Vector-Borne Disease

Weekly Surveillance Report

Center for Acute Disease Epidemiology | Acute Disease Prevention and Emergency Response & EH | West Nile Virus Website

All data presented in this report are provisional and may change as additional reports are received

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West Nile Virus (WNV)

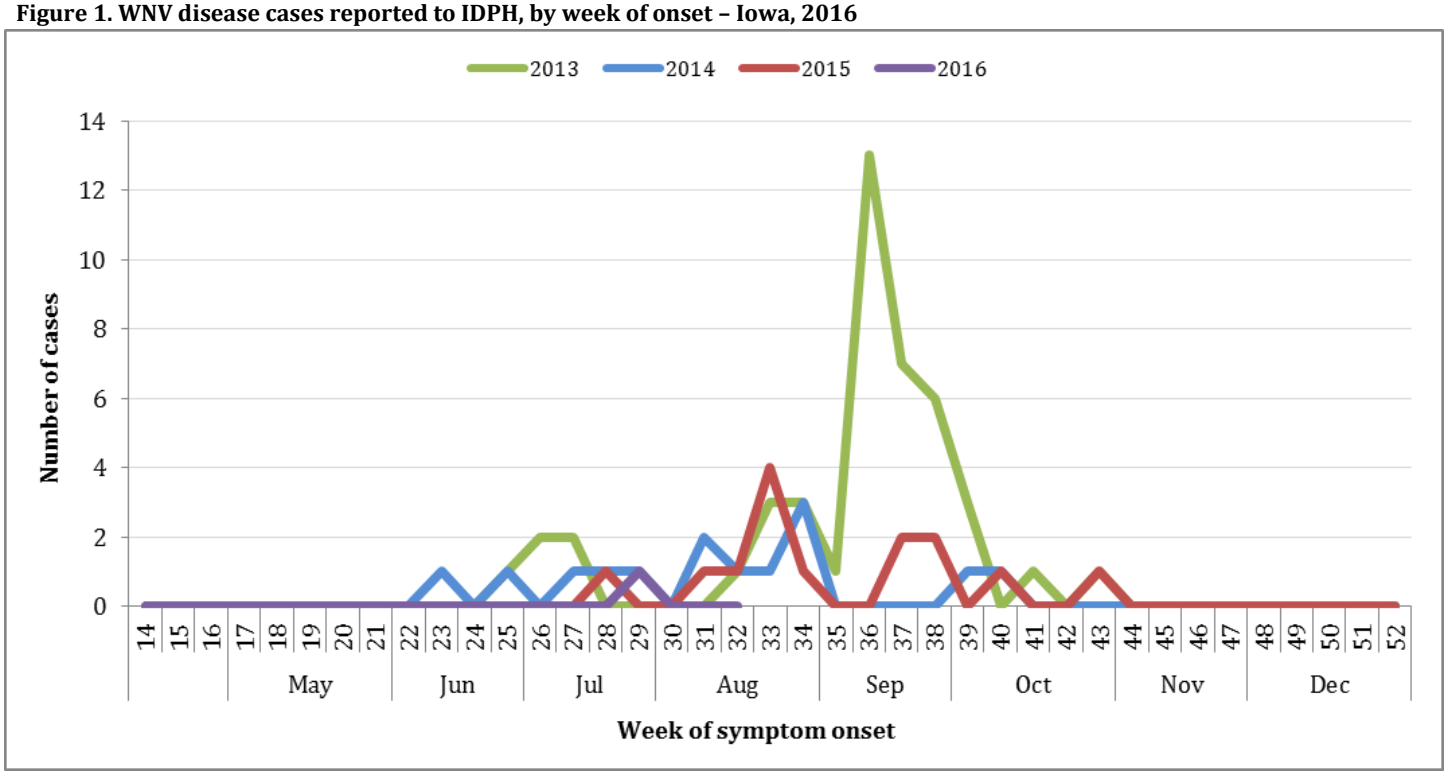
WNV is endemic in Iowa and activity usually peaks in late summer and early fall. IDPH works in collaboration with Local Public Health (LPH) and other appropriate partners to investigate all reported cases.

