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

Date Issued: August 18, 2017

West Nile Virus (WNV)

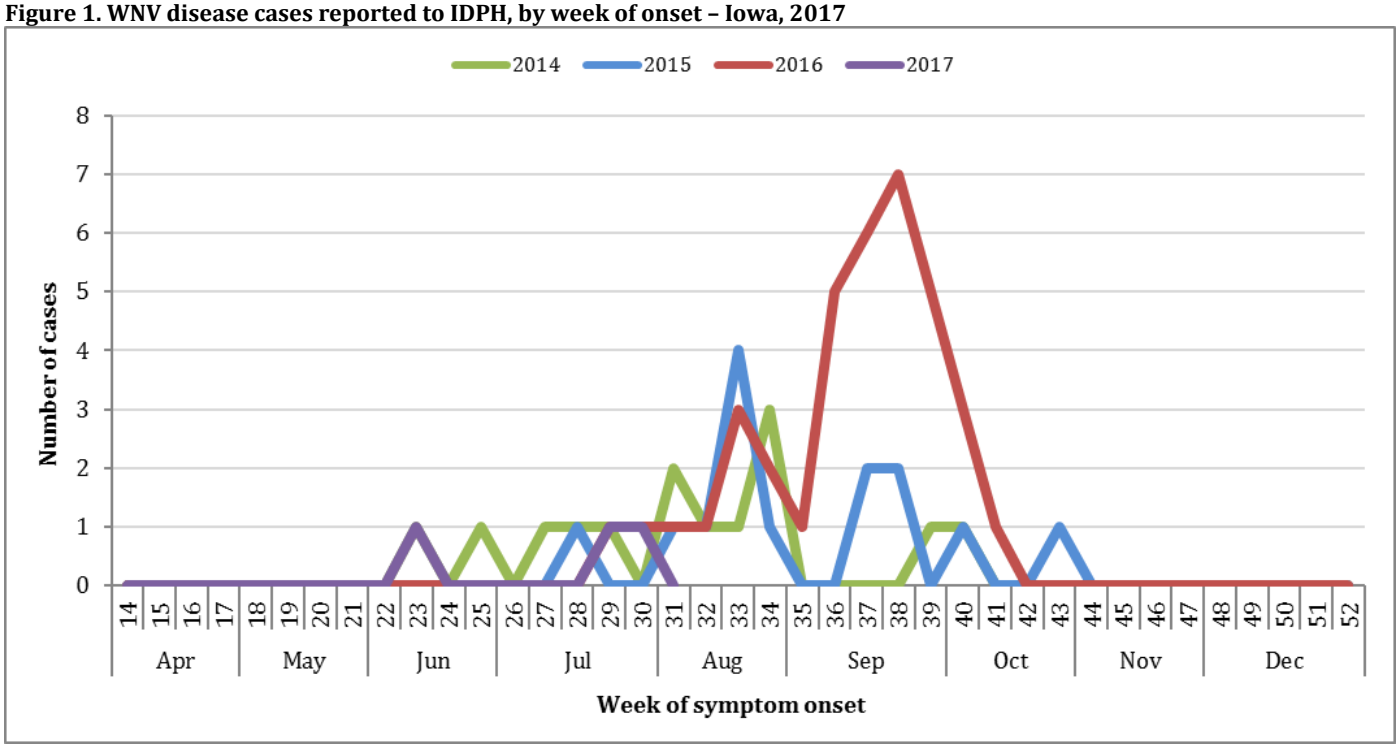
WNV is endemic in Iowa and activity usually peaks in late summer and early fall. IDPH works in collaboration with Local Public Health (LPH) and other appropriate partners to investigate all reported cases.

