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HEALTH ADVISORY #208 **July 31, 2007**
REPORTING AND TESTING OF SUSPECTED CASES OF WEST NILE VIRUS and EASTERN EQUINE ENCEPHALITIS INFECTION AND REPORTING CASES OF PESTICIDE POISONING

Please distribute to the Infection Control Department, Emergency Department, Infectious Disease Department, Director of Nursing, Medical Director, Laboratory Service, and all Patient Care Areas.

SUMMARY

- The New York State Department of Health (NYSDOH) is advising physicians on the procedures to test and report suspected cases of West Nile virus (WNV), eastern equine encephalitis (EEE), and pesticide poisoning.
- There have been over 23,000 cases of WNV reported in the United States since 1999, with 316 of those cases from New York State (NYS). WNV is now assumed to be endemic in NYS. There has been one positive bird reported in NYS in 2007 as of the date of this advisory. It is assumed that WNV will be circulating throughout the state as the mosquito season progresses.
- EEE has been detected in horses, birds and mosquitoes in NYS during the past four years. There have been no human cases in NYS since 1983, but there have been human cases in 2004, 2005 and 2006 in neighboring states.
- Viral encephalitis and viral meningitis are routinely reportable conditions. However, during the mosquito season (June 1 through November 1), providers should immediately report any patient with clinical evidence of viral encephalitis and any patient aged two years or older with viral meningitis. These reports should be made to the Erie County Department of Health (716) 858-7697, and arbovirus infections should be considered in the differential diagnosis.
- Wadsworth Center provides testing on both cerebrospinal fluid (CSF) and serum. The tests performed will vary with the clinical status of the patient.
- In cases where pesticides are used to control mosquitoes, some individuals may experience adverse affects from pesticide exposure. These cases should be reported to the NYSDOH Pesticide Poisoning Registry.

BACKGROUND

West Nile virus (WNV) activity continues to be seen throughout the nation. Since the introduction of WNV in 1999, 48 states and the District of Columbia have documented 23,850 human cases of West Nile fever and neuroinvasive disease. In addition, in 2004, 2005 and 2006 there were 19 states with documented eastern equine encephalitis (EEE) virus activity, including states in the Northeast United States.

Between 1999 and 2006, a total of 316 cases of WNV have been identified in NYS (including NYC), with 33 deaths. During 2006, a total of 23 human cases of WNV infection were identified in NYS, including NYC. There were four fatalities. Although there have been no human cases of EEE in NYS since 1983, NYS has recorded an increase in EEE activity throughout the state in mosquitoes, birds and horses in recent years. This increase and expansion in arboviral activity demonstrates the ongoing risk of WNV and EEE transmission in the state and the need for continued arboviral surveillance and prevention activities.

The New York State Department of Health (NYSDOH) and local health departments (LHDs) are enhancing surveillance activities for suspected WNV and EEE infections to facilitate the prompt recognition of a human outbreak. A critical component of this effort is the rapid detection and timely reporting of cases of viral encephalitis and viral meningitis, particularly from June through October. There has been one positive bird reported in NYS in 2007 as of the date of this advisory. It is assumed that WNV will be circulating throughout the state as the mosquito season progresses.

REPORTING CASES OF VIRAL ENCEPHALITIS AND VIRAL MENINGITIS

Viral encephalitis and viral meningitis are routinely reportable conditions. However, during the mosquito season, to ensure rapid identification of human WNV and EEE infection, providers should report *immediately* by telephone to their LHD any adult or pediatric patient with clinical evidence of viral encephalitis and any patient aged two years or older with viral meningitis. In addition, providers should consider WNV infection in the differential diagnosis of patients presenting with acute flaccid paralysis (AFP) or other unexplained movement disorders including tremor, myoclonus or Parkinson's-like symptoms, as a proportion of the WNV cases in the past six years have presented with these symptoms.

TESTING FOR VIRAL ENCEPHALITIS AND VIRAL MENINGITIS

The NYSDOH laboratory, Wadsworth Center, offers serologic testing for WNV (IgM-capture enzyme-linked immunosorbent assay [ELISA] on cerebrospinal fluid and serum and IgG microsphere immunoassay [MIA] on serum) and for EEE (IgG indirect fluorescent assay [IFA] on serum). In addition, Wadsworth Center offers polymerase chain reaction (PCR) testing of cerebrospinal fluid (CSF) for a wide range of viruses associated with encephalitis (West Nile virus, Saint Louis encephalitis, eastern equine encephalitis, Cache Valley and California serogroup viruses, enterovirus, herpes simplex viruses 1 and 2, human herpes virus 6, varicella zoster virus, Epstein Barr virus, cytomegalovirus, and adenovirus). PCR testing will be prioritized for testing as follows:

- CSF specimens submitted on hospitalized patients with encephalitis will be tested by PCR for the viral panel.

