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Bulletin No. 9 May 6, 2003

2003 Guidelines for West Nile Virus Surveillance in Alaska

Background

In 2002 in the United States, West Nile virus (WNV) caused almost 4,000 cases of human disease and more than 200 deaths. These figures were much higher than those from any of the previous 3 years since WNV was first detected in North America. In addition, morbidity and mortality among avian and equine populations were also markedly increased in 2002. **To date, Alaska has yet to record a human or animal case of locally-acquired WNV.**

Alaska is unlikely to become a WNV endemic or enzootic zone for several reasons. Birds that serve as WNV reservoirs must be viremic at the time of the blood meal for a mosquito to become infected. Viremia is transient (estimated at 2-4 days); therefore, most birds migrating to Alaska from an enzootic zone are likely to have cleared the virus before arrival. As well, the mosquito species that are the most efficient vectors of WNV are not present in Alaska. Finally, mosquitoes require at least 10 days at 30°C (or 86°F) to amplify the virus. **Locally-acquired WNV could occur only if viremic migratory birds arrive in Alaska when the appropriate species of mosquitoes are active and when temperatures would permit adequate amplification of virus. With all those factors in place, virus could potentially spill over into non-migratory birds, humans, horses, or other Alaska animals.**

The Section of Epidemiology has been working with federal, state and local agencies to develop a surveillance plan for the upcoming season. The Alaska State Virology Laboratory (ASVL) in Fairbanks is developing capacity to test human specimens and a limited number of dead birds for evidence of WNV. In most states affected by WNV in 2002, results from WNV testing of dead birds found in the same areas as where humans lived were a sensitive indicator of the likelihood of human disease. Therefore, Alaska WNV surveillance efforts will be aimed not only at detecting disease among humans, but also at detecting WNV among species of birds that appear to be most susceptible to the virus.

Surveillance for WNV in Humans

Although locally-acquired WNV is unlikely to occur in Alaska, cases of WNV among persons who acquire the virus when traveling in endemic areas may still occur (as was the case in 2002, cf. www.akepi.org/bulletins/docs/b2002_23.pdf). **For any suspected case of WNV regardless of the possible location of exposure, healthcare providers should contact the Section of Epidemiology at 907-269-8000 (8AM-5PM) or 800-478-0084 (after hours).** Epidemiology staff are available to consult about diagnosing WNV and to facilitate transport of diagnostic specimens to ASVL.

Specimens will be accepted for WNV IgG and IgM by MAC-ELISA testing **ONLY** if a patient has been admitted to a hospital with the following presumptive diagnoses:

- Viral encephalitis
- Viral meningoencephalitis
- Guillain-Barré Syndrome
- Acute flaccid paralysis

Once testing has been approved by Epidemiology, at least 0.5 ml of serum and at least 1.0 ml of cerebrospinal fluid (CSF) should be sent to ASVL. Acute serum specimens should be collected 10 days after onset of symptoms and convalescent specimens 2-3 weeks after collection of an acute sample. Specimens must be kept cool (4°C), and not frozen. Contact Don Ritter or Andrea Earnest (907-474-7017) at ASVL to notify them of specimen arrival or if you have other questions about specimen handling and shipping.

Surveillance for WNV in Birds

Over 160 different species of birds had laboratory evidence of infection in 2002; however, the case fatality rate was not the same for all species. Some species, e.g., members of family Corvidae and raptors, appeared to be exquisitely sensitive to WNV and more likely than other species to die when infected. Therefore, Alaska surveillance efforts will focus on testing **ONLY** the following species of dead birds:

- Common ravens
- Northwestern or American crows
- Black-billed magpies
- Steller's or Gray jays
- Any owl, hawk, eagle or falcon

ASVL will evaluate carcasses for presence of WNV by polymerase chain reaction (PCR) and/or VecTest® methodologies. Carcasses must be fresh to detect virus by PCR. Therefore, dead birds will be accepted **ONLY** if they are in the following condition:

- No maggots or maggot eggs on or under body
- No foul odor or watery dark brown/black liquid emanating from body
- Eyes present and not wrinkled or shrunken
- Bird observed alive within last 12 hours, i.e., not observed dead for >12 hours
- Body intact and not scavenged, e.g., viscera present

NOTE: Birds suspected to have been electrocuted, shot, poisoned, or otherwise killed under suspicious circumstances should be reported immediately to USFWS (U.S. Fish and Wildlife Service) Law Enforcement Division at 800-858-7621; or, if in Anchorage, at 907-271-2828.

If a person finds a dead bird meeting the above species and freshness criteria, DO NOT PICK UP THE BIRD.

Instead, contact either of the following:

- 1) A local wildlife authority, e.g., ADFG (AK Department of Fish & Game), USFWS, or USGS (U.S. Geological Survey). Call ADFG at 907-267-2347 in Anchorage, 907-459-7206 in Fairbanks, or 907-465-6197 in Juneau, for information about regional contacts.
- 2) Alaska Section of Epidemiology at 907-269-8000.

We will determine whether the carcass should be tested and arrange with the caller the most efficient method for collecting the carcass and transporting it to ASVL. Not all birds meeting the criteria will be tested. Depending on the results of testing and the volume of dead birds reported, changes to testing protocols may be enacted in the future. Summary results will be posted on the Section of Epidemiology WNV website.

Method of carcass disposal:

If instructed by a wildlife or public health authority to dispose of a dead bird, use gloves or put your hand inside of a plastic bag to pick up the bird. Double bag the carcass and dispose of it in the garbage.

For more information:

Section of Epidemiology WNV website <http://www.akepi.org/id/dod/wnileinfo.stm>
ADFG WNV website <http://www.state.ak.us/adfg/wildlife/geninfo/disease/wnv.htm>
E-mail WNV & wildlife questions to: <mailto:WNVinfo@fishgame.state.ak.us>