

# West Nile Virus

## **DISEASE REPORTABLE WITHIN 24 HOURS OF DIAGNOSIS**

Per NJAC 8:57, health care providers and administrators shall report by mail or by electronic reporting within 24 hours of diagnosis, confirmed cases of West Nile virus to the health officer of the jurisdiction where the ill or infected person lives, or if unknown, wherein the diagnosis is made. A directory of local health departments in New Jersey is available at <http://localhealth.nj.gov>.

If the health officer is unavailable, the health care provider or administrator shall make the report to the Department by telephone to 609.826.5964, between 8:00 A.M. and 5:00 P.M. on non-holiday weekdays or to 609.392.2020 during all other days and hours.



## 1 THE DISEASE AND ITS EPIDEMIOLOGY

### A. Etiologic Agent

Viruses, such as West Nile Virus (WNV), that are transmitted by infected blood feeding insects such as mosquitoes are referred to as arboviruses, which refers to **arthropod-borne viruses**. WNV is a single-stranded RNA virus of the family *Flaviviridae*, genus *Flavivirus*, that is transmitted by infected mosquitoes.

### B. Clinical Description

The majority (70-80%) of WNV infections are asymptomatic. Of those with symptoms, the majority experience an acute systemic febrile illness that often includes headache, myalgia, arthralgia, and weakness; gastrointestinal symptoms (e.g., vomiting, diarrhea) and a transient maculopapular rash are also commonly reported.

Less than 1% of infected persons develop neuroinvasive disease, which typically manifests as meningitis, encephalitis, or acute flaccid paralysis.

- WNV meningitis is clinically indistinguishable from viral meningitis due to other etiologies and typically presents with fever, headache, and nuchal rigidity.
- WNV encephalitis is a more severe clinical syndrome that usually manifests with fever and altered mental status, seizures, focal neurologic deficits, or movement disorders such as tremor or parkinsonism.
- WNV acute flaccid paralysis is usually clinically and pathologically identical to poliovirus-associated poliomyelitis, with damage of anterior horn cells, and may progress to respiratory paralysis requiring mechanical ventilation. It often presents as isolated limb paresis or paralysis and can occur without fever or apparent viral prodrome. WNV-associated Guillain-Barré syndrome and radiculopathy have also been reported.

Rarely, cardiac dysrhythmias, myocarditis, rhabdomyolysis, optic neuritis, uveitis, chorioretinitis, orchitis, pancreatitis, and hepatitis have been described in patients with WNV disease.

Most women known to have been infected with WNV during pregnancy have delivered infants without evidence of infection or clinical abnormalities. In the best-documented, confirmed congenital WNV infection, the mother developed neuroinvasive WNV disease during the twenty-seventh week of gestation, and her neonate was born with cystic lesions in brain tissue and chorioretinitis. One infant who apparently acquired WNV infection

through breastfeeding remained asymptomatic.

<https://www.cdc.gov/westnile/healthcareproviders/healthCareProviders-ClinLabEval.html>

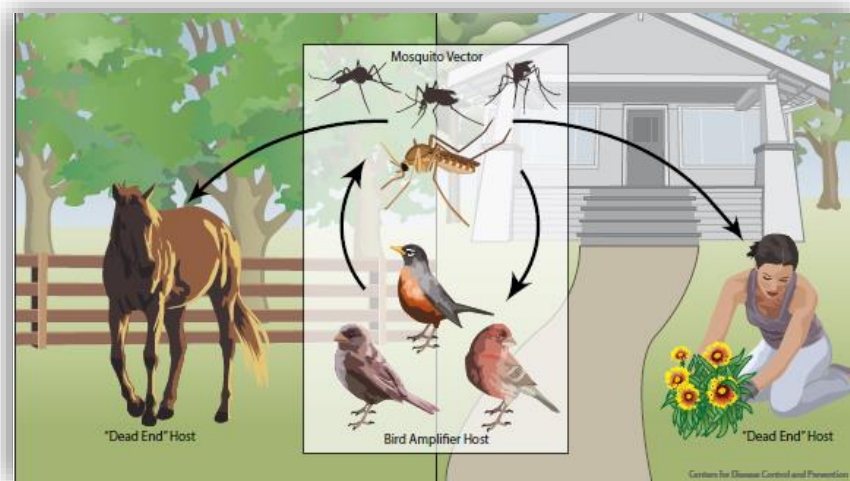
Most patients with non-neuroinvasive WNV disease or WNV meningitis recover completely, but fatigue, malaise, and weakness can linger for weeks or months. Patients who recover from WNV encephalitis or poliomyelitis often have residual neurologic deficits. Among patients with neuroinvasive disease, the overall case-fatality ratio is approximately 10%, but it is significantly higher for patients with WNV encephalitis and acute flaccid paralysis than WNV meningitis.

