



WASHTENAW COUNTY WEST NILE VIRUS SURVEILLANCE AND CONTROL 2008 EXECUTIVE SUMMARY

West Nile virus (WNV) is a mosquito-borne virus that can cause mild illness (West Nile fever) or severe symptoms (encephalitis or meningitis) in humans and other animals. Mosquitoes become infected with West Nile virus when they feed on infected birds that carry the virus in their blood. People are primarily exposed to West Nile from the bite of a mosquito that is infected with the virus.

Michigan first experienced WNV activity in 2001, when 65 positive birds were identified in 10 counties in the Lower Peninsula. No human or equine cases were detected in Michigan in 2001.

In 2002, the United States saw a dramatic increase in WNV activity in birds, equines, and humans, with 4,156 human cases and 284 deaths. Michigan suffered the second highest number of WNV human cases in the nation with 614 laboratory positive cases, and 51 deaths. One unconfirmed human case occurred in Washtenaw County, with no deaths.

In 2003, WNV continued to spread throughout the country, resulting in 9,862 human cases and 264 human deaths. Colorado, Nebraska, and South Dakota were the hardest hit, comprising over 60% of all human cases in the United States. In Michigan, there were 19 human cases and 2 human deaths. Washtenaw County experienced no WNV-related human cases or deaths that year.

West Nile virus continued its westward-spreading trend in 2004, resulting in 2,539 human cases with 100 human deaths in the United States. California and Arizona were the hardest hit, reporting nearly half of all human cases nationwide. In contrast, many northeastern states experienced no human cases. Michigan experienced 16 human cases and no deaths, and Washtenaw County experienced no WNV-related human cases or deaths.

In 2005, the United States experienced 2,949 human cases, with 116 deaths. Most of the cases were in California, although Illinois accounted for a high percentage of cases. Michigan experienced 62 human cases with 4 deaths, with most of the cases occurring in Wayne and Kent Counties. Washtenaw County accounted for 3 of the human cases, with no deaths.

In 2006, there were increased cases nationally, with 4,256 human cases total, with 165 deaths. Michigan accounted for 55 human cases, with 7 deaths. As in 2005, most of the human cases occurred in Wayne and Kent Counties. Washtenaw County had one human case, with no deaths.

In 2007, there were 3,623 human cases and 124 deaths in the United States. Michigan had 16 cases and 4 deaths. Washtenaw County had no human cases or deaths.

In 2008, there were 1,338 human cases and 43 deaths in the United States, with the majority of illnesses and deaths occurring in California. Michigan had 17 human cases with no deaths, and Washtenaw County had no human cases or deaths.

Although experience with WNV is still relatively new, there continue to be several recurring themes:

- Corvid species of birds (crows, ravens, and blue jays) are sensitive indicators of viral presence in a particular geographic area.
- *Culex* species of mosquitoes are important in the transmission of WNV to humans.
- Hot, dry weather conditions are favorable for amplification of the virus cycle in birds and mosquitoes, particularly in urban/suburban areas.
- August and September are the months of greatest risk to humans for becoming infected with WNV in Michigan.
- WNV will likely remain an issue in Michigan, causing the need for annual prevention efforts.

Washtenaw County's activities regarding WNV are a partnership involving the Washtenaw County Public Health Department and Environmental Health Division, Michigan State University Extension, and the University of Michigan. These units comprise the Washtenaw County West Nile Virus Task Force. The Task Force's approach to prevention focuses on communication, education, outreach activities, surveillance, personal protection and mosquito control recommendations.

Hotline – (734) 544-6750

A local Hotline was established for answering WNV-related questions and accepting reports of dead birds. The Hotline went live in mid-April and was open through the end of October. Call volume peaked in late May and again in late June, with approximately 30 calls per week.

Dead Bird Surveillance and Testing

The reporting of dead birds and testing of corvids was coordinated through the local Hotline, and through the State of Michigan West Nile Virus website. Washtenaw County had a total number of 24 corvids, 30 robins, and 47 dead birds of other species reported for the 2008 season. Bird testing was conducted by swabbing the throats of corvids and sending those samples to the State of Michigan Laboratory in Lansing. Nine corvids were tested, with five resulting in a positive test. The positive birds were found in the 48103, 48104, 48108, 48111, and 48160 zip code areas.

Human Surveillance

No human cases of WNV were reported in Washtenaw County in 2008.

Equine Surveillance

Horses have proven uniquely susceptible to WNV infection. In 2002 in Michigan, there were 341 positive horses in 48 counties. A WNV vaccine was approved for use in horses in 2003, resulting in only 10 positive horses in 9 counties that year. In 2004, there were 21 positive horses in Michigan, with 3 of them from Salem Township in Washtenaw County. All three horses were unvaccinated, and one of the horses died. In 2005, there were 13 positive horses in Michigan, and no positive horses in Washtenaw County. In 2006, there were 45 positive horses in Michigan, with two positive horses in Washtenaw County. All of the WNV-positive horses in Michigan in 2006 were unvaccinated. In 2007, there were only four positive horses in Michigan, with none from Washtenaw County. In 2008, there was only one positive horse in Michigan, in Montcalm County.

Mapping

Studies have shown that the peak of dead bird reports has tended to precede the first human cases of WNV by approximately two weeks. Because of this, dead bird surveillance is considered a critical activity due to its predictive value. Washtenaw County conducted community-based surveillance of dead birds again in 2008, requesting that residents report dead birds to the local Hotline or the State of Michigan WNV website. All dead bird surveillance data was entered into a database and locations of dead corvids were mapped. The maps are used to identify any linkages between dead corvid density and human cases.

Mosquito Control

Municipalities were recommended to apply larvicide to storm water catch basins and other standing water sites again in 2008. Many municipalities, including universities, participated in larvicide efforts, but others did not due to lack of funding, absence of storm drains, or large township areas. The municipalities that chose to larvicide primarily used Altosid XR 150-day briquettes (methoprene insect growth regulator) or Vectolex WSP (*Bacillus sphaericus*).

Most municipalities did not participate in adult mosquito spraying. While we have not experienced a large number of human cases in Washtenaw County, it is important for communities to be prepared in the event that an outbreak was to occur.

The Washtenaw County West Nile Virus Task Force recommends following the Centers for Disease Control and Prevention's (CDC's) "Epidemic/Epizootic West Nile Virus in the United States: Guidelines for Surveillance, Prevention, and Control, 2003 - Suggested Guidelines for Phased Response to West Nile Virus Surveillance Data", available at:

<http://www.cdc.gov/ncidod/dvbid/westnile/resources/wnv-guidelines-aug-2003.pdf>