



Infectious Disease Epidemiology Report

Mosquito-Borne Diseases, Maine - 2012



Background

Mosquito-borne diseases are transmitted through the bite of an infected mosquito. These diseases can be viral, called arboviruses, or parasitic in nature. Mosquito-borne diseases have symptoms that range from very mild to very severe. In severe cases, encephalitis and other serious complications may occur, making mosquito-borne diseases a subject of great public health concern.

There is a risk of catching a mosquito-borne disease anywhere where mosquitoes can be found. In Maine, Eastern equine encephalitis and West Nile virus are considered endemic. Dengue fever and malaria are two of the most common mosquito-borne diseases acquired during international travel. This report summarizes the surveillance of mosquito-borne diseases reported in 2012.

Eastern Equine Encephalitis

Eastern equine encephalitis (EEE) is a viral disease that occurs in the eastern half of the United States. EEE can cause disease in humans, horses, and some birds. Symptoms of EEE range from mild flu-like illness to encephalitis, coma and death. Because of the high mortality rate (33%), EEE is regarded as one of the most serious mosquito-borne illnesses in the United States.

Malaria

Malaria is a serious, and sometimes fatal, disease caused by a group of parasites that infect mosquitoes in the genus *Anopheles*. Symptoms may include high fevers, shaking chills, flu-like illness, headache, muscle aches, tiredness, nausea, vomiting, and diarrhea. Malaria is uncommon in the United States and is preventable through the use of prophylactic medicine.

West Nile Virus

West Nile virus (WNV) occurs throughout the United States and can cause disease in humans, birds, and other mammals. Many persons infected with WNV will have no obvious symptoms. In those persons who develop illness, symptoms may include: headache, fever, altered mental status, tremors, convulsions,

paralysis, meningitis, and encephalitis. WNV can be fatal.

Methods

All cases of mosquito-borne diseases in humans are investigated. Standardized case report forms are completed for all cases. All human and non-human (ie. mosquitoes, birds, or other mammals) arboviral cases are entered into Maine CDC's surveillance system and also into ArboNET, federal CDC's arboviral surveillance system. Cases are classified using CSTE's case definitions for each specific disease.

Results

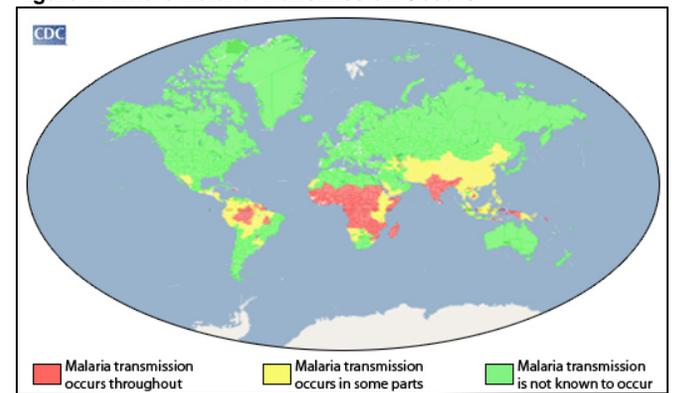
Eastern Equine Encephalitis:

In 2012, there were no human cases, and no mosquito collections that tested positive for EEE in Maine. One pheasant flock tested positive for EEE in York County. There were confirmed human and non-human cases in the New England region in 2012.

Malaria:

In 2012, there were five cases of malaria reported in individuals who had a history of travel outside of the United States to Burundi, Ethiopia, Sudan, and Uganda.

