



Infectious Disease Epidemiology Report

Mosquito Borne Illnesses, Maine - 2009



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 can lead to encephalitis and other serious illnesses which makes them of great public health concern. There are several mosquito borne illnesses that are of specific concern in Maine including: Dengue Fever, Eastern Equine Encephalitis (EEE), Malaria, and West Nile virus.

Dengue Fever

Dengue is a disease 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 not common in the United States, but cases have been detected in the Southern States.

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 diseases in the United States.

Malaria

Malaria is a serious and sometime 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.

West Nile Virus

West Nile virus (WNV) is transmitted through the bite of an infected mosquito. Symptoms of WNV include fever, headache, rash, paralysis and encephalitis.

Methods

All cases of mosquito borne illness in humans are investigated. Standardized case report forms are completed for all cases, and all human and non human cases are entered into Maine CDC’s surveillance system.

Results

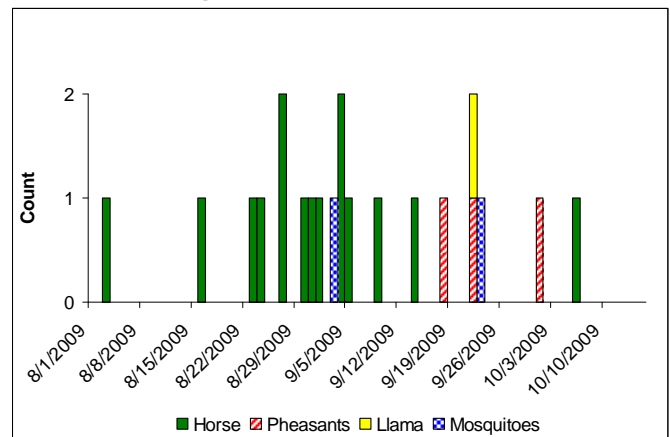
Dengue Fever:

In 2009, there were three probable cases of Dengue fever. All cases had travelled internationally during their exposure period.

Eastern Equine Encephalitis:

In 2009, there were no human cases of EEE. Twenty-one cases of EEE were diagnosed in non-humans: 15 horses, 1 llama, 3 flocks of pheasants, and 2 mosquito pools. The infections occurred from August through October (Table 1).

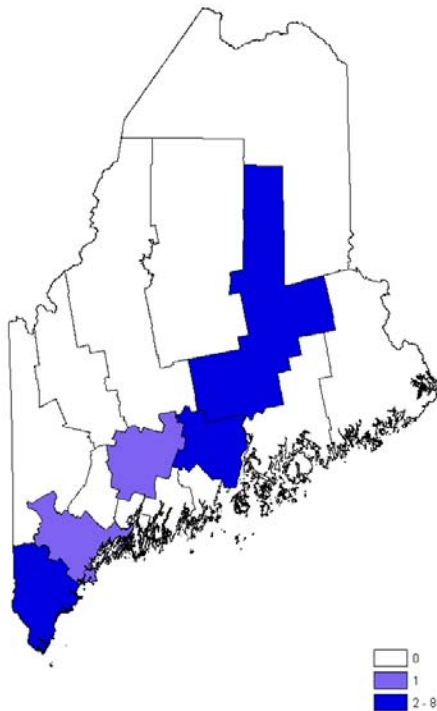
Table 1: EEE diagnosed in Non-Humans – Maine, 2009



EEE was of particular concern in Maine in 2009 because cases of EEE in animals were found in areas of the state where the disease has not previously been seen. The range of disease has expanded, suggesting that the range of the mosquito has expanded. EEE was found in five Maine counties in 2009.

Mosquito Borne Illnesses – Maine, 2009

Figure 1: Counties with case of EEE – Maine, 2009



Malaria:

In 2009, there were two cases of malaria reported in individuals who had a history of travel outside the US to Brazil and the Philippines. Although the range for malaria appears to be expanding, there has only been one recorded case of locally acquired malaria in Maine in over 50 years.

West Nile Virus:

In 2009, one mosquito pool tested positive for WNV. There were no human cases of WNV in 2009.

Discussion

In 2009, there were no human cases of WNV or EEE. There were two cases of Malaria, and three cases of Dengue Fever, all acquired outside of the United States. There were 21 non human cases of EEE in 2009, and one non human case of WNV.

Because all of these diseases are transmitted by mosquitoes – precaution against mosquitoes is essential.

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:

- Wear insect repellent. Products containing DEET, picaridin or oil of lemon eucalyptus can be applied to exposed skin, and permethrin containing products can be applied to clothing. Make sure to follow the directions when using repellents or other pesticides
- Wear long sleeve shirts and long pants when possible or when mosquitoes are bad
- Protect babies with mosquito netting
- When mosquitoes are especially bad, stay indoors
- Mosquito proof your house by fixing or installing window screens or screen doors
- Control mosquito populations around your home by cleaning gutters, removing or emptying objects that contain still water such as old tires, old cans, plastic tarps and similar things.
- Empty water from flower pots, pet dishes, birdbaths, rain barrels, and buckets at least once a week
- When traveling to areas with a threat of malaria, consider taking prophylaxis

Health care providers are encouraged to consider arboviral diseases in appropriate clinical settings. Malaria and Dengue should be considered if the patient has travel history to the southern US, or internationally. EEE and WNV are both found in Maine, so should be considered for patient who have spent time outside and have a febrile illness, with neurological manifestations such as aseptic meningitis, encephalitis and focal weakness.

Additional information about Mosquito Borne illnesses can be found at:

- Maine CDC
<http://www.maine.gov/dhhs/boh/ddc/epi/vec-tor-borne/index.shtml>
- Federal CDC
<http://www.cdc.gov/ncidod/dvbid/arbor/>