Recent studies have raised questions about the possible persistence of WNV infection and subsequent renal disease. [More information is available here.](#)

### C. Reservoirs

In nature, West Nile virus cycles between mosquitoes (especially *Culex* species) and birds. Some infected birds can develop high levels of the virus in their bloodstream and mosquitoes can become infected by biting these infected birds. After about a week, infected mosquitoes can pass the virus to more birds when they bite. Mosquitoes with West Nile virus also bite and infect people, horses, and other mammals. However, humans, horses and other mammals are 'dead end' hosts. This means that they do not develop high levels of virus in their bloodstream and cannot pass the virus on to other biting mosquitoes.

#### West Nile Virus Transmission Cycle



### D. Mode of Transmission

WNV is spread to humans primarily by the bite of an infected mosquito (primarily *Culex* species, although transmission from *Aedes* species may also occur). There is no evidence that a person can get WNV from handling live or dead infected birds or wildlife; however,

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gloves should always be worn when performing such activities. Direct person-to-person spread of WNV does not occur apart from rare exceptions listed below:

- Transplanted organs and blood transfusions. Since 2003, all blood donations are screened for WNV. The blood screening program has been very successful in reducing the risk of WNV infection through blood transfusions. Unlike blood donors, not all organ donors are tested for West Nile virus. However, some centers do test organ donors for West Nile virus.
- Transplacental (mother-to-child). A woman infected with WNV during pregnancy can transmit the virus to her baby, but the risk is low. Only a few cases of WNV in newborns have been reported.
- Breastfeeding. The risk for West Nile virus transmission through breastfeeding is unknown. However, the health benefits of breastfeeding are well established. Therefore, CDC does not recommend stopping breastfeeding because of WNV illness.
- Exposure in a laboratory setting.

It is important to note that WNV transmission primarily occurs through the bite of an infected mosquito and these additional routes of transmission pose a relatively small risk.

### E. Incubation Period

Typically, 2 to 6 days but ranges from 2 to 14 days and can be several weeks in immunocompromised people.

### F. Period of Communicability or Infectious Period

WNV is not transmitted from person-to-person, with the rare exceptions noted above in section 1D. Persons diagnosed with WNV should not donate blood for 120 days. Those diagnosed shortly after giving blood should notify the blood center (see section 6D).

### G. Epidemiology

WNV was first isolated in the West Nile Province of Uganda in 1937. The first epidemic was reported in Israel during the 1950s and had been circulating in Africa, India, Australia, the Middle East, and Eastern Europe. Prior to August 1999, when human cases of WNV were first identified in New York City, WNV had not been documented in the Western Hemisphere. By the end of October 1999, WNV had also been confirmed in multiple native species of birds from New York City and in horses and birds within a 200-mile radius of New York City. Since that time, WNV has spread to all 50 states in the United States (U.S.) and with cases reported each year.

In the Northeastern U.S. and New Jersey (N.J.), cases of WNV occur in the summer and fall. In states with warmer climates, such as California, cases of WNV have been reported year-round. Persons over 60 years of age and those with underlying illness (e.g., cancer, diabetes,

kidney disease or those who have had organ transplants) are at greatest risk of more serious symptoms of WNV infection, including encephalitis. Between 2010-2022 in N.J., an average of 21 cases (ranging from 3-61) of WNV were reported to NJDOH each year resulting in 26 deaths. Two-thirds of WNV cases are male and the proportion of reported cases increases with age, with 48% of cases in the 65 years of age or older age group.

## 2 CASE DEFINITION

The NJDOH Infectious & Zoonotic Disease Program follows the most current West Nile virus case definition as published on the CDC National Notifiable Disease Surveillance System (NNDSS) website.