In addition, IDPH in collaboration with the State Hygienic Laboratory (SHL), Iowa State University (ISU), and local public environmental health partners conducts ecological surveillance in four counties across the state by monitoring mosquitoes and testing for infected populations.

One human case of WNV has been reported in Iowa in 2016 [Table 1]. One mosquito pool and one horse have also tested positive for this virus. During the 2015 surveillance season, 14 human cases of WNV were reported, in 13 Iowa counties [Figure 1].

				Mosquito Pools		
County	**Human**	**Blood Donor**	**Horses**	***Culex pipiens***	***Culex pipiens* Complex**	***Culex restuans***
Lyon	0	1	0	0	0	0
Polk	0	0	0	0	0	1
Sioux	1	0	0	0	0	0
Webster	0	0	1	0	0	0
Total	**1**	**1**	**1**	**0**	**0**	**1**

Figure 1. WNV disease cases reported to IDPH, by week of onset – Iowa, 2016



For additional information on Iowa West Nile virus activity, visit http://idph.iowa.gov/cade/disease-information/west-nile-virus.

National WNV Activity:

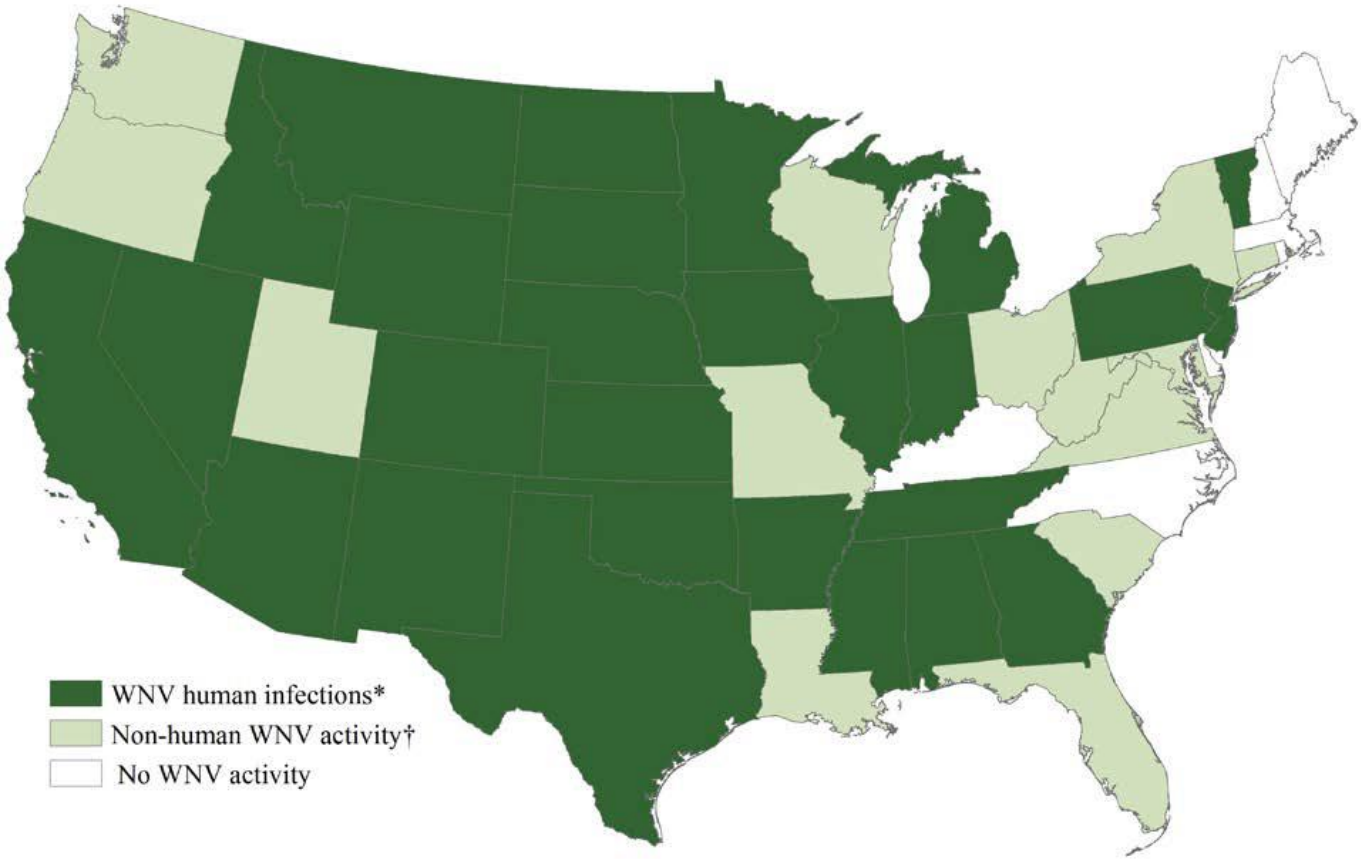
As of August 9th, 281 counties from 41 states have reported WNV activity to ArboNET for 2016, including 27 states with reported WNV human infections (i.e., disease cases or viremic blood donors) and 14 additional states with reported WNV activity in non-human species only (i.e., veterinary cases, mosquito pools, dead birds, or sentinel animals) [Figure 2].

