



NEW YORK CITY DEPARTMENT OF
HEALTH AND MENTAL HYGIENE
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2025 Health Advisory #15: West Nile Virus Detected in New York City Mosquitoes

Please distribute to all emergency medicine, infectious disease, internal medicine, family medicine, and neurology staff in your facility.

- New York City (NYC) healthcare providers should remain vigilant for West Nile virus (WNV) disease among New Yorkers during summer months; peak WNV activity is usually during August and September.
- WNV has been detected in 185 pools of mosquitoes collected from all five boroughs this year.
 - The first positive pools were identified on July 1, 2025.
 - No human cases have been reported in NYC so far this year.
- Consider WNV disease in individuals with viral meningitis or encephalitis, acute flaccid myelitis, or symptoms compatible with West Nile fever, now through October.
- Advise people, especially adults 55 years and older and people with weakened immune systems (particularly those on rituximab and other B-cell depleting therapies), to protect themselves from mosquito bites.

July 22, 2025

The purpose of this health advisory is to notify clinicians about West Nile virus (WNV) detection in New York City (NYC) this year, and summarize [clinical presentation](#), [epidemiology](#), [diagnostic testing](#), [treatment and prevention](#), [other mosquito-borne diseases](#), and [case reporting](#). The NYC Health Department has a robust mosquito surveillance, prevention, and control program; details and current WNV surveillance data are available [here](#).

In 2025, WNV has been detected in 185 positive mosquito pools (a pool is a group of up to 50 mosquitoes combined for WNV testing) from the Bronx (23), Brooklyn (9), Manhattan (3), Queens (61), and Staten Island (89); no human cases have been reported in NYC to date this year.

Clinical Presentation

An estimated 70-80% of human WNV infections are subclinical or asymptomatic. Most symptomatic persons experience WNV fever, an acute systemic febrile illness that often includes headache, weakness, myalgia, or arthralgia; gastrointestinal symptoms and a transient maculopapular rash are also common. Less than 1% of infected persons develop West Nile Neuroinvasive Disease (WNND), which typically manifests as meningitis, encephalitis, or acute flaccid myelitis.

People over 55 years of age or with certain medical conditions or treatments that cause immunosuppression, such as diabetes, cancer, and organ transplantation, are at greater risk of WNND. This is especially true for people on rituximab and other B-cell depleting therapies.¹

Consider WNV disease in people with compatible symptoms, especially unexplained encephalitis, viral meningitis, acute flaccid myelitis, or other neurologic manifestations (e.g., Guillain-Barré syndrome).

Epidemiology

Since WNV surveillance in NYC began in 1999, the annual number of WNV-competent mosquitoes trapped and WNV-positive mosquito pools has consistently increased, likely driven by climate change. Shifting precipitation and temperature patterns contribute to increased mosquito reproduction rates and amplification of WNV in mosquitoes.

The incidence of human WNV infections has also been increasing. From 2012 to 2021, an average of 16 NYC residents per year were diagnosed with WNND (range 6-30) with a case fatality rate of 4%. However, from 2022-2024, the average increased to 31 residents per year (range 26-36), with an 8% case fatality rate. For all years, 2012-2024, the median age of people with WNND was 64 years (range 1-95 years). NYC residents with WNND lived in Queens (n=92, 36%), Brooklyn (n=71, 28%), Manhattan (n=42, 16%), Staten Island (n=33, 13%), and the Bronx (n=19, 7%).

Diagnostic Testing

- **IgM enzyme immunoassay (EIA)** on cerebrospinal fluid (CSF) and serum is the most sensitive test for WNV infection. WNV-specific IgM antibodies are usually detectable within 8 days of symptom onset. A positive IgG EIA result with a negative IgM likely indicates past infection or possibly cross reactivity with another flavivirus (e.g., dengue, Zika virus). Ideally, submit CSF and serum specimens (acute and convalescent, which should be collected approximately three weeks apart) for testing if neuroinvasive disease is suspected.
- **PCR** on CSF and serum is less sensitive than IgM EIA but can aid in the diagnosis of people who are severely immunocompromised and unable to mount a detectable humoral immune response. If sending specimens to New York State Wadsworth Center, urine and whole blood are also requested to improve the chance of molecular detection. A positive PCR result confirms infection, but a negative result does not rule it out. When ordering PCR, always request IgM EIA testing concurrently.

Guidance on testing for WNV and other arboviral infections at commercial laboratories and Wadsworth Center, including the PCR panel for people hospitalized with encephalitis, is available [here](#).

¹ Kapadia RK, Staples JE, Gill CA, et al. Severe arboviral neuroinvasive disease in patients on rituximab therapy: a review. *Clin Infect Disease*. 2022; 76(6), 1142-1148. doi.org/10.1093/cid/ciac766

Treatment and Prevention

Treatment: There is no specific treatment for WNV disease; clinical management is supportive. Most people with WNV fever or WNV meningitis recover completely, but fatigue, malaise, and weakness can linger for weeks or months. People with WNV encephalitis or myelitis often have residual neurologic deficits.

Bite precaution: Mosquitoes that carry WNV usually bite around dusk and dawn. Advise people to take [precautions to avoid being bitten](#), including using an [EPA-approved insect repellent](#) and taking steps to reduce mosquitoes in and around their residence.

Blood and organ donation: Although blood and some organ donations are screened for WNV, transmission through blood transfusion or organ transplantation is possible. People with confirmed WNV disease should not donate blood for 4 months after illness.

Other Mosquito-borne Diseases

In New York State: Testing for eastern equine encephalitis (EEE), St. Louis encephalitis, La Crosse encephalitis (LAC), and Jamestown Canyon virus (JCV) is included in the Wadsworth encephalitis PCR panel. These viruses have not been detected in NYC mosquitoes and no human cases have been reported among people in NYC. However, EEE, LAC, and JCV have been detected in mosquitoes and animals in New York counties outside NYC and in other northeast states.

Travel-associated: Dengue, chikungunya, and malaria are mosquito-borne diseases; Oropouche is transmitted primarily by biting midges. All are associated with travel to endemic areas. There are ongoing outbreaks of [dengue](#), [chikungunya](#), and [Oropouche](#) in several countries, particularly in the Americas. [Malaria](#) cases have also been increasing, mainly in sub-Saharan Africa.

Reporting Cases

WNV and other arboviral infections with laboratory evidence of recent or current infection are required to be [reported](#) to the NYC Health Department.

- Laboratories automatically report all positive IgM and PCR arbovirus results.
- Healthcare providers should also report cases suspected to be transmitted through blood transfusion, organ transplantation, or laboratory exposure.

For consultation or to [report a case](#) of WNV or other arboviral infection, call the NYC Health Department Provider Access Line at 866-692-3641.

References

- NYC Health Department
 - [Testing Guidance for West Nile Virus](#)
 - [Mosquitoes](#) (information and resources for general public)
 - [West Nile Virus](#) (mosquito and human data and mosquito control events)
 - [Testing Guidance for Dengue, Chikungunya, Zika, and Oropouche Viruses](#)
 - [Reporting Diseases to the Health Department](#)
- [NYS Wadsworth Center Viral Encephalitis Testing](#)
- [EPA Repellent](#) Search Tool