[Arboviral Diseases, Neuroinvasive and Non-Neuroinvasive Case Definition](#) (2015)

*Note: The Arboviral Diseases case definition applies to many arboviral diseases, including California serogroup virus diseases, Chikungunya virus disease, Eastern equine encephalitis virus disease, Powassan virus disease, St. Louis encephalitis virus disease, and Western equine encephalitis virus disease.*

Case definitions enable public health to classify and count cases consistently across reporting jurisdictions and should not be used by healthcare providers to determine how to meet an individual patient's health needs.

### A. Clinical Description

Most arboviral infections are asymptomatic. Clinical disease ranges from febrile illness to severe encephalitis. For the purpose of surveillance and reporting, based on their clinical presentation, arboviral disease cases are often categorized into two primary groups: neuroinvasive disease and non-neuroinvasive disease and classified as confirmed or probable based on laboratory criteria.

### B. Clinical Criteria

A clinically compatible case of WNV disease is defined as follows:

Neuroinvasive disease:

- Meningitis, encephalitis, acute flaccid paralysis, or other acute signs of central or peripheral neurologic dysfunction, as documented by a physician, **AND**
- Absence of a more likely clinical explanation.

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Non-neuroinvasive disease:

- Fever (chills) as reported by the patient or a health-care provider, **AND**
- Absence of neuroinvasive disease (above), **AND**
- Absence of a more likely clinical explanation.

Other clinically compatible symptoms include headache, myalgia, rash, arthralgia, vertigo, vomiting, paresis and/ or nuchal rigidity.

### C. Laboratory Criteria

- Isolation of virus from, or demonstration of specific viral antigen or nucleic acid in, tissue, blood, CSF, or other body fluid, **OR**
- Four-fold or greater change in virus-specific quantitative antibody titers in paired sera, **OR**
- Virus-specific IgM antibodies in serum with confirmatory virus-specific neutralizing antibodies in the same or a later specimen, **OR**
- Virus-specific IgM antibodies in CSF or serum.

### D. Case Classification

#### **CONFIRMED**

##### Neuroinvasive Disease

- Clinically compatible neuroinvasive case, **AND**
  - Isolation of virus from, or demonstration of specific viral antigen or nucleic acid in, tissue, blood, CSF, or other body fluid, **OR**
  - Four-fold or greater change in virus-specific quantitative antibody titers in paired sera, **OR**
  - Virus-specific IgM antibodies in serum with confirmatory virus-specific neutralizing antibodies in the same or a later specimen, **OR**
  - Virus-specific IgM antibodies in CSF, with or without a reported pleocytosis, and a negative result for other IgM antibodies in CSF for arboviruses endemic to the region where exposure occurred.

##### Non-neuroinvasive Disease

- Clinically compatible non-neuroinvasive case, **AND**

- Isolation of virus from, or demonstration of specific viral antigen or nucleic acid in, tissue, blood, or other body fluid, excluding CSF, **OR**
- Four-fold or greater change in virus-specific quantitative antibody titers in paired sera, **OR**
- Virus-specific IgM antibodies in serum with confirmatory virus-specific neutralizing antibodies in the same or a later specimen.

## **PROBABLE**

### Neuroinvasive Disease

- Clinically compatible neuroinvasive case, **AND**
  - Virus-specific IgM antibodies in CSF or serum but with no other testing.

### Non-neuroinvasive Disease

- Clinically compatible non-neuroinvasive case, **AND**
  - Virus-specific IgM antibodies in serum but with no other testing.

## **POSSIBLE**

- Not used

## **NOT A CASE**

- Positive IgG antibodies in the absence of positive IgM antibodies. IgG antibodies can persist for years following infection and are not used as an indicator of acute infection.
- Positive laboratory criteria but fails to meet clinical criteria.

# **3 LABORATORY AND OTHER DIAGNOSTIC TESTING**

## **A. West Nile Virus Diagnostic Tests**

Routine clinical laboratory studies are generally nonspecific. In patients with neuroinvasive disease, cerebrospinal fluid (CSF) examination generally shows

lymphocytic pleocytosis, but neutrophils may predominate early in the course of illness. Brain magnetic resonance imaging is frequently normal, but signal abnormalities in the basal ganglia, thalamus, and brainstem may be seen in patients with encephalitis, and in the anterior spinal cord in patients with WNV acute flaccid paralysis.

