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### General Information

Communicable Disease  
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Transmitted Diseases  
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(630) 221-7522

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Animal Care & Control  
(630) 407-2800

Please contact  
Communicable Disease  
and Epidemiology at  
(630) 221-7553  
with suggestions  
or to be added to the  
distribution list.

The purpose of this two-page surveillance update is to promote the control and prevention of **communicable disease (CD)** by providing clinically relevant information and resources to healthcare professionals in DuPage County.



## Under the Microscope West Nile Virus

For questions or to report suspect and known cases of West Nile virus disease, please call the DuPage County Health Department at (630) 221-7553.

Arthropod-borne viruses (arboviruses) are transmitted to humans primarily through the bites of infected vector mosquitoes and ticks. West Nile virus (WNV) is the leading cause of domestically acquired arboviral disease in the U.S.<sup>1</sup> WNV emerged in the U.S. in the New York metropolitan area in the fall of 1999. Since then, the virus, which can be transmitted to humans by the bite of an infected mosquito, has quickly spread across the country.<sup>2</sup>

**Surveillance:** In 2015, a total of 2,175 WNV disease cases, including 1,455 (67%) neuroinvasive cases, were reported in the U.S. WNV disease cases typically peak in August; the majority of cases had illness onset during July–September. Overall, 146 (7%) patients died.<sup>3</sup> Neuroinvasive WNV disease incidence increases with age, with the highest incidence among persons aged ≥70 years.<sup>1,3</sup>

In Illinois, 77 WNV disease cases were reported in 2015, including 9 deaths (12%). The median age of all cases was 56 years, ranging in age from 16 years to 95 years old.<sup>4</sup> As of 8/29/16, five WNV cases have been reported in Illinois in 2016.

The key factors in determining the degree of West Nile virus activity are temperatures and rainfall. In **hot, dry weather**, mosquitoes that carry West Nile virus (primarily *Culex* mosquitoes) breed in stagnant water, like street catch basins and ditches, and multiply rapidly.<sup>5</sup>

**Diagnosis:** WNV disease should be considered in any person with a **febrile or acute neurologic illness who has had recent exposure to mosquitoes, blood transfusion, or organ transplantation**, especially during the summer months. The diagnosis should also be considered in any infant born to a mother infected with WNV during pregnancy or while breastfeeding. All cases should be reported to local public health authorities in a timely manner, toward early recognition of outbreaks and to implement control measures to reduce future infections.<sup>6</sup>

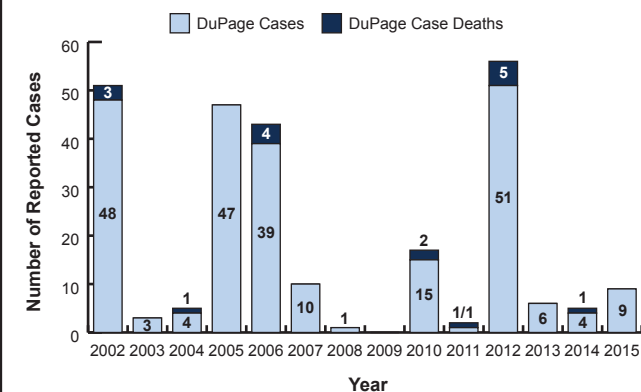
The **incubation period for WNV disease is typically 2 to 6 days but ranges from 2 to 14 days** and can be several weeks in immunocompromised people. An estimated **70-80% of human WNV infections are subclinical or asymptomatic**. Most symptomatic persons experience an **acute systemic febrile illness** that often includes headache, weakness, myalgia, or arthralgia; gastrointestinal symptoms and a transient maculopapular rash also are commonly reported. **Less than 1% of infected persons develop neuroinvasive disease**, which typically manifests as meningitis, encephalitis, or acute flaccid paralysis. Rarely, cardiac dysrhythmias, myocarditis, rhabdomyolysis, optic neuritis, uveitis, chorioretinitis, orchitis, pancreatitis, and hepatitis have been described in patients with WNV disease.<sup>6</sup>

Diagnosis of WNV infection is based on a high index of clinical suspicion and obtaining **specific laboratory tests (e.g., detection of IgM antibody to WNV in serum and/or cerebral spinal fluid)**.<sup>7</sup> Treatment is supportive, often involving hospitalization, intravenous fluids, respiratory support, and prevention of secondary infections for patients with severe disease.<sup>7</sup>

**Prevention:** In 2013, DuPage County launched the **Personal Protection Index (PPI)** to alert residents each year of the current WNV risk level and provide measures to protect themselves. The PPI was developed in conjunction with guidance from the Centers for Disease Control and Prevention and Association of State and Territorial Health Officials. Research and operational experience shows that increases in WNV infection rates in mosquito populations can provide an indicator of developing outbreak conditions several weeks in advance of increases in human infections.<sup>8</sup>

Based on the DuPage County Health Department's review of human and mosquito surveillance data, the PPI widget is updated by 3:00 p.m. each Wednesday throughout the WNV season (see [www.dupagehealth.org/PPI](http://www.dupagehealth.org/PPI)). The PPI recommends prevention tips based on the "4 Ds of Defense," which include **draining** standing water, using insect repellent to **defend** yourself, being especially careful between **dusk and dawn** (when mosquitoes are most active), and **dressing** with long sleeves and pants to cover your skin.

Reported DuPage County Human West Nile Virus Disease Cases by Year, 2002-2015 (n=255)



Source: Illinois Department of Public Health, CD Section and Illinois-National Electronic Disease Surveillance System

### References:

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