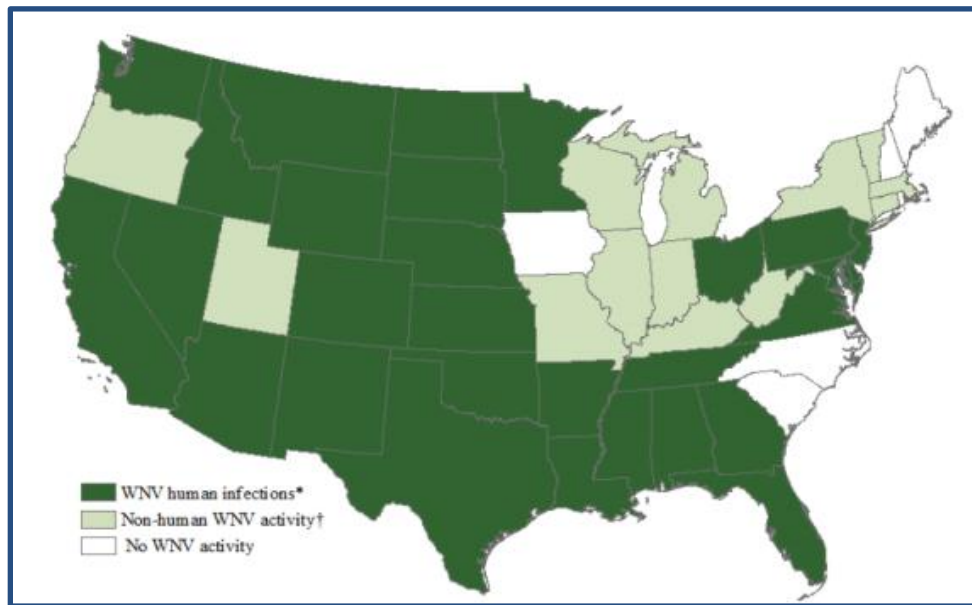




Water Quality and Health

West Nile Virus: A Seasonal Epidemic in North America

By Chris Wiant, MPH, PhD



West Nile Virus Activity by State – United States, 2015 (as of August 11, 2015)

Map courtesy of the [US Centers for Disease Control and Prevention](http://www.cdc.gov)

This summer North America is once again experiencing a “seasonal epidemic” of West Nile virus that is expected to last through the fall. According to the [Centers for Disease Control and Prevention \(CDC\) website](http://www.cdc.gov), the mosquito-borne virus has been reported in 42 US states as of August 11, 2015. Fortunately, most people who are infected with the virus show no symptoms; about 20 percent of people infected develop mild symptoms (e.g., headache, body aches, joint pains, vomiting, diarrhea or rash) after three to 14 days. Less than one percent of those infected become seriously ill (e.g., high fever, muscle weakness, neck stiffness, stupor, and potentially permanent or fatal neurological disease). There are no medications to treat West Nile virus, nor vaccines to prevent human infection¹. *Avoiding West Nile virus is primarily a matter of avoiding mosquito bites.*

West Nile Virus Transmission

According to the [Centers for Disease Control and Prevention \(CDC\) website](http://www.cdc.gov), the West Nile virus cycles between mosquitoes and birds. Mosquitoes become infected with the virus by biting infected birds; they then pass the virus to humans and other mammals through mosquito bites. West Nile virus is believed to have been in the US since about 1999 when it was first detected in New York City, but human infections have been reported in many countries for over

*WNV human disease cases or presumptive viremic (“viremic” is defined as the presence of a virus in the blood) blood donors. Presumptive viremic blood donors have a positive screening test, which has not necessarily been confirmed

† WNV veterinary disease cases, or infections in mosquitoes, birds, or sentinel animals.

¹ According to the World Health Organization, vaccines are available for use in horses.

50 years. According to the [World Health Organization website](#), the virus is found in Africa, Europe, the Middle East and West Asia, in addition to North America.

West Nile virus can kill some host birds when the virus concentrates in their blood. Sightings of multiple dead birds could be a sign that the virus is circulating in the vicinity. CDC notes reporting dead birds to county and [state health departments](#) may be helpful to West Nile virus monitoring activities. Additionally, some health departments monitor mosquitoes for the West Nile virus, which may be supplemented by monitoring sentinel chickens and dead birds. According to the CDC report, “West Nile Virus in the United States: Guidelines for Surveillance, Prevention, and Control,” “Research and operational experience shows that increases in WNV [West Nile virus] infection rates in mosquito populations can provide an indicator of developing outbreak conditions several weeks in advance of increases in human infections.” (The report is linked to this [CDC website](#).)

Reducing Your Risk of West Nile Virus is a Three Step Process

- First, know your inherent risk level. People over 50 years of age have a greater chance of developing serious symptoms of West Nile virus than those younger than 50.
- Second, know when to expect the “enemy.” Many mosquitoes are most active from dusk to dawn; these are the hours during which special precautions may be warranted, including avoiding being outdoors.
- Third, take steps to avoid mosquitoes and their bites.
 - When outdoors, use effective insect repellents; those containing DEET, picaridin, IR3535, and some oil of lemon eucalyptus and para-menthane-diol products may provide longer-lasting protection; follow label directions for use (For more information on insect repellents and their effectiveness, please see <http://cfpub.epa.gov/oppref/insect/>.)
 - Wear long sleeves and long pants of tightly woven fabric; tuck pant legs into socks for extra protection
 - Inspect and repair screens on windows and doors
 - Remove standing water in flower pots, buckets, barrels, old tires, untreated kiddie pools and other containers that can serve as breeding grounds for mosquitoes
 - Make sure backyard pools are appropriately chlorinated; mosquitoes will not breed in chlorinated water
 - When you are outdoors, air movement around your body (from fans or natural breezes) disrupts mosquito flight and reduces your risk of being bitten.

Your local health department may provide additional information about protecting against mosquito-borne diseases in your area.

What to do if You Think You Have West Nile Virus

According to CDC, mild symptoms of West Nile virus will improve on their own without medical intervention. Severe West Nile virus symptoms may require hospitalization. West Nile virus is not spread from casual human contact, such as touching or kissing. If you have severe symptoms and think you may be infected with the West Nile virus, seek medical attention immediately.

For more information on West Nile virus, please see www.cdc.gov/westnile.

Chris Wiant, M.P.H., Ph.D., is president and CEO of the Caring for Colorado Foundation. He is also chair of the Water Quality & Health Council.