Laboratory diagnosis for WNV is generally accomplished by testing of serum or cerebrospinal fluid (CSF) to detect WNV-specific immunoglobulin M (IgM) antibodies. WNV-specific IgM antibodies are usually detectable 3 to 8 days after onset of illness and persist for 30 to 90 days, but longer persistence has been documented (reported up to 500 days in some patients). Therefore, positive IgM antibodies occasionally may reflect a past infection. If serum is collected within 8 days of illness onset, the absence of detectable virus-specific IgM does not rule out the diagnosis of WNV infection, and the test may need to be repeated on a later sample.

The presence of WNV-specific IgM in blood or CSF provides good evidence of recent infection but may also result from cross-reactive antibodies after infection with other flaviviruses or from non-specific reactivity. WNV IgG antibodies generally are detected shortly after IgM antibodies and persist for many years following a symptomatic or asymptomatic infection. Therefore, the presence of IgG 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.

Plaque-reduction neutralization tests (PRNTs) performed at CDC can help determine the specific infecting flavivirus. PRNTs can also confirm acute infection by demonstrating a fourfold or greater change in WNV-specific neutralizing antibody titer between acute- and convalescent-phase serum samples collected 2 to 3 weeks apart.

Viral cultures and tests to detect viral RNA (e.g., reverse transcriptase-polymerase chain reaction [RT-PCR]) can be performed on serum, CSF, and tissue specimens that are collected early in the course of illness and, if results are positive, can confirm an infection. However, the likelihood of detecting a WNV infection through molecular testing is fairly low as viremia has often waned before testing is performed. RT-PCR is generally reserved for persons who are immunocompromised and who may not mount an antibody response. Immunohistochemistry (IHC) can detect WNV antigen in formalin-fixed tissue. Viral culture, RT-PCR, and IHC are not widely available at commercial laboratories.

### **B. Commercial Testing**

Commercial laboratories offer serology testing by enzyme-linked immunoassay (enzyme-linked immunosorbent assay [ELISA], enzyme immunoassay [EIA], or immunofluorescence assay [IFA]). **All IgM positive results from commercial laboratories should be sent to the NJDOH Public Health and Environmental**



**Laboratory (PHEL) for confirmatory testing.** NJDOH pre-approval is not necessary. Clinical and commercial laboratories should submit the request for testing through PHEL's Electronic Test Ordering and Reporting System (ETOR) or fully complete and send a separate [SRD-1 form](#) with each specimen. Instructions for completing the SRD-1 form and delivery address are found on the second page of the form.

- Ensure the patient's name and date of birth matches the specimen label exactly.
- Record the date and time of positive specimen collection and specimen type.
- Include positive IgM result in "Pertinent clinical information" field.
- Make sure all facility/laboratory and physician contact information are accurate.
- Select West Nile Virus IgM (serum or CSF) under Arboviral testing.
- Email a copy of the SRD-1 form to [CDSVectorTeam@doh.nj.gov](mailto:CDSVectorTeam@doh.nj.gov) via encrypted email upon shipping a specimen with positive IgM result and estimated date/time of delivery.

### C. Requests for Public Health Testing

There are several emerging/reemerging or very rare arboviral diseases that are transmitted by mosquitoes (or ticks) that may impact N.J. residents. Clinicians who would like to request arboviral disease testing (including West Nile virus) should complete the NJDOH Arboviral Testing Request worksheet found under "Laboratory Testing and Guidance" on the [NJDOH WNV website](#) and send via encrypted email to [CDSVectorTeam@doh.nj.gov](mailto:CDSVectorTeam@doh.nj.gov). Arboviral testing can be requested for patients who are hospitalized with neuroinvasive disease (e.g., encephalitis, meningitis, acute flaccid paralysis) of unknown etiology or, for patients presenting with a febrile illness of unknown etiology if an arboviral disease is suspected. NJDOH strongly encourages healthcare providers to send clinically compatible specimens to PHEL for testing if a mosquito or tickborne virus is suspected.

