



Infectious Disease Epidemiology Report

Mosquito-Borne Illnesses, Maine - 2011



Background

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

There is a risk of catching a mosquito-borne illness 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 illnesses acquired during international travel.

Eastern Equine Encephalitis

Eastern equine encephalitis (EEE) is transmitted through the bite of an infected mosquito. Symptoms of EEE range from mild flu-like illness to encephalitis, coma and death. Because of the high mortality rate, EEE is regarded as one of the most serious mosquito-borne illnesses in the United States.

West Nile Virus

West Nile virus (WNV) is transmitted through the bite of an infected mosquito. Symptoms of WNV range from no symptoms to altered mental status, paralysis, encephalitis, meningitis, and death.

Dengue Fever

Dengue fever is an illness caused by a virus transmitted by the bite of an infected mosquito. Symptoms of dengue include high fever, severe headache, backache, joint pain, nausea and vomiting, eye pain, a “breaking bone feeling,” and rash. Dengue is uncommon in the United States, but local transmission has occurred in Florida, Texas, and Hawaii.

Malaria

Malaria is a serious and sometimes fatal disease

caused by a parasite that commonly infects a certain type of mosquito. 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. Malaria is preventable through the use of prophylactic medicine.

Methods

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

Results

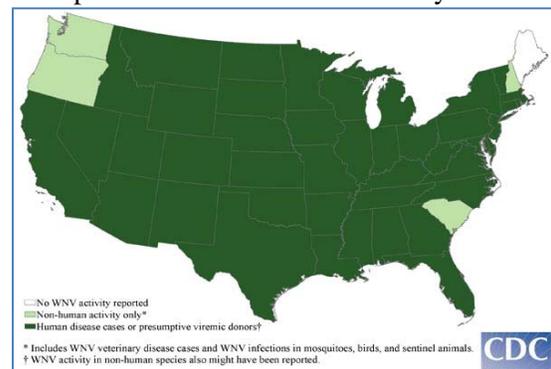
Eastern Equine Encephalitis:

In 2011, there were no human cases of EEE in Maine and no mosquitoes tested positive for EEE in Maine. Ten turkeys tested positive for EEE by serology. There were confirmed human and animal cases in the New England Region in 2011.

West Nile Virus:

In 2011, no mosquitoes, birds, humans, or other mammals tested positive for WNV in Maine. Maine was the only state in the contiguous 48 to report no WNV activity in 2011. There were confirmed human and animal cases in the New England region in 2011.

Reported West Nile Virus Activity - 2011



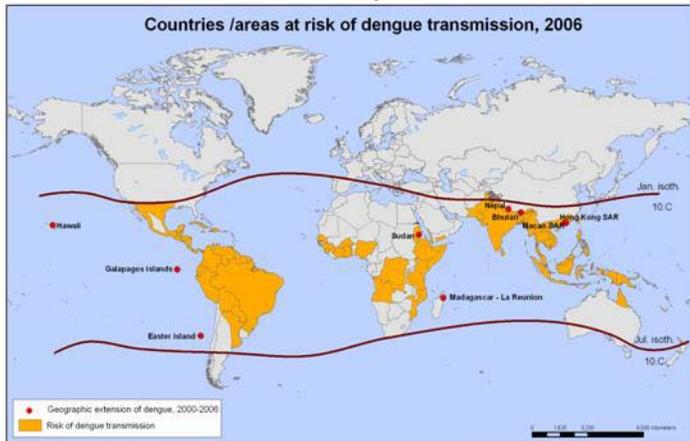
Map: Federal CDC

Mosquito Borne Illnesses – Maine, 2011

Dengue Fever:

In 2011, there were no cases of Dengue fever reported in Maine.

Countries/Areas at Risk of Dengue Transmission - 2006

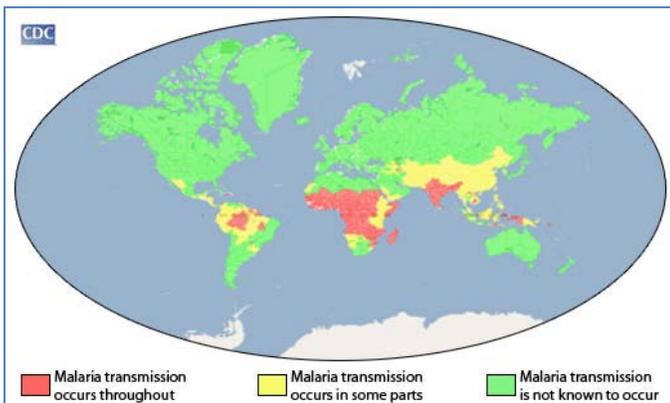


Map: World Health Organization

Malaria:

In 2011, there were six cases of malaria reported in individuals who had a history of travel outside of the United States in Afghanistan, Iraq, Uganda, and India.

Where Malaria Transmission Occurs



Map: Federal CDC

Discussion

Because all of these diseases are transmitted by mosquitoes, preventing mosquito bites is essential. Repellent should be used while at home and abroad to prevent 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. Products containing DEET, picaridin, IR3535, or oil of lemon eucalyptus can be applied to exposed skin, and permethrin containing products can be applied to clothing. 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.
- When mosquitoes are especially abundant, stay indoors.
- 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 still 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.
- Prophylaxis is recommended when traveling to areas with a threat of malaria

Health care providers are encouraged to consider arboviral diseases in appropriate clinical settings. EEE and WNV are both found in Maine, and should be considered for patients who have spent time outside 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 international travel history.

Additional information about mosquito-borne illnesses 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>