To date, 139 human WNV disease cases have been reported from 77 counties in 24 states. Of these, 63 (45%) were classified as neuroinvasive disease (such as meningitis or encephalitis) and 76 (55%) were classified as non-neuroinvasive disease [Figure 3]. Date of illness onset for cases ranged from January – July [Figure 4].

In addition, 32 presumptive viremic blood donors haven been reported from 12 states.

For additional information on the national West Nile virus activity, visit
http://www.cdc.gov/westnile/statsMaps/preliminaryMapsData/index.html

Figure 2. WNV activity reported to ArboNET, by state – United States, 2016 (as of August 9, 2016)



*WNV human disease cases or presumptive viremic blood donors. Presumptive viremic blood donors have a positive screening test which has not necessarily been confirmed.
†WNV veterinary disease cases, or infections in mosquitoes, birds, or sentinel animals

Figure 3. WNV neuroinvasive disease incidence reported to ArboNET, by state – United States, 2016 (as of August 9, 2016)

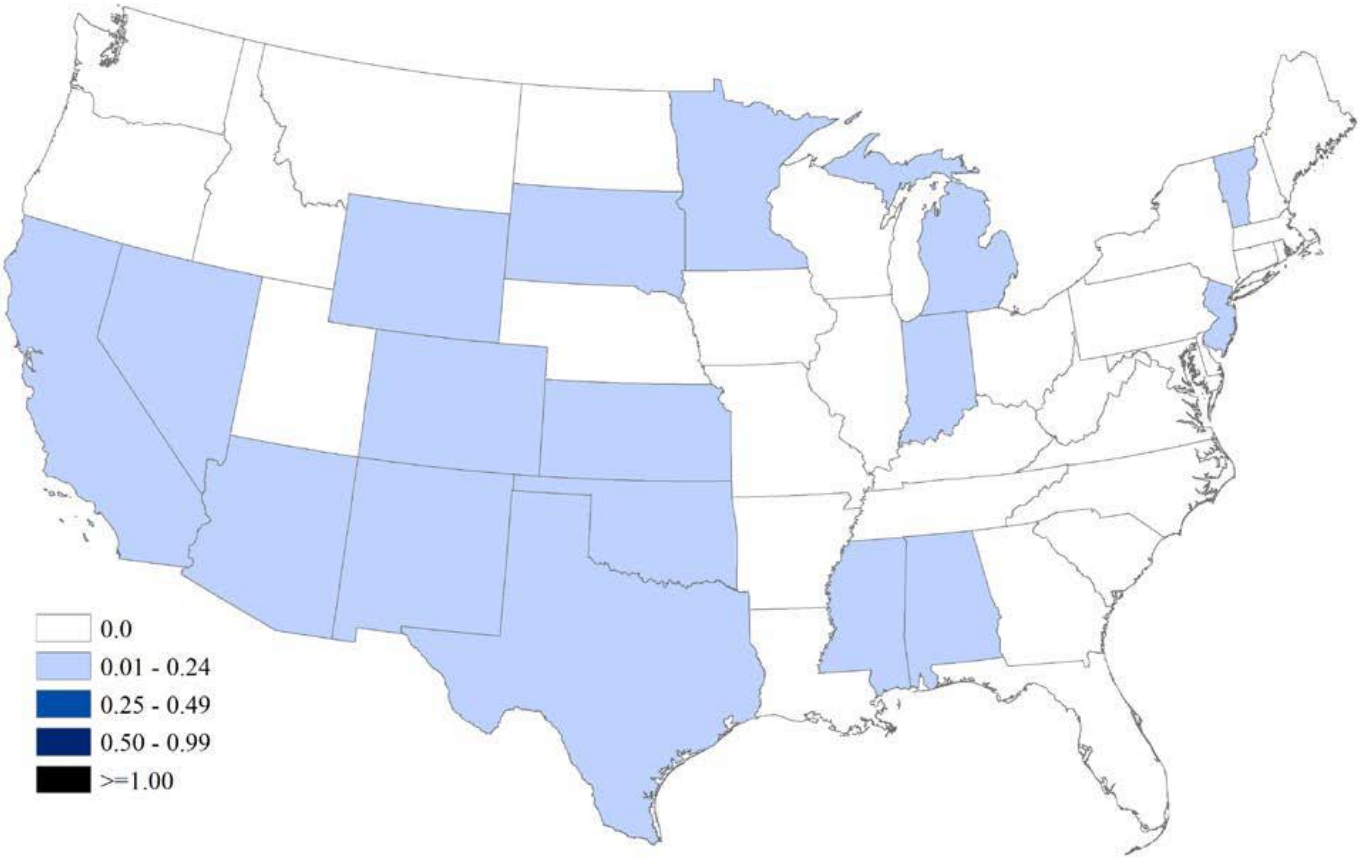
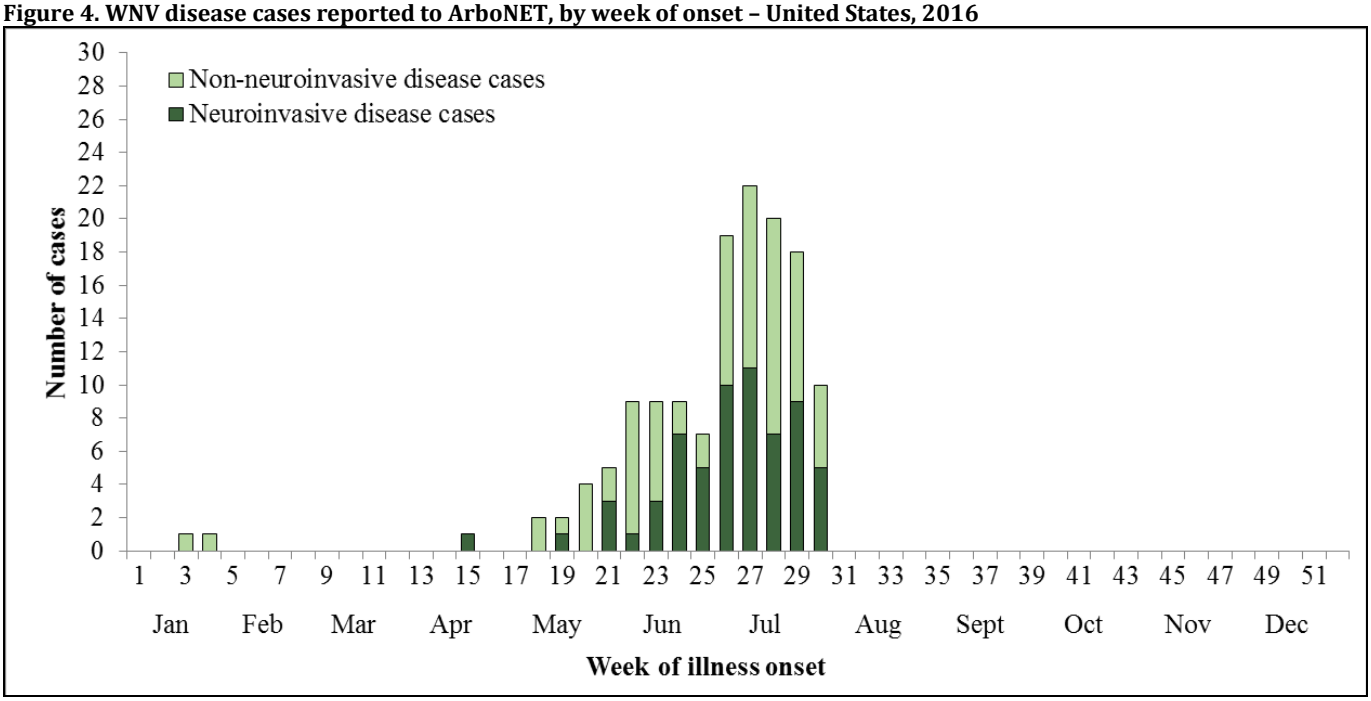