- CSF specimens submitted on non-hospitalized patients and/or patients without encephalitis (i.e., patients with meningitis or West Nile fever) will not be tested for the viral PCR panel. (The specimen will be forwarded to Wadsworth Center's Diagnostic Immunology Laboratory for WNV IgM ELISA testing).

All CSF specimens submitted for testing will also be forwarded to Wadsworth Center's Diagnostic Immunology Laboratory for WNV IgM ELISA testing. IgM and IgG IFA testing of CSF are not available for EEE. If there is insufficient quantity (<1.0 ml) of CSF submitted on hospitalized patients with encephalitis to test by both PCR and ELISA, the testing method will be based on the provider's preference.

COLLECTION OF SPECIMENS

WNV: IgM-capture ELISA for CSF and/or sera is the most sensitive screening test for WNV. Ideally, CSF and an acute serum specimen should be submitted on all suspect viral encephalitis and meningitis cases (using the specimen submittal guidelines found attached). In the case of a positive screening test, a convalescent serum specimen collected at least three weeks after the acute will be required to conduct plaque reduction neutralization testing (PRNT). Confirmatory testing by PRNT is necessary to rule out cross-reactivity with other flaviviruses. Convalescent serum specimens should also be submitted on patients with a negative or indeterminate ELISA result on an acute specimen collected less than 8 days after onset of symptoms.

EEE: Ideally, CSF and acute and convalescent serum specimens should be submitted for EEE testing (using the specimen submittal guidelines found attached). CSF testing by PCR may be less sensitive than testing serum by serology. CSF is not tested by serology and serum is not tested for IgM antibodies. Thus, it is important to submit both acute and convalescent serum specimens when testing for EEE. Acute and convalescent serum specimens submitted for EEE testing will be tested by IFA for IgG antibodies. Elevated results to an EEE IFA IgG test conducted on an acute specimen will require a convalescent serum specimen to be collected at least three weeks after the acute to determine if the elevation is due to a recent infection.

The utility of convalescent specimens was demonstrated again in 2006 with the identification of an acute Powassan encephalitis case in NY, in an individual with no known travel history. This case originally had elevated titers to St. Louis encephalitis and reactivity to WNV MIA. As a result of collecting a convalescent serum and conducting PRNT assays, this patient was re-diagnosed with Powassan encephalitis after the arboviral transmission season. This case highlights the importance of collecting a convalescent specimen to distinguish closely related arboviruses through PRNT. Furthermore, the inclusion of travel information on all patient case history forms is imperative to properly test against all relevant arboviruses that may be present in a geographical area to ascertain which virus may be responsible for the current illness.

If you have a patient who is hospitalized with viral encephalitis, viral meningitis, or with AFP or other unexplained movement disorders including tremor, myoclonus, or Parkinson's-like symptoms, we will assist you in arranging testing at the Wadsworth Center.

Serologic testing for asymptomatic patients or those with mild symptoms, such as fever and headache, is not necessary. The likelihood of WNV or EEE infection in these patients is extremely low, especially in the absence of an outbreak. Also, since there is no specific treatment for WNV and EEE infections, patients with mild symptoms do not require specific diagnostic testing. Providers pressed for testing by patients with milder symptoms should be aware that commercial serologic tests for WNV are available. (Please note: these commercial tests are screening tests and any positive result will need to be confirmed at Wadsworth Center and reported to the local health department). Mildly ill patients should be advised to seek medical attention if they develop more severe symptoms such as confusion, muscle weakness, severe headache, stiff neck or photophobia.

REPORTING TO THE NYSDOH PESTICIDE POISONING REGISTRY
Efforts are underway to reduce the risk of a human outbreak of WNV and EEE infections through an emphasis on education and mosquito habitat reduction. However, if the use of pesticides to control mosquitoes becomes necessary, some individuals may experience possible adverse health effects from pesticide exposure. Physicians, healthcare facilities and clinical laboratories are required to report any patient with confirmed or suspected pesticide poisoning to the NYSDOH Pesticide Poisoning Registry within 48 hours of treating the patient. Medical personnel should file reports of suspected or confirmed pesticide poisonings by calling the NYSDOH Pesticide Poisoning Registry at 1 (800) 322-6850.

Please contact the Erie County Department of Health at **(716) 858-7697** Monday – Friday, 8:30 AM – 4:00 PM with any questions regarding this advisory.

Health Category Definitions:
Health Alert FLASH: conveys the highest level of importance due to a large-scale, catastrophic public health emergency; warrants immediate action or attention
Health Alert Priority: conveys the highest level of importance; warrants immediate action or attention to a health problem or situation
Health Advisory: provides important information for a specific incident or situation; may not require immediate action
Health Update: provides updated information regarding an incident or situation; no immediate action necessary