# DOH ARBOVIRUS WEEKLY UPDATE

June 21, 2004

West Nile virus is an emerging infectious disease, and only appeared in the eastern United States in 1999. Since then, the virus has spread to forty-six states in the continental United States; Oregon and Washington have documented no West Nile virus activity. As of 15 June 2004, twenty-four states have detected West Nile virus activity; fourteen human cases have been reported from five states, but no deaths. In 2003, nine thousand eight hundred sixty-two (9,862) verified human cases have occurred in those 46 states with two hundred sixty-four (264) deaths. As part of the West Nile virus surveillance system, the Department of Health (DOH) conducts human, avian, mammal and mosquito surveillance and keeps extensive database and spreadsheet records detailing this surveillance. DOH established a West Nile virus Call Center number at 202-535-2323, and extensive web site information at http://www.dchealth.dc.gov/.

The chances of developing symptoms of West Nile virus from the bite of a mosquito are very remote. Much less than one percent of mosquitoes test positive for the virus in areas where the virus is present. And, if bitten by an infected mosquito, a person has less than a one percent chance that he or she will develop symptoms. Generally, the symptoms are very mild and may not even be noticed. Only in very rare cases will the symptoms be severe. Individuals over the age of 50 are the population most at risk. For 2003, the median age for human disease was 55 and the median age for mortality was 70. For 2004, the median age of WNV positive human cases is 52. Any person who suspects that they have the virus should contact their doctor immediately.

DOH has trained staff to assist residents with identifying and eliminating potential mosquito-breeding sites and to speak at neighborhood meetings and health fairs. The fundamental components of the West Nile virus plan are prevention and personal protection.

The West Nile virus program is a fluid program that is continually evaluated and altered to protect the public. Mosquito surveillance has been enhanced to assess the risk to public health and safety in the District. It is paramount to track positive mosquito pools and species. As a result of this increased mosquito surveillance, new species of mosquitoes have been identified as positive for West Nile virus in the District.

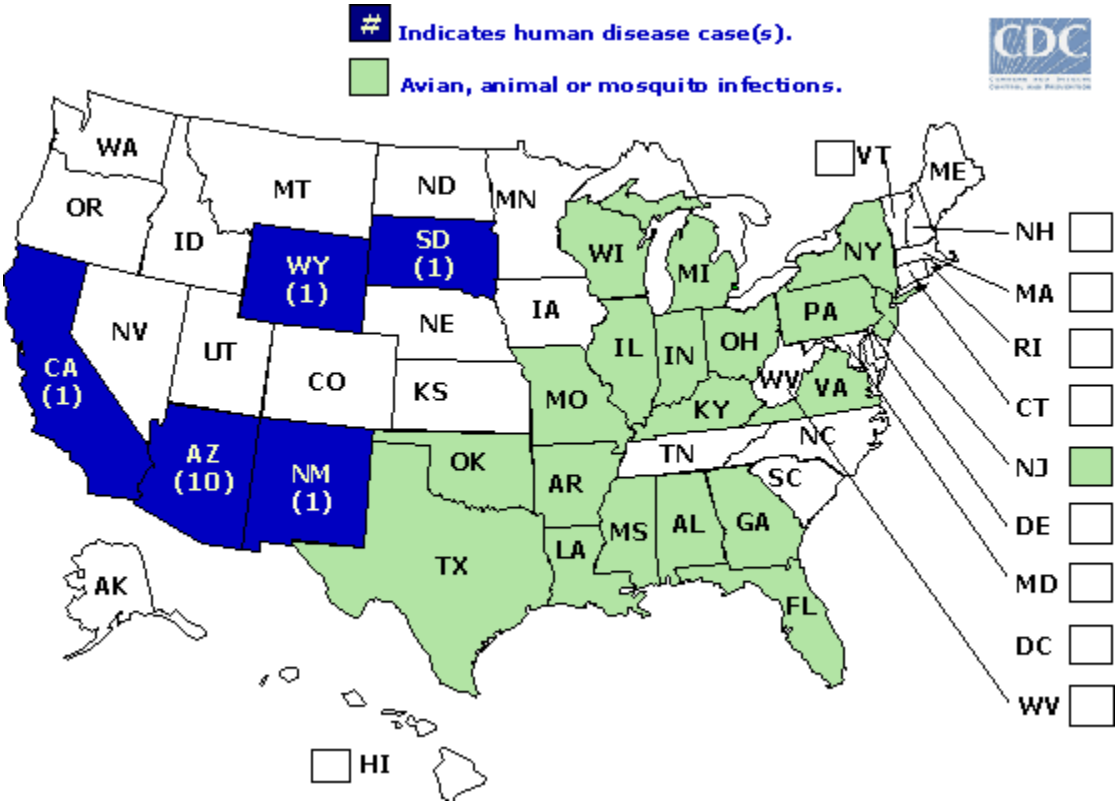
In 2003, one pool of *Aedes albopictus* tested positive in the District. This species is a daytime human biter and causes increased concern. Previously only *Culex spp*., a dawn and dusk feeder, tested positive. As a result, DOH has added precautions of protecting residents against mosquito bites at all times during the day and not just dawn and dusk.