Figure 4. WNV disease cases reported to ArboNET, by week of onset – United States, 2016



Chikungunya

Chikungunya is a viral disease that is spread to people by the bite of an infected *Aedes aegypti* and *Aedes albopictus* mosquito. Mosquitoes become infected when they feed on a person already infected with this virus. These species of mosquitoes are not sustained in Iowa.

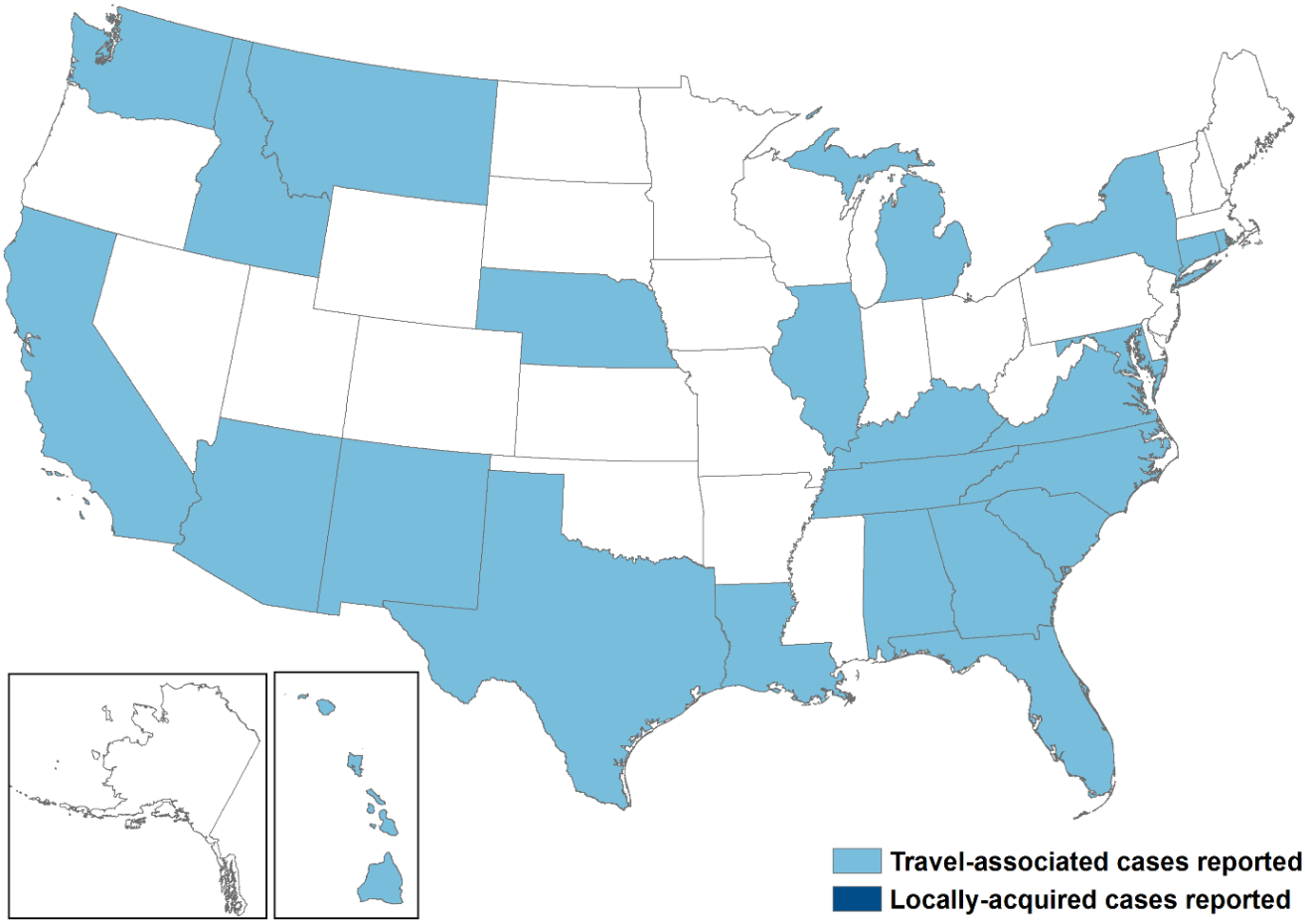
In 2015, two imported cases of chikungunya virus disease were reported in Iowa. Cases occurring in Iowa are in travelers returning from parts of the world where Chikungunya transmission occurs. No cases of chikungunya have been reported in Iowa, thus far in 2016.