Figure 1: Where Malaria Transmission Occurs



Map: Federal CDC

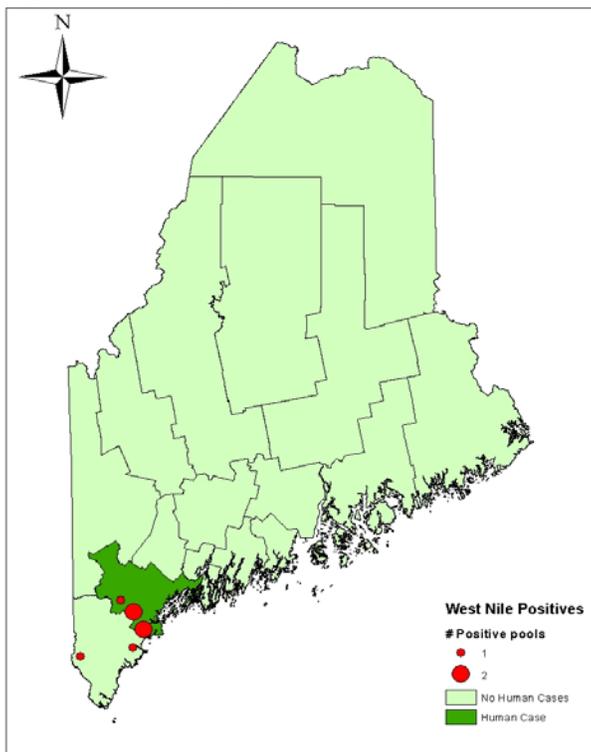
West Nile Virus:

In 2012, Maine reported increased West Nile activity from prior years. Maine experienced its first locally acquired human case of WNV neuroinvasive disease in 2012. The case was a resident of Cumberland

Mosquito Borne Illnesses – Maine, 2011

County with no travel history outside of Maine. Seven mosquito pools also tested positive for WNV, from York and Cumberland counties. There were confirmed human and non-human cases in the New England region in 2012.

Figure 2: WNV Activity in Maine, 2012



Discussion

In 2012, Maine had the most arboviral activity recorded in the state since 2009. One pheasant flock tested positive for EEE, seven mosquito pools tested positive for WNV, and there was one human case of WNV. Malaria was the only travel-associated mosquito-borne disease reported to Maine CDC in 2012.

As all of these diseases are transmitted by mosquitoes, preventing mosquito bites is essential. It is important to use preventative measures at home and abroad to reduce the risk of acquiring a mosquito-borne disease.

Prevention

To lower the chances of contracting a mosquito-borne disease, measures should be taken to prevent mosquito bites both at home and while traveling:

- Use an EPA-approved repellent. Always follow the instructions on the product's label

- when using repellents or other pesticides.
- Wear long sleeved shirts and long pants when possible or when mosquitoes are abundant.
- Protect babies with mosquito netting.
- Stay indoors when mosquitoes are especially abundant.
- Mosquito-proof your home by fixing or installing window screens or screen doors.
- Control mosquito populations around your home by cleaning gutters and removing or emptying objects that contain standing water where mosquitoes can lay eggs such as old tires, old cans, and plastic tarps.
- Empty water from flower pots, pet dishes, birdbaths, rain barrels, and buckets at least once a week.
- Sleep under a mosquito net when traveling to malaria endemic areas
- Prophylaxis is recommended when traveling to areas with a threat of malaria

Health care providers are encouraged to consider mosquito-borne diseases in appropriate clinical settings. EEE and WNV are both found in Maine, and should be considered for patients who have been exposed to mosquitoes and have a febrile illness with neurological manifestations such as aseptic meningitis, encephalitis, and focal weakness. Dengue should be considered for patients with international travel history or travel to areas of the United States where local transmission has been known to occur. Malaria should be considered in patients with appropriate international travel history.

All cases of arboviral illness, malaria, and dengue in Maine must be reported within 48 hours by calling 1-800-821-5821, or by faxing reports to 207-287-6865.

Additional information about mosquito-borne diseases can be found at:

- Maine CDC
<http://www.maine.gov/dhhs/mecdc/infectious-disease/epi/vector-borne/index.shtml>
- Federal CDC
<http://www.cdc.gov/ncezid/dvbd/index.html>