If public health testing is approved, if available, CSF should be submitted in addition to serum. IgM antibody testing on serum and CSF specimens for WNV, Eastern equine encephalitis (EEE), St. Louis encephalitis (SLE), and Powassan (POW) can be performed at PHEL. IgM antibody testing for Jamestown Canyon virus (JCV), La Crosse virus (LAC), Heartland (HRT), and Bourbon virus (BRB), as well as plaque-reducing neutralizing antibody testing (PRNT) can be performed at CDC. Requests for testing of suspect arboviral disease must be pre-approved by the CDS Vector-borne Disease Team prior to submission for public health testing.

## 4 PURPOSE OF SURVEILLANCE AND REPORTING

- To implement timely mosquito surveillance and control measures and prevent additional human cases.
- To identify rare modes of transmission and implement control measures if needed.
- To better understand the local epidemiology of WNV.
- To provide residents of NJ and travelers to the state with appropriate preventive health information.

## 5 CASE INVESTIGATION

### A. Investigating laboratory Reports

It is important to investigate WNV cases in a timely manner to provide outdoor exposure and onset date information to county mosquito control professionals so that timely mosquito control can be performed to prevent additional human cases. WNV cases should be investigated by LHDs within 2 days of CDRSS or healthcare provider notification and have critical details entered into CDRSS within 5 days.

The LHD should interview the healthcare provider, patient, and others if needed who may be able to provide pertinent information on risk factors, outdoor exposures, and potential alternate transmission routes. Much of the information required for investigation can be obtained from the patient's healthcare provider or the medical record. The Arboviral Disease Investigation Worksheet found under "Disease Reporting" on the [NJDOH WNV website](#) can aid LHDs when gathering necessary information. Worksheets should not be sent to CDS, but information should be entered into CDRSS.

If a patient presents with acute flaccid paralysis or Guillain-Barré syndrome (GBS), or an undefined neurological presentation, CDS will request medical records for further review.

**NOTE: WNV IgG positive/IgM negative results indicate previous infection or past exposure and do not require further investigation. LHDs should close these reports in CDRSS as "NOT A CASE." If a subsequent positive IgM result is received, the case should be investigated.**

**B. WNV Specific CDRSS Fields**

Apart from fields needed for every reportable disease in CDRSS, the following table provides information needed specifically for WNV cases.

CDRSS Screen	Required Information
<p><b>Addresses</b></p>	<p>Because county mosquito control agencies perform mosquito surveillance and control in response to WNV human cases and because out-of-state visitors often spend significant time in parts of N.J. during mosquito season, if a LHD becomes aware of an out-of-state resident who was likely exposed to WNV while staying in N.J. (e.g., summer resident), LHDs are asked to investigate that case and document areas of likely exposure so that mosquito surveillance and control can be implemented. The temporary (e.g., vacation address) should be noted in the Addresses tab so the LHD has access to the case while under investigation.</p>
<p><b>Industry and Occupation</b></p>	<p>Outdoor work may pose a greater risk for WNV infection. Record industry/occupation for all WNV cases. Enter “unknown” for fields where information is not available.</p>
<p><b>Laboratory and Diagnostic Test Information</b></p>	<ul style="list-style-type: none"> <li>• If manually entering WNV test results, for all WNV IgM-positive/equivocal tests, select “WEST NILE VIRUS AB.IGM” for ELISA, EIA, or IFA. Enter test result (i.e., “POSITIVE/REACTIVE”, “EQUIVOCAL/BORDERLINE”) in the “Test Result” field. If available, titers should be placed in the “Value” field, if available.</li> <li>• For all WNV IgG-positive tests, select “WEST NILE VIRUS AB.IGG” for ELISA, EIA, or IFA. In “Test Result” field select “POSITIVE/REACTIVE.” If available, titers should be placed in the “Value” field.</li> <li>• The “Reference Range” field should be completed for all ELISA, EIA, and IFA tests.</li> <li>• The “Paired Sera” field should be completed by selecting “ACUTE” or “CONVALESCENT” if indicated.</li> </ul> <p>If arrangements have been made to test (or retest) a specimen at PHEL, enter the specific information in the “Comments” section.</p> <ul style="list-style-type: none"> <li>• “Add Diagnostic Test” to add brain imaging studies (CT, MRI) and findings (anatomic region = HEAD)</li> </ul>

