



# PUBLIC HEALTH BRIEFING

RHODE ISLAND DEPARTMENT OF HEALTH

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## CONTROL OF WEST NILE VIRUS, RHODE ISLAND, 2003

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West Nile virus (WNV), a flavivirus originally found in Africa, West Asia, and the Middle East, is now permanently established and widely dispersed in the United States. WNV can infect birds, mosquitoes, humans, horses, and other mammals. Birds common in the United States (crows, blue jays, and hawks) serve as a pool from which the virus is spread by mosquitoes seeking multiple blood meals from birds and mammals. Some mosquitoes seek blood meals exclusively from birds, facilitating viral spread from bird to bird, flock to flock, and territory to territory, while others seek blood meals indiscriminantly from birds and mammals, occasionally transporting the virus from birds to humans or other mammals.

Many people who become infected with WNV develop West Nile fever, a mild disease characterized by quickly resolving flu-like symptoms without long-term effect, but some go on to develop West Nile encephalitis, West Nile meningitis, or West Nile meningoencephalitis, serious conditions requiring hospitalization that may result in permanent disability or death.

Thus far in the United States, birds appear to be quite vulnerable to WNV, commonly dying from WNV-induced encephalitis. Surveillance of avian deaths has proven to be a useful, albeit crude indicator of the presence of WNV in a geographic area. Mosquito trapping and testing has also proven to be a valuable surveillance tool, more useful than bird surveillance because it yields information not only on the existence of WNV in an area, but also on species-specific density and WNV prevalence, useful in estimating risk to humans and other mammals.

In the northeastern United States, WNV over-winters in certain species of mosquitoes, spreads to birds in the spring as long-dormant mosquitoes seek blood meals, amplifies in flocks of birds throughout the spring and summer, and poses the greatest threat to humans from mid-summer through early fall. The vast majority of adult mosquitoes are killed in the fall at the time of the first killing frosts, and since water temperature at that time is too low to incubate new mosquitoes, the risk of WNV transmission to birds, humans, horses, and other mammals becomes negligible. In 2003, Rhode Island's mosquito-biting season ended on November 1, following a sustained, statewide frost.

### SURVEILLANCE

In Rhode Island, surveillance is conducted on birds, mosquitoes, humans, horses, and other mammals. Populations of birds and mosquitoes are sampled for WNV infec-

tion, physicians and veterinarians report all suspected cases of WNV, and all blood donations are tested for WNV.

### SAMPLING PROCEDURES

**Mosquitoes:** Department of Environmental Management (DEM) sampled mosquitoes from May 26, 2003 to October 28, 2003 by trapping mosquitoes in strategically-selected areas of the state. Carbon-dioxide-baited CDC traps (designed to attract females seeking blood meals) and gravid traps (designed to capture females seeking to lay eggs) were set at least weekly statewide (including Block Island), for a total of 590 trap-nights.

**Birds:** In 2003, DEM once again invited the public to telephone reports of bird carcasses found in their communities. DEM experts evaluated each report and picked up selected carcasses for laboratory testing. Carcasses were sampled on the basis of species, location, and condition from June 1, 2003 through October 25, 2003.

### REPORTING PROCEDURES

**Humans:** The Rhode Island Department of Health (HEALTH) conducts surveillance to identify human cases of West Nile Virus from May to October. All licensed physicians, laboratories and hospitals are expected to report any patient with a clinical diagnosis of viral encephalitis (any age), or aseptic or suspect viral meningitis cerebrospinal fluid (CSF) pleocytosis of 10 cells or more) in persons age 17 years or greater and Guillain-Barré syndrome. Communicable Diseases tracks specimens from cases, (including obtaining convalescent sera as needed) meeting the surveillance case definition. When reporting a case it is vitally important to provide the following information: date of symptom onset, date specimen was drawn, and travel history in the 2 weeks prior to onset. Note that these tests are not offered by the State Laboratory to patients suspected of having WNV infection based on mild illness such as fever, headache and a history of mosquito bites. For outpatient testing in persons who do not meet surveillance criteria, clinicians and laboratories are advised to use commercially available tests for St. Louis encephalitis (cross reacts with WNV) or any WNV tests which may become available at commercial laboratories. All Rhode Island data are uploaded to the CDC via the ArboNet system each week for timely national reporting.

**Horses and Other Animals:** The Rhode Island State Veterinarians Office receives reports from veterinarians (and