During the 2016 surveillance season, 37 human cases of WNV were reported in 19 Iowa counties. In 2017, three human cases of WNV and three presumptive viremic blood donors have been identified. One horse and thirty-four mosquito samples have also tested positive for WNV **[Table 1].**

Table 1. Human /Equine/Mosquito Surveillance, 2017 Positive Samples

				Mosquitoes				
County	**Human**	**Blood Donor**	**Horses**	***Culex pipiens***	***Culex pipiens* group**	***Culex restuans***	***Culex salinarius***	***Culex tarsalis***
Allamakee	1	0	0	0	0	0	0	0
Des Moines	0	2	0	0	0	0	0	0
Dickinson	0	0	0	0	0	0	0	1
Ida	1	0	0	0	0	0	0	0
Lyon	0	1	0	0	0	0	0	0
Monona	0	0	0	0	0	1	0	0
O'Brien	0	0	0	1	0	0	0	0
Osceola	1	0	0	0	0	0	0	0
Polk	0	0	0	5	0	6	0	0
Pottawattamie	0	0	0	1	2	3	0	0
Story	0	0	0	2	0	3	1	0
Woodbury	0	0	0	2	0	5	0	1
Worth	0	0	1	0	0	0	0	0
Total	**3**	**3**	**1**	**11**	**2**	**18**	**1**	**2**

Figure 1. WNV disease cases reported to IDPH, by week of onset – Iowa, 2017



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

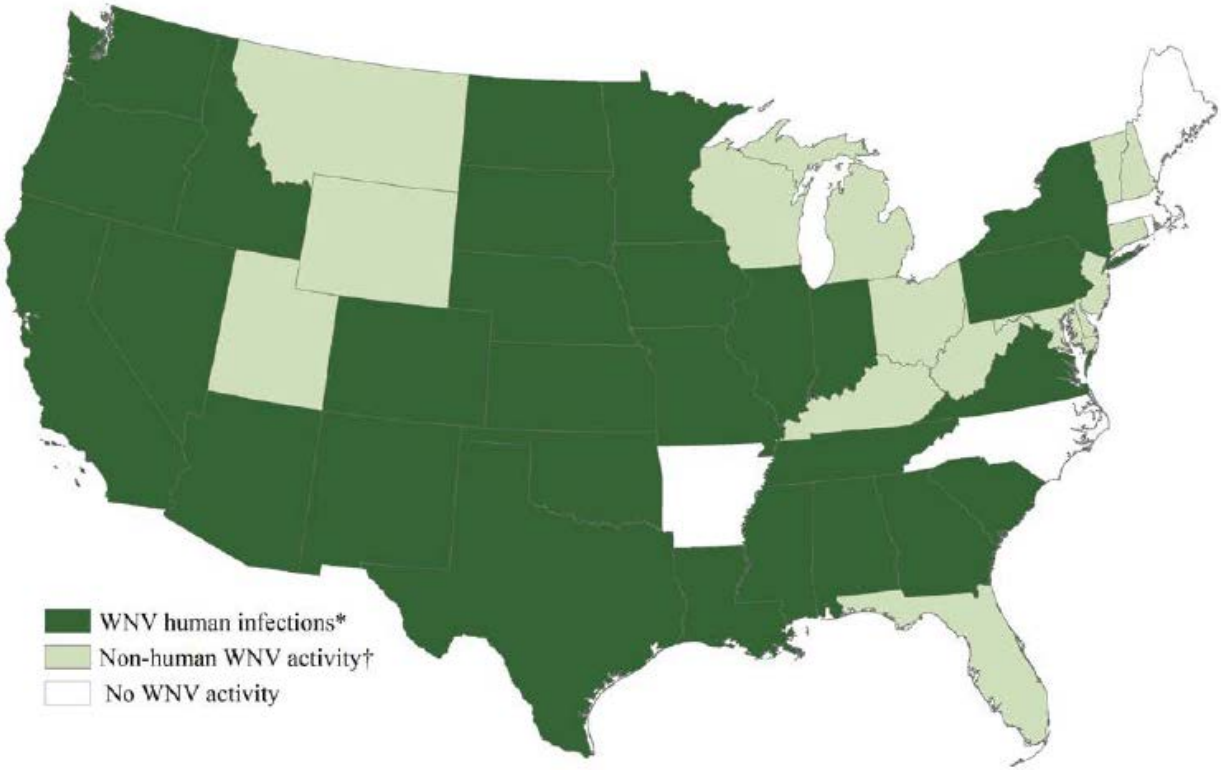
National WNV Activity:

As of August 15th, 539 counties from 43 states and the District of Columbia have reported WNV activity to ArboNET for 2017, including 28 states with reported WNV human infections (i.e., disease cases or viremic blood donors) and 15 additional states and the District of Columbia with reported WNV activity in non-human species only (i.e., veterinary cases, mosquito pools, dead birds, or sentinel animals) **[Figure 2]**.

