

MAINE HEALTH ALERT NETWORK



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****ADVISORY – Important Information****

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TO: All HAN Recipients
FROM: Dora Anne Mills, M.D., M.P.H., Public Health Director
SUBJECT: Human Risk for Eastern Equine Encephalitis (EEE)
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Eastern equine encephalitis (EEE) is a very serious viral infection that is transmitted by the bite of an infected mosquito. Although rare, this disease has potentially severe consequences for those who contract it. All people in Maine need to be aware of the health risk and protect themselves from mosquito bites.

Background

In recent days and weeks EEE has killed horses in York, Cumberland, Kennebec, Waldo, and Penobscot Counties. These horses mean infected mosquitoes posing a risk to people are present. Although the risk of contracting the disease from one particular mosquito bite is very small, since any one mosquito is unlikely to be infected, the risk is much more widespread geographically than previously thought. This risk for contracting EEE virus is highest at dusk to dawn and when temperatures are above 50 degrees (and especially above 60 degrees), since these are the conditions when mosquitoes are most actively biting. The risk is also likely to continue through next year. As a result, all Mainers, schools, and communities should take action.

Although many persons infected with EEE virus have no apparent illness, those who develop symptoms do so usually 3 to 10 days after the bite of an infected mosquito. Symptoms range from mild flu-like illness to seizures, coma, and death. About one-third of those who have symptoms of encephalitis will die, and approximately half of the survivors with encephalitis will have permanent disabilities. There is also no known effective treatment. Although there is an EEE vaccine for horses, there is no vaccine available for humans.

EEE virus was first identified in Maine in 2005 among mosquitoes, horses, and birds in York and Cumberland Counties. In the fall of 2008, a man spending time in Cumberland County and a horse from York County died of the disease.

EEE virus is primarily amplified in a cycle between song birds, which serve as a reservoir, and wetland mosquitoes (especially those in freshwater hardwood/red maple cedar wetlands). Some of the recently infected horses resided near such wetlands. People at most risk are:

- People living, working, and visiting wetlands or areas with identified EEE;
- Persons over age 50 and younger than age 15 seem to be at greatest risk for developing severe disease.

Steps people should take to protect themselves from EEE include:

- When outdoors, use a US CDC-recommended effective **insect repellent** containing DEET, picaridin, IR3535, or oil of lemon eucalyptus on exposed skin and/or clothing. The repellent/insecticide permethrin can be used on clothing and be effective through several washes. Always follow the package directions. For details see http://www.cdc.gov/ncidod/dvbid/westnile/qa/insect_repellent.htm.
- **Cover up** with long-sleeve shirts, pants and socks when outdoors, and place mosquito netting over infant carriers when outdoors with infants.

- Unless the dusk temperature is forecast to be less than 50 degrees, **limit and even reschedule outdoor group evening activities** such as school athletic events so people are able to go indoors by one hour before sunset, or make sure everyone knows to use **insect repellent**.
- **Clean up** unnecessary standing water around the yard and in such places as rain gutters and tires to reduce mosquito habitats. Repair window screens.
- **Vaccinate horses** (to protect horse's health; horses with EEE do not pose a risk to human health).

Mosquito Control Measures for Municipalities, Schools, and Organizations Such as Fairs

Organizations sponsoring large scale outdoor activities, such as schools and fairs, as well as municipalities, should consider implementing comprehensive mosquito control strategies that include public education and the hiring of a licensed commercial pesticide applicator company in order to assess a property, set up a mosquito surveillance program, and advise on mosquito control options. This is especially true in those areas with identified EEE or in areas near wetlands such as freshwater hardwood and cedar wetlands. The lack of identified EEE in an area of the state does not mean there is no risk. A list of licensed companies can be found at http://www.maine.gov/agriculture/pesticides/public/mosquito_control_list.htm.

Resources to learn more about mosquito control include:

- Maine Vector-Borne Disease Plan and Resources for Municipalities <http://www.maine.gov/dhhs/boh/ddc/epi/vector-borne/index.shtml>
- Board of Pesticides Control at 207-287-2731 or www.thinkfirstspraylast.org (information on pesticide regulations, licensed applicators, pesticide effects)
- Maine Department of Environmental Protection (Maine DEP) information on pesticides and wetlands at: <http://www.maine.gov/dep/blwq/topic/westnile/> or 207-287-3901 or 1-800-452-1942
- University of Maine Cooperative Extension at 1-800-287-0279,
- Maine Forest Service at 207-287-2431 or <http://www.state.me.us/doc/mfs/mosquito.htm>,
- Massachusetts EEE Plan <http://www.mass.gov/agr/mosquito/docs/OperationalResponsePlan.pdf>
- CDC Guide [Guidelines for Arbovirus Surveillance in the United States](http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5417a1.htm)

It should be noted that there are approximately 45 different mosquito species in Maine, and not all of them can transmit the EEE virus to humans. Some mosquitoes only feed on birds, some on mammals, and some on both birds and mammals. Since the reservoir for EEE virus is birds, the mosquito species of greatest concern for EEE are those that feed on both birds and mammals, called “bridge vectors”. Comprehensive mosquito control strategies include a focus on reducing human exposure to mosquito species that can transmit diseases and include a variety of strategies that account for the species-specific habitats.

Human Diagnostic Tests for WNV (West Nile Virus) and EEE Infections

Clinical Suspicion: EEE should be considered based on clinical symptoms and patient history. Diagnosis relies on a high index of suspicion and on results of specific laboratory tests. EEE, WNV or other arboviral infections should be seriously considered in any individual – but especially those over age 50 or younger than age 15 - who has onset of unexplained encephalitis, meningitis, or high fever in the late summer or early fall.

Laboratory Tests: Laboratory testing is required for a confirmed diagnosis. The most efficient diagnostic methods are listed below:

- Detection of IgM antibody in serum collected 3-10 days after onset of illness (note: if a specimen collected less than 10 days after onset of illness is negative, a convalescent serum should be collected and tested for IgM antibody 2-3 weeks after the first collection date).
- Detection of IgM antibody in cerebrospinal fluid collected 3 to 10 days after onset of illness (for persons with meningitis or encephalitis).

Diagnostic testing of serum and cerebrospinal fluid for WNV and EEE infections are available free of charge through Maine CDC's HETL (Health and Environmental Testing Laboratory). Preliminary results are usually available within 5 to 7 days. To ensure early public health identification of mosquito-borne human disease, Maine CDC requests that specimens from all patients who are being tested for WNV and EEE infection be submitted to HETL (even if specimens are also being sent to commercial laboratories).

Instructions for submitting a specimen and algorithms for testing are available at:

http://www.maine.gov/dhhs/etl/micro/submitting_samples.htm

For more information:

- **Maine CDC is hosting a conference call on EEE for Tuesday, September 22nd at 12 noon. The call-in number is: 1-800-914-3396 and the pass code is: 473623**
- For clinical consultation, call the Maine CDC at 1-800-821-5821
- Maine CDC EEE Website <http://www.maine.gov/dhhs/boh/ddc/epi/vector-borne/index.shtml>
- US CDC EEE Website <http://www.cdc.gov/ncidod/dvbid/arbor/eeefact.htm>
- US CDC Insect Repellent Website http://www.cdc.gov/ncidod/dvbid/westnile/qa/insect_repellent.htm
- Maine Department of Agriculture Animal Health Website <http://www.maine.gov/agriculture/ahi/index.html>
- US CDC "Fight the Bite" Mosquito Website http://www.cdc.gov/ncidod/dvbid/westnile/prevention_info.htm