National Chikungunya Activity:

As of August 9th, a total of 59 chikungunya virus disease cases with illness onset in 2016 have been reported to ArboNET from 24 U.S. states [Figure 5]. All reported cases occurred in travelers returning from affected areas. No locally-transmitted cases have been reported from U.S. states.

A total of 99 chikungunya virus disease cases with illness onset in 2016 have been reported to ArboNET from U.S. territories. To date, 98 locally acquired cases and 1 travel-associated case have been reported from Puerto Rico.

Figure 5. Chikungunya virus disease cases reported by state – United States, 2016 (as of August 9, 2016)



Dengue Fever

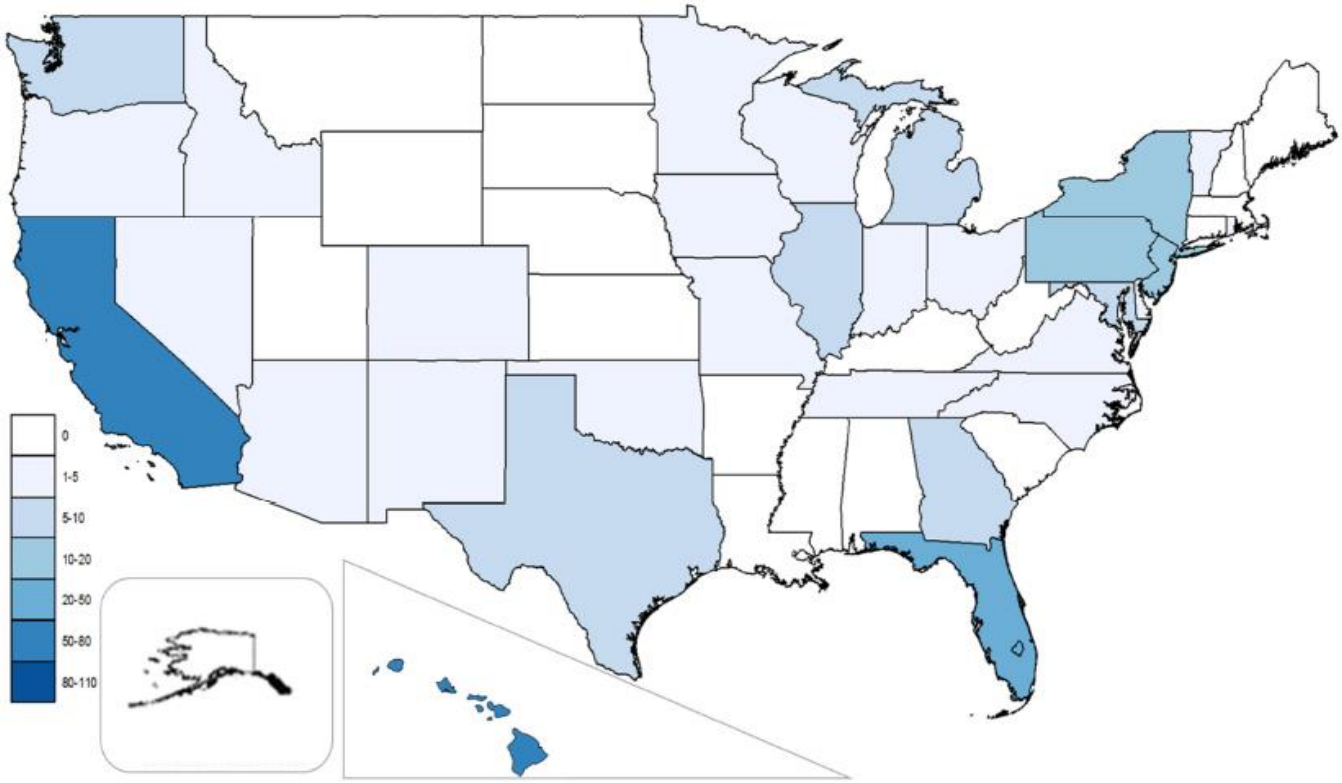
Dengue is a disease caused by any one of four related viruses, which are passed by the bite of an infected *Aedes aegypti* or *Aedes albopictus* mosquito. Infection with one of the four viruses does not protect against the others and consecutive infections put people at greater risk of developing dengue hemorrhagic fever (DHF).