CDRSS Screen	Required Information
<p><b>Additional Requirements: West Nile virus</b></p>	<p>Fill in a response for each prompt. Each question has a drop-down menu with options.</p> <ul style="list-style-type: none"> <li>• Was the patient identified by blood donor screening?                             <ul style="list-style-type: none"> <li>▪ If YES, enter date of donation.</li> </ul> </li> <li>• Not including around the home, did the patient spend significant time outdoors 2 weeks prior to onset?                             <ul style="list-style-type: none"> <li>▪ If YES, enter address (other than home) and dates so this can be shared with the mosquito control agency.</li> </ul> </li> <li>• If hospitalized, what was the patient’s discharge disposition?                             <ul style="list-style-type: none"> <li>▪ Note if the patient went home, to a rehabilitation center, or if they died while in the hospital.</li> </ul> </li> <li>• Does the case meet neuroinvasive disease condition?                             <ul style="list-style-type: none"> <li>▪ If YES, ensure neurological presentation is entered into Signs/Symptoms</li> </ul> </li> <li>• In the 30 days before illness onset or diagnosis, did the patient donate an organ/donate blood?                             <ul style="list-style-type: none"> <li>▪ If YES, note date, facility, and other details.</li> </ul> </li> </ul> <p>The last two questions that describe clinical syndrome will be completed by CDS Staff.</p>
<p><b>Clinical Status</b></p>	<ul style="list-style-type: none"> <li>• Ensure illness onset date is entered.</li> <li>• Enter if the patient was hospitalized and if there were pre-existing medical conditions.</li> <li>• Note if the patient died, if the patient died during investigation, and the date of death. Enter the cause of death if known.</li> </ul>
<p><b>Immunization Information</b></p>	<p><u>Only for arboviral test requests</u>, click on “Add Vaccination Information” and enter if the patient received a vaccine for Dengue, Japanese encephalitis, Tickborne encephalitis, or yellow fever.</p>

CDRSS Screen	Required Information
<p><b>Medical Facility and Provider Information</b></p>	<ul style="list-style-type: none"> <li>• Record the names of the medical facilities and physician(s) involved in the patient’s care. If the patient received care from &gt;1 hospital, enter all facilities with admission and discharge dates.</li> <li>• Ensure patient status = INPATIENT if the patient was admitted and ensure both admission and discharge dates are entered.</li> <li>• LHDs should <u>keep WNV cases open until the patient has been discharged</u> from the acute care facility and the discharge date can be entered (and note disposition in Additional Requirements section).</li> </ul>
<p><b>Risk Factors</b></p>	<ul style="list-style-type: none"> <li>• Enter complete information about travel, including locations and dates of travel to guide mosquito control activities in N.J.</li> <li>• Note whether the case-patient works in a laboratory or is a healthcare worker. Follow-up questions on bloodborne exposure/lab exposure may be needed.</li> <li>• Note whether the case-patient received a blood transfusion or organ transplant within 30 days prior to onset of illness (notify CDS).</li> </ul>
<p><b>Signs/Symptoms</b></p>	<ul style="list-style-type: none"> <li>• Check appropriate boxes for signs and symptoms and indicate their onset. Make every effort to get complete information by interviewing the physician, family members, ICP, or others who might have knowledge of the patient’s illness.</li> <li>• If the patient presents with neuroinvasive disease, be sure to specifically identify the neurological syndrome (e.g., meningitis, encephalitis, acute flaccid paralysis-AFP).</li> <li>• If “weakness” is selected, note in attribute if this indicates generalized weakness as opposed to limb weakness, which could indicate AFP or GBS)</li> <li>• If CSF testing was performed, note the WBCs, glucose, and protein levels (required for arboviral testing requests)</li> </ul>

# 6 CONTROLLING FURTHER SPREAD

## A. Isolation and Quarantine Requirements

There are no isolation or quarantine requirements.

## B. Protection of Contacts of a Case

N/A

## C. Managing Special Situations

### Identifying Local Exposure Areas

WNV is endemic in N.J. LHDs should obtain accurate exposure information, including areas of significant outdoor activity during the incubation period (i.e., 2 to 14 days prior to symptom onset). The address and dates of outdoor exposure should be noted in CDRSS in the Additional Requirements section. LHDs should notify the county mosquito control agency about the case and areas where the case spent significant time outdoors within that county. The mosquito control agency will conduct mosquito surveillance and abatement activities as indicated. If the case spent significant time outdoors outside of the resident county, CDS will provide that information to NJDEP who will notify the respective county mosquito control agency. See section 6D below.

