



Infectious Disease Epidemiology Report

Travel Related Mosquito-Borne Diseases – Maine, 2015



Background

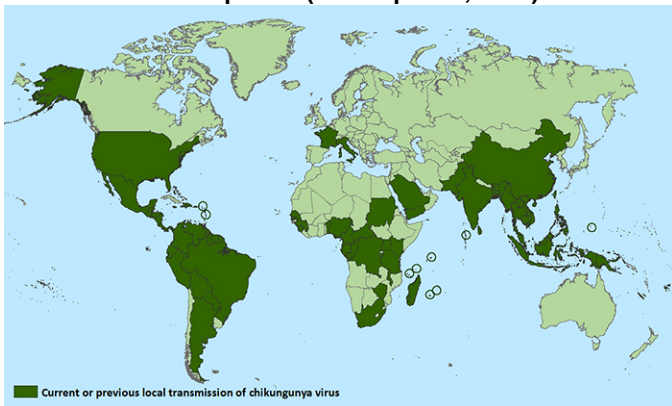
Mosquito-borne diseases are transmitted through the bite of an infected mosquito. These diseases can be viral, called arboviruses, or parasitic in nature. Mosquito-borne diseases have symptoms that range from very mild to very severe. In severe cases, encephalitis and other serious complications may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

There is a risk of catching a mosquito-borne disease anywhere mosquitoes can be found. Chikungunya, dengue fever, and malaria are three of the most common mosquito-borne diseases acquired during international travel. This report summarizes the surveillance of travel-related mosquito-borne diseases reported in Maine in 2015.

Chikungunya

Chikungunya is a viral disease carried by *Aedes aegypti* and *Aedes albopictus* mosquitoes. Symptoms include fever, joint pain, headache, muscle pain, joint swelling, and rash. Chikungunya was introduced into the Americas in 2013 and spread dramatically (Figure 1).

Figure 1. Countries and territories where chikungunya cases have been reported (as of April 22, 2016)



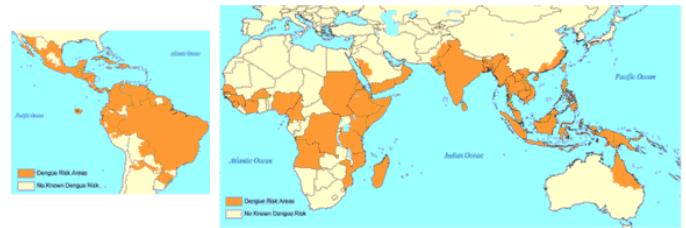
Map: Federal CDC

Dengue Fever

Dengue fever is an illness caused by a virus that is 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 (Figure 2), but local transmission has occurred in Florida, Texas, and Hawaii.

Figure 2. Areas with risk of dengue transmission

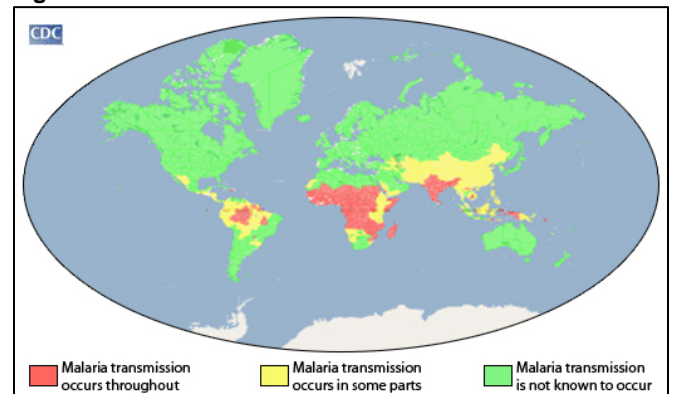


Map: Federal CDC

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 (Figure 3) and is preventable through the use of prophylactic medicine.

Figure 3: Where Malaria Transmission Occurs



Map: Federal CDC

Methods

All cases of mosquito-borne diseases in humans are investigated. Standardized case report forms are completed for all cases. Cases are classified using the Council of State and Territorial Epidemiologists case definitions for each specific disease.

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Results

In 2015, Maine reported two cases of chikungunya, five cases of dengue fever, and seven cases of malaria. All cases had history of international travel (Table 1).

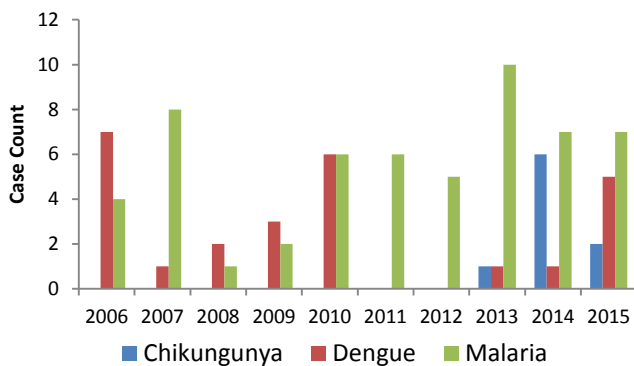
Table 1. Travel associated mosquito borne diseases – Maine, 2015

Disease	Case Counts	Country of Travel*
Chikungunya	2	Anguilla, Jamaica, St. Martin
Dengue fever	5	Brazil, Costa Rica, Philippines, Thailand (2)
Malaria	7	Cameroon, Chad, South Africa, South Sudan (4), Sudan, Uganda

* Cases may have travelled to more than 1 country

Cases of dengue increased from 2014, cases of chikungunya decreased from 2014, and cases of malaria were similar to previous years (Figure 4).

Figure 4. Travel associated mosquito borne diseases – Maine, 2006-2015



Discussion

Travel associated mosquito-borne diseases are becoming more common as more individuals travel and the disease agents spread. Because humans are the reservoir for chikungunya, dengue, and malaria, it is possible that outbreaks will occur. Local transmission in the United States rarely occurs, but is definitely a possibility. Maine currently does not have

the mosquitoes that carry chikungunya, dengue, or malaria, so all cases are travel related.

As all of these diseases are transmitted by mosquitoes, preventing mosquito bites is essential. It is important to use preventative measures especially while 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 including during the day (some of the mosquitoes are day biters). 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.
- 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. Chikungunya and 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 chikungunya, dengue, and malaria in Maine residents 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/nceid/dvbd/index.html>