Public Health

Iowa HHS

Vector-Borne Disease 2023 Weekly Surveillance Report

December 29, 2023

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

West Nile Virus (WNV)

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

In 2022, nine human cases were identified. Thus far in 2023, 17 human cases, one WNV related death and five presumptive viremic donors have been identified. One horse and 96 mosquito samples have tested positive [Table 1].

Table 1. Human /Equine/Mosquito Surveillance, 2023 Positive Samples

				Mosquitoes				
County	**Human**	**Blood Donor**	**Horse**	***Culex erraticus***	***Culex pipiens***	***Culex restuans***	***Culex salinarius***	***Culex territans***
Adams	1	0	0	0	0	0	0	0
Appanoose	0	0	1	0	0	0	0	0
Black Hawk	0	0	0	4	40	24	1	1
Clay	0	1	0	0	0	0	0	0
Clinton	1	0	0	0	0	0	0	0
Dubuque	1	0	0	0	0	0	0	0
Johnson	0	0	0	0	0	1	0	0
Lee	1	0	0	0	0	0	0	0
Linn	1	0	0	0	0	0	0	0
Lyon	1	0	0	0	0	0	0	0
O'Brien	0	1	0	0	2	0	0	0
Page	1	0	0	0	0	0	0	0
Plymouth	3	1	0	0	0	0	0	0
Pocahontas	1	0	0	0	0	0	0	0
Polk	1	1	0	0	3	1	0	0
Sioux	2	0	0	0	0	0	0	0
Story	0	0	0	1	4	10	0	0
Warren	1	0	0	0	0	0	0	0
Wayne	1	1	0	0	0	0	0	0
Woodbury	1	0	0	0	4	0	0	0
Total	**17**	**5**	**1**	**5**	**53**	**36**	**1**	**1**

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Figure 1. 2023 West Nile virus case count and incidence rate by county of residence.