Dengue is not found in Iowa. Cases are in travelers and immigrants returning from parts of the world where dengue transmission occurs. Four cases of Dengue fever have been reported in Iowa, thus far in 2016. In 2015, four cases of Dengue fever were reported to IDPH.

National Dengue Activity:

As of June 24th, 32 states and two territories have reported dengue cases to ArboNET for 2016 [Figure 6]

Figure 6. Laboratory-positive travel associated and locally-acquired dengue cases from the 50 states— United States, 2016 (as of June 24, 2016)



Malaria

Malaria is a serious and sometimes fatal disease caused by a parasite that commonly infects *Anopheles* mosquitoes. Malaria is spread to humans by the bite of the infected female mosquito. Only *Anopheles* mosquitoes can transmit malaria and they must have been infected through a previous blood meal taken from an infected person.

Eight cases of malaria have been reported in Iowa. Cases are in travelers and immigrants returning from parts of the world where malaria transmission occurs. In 2015, 17 cases of Malaria were reported to IDPH.

Rocky Mountain spotted fever (RMSF)

American dog ticks are carriers of *Rickettsia rickettsii*, the bacteria that causes RMSF. The American dog tick is the most common species of tick in Iowa and can be found in every county in the state. The tick is most active late March through August.

Six cases of RMSF have been reported in Iowa. In 2015, eight cases of RMSF were reported to IDPH.

Ehrlichiosis/Anaplasmosis

There are at least three species of bacteria responsible for ehrlichiosis/anaplasmosis in the United States: *Ehrlichia chaffeensis, Ehrlichia ewingii, and Anaplasma phagocytophilum*. Ehrlichiae are transmitted by the bite of an infected lone star tick (*Amblyomma americanum*) which is found in Iowa. *A. phagocytophilum* is transmitted by the bite of an infected blacklegged tick (or deer tick, *Ixodes scapularis*) in Iowa. The clinical signs and symptoms of these infections are similar.

Seven cases of ehrilichiosis/anaplasmosis have been reported in Iowa. In 2015, eleven cases of ehrlichiosis/anaplasmosis were reported to IDPH.

Lyme

Lyme disease is caused by *Borrelia burgdorferi* and in Iowa is transmitted to humans by the bite of an infected tick, the blacklegged tick (or deer tick, *Ixodes scapularis*). Ticks are most likely to spread the Lyme disease bacterium during their pre-adult stage (nymph). They are most common between May and July and found in tall grasses and brush of wooded areas.

As of August 12th, 151 confirmed and probable cases of Lyme have been reported in Iowa. In 2015, 318 cases of Lyme disease were reported to IDPH.