster virus.* Powassan virus is only included upon request. The Arboviral Serology Screen includes: *West Nile, Powassan, Eastern equine encephalitis, Western equine encephalitis, St. Louis encephalitis, California serogroup encephalitis.* Testing for *chikungunya and Zika viruses* is only available upon request and in consultation with the health department.

- 2) Infectious Diseases Requisition Form
- 3) The Wadsworth Center VEL shipping address for viral PCR panel specimens

Zika, Dengue and Chikungunya

Zika, dengue, and chikungunya are three other types of arboviruses commonly diagnosed among NYC residents. These viruses are associated with travel to an endemic area or, for Zika virus, unprotected sex with a person who has traveled to an endemic area. None are associated with encephalitis, but can result in illness similar to West Nile fever in which patients present with fever and rash. For information on recognizing, diagnosing, and reporting these diseases, visit our website at www.nyc.gov/health and search by disease, or click on the following links:

- Zika information for providers: <https://www1.nyc.gov/site/doh/providers/reporting-and-services/zika.page>
- Dengue testing and reporting guidelines: <https://www1.nyc.gov/site/doh/health/health-topics/dengue-fever.page>
- Chikungunya testing and reporting guidelines: <https://www1.nyc.gov/assets/doh/downloads/pdf/cd/chikungunya-testing.pdf>

Reporting to the Health Department:

Encephalitis should be reported routinely throughout the year, as required by law. Arboviral infections, including West Nile virus, with laboratory evidence of recent or current infection should be reported immediately, as required by law. For consultation or to report a case of WNV or other arboviral infections to the NYC Health Department:

- Call the Provider Access Line at 866-692-3641 OR
- Fax the completed Universal Reporting Form to 347-396-2632 OR
- Complete the electronic Universal Reporting Form at: <http://www1.nyc.gov/site/doh/providers/reporting-and-services/reporting-central.page>.

The successful detection and control of WNV in NYC has been due in large part to our Health Department's ongoing excellent partnership with the city's medical and laboratory communities. Thank you for your continuing efforts.

Sincerely,

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