

A Publication of the Genesee County Health Department West Nile Virus

West Nile Virus (WNV) is a flavivirus commonly found in Africa, West Asia and the Middle East, but until 1999 had not been documented in the Western hemisphere. WNV is an arthropod-borne virus or arbovirus. These viruses are maintained in nature through biological transmission between vertebrate hosts by blood-feeding arthropods (mosquitoes, sand flies, ticks, etc.). Vertebrates can become infected when an infected mosquito bites them to take a blood meal. WNV is a zoonosis that affects a number of animal species, including humans, and is closely related to the St. Louis encephalitis virus that is found in the United States. WNV was first isolated from a febrile adult woman in West Nile district, Uganda, in 1937. The virus was identified as a cause of human meningoencephalitis in elderly patients during an outbreak in Israel in 1957. West Nile virus has emerged in recent years in the temperate regions of Europe and North America and presents a threat to public, equine and animal health. WNV primarily circulates between mosquitoes and birds; humans and other mammals are probably incidental hosts.

In the U.S. through the end of 2001, WNV has been documented in Alabama, Arkansas, Connecticut, Delaware, the District of Columbia, Florida, Georgia, Illinois, Indiana, Iowa, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Mississippi, Missouri, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, Tennessee, Virginia and Wisconsin. As of the end of 2001, there have been 149 total human cases of West Nile virus illness reported and confirmed in the U.S, including 18 fatalities. Individuals over the age of 50 and those with weakened immune systems are at highest risk of serious illness from WNV. Last year the average age of cases that were seriously ill from WNV in New York was 61. Children and healthy adults are not considered to be at high risk, but should still be cautious. Most infections are mild, and symptoms

include fever, headache, and body aches, occasionally with skin rash and swollen lymph glands. Less than 1% of individuals develop more severe infection characterized by headache, high fever, neck stiffness, stupor, disorientation, coma, tremors, and, rarely death. The incubation period for WNV is usually 3-12 days. There is no specific therapy for WNV encephalitis. In severe cases, intensive supportive therapy is indicated, including hospitalization, intravenous fluids, respiratory support and prevention of secondary infections. It is assumed that immunity to WNV is lifelong, but may wane with time.

The continued expansion of WNV in the U. S since 1999, indicates that the virus is permanently established in the Western hemisphere. The experiences from the northeast during the 1999 and 2000 season have shown that surveillance for dead corvids (especially American crows) has been a particularly sensitive means to detect the presence of WNV in an area. Mosquitoes become infected with West Nile virus when they feed on infected birds that carry the virus in their blood. Most crows are very susceptible to infection with West Nile virus and will die within 2-3 weeks of infection. After 10 to 14 days, the mosquito's salivary glands become infected and those infected mosquitoes can then transmit the virus to humans and other animals while biting them to take blood. During blood feeding, the mosquito injects the virus into the animal or human, where it multiplies and may cause illness.

The purpose of this quarterly newsletter is to inform the community and health care providers in Genesee County about disease trends in the county. We welcome any comments or questions. Contact:

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There have been no human cases of WNV in Michigan. WNV surveillance in Michigan during 2001 focused on collection and testing of dead crows and dead blue jays, beginning in May and continuing through September. Over 500 dead birds were submitted for testing for WNV from across the State to the Animal Health Diagnostic Laboratory (AHDL) at Michigan State University. A total of 65 birds from 11 jurisdictions in Michigan tested positive for the virus last summer. Targeted mosquito surveillance was conducted in certain counties in Michigan soon after the identification of the first WNV positive birds. As a result of this targeted mosquito trapping and testing initiative coordinated by the Michigan Department of Agriculture (MDA), two pools of *Culex pipiens* (one each from Macomb and Oakland counties) were found to be positive for WNV. No human WNV cases were identified in Michigan in 2001. The MDCH Virology Section tested 155 specimens from 120 patients that were suspected of having arboviral encephalitis last year. One fatal case of EEE (Eastern Equine Encephalitis) was identified in a 14-year-old from Livingston County through this testing.

No birds that were submitted from Genesee County last year tested positive for WNV. The Genesee County Health Department (GCHD) will continue surveillance for sick and dead birds this summer to help identify the presence of WNV in this area. Residents are advised to take personal measures against mosquito bites to reduce the risk of acquiring the disease. Certain communities in Genesee County, such as Fenton City, Fenton

Township, Linden and Grand Blanc Township, have mosquito abatement programs provided by private contractors. These communities also participate in the MDA's arbovirus surveillance program by sending adult mosquitoes to MSU for WNV testing. Dead birds and blue jays can be reported to the Genesee County Health Department (GCHD) by calling 257-3612. Additionally, the MDCH has established a WNV hotline (1-888-668-0869) to provide general information on WNV. Web-based reporting of dead crows is also possible by accessing the MDA's website at www.michigan.gov/mda/.

If WNV activity is detected and confirmed through lab tests in Genesee County, residents will be alerted via a press release from the GCHD. The Michigan Department of Community Health (MDCH) will only test dead birds until the first positive bird is identified in each county or jurisdiction. But continued reporting of dead birds by county residents is encouraged, as dead crow density in an area is correlated with the level of risk of exposure to WNV for individuals in an area. Physicians should be especially alert for signs of encephalitis in patients and are reminded that Michigan Communicable Disease rules require that all cases of viral encephalitis be reported to the local health department. The MDCH lab has the capacity to test for arboviruses from serum, CSF and tissue specimens. The GCHD can provide educational materials on WNV and strategies for prevention of WNV disease to interested county residents.

Selected Reportable Communicable Diseases in Genesee County

Disease	Week ending 04/12/02	Reported cases to date FY* 2001-02	Same week reported cases to date FY 2000-01	Total reported cases FY 2000-01
Chicken Pox	14	210	248	311
Pertussis	0	2	5	7
Flu-like illness	818	36,972	31,004	38,774
TB-New cases	0	12	8	15
Chlamydia	0	1319	1152	1961
Gonorrhea	0	1087	916	1581
Hepatitis B (Acute)	0	10	33	39
Hepatitis C (Acute)	0	9	31	44
Campylobacter	0	14	12	27
Giardiasis	0	18	14	32
Hepatitis A	0	6	16	19
Salmonellosis	0	17	13	29
Shigellosis	0	2	22	29
Meningitis-Viral	0	76	21	178
Meningitis-Bacterial	0	7	12	17

*FY – Fiscal Year. October 1-September 30

Genesee County Health Department

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