### Reported Incidence Is Higher Than Usual/Outbreak Suspected

If an outbreak or unusual cluster of infections is suspected, contact the NJDOH Vector-borne Disease Team at 609.826.5964 or [CDSVectorTeam@doh.nj.gov](mailto:CDSVectorTeam@doh.nj.gov).

### Recent Blood or Organ Donor or Recipient

If a case-patient has donated or been the recipient of blood products or organs within the past 30 days, document the findings in CDRSS and contact the NJDOH Vector-borne Disease Team at [CDSVectorTeam@doh.nj.gov](mailto:CDSVectorTeam@doh.nj.gov). Although blood collection agencies nationwide are screening donations for WNV, further investigation may be warranted to determine if donated blood or organs may be a source of infection.

### Novel Mode of Transmission

If maternal to child transmission, a laboratory exposure, a healthcare acquired infection, or other novel mode of transmission is suspected, contact the NJDOH Vector-borne Disease Team at 609.826.5964 or [CDSVectorTeam@doh.nj.gov](mailto:CDSVectorTeam@doh.nj.gov).

## D. Preventive Measures

### Environmental Measures

The New Jersey State Mosquito Control Commission and the N.J. Department of Environmental Protection's Office of Mosquito Control Coordination support mosquito surveillance and control efforts throughout N.J.. Each county in N.J. has a [mosquito control agency](#) that conducts mosquito surveillance and control activities. WNV activity in N.J. is included in weekly [NJDOH Vector-borne Disease Surveillance Reports](#), on NJDOH's [Vector-borne Disease Dashboard](#), and on real-time [JerseySurv maps](#). Residents may also contact their county mosquito control agency to discuss concerns with mosquitoes around their home and neighborhood and mosquito-borne disease prevention in general.

Although reports of dead birds and positive WNV laboratory results from birds were once early indicators of WNV activity in an area, WNV is now considered endemic to the N.J. bird and mosquito populations. This means we expect to see WNV in birds and mosquitoes from all counties of the state each year. Additionally, it is thought that some birds have adapted to the virus and may not always become clinically ill, so we may find human cases before avian cases. Therefore, there is limited utility in routine testing of dead birds and PHEL no longer has the capacity to test birds for WNV.

However, it is still recommended that Health Officers report dead or ill birds to the [county mosquito control agency](#), who may decide to increase mosquito surveillance in that area. If an unusual number or pattern of deaths is observed in birds, Health Officers should report these to the NJ Division of Fish and Wildlife at 908-236-2118 or USDA-Wildlife Services at 908-735-5654 ext. 2.

### Personal Preventive Measures/Education

There is no vaccine to prevent WNV and there are no specific medications to treat a WNV infection. This makes prevention the most important step, and prevention means avoiding mosquito bites. Key prevention messages are available at <http://www.nj.gov/health/cd/topics/vectorborne.shtml>.

### Blood and Organ Donation

- Persons who have been diagnosed with WNV should not donate blood for 120 days and should tell the blood center about a previous WNV infection. Persons who are diagnosed shortly after giving blood should notify the blood center. LHDs should notify CDS if they become aware of a WNV case who recently donated blood.
- Persons who had a prior WNV infection can still donate organs/tissue but should share information about prior WNV infection prior to donation. LHDs should notify CDS if they become aware of a WNV case who recently donated organs/tissue.

## Additional Information

- NJDOH [Fight the Bite NJ!](#)
- NJDOH [West Nile Virus](#)
- NJDOH weekly [Vector-borne Disease Surveillance Reports](#)
- NJDOH [Vector-borne Disease Dashboard](#)
- NJDOH [JerseySurv](#) maps for NJ WNV activity in mosquitoes
- CDC [West Nile virus](#)

## References

Centers for Disease Control and Prevention. Case definitions for infectious conditions under public health surveillance, 2015. <https://ndc.services.cdc.gov/case-definitions/arboviral-diseases-neuroinvasive-and-non-neuroinvasive-2015/>

Centers for Disease Control and Prevention. West Nile Virus: <https://www.cdc.gov/westnile/index.html>