

## **DELAWARE HEALTH ALERT #520: Delaware's First Human WNV Case in 2024 Identified in New Castle County**

The Delaware Division of Public Health (DPH) is sending this health alert to advise clinicians of the first case of West Nile Virus (WNV) in Delaware in 2024 in a New Castle County resident and to encourage the testing and reporting of this disease.

### **Summary**

- DPH identified the first human WNV case in 2024 in a New Castle County resident on August 28, 2024.
- WNV is a mosquito-borne disease that can, in rare instances, cause serious illness and/or death.
- According to the Centers for Disease Control and Prevention (CDC), about 20% of those infected with the virus will develop fever with mild symptoms (headache, body aches, a skin rash on the chest or back, fatigue, and swollen lymph glands).
- About one in 150 people infected people will develop severe infection (also called neuroinvasive disease). Symptoms of severe WNV infection include headache, high fever, stiff neck, tremors, and muscle weakness. Symptoms may progress to stupor, disorientation, coma, convulsions, paralysis, and, in rare cases, death.
- Older adults and those with weakened immune systems are most at risk.
- Patients suspected of WNV infection (with or without neuroinvasive disease) should be tested via PCR and/or for IgM antibodies to WNV.
- Report any patients with suspected WNV disease or laboratory evidence of WNV by completing the arbovirus case report form at <https://dhss.delaware.gov/dhss/dph/epi/files/ArbovirusesCaseReportForm1.pdf> and emailing it to [reportdisease@delaware.gov](mailto:reportdisease@delaware.gov) or faxing it to 302-622-4149, or by calling the Office of Infectious Disease at 1-888-295-5156.

### **Background**

On August 28, 2024, DPH identified the first human WNV case in 2024 in a New Castle County resident, approximately two weeks earlier than the first WNV case was identified in 2023.

WNV is most commonly spread through the bite of an infected *Culex* mosquito. These mosquitoes bite during dawn and dusk. Cases of West Nile occur during mosquito season, which starts in the summer and continues through mid-October or later until colder temperatures arrive. The virus is rarely transmitted from person-to-person by blood transfusion, organ transplantation, and mother to baby, during pregnancy, delivery, or breastfeeding.

### **Clinical Characteristics**

Most WNV-infected persons are asymptomatic. Approximately 20% of people who are infected will develop a febrile disease two to 14 days after an infected mosquito bite. Symptoms of febrile disease include:

- Fever
- Headache
- Fatigue

- Myalgia/arthralgia,
- Skin rash on the trunk of the body
- Swollen lymph glands
- Eye pain

Some people (about one in 150) will develop neuroinvasive disease that affects the central nervous system including encephalitis or meningitis. Symptoms of severe disease include:

- High fever
- Headache
- Neck stiffness
- Stupor
- Disorientation/altered mental status
- Coma
- Tremors/convulsions
- Muscle weakness
- Vision change/loss
- Numbness
- Paralysis

### **Diagnosis/Testing**

Patients suspected of WNV infection (with or without neuroinvasive disease) should be tested via Polymerase Chain Reaction (PCR) test and/or for IgM antibodies to WNV depending on immunosuppression status (see diagnostic testing algorithms below). Both tests are widely available at commercial labs.

- Testing IgM positive and IgG negative in an acute specimen is consistent with acute WNV infection. Paired acute and convalescent samples may be useful for demonstration of seroconversion and laboratory confirmation of WNV infection. A fourfold rise in IgM or IgG titers between an acute and convalescent specimen suggests acute infection.
- Testing IgG positive and IgM negative is consistent with infection in the distant past. Stable antibody titers on acute and convalescent specimens suggest infection in the distant past
- Cerebrospinal fluid which tests positive for IgM is consistent with acute meningitis/encephalitis.

See the WNV Diagnostic Algorithm from the CDC at: <https://www.cdc.gov/west-nile-virus/hcp/diagnosis-testing/diagnostic-testing-algorithm.html>

### **Recommendations for Prevention**

Preventing mosquito bites is the most important method to reduce the risk of WNV and other mosquito-borne diseases. To avoid mosquito bites, the public can:

- Wear light-colored clothing including long-sleeved shirts and long pants when outdoors in mosquito-prone areas. You can use 0.5% permethrin to treat clothing and gear. Permethrin is an insecticide that kills or repels mosquitoes.

- Use an EPA-registered insect repellent on skin that has DEET, picaridin, IR3535, oil of lemon eucalyptus, para-menthane-diol, or 2-undecanone. Always make sure to follow label instructions.
- Avoid mosquito-infested areas and times of peak mosquito activity around dusk, dawn and at night.

### **Recommendations for Treatment/Management**

There is no specific treatment for WNV disease; clinical management is supportive. Patients with severe meningeal symptoms often require pain control for headaches and antiemetic therapy and rehydration for associated nausea and vomiting.

Patients with encephalitis require close monitoring for the development of elevated intracranial pressure and seizures. Patients with encephalitis should be monitored for inability to protect their airway. Acute neuromuscular respiratory failure may develop rapidly, and prolonged ventilatory support may be required.

### **Reporting**

Health care providers are encouraged to report any patients with laboratory evidence of WNV by completing the case report form at <https://dhss.delaware.gov/dhss/dph/epi/files/ArbovirusesCaseReportForm1.pdf> and emailing it to [reportdisease@delaware.gov](mailto:reportdisease@delaware.gov) or by faxing it to 302-622-4149, or by calling the Office of Infectious Disease at 1-888-295-5156. Physicians are encouraged to complete and communicate the case report form with all relevant signs and symptoms and exposures to assist the DPH with their investigations. Asking about travel history and mosquito exposure is essential during investigations.

### **Additional Information**

DPH WNV Page: <https://www.dhss.delaware.gov/dhss/dph/epi/wnv.html>

CDC Clinical Testing and Diagnosis: <https://www.cdc.gov/west-nile-virus/hcp/diagnosis-testing/index.html>

CDC Clinical Signs and Symptoms: <https://www.cdc.gov/west-nile-virus/hcp/clinical-signs/index.html>

CDC Treatment and Prevention: <https://www.cdc.gov/west-nile-virus/hcp/treatment-prevention/index.html>

Delaware Division of Natural Resources and Environmental Control's Mosquito Control Section: <https://dnrec.delaware.gov/fish-wildlife/mosquito-control/>