

# Mosquito-Borne Illness in North Carolina:

## *West Nile Virus, LaCrosse and EEE*



This fact sheet provides information about the occurrence of mosquito-borne diseases in North Carolina. Viral diseases transmitted by mosquitoes and other arthropods are called arboviruses. In North Carolina, the three most common arboviruses that cause human illness are eastern equine encephalitis (EEE), La Crosse encephalitis (LAC) and West Nile virus (WNV).



**Tree hole mosquito, *Ochlerotatus triseriatus* (James Gathany photo, courtesy of CDC).**

In general, most cases of arboviral illness show no or mild symptoms, but severe cases can occur. Illness usually begins with the sudden onset of headache, high fever, chills and vomiting. The illness may become more serious and involve disorientation, seizures or coma, significant brain damage or death. There is no specific cure for arboviral illnesses; therapy is limited to treating the symptoms of the disease.

In North Carolina, the viruses that cause illness occur naturally in wild animals, such as birds or small mammals. They are spread from animal to animal by mosquito bites. If mosquito populations grow very large, there is an increased risk of an infected mosquito biting a person or domestic animal, like a horse. Arboviral diseases are seen

most often during the late summer or early fall, but they can occur whenever mosquitoes are active.

In North Carolina, human arbovirus cases that cause severe neurological illness are reported to the state and to the Centers for Disease Control and Prevention (CDC). **La Crosse encephalitis** is the most frequently reported arboviral illness in the state. LAC appears to be maintained in small mammals such as squirrels and is transmitted by mosquito species that breed in tree-holes or small containers that hold water. Most cases have occurred in the mountain counties of Buncombe, Transylvania and Henderson, primarily in children under the age of 14. During 2012, 26 cases of LAC occurred in 10 counties. From 2003 to 2012, 187 cases of LAC occurred, distributed among 27 counties.

**West Nile virus** was first found in the U.S. in 1999 and has spread across the country. Carried by birds, the disease is spread when a mosquito bites an infected bird and then bites a person or an animal such as a horse. Most cases have been reported from the piedmont counties, although WNV can occur anywhere in the state. WNV cases are seen most frequently in people over 40 years old (75 percent of cases from 2003 to 2012). Seven cases of WNV were reported from seven counties in 2012. From 2003 to 2012, 43 cases were reported from 26 counties.

**Eastern Equine Encephalitis** is also a bird disease and is associated with mosquitoes that live in freshwater swamps and bite birds. EEE is most likely to occur in coastal or eastern piedmont areas late in the summer or early fall. In North Carolina, cases are most severe in children and in people over the age of 50. During 2012, the state reported two cases from two counties. From 2003 to 2012, six cases were reported from five counties.

The best way to avoid becoming ill from a mosquito-borne virus is to prevent mosquito bites. When outdoors, wear long-sleeved shirts and long pants, if possible. Use repellents according to label directions. Reduce mosquito breeding areas around your home by emptying, recycling or throwing away items around your home that hold water, especially old tires. Make sure rain gutters are clean and in good repair. Empty and refill bird baths and pet bowls every three to four days. Make sure that outdoor faucets are not leaking, and fill in potholes and other areas that may hold water.

For general information on arboviruses – including EEE, WNV and LAC – and a factsheet on repellents, see the N.C. DHHS Communicable Disease website at <http://epi.ncpublichealth.info/cd/diseases/arbo.html>. For more detailed information, including diagnosis and treatment, see the CDC's web site at [www.cdc.gov/ncidod/dybid/arbor](http://www.cdc.gov/ncidod/dybid/arbor).