The main route of human infection with West Nile virus is through the bite of an infected mosquito. Additional routes of human infection became apparent during the 2002 West Nile epidemic. It is important to note that these other methods of transmission represent a very small proportion of cases. Investigations have identified WNV transmission through transplanted organs and through blood transfusions. There is one reported case of transplacental (mother-to-child) WNV transmission. There is also one reported case of

transmission of WNV through breast-milk. Although most people who contract West Nile have no symptoms and those who do normally suffer little more than flu-like illness, it is believed they can carry small amounts of the virus in their blood for several days.

West Nile Virus Activity - United States: Jun 2004

## 2004 West Nile Virus Activity in the United States (reported to CDC as of June 15, 2004*)




**Total Human Cases Reported to CDC**- These numbers reflect both mild and severe human disease cases occurring between Jan.1 -June 15, 2004 that have been reported to ArboNet by state and local health departments. ArboNet is the national, electronic surveillance system established by CDC to assist states in tracking West Nile virus and other mosquito-borne viruses. Information regarding 2004 virus/disease activity is posted when such cases are reported to CDC.

Of the 14 cases 5 (36%) were reported as West Nile fever (milder disease), 9 (64%) were reported as West Nile meningitis or encephalitis (neuroinvasive disease) and 0 (0%) were clinically unspecified at this time. Please refer to state health department web sites for further details regarding state case totals.

**---West Nile Virus Activity --- United States, June 9--15, 2004**
As of June 15, a total of 14 human cases of West Nile virus (WNV) illness had been reported to CDC through ArboNET from five states. Ten cases were reported from Arizona, and one case each from California, New Mexico, South Dakota, and Wyoming (Figure). Ten (71%) of the cases occurred in males; the median age of patients was 53 years (range: 9--69 years), and dates of illness onset ranged from May 8 to June 1.
A total of 12 presumptive West Nile viremic blood donors have been reported to ArboNET. Of these, 11 were reported from Arizona and one was reported from New Mexico. Of the 12 donors reported to ArboNET, one person aged 69 years subsequently had neuroinvasive disease, and two persons aged 22 and 52 years had West Nile fever.
In addition, during 2004, a total of 471 dead corvids and 55 other dead birds with WNV infection have been reported from 18 states, and 16 WNV infections in horses have been reported from six states (Alabama, Arizona, Missouri, Oklahoma, Texas, and Virginia).
WNV seroconversions have been reported in 64 sentinel chicken flocks from four states (Arizona, California, Florida, and Louisiana), and 88 WNV-positive mosquito pools have been reported from eight states (Arizona, California, Illinois, Indiana, Louisiana, Missouri, Pennsylvania, and Texas).
Additional information about national WNV activity is available from CDC at http://www.cdc.gov/ncidod/dvbid/westnile/index.htm and at http://westnilemaps.usgs.gov
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**District-Wide Mosquito Update**

The District of Columbia Public Health Laboratory tests all mosquitoes collected by the Department of Health. Specimens collected from Department of Defense Installations, National Park Services and the National Zoological Park are transported to the U.S. Army Center for Health Promotion and Prevention (USACHPPM) for testing. No pools have tested positive during the 2004 surveillance season.

Specimens are collected from DoD installations at Walter Reed Army Medical Center, Ft. McNair, Armed Forces Retirement Home, Marine Barracks, Naval Observatory, Anacostia Annex of the Air Force, Washington Naval Yard and the Nebraska Avenue Complex, National Park Services locations at Rock Creek Park, National Capital Parks-East, National Capital Parks-Central and the C & O Canal, East. Department of Health trap locations are located in each Ward of the District.

Species collected within the District in 2003 include: Culex, Aedes, Ochlerotatus, Anopheles, Coquillettidia, Psorophora. In 2004 only Culex, Aedes and Ochlerotatus has been collected.

## STATUS OF DISTRICT PROGRAMS:

### CALL CENTER

- DOH established a West Nile Virus Call Center at 202-535-2323 effective April 1, 2004. Residents and visitors are encouraged to call the Call Center to report

standing water, mosquito concerns, and dead birds and to request advice and assistance.

- The Call Center, year-to-date, has received over 74 calls regarding standing water, mosquito infestations, larvicide, health concerns and dead birds.