To date, 209 human WNV disease cases have been reported from 118 counties in 27 states. Of these, 126 (60%) were classified as neuroinvasive disease (such as meningitis or encephalitis) and 83 (40%) were classified as non-neuroinvasive disease **[Figure 3]**. Dates of illness onset for cases ranged from March–August **[Figure 4].**

In addition, 52 WNV PVDs have been reported from 20 states.

Figure 2. WNV activity reported to ArboNET, by state – United States, 2017 (as of August 15, 2017)



*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, 2017 (as of August 15, 2017)

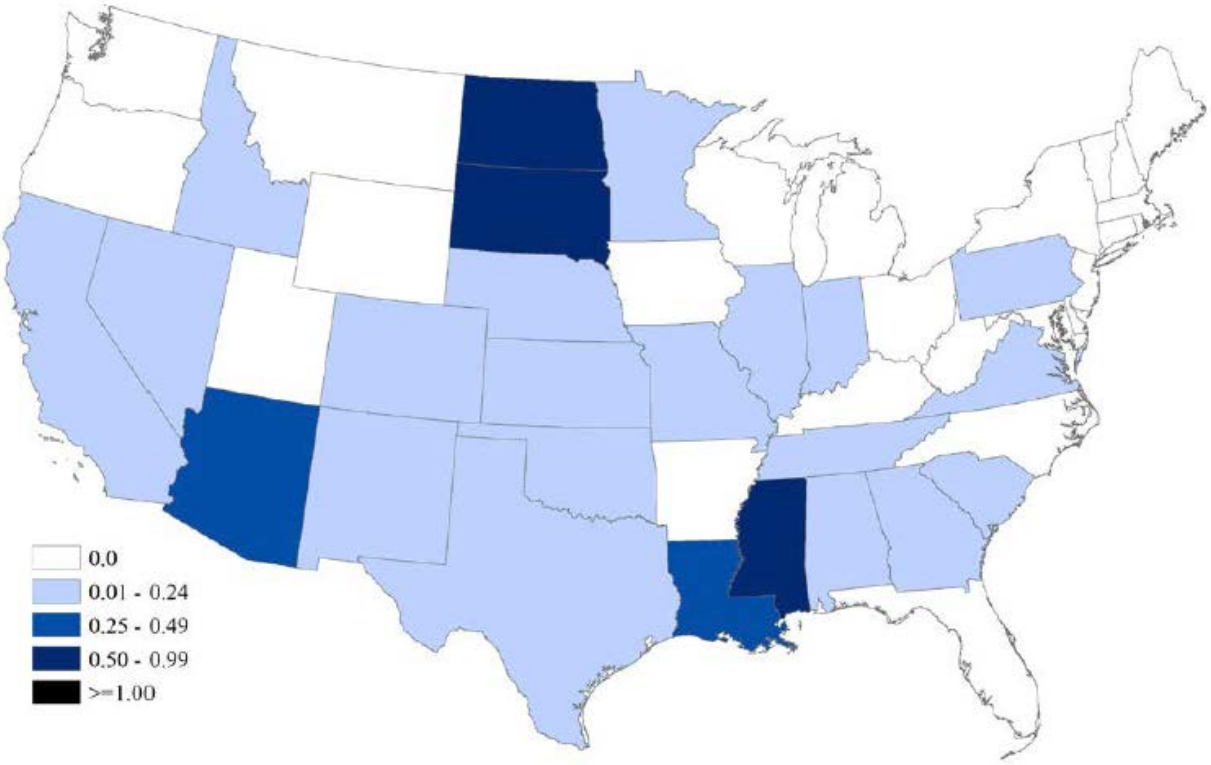
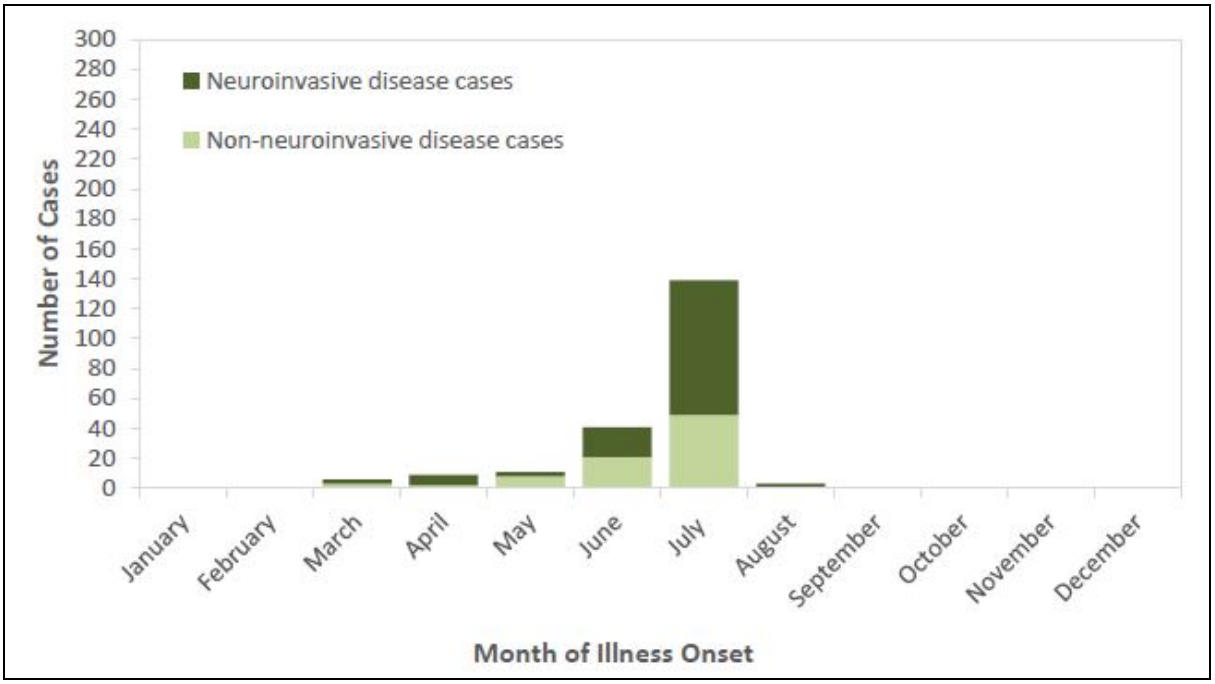