**HUMAN SURVEILLANCE**

- The DC Public Health Lab currently has confirmed no patients as West Nile virus positive, year-to-date.
- DOH has contacted all hospitals to review protocol for WNV-suspect cases.
- DOH staff calls all hospitals on a weekly basis to assist with reporting and recording all suspect cases that are West Nile. This is termed 'active surveillance'.
- DOH staff distributed West Nile virus Physician Alerts by blast fax to health care providers and hospitals detailing the West Nile virus case definition, reporting and specimen collection and submission criteria.
- DOH staff prepares, processes, transports and submits human specimens for testing.
- In 2001, 20 human samples were submitted for testing. All samples tested negative.
- In 2002, 80 human samples were submitted for testing. Thirty-one samples were positive. Three samples were probable, twenty-eight samples were negative and eighteen samples were considered pending because information was not complete
- In 2003: Thirty-eight specimens were tested for West Nile virus; one was probable, thirty-four were confirmed negative and three cases were positive. There were no deaths in the District from West Nile virus in 2003.

**MOSQUITO SURVEILLANCE**

- Thirteen gravid traps have been set for the week of June 14 through June 20 in Wards 1-8.
- YTD, 421 female mosquitoes have been collected by DOH and sent for testing.
- The Department of Health currently has 421 female mosquitoes awaiting testing.
- Trapping began the first week in June.
- DOH staff sets gravid traps, throughout the District in each ward per an established grid pattern. A collaborative effort between DOH, National Park Services (NPS) and the Department of Defense (DoD), ensures that trapping locations incorporate all areas of the District.
- DOH staff set mosquito traps and collect specimens from over 30 traps. Traps are set for 2 trap nights per week. Mosquitoes are sorted, prepared for testing and transported to the DC PHL for arboviral testing. Following a positive tissue culture confirmed positive through PCR, specimens will be tested for St. Louis encephalitis (SLE), Eastern Equine encephalitis (EEE), Lacrosse encephalitis and dengue fever.
- In 2001, 870 pools were collected in the District and submitted for testing. Three pools tested positive.

- In 2002, 1315 pools were collected in the District and submitted for testing. 84 pools tested positive, including 5 pools of *Aede*s *spp.* and 79 pools of *Culex spp*. Locations of positive pools are as follows: 3100 blk Conn. Ave (1), Rock Creek Park (17), Ft. McNair (47), US Soldier and Airmen's Home (19).
- In 2003, 2215 pools were collected in the District and submitted for testing. 49 pools tested positive, including 1 pool of *Aedes sp.* and 48 pools of *Culex spp.* Locations of positive pools were: Rock Creek Park (3), Armed Forces Retirement Home (13), Anacostia Annex (18), Marine Barracks (5), Washington Naval Yard (3), Naval Observatory (2), Nebraska Avenue Complex (2), 2700 blk of Woodley Pl, NW (1), 4300 blk of Polk St, NE (1), 4400 blk of Harrison St, NW (1).
- *Anopheles* mosquitoes, a possible carrier for malaria are collected and tested. Levels of *Anopheles* mosquitoes present in the District are relatively low. In 2003, thirty-three (33) individual mosquitoes were collected and placed into twenty (20) pools that all tested negative for malaria. In 2002, there were 19 individual female *Anopheles* mosquitoes placed into eight pools that all tested negative.

**AVIAN SURVEILLANCE**

- DOH no longer collects and tests dead birds because West Nile virus is considered endemic in the District. Further positive results of dead bird testing do not provide any relevant information. Information will be collected on sightings of dead birds for empirical information.
- Sightings of dead birds are received and compiled at the Call Center. Residents are asked to report the location and physical description of all dead birds. A database will be established and maintained to capture all information.
- 2004 YTD; there have been 50 dead bird reports with the following break-down by ward; Ward 1-9, Ward 2-4, Ward 3-14, Ward 4-18, Ward 5-7, Ward 6-0, Ward 7-4, Ward 8-3.
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| Week | Bird Reports |
|---|---|
| May 3-9 | 5 |
| May 10-16 | 1 |
| May 17-23 | 1 |
| May 24-30 | 4 |
| May 31-June 6 | 21 |
| June 7-13 | 18 |
| June 14-20 | 11 |

- Information on the proper disposal of the birds is given to all callers. Specific detailed instructions for disposal are available on the DC Website (dchealth.dc.gov) and at the Call Center (202-535-2323).
- In 2000, the first positive bird was collected on September 28, with a total of 5 positive birds for the year.

- In 2001, the first positive bird was collected on July 10. Nine hundred fourteen (914) birds were collected, four hundred forty-four (444) were tested and three hundred sixty (360) tested positive, with a percent of positivity of 81.08%.
- In 2002, the first positive bird was collected on May 1. Nine hundred five (905) birds were collected, three hundred forty (340) were processed for testing, thirty-one (31) tested negative, one hundred thirty-four (134) were disposed of and one hundred seventy-five (175) birds tested positive with a rate of positivity of 84.95%.
- The positive bird breakdown by ward for 2002 was Ward 1-10, Ward 2-8, Ward 3-123, Ward 4-12, Ward 5-2, Ward 6-7, Ward 7-16, and Ward 8-2.
- The Smithsonian Institute-National Zoological Park and the US Army are testing select birds for West Nile and other arboviruses. Results will be posted through this report.

**MOSQUITO CONTROL**

- As surveillance data reflects locations of West Nile virus activity, staff will larvicide an eight-square block area surrounding these sites.
- YTD 2004, DOH staff has larvicided 1,732 catch basins. The Ward breakdown for catch basins is as follows; Ward 1-332, Ward 2-141, Ward 3-595, Ward 4-43, Ward 5-184, Ward 6-0, Ward 7-0, Ward 8-437.
- YTD 2004, DOH staff has applied larvicidal treatments in alleys with improper drainage, ponds, swamps and park sites in 4 locations.
- In 2003, DOH staff larvicided 3,578 catch basins. The Ward breakdown is as follows; Ward 1-188 catch basin; Ward 2-250 catch basins; Ward 3-971 basins; Ward 4-629 basins; Ward 5-430 basins; Ward 6-277 basins; Ward 7-539; Ward 8-415 catch basins.
- In 2003, DOH staff has applied larvicidal treatments in alleys with improper drainage, ponds, swamps and park sites in 43 locations, 9 of which are constant bodies of water.
- DOH staff larvicide in response to WNV positive human test results, WNV positive mosquito results, mosquito density and nuisance areas and community concerns. The larvicide, a biological product that kills mosquitoes in the larval stage, is placed in catch basins and in areas of standing or stagnant water.
- In April of 2004, DOH staff began larviciding in the District at locations of positive birds and mosquitoes from the previous year in an eight square block area at each location.
- The larvicidal application is repeated approximately every 5-6 weeks.
- Larviciding has been determined to be more effective over a period of time than adulticiding. In 2003, mosquito catches were significantly reduced in areas where larviciding efforts were conducted.

- In 2001, DOH staff larvicided three thousand four hundred ninety-six (3,496) catch basins.
- In 2002, DOH staff larvicided ten thousand eight hundred thirty-five (10,835) catch basins.
- The District does not expect to spray for mosquitoes because of low efficacy; die-offs of non-target species and potential health risks to a high population of persons affected with respiratory problems and compromised immune systems.
- Killing mosquito larvae and eliminating mosquito-breeding sites are the most effective practices to reduce the numbers of mosquitoes.
- The Center for Disease Control and Prevention (CDC) recommends that larvicide be used to reduce mosquito populations.

**MAMMAL SURVEILLANCE**

- DOH staff conducts passive mammal surveillance.
- DOH staff distributed information to vets, pet shops, and horse stable managers detailing reporting and specimen collection and submission criteria and protocol.
- No mammals have tested positive in the District for the last four years.
- Letters to all veterinarians in the District have been sent to assist veterinarians in recognizing, submitted samples for testing and reporting West Nile virus cases.

**OUTREACH AND EDUCATION**

- In 2004, year-to-date, 1,411 brochures have been distributed to elderly homes, day care providers, and neighborhood services, door-to-door and to all DC Libraries. Literature has also been available at various events.
- In 2003, approximately 49,103 brochures were distributed.
- DOH Representatives have participated in many media interviews with CNN, Channel 7/8, Washington Post, WHUR Radio, Channel 9, Metro Weekly News, Washington Times and Channel 5.
- In 2003, DOH staff attended approximately 68 community and core team meetings and DOH spokespersons have completed approximately 48 interviews with local and national media to discuss West Nile virus, explain heath precautions and promote prevention and protection techniques. Spokesperson also conducted 7 live interviews on national radio answering listener's call-in questions.
- DOH has educated participants of the DC Government Safety Fair by setting up a booth, passing out literature and speaking with concerned citizens.
- DOH has prepared an informational brochure emphasizing prevention and protection. The brochure has contact information for the Call Center and website. It has been translated into Spanish, Chinese, Korean and Vietnamese.

- DOH has developed space on the DOH website to provide residents with information, including, the District Arbovirus Surveillance and Response Plan for 2004, methods of controlling mosquitoes, CDC questions and answers, recent press releases and weekly updated surveillance reports.
- DOH has developed an informational script and power point presentation for community presentations.
- Brochures have been distributed to private citizens, day care centers, senior citizen homes, residential housing, hospitals, libraries, schools, parks and recreation centers, churches, other District agencies, NSC Coordinators and all ANC Commissioners.