Figure 4. WNV disease cases reported to ArboNET, by month of onset – United States, 2017 (as of August 15, 2017)



Mosquito Surveillance

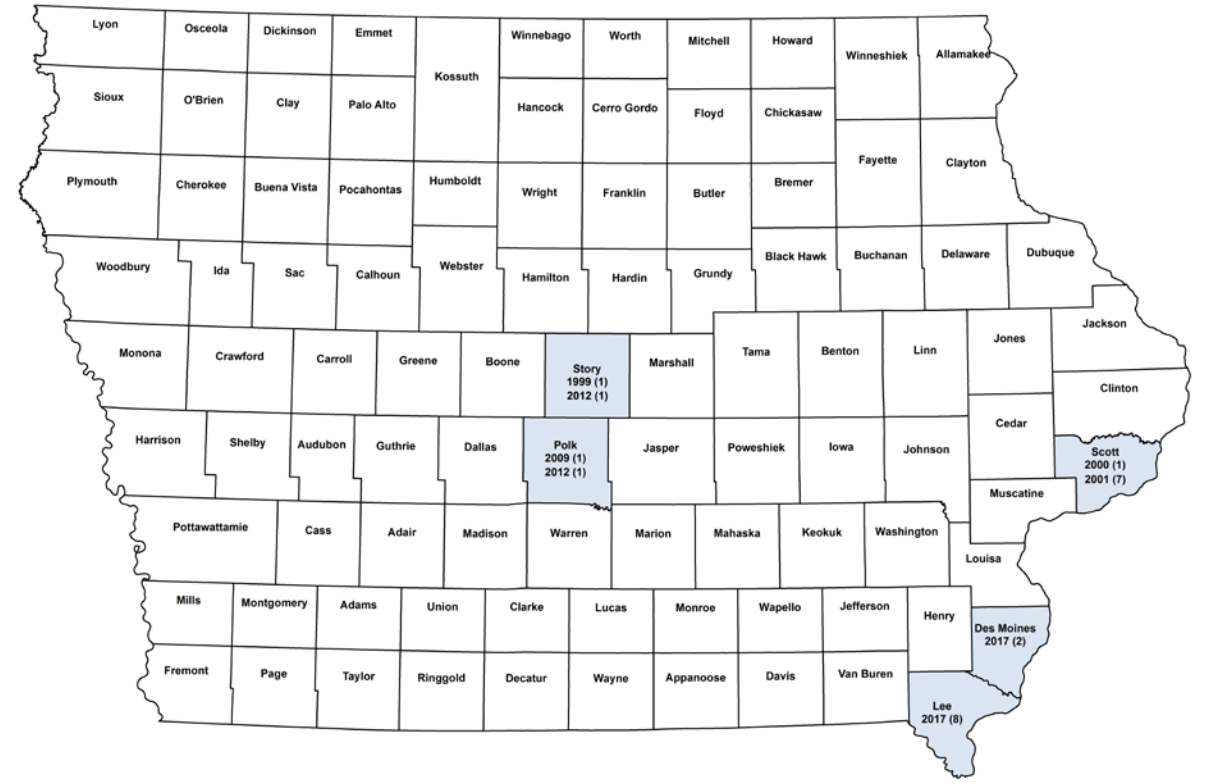
IDPH in collaboration with the State Hygienic Laboratory (SHL), Iowa State University (ISU), and local public environmental health partners conducts ecological surveillance in twenty five counties across the state by monitoring mosquitoes and testing for WNV infected populations.

Table 2. 2017 mosquitoes tested for West Nile virus

Species	# of Pools	WNV Negative	WNV Positive
Cx. pipiens	172	161	11
***Cx. pipiens* group**	156	154	2
Cx. tarsalis	61	59	2
Cx. restuans	317	299	18
Cx. territans	10	10	0
Cx. erraticus	22	22	0
Cx. salinarius	70	69	1
Ae. japonicus	85	85	0
An. punctipennis	0	0	0
Ae. atropalpus	0	0	0
Ae. sticticus	1	1	0
Ae. triseriatus	1	1	0
Total	**895**	**861**	**34**

In addition to viral testing for WNV, the population of mosquitoes in Iowa is monitored through trapping activities. All trapped mosquitoes are sorted by species. One species that has rarely been found in Iowa is *Aedes albopictus*. The figure **[Figure 5]** below shows where and when each detection occurred.

Figure 5. *Aedes albopictus* identified in Iowa



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.

Ten 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 2016, 22 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.

Five cases of RMSF have been reported in Iowa. In 2016, 11 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.

Twelve cases of ehrlichiosis/anaplasmosis have been reported in Iowa. In 2016, 14 cases of ehrlichiosis/anaplasmosis were reported to IDPH.

Babesiosis
Babesiosis is caused by microscopic parasites that infect red blood cells. Most human cases in the United States are caused by the parasite *Babesia microti*. *Babesia microti* is spread by the blacklegged tick (or deer tick, *Ixodes scapularis*). The parasite typically is spread by the young nymph stage of the tick .They are most common during the warm months of spring and summer in areas with woods, brush, or grass.

Two cases of Babesiosis have been reported in Iowa. In 2016, one case of Babesiosis was 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 18th, 169 confirmed and probable cases of Lyme have been reported in Iowa. In 2016, 232 cases of Lyme disease were reported to IDPH.