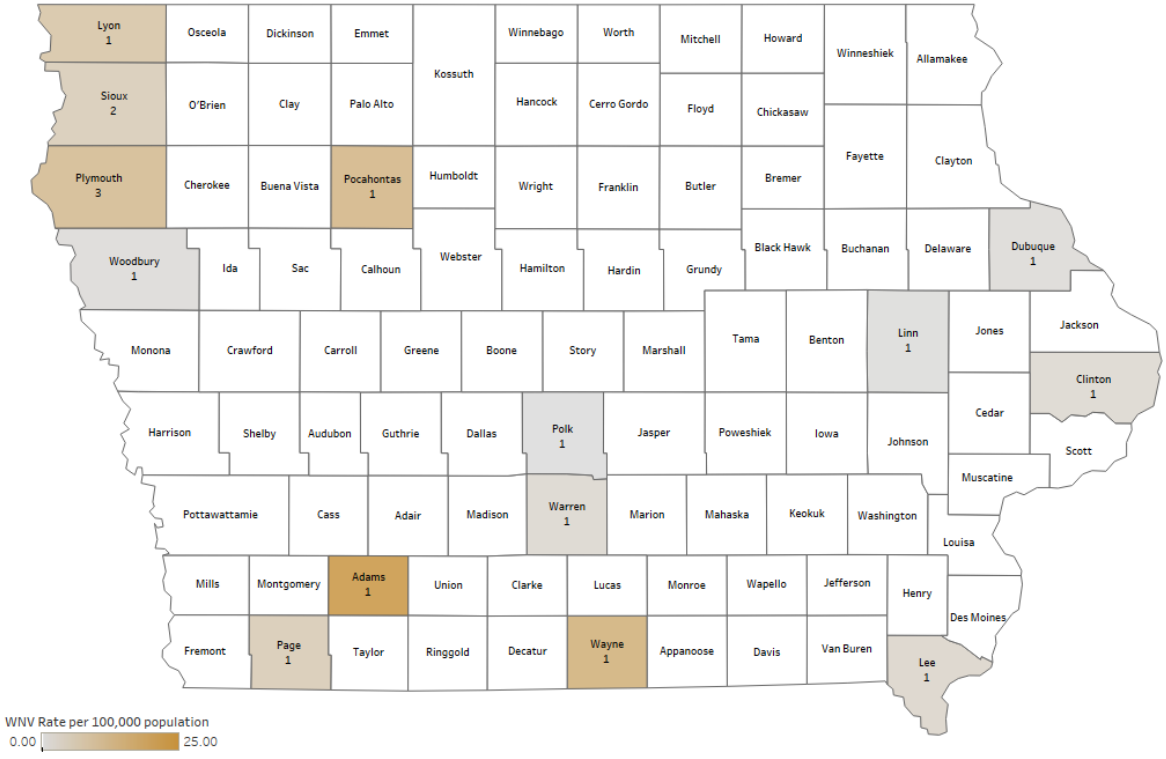
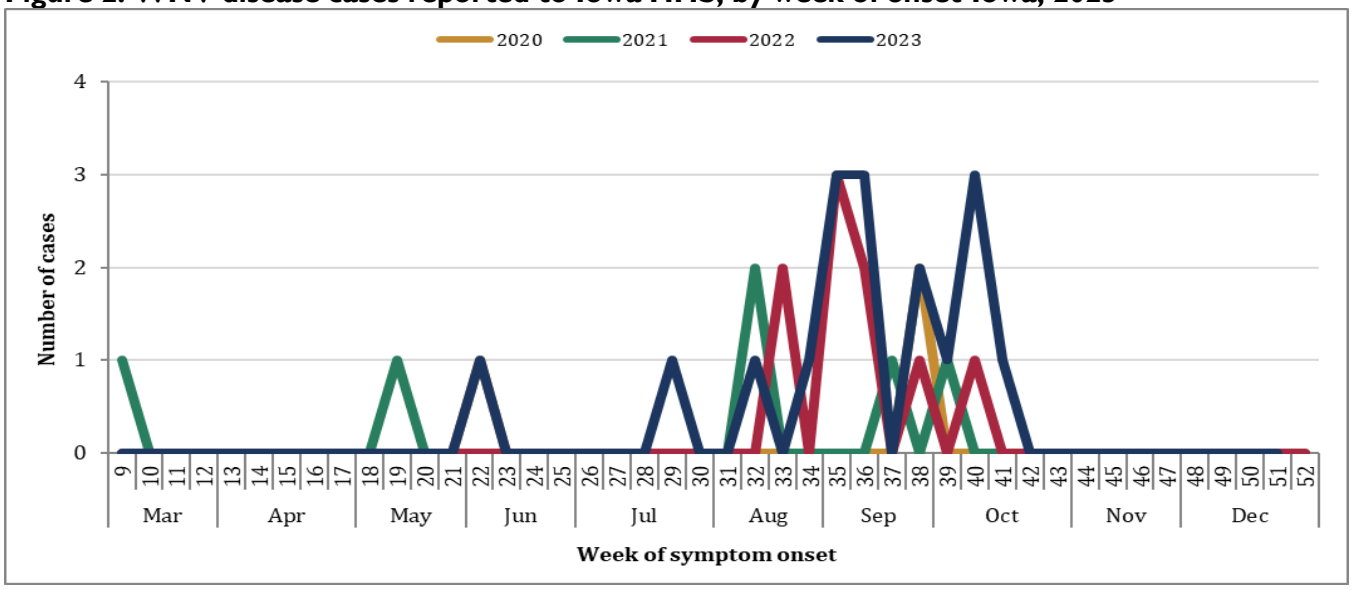


Figure 2. WNV disease cases reported to Iowa HHS, by week of onset-Iowa, 2023



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Mosquito Surveillance

Iowa HHS in collaboration with Iowa State University (ISU) and local public environmental health partners conducts ecological surveillance in 14 counties across the state by monitoring mosquitoes and testing for WNV infected populations.

Table 2. 2023 mosquitoes tested for West Nile virus

Species	# of Samples Tested	WNV Negative	WNV Positive
Cx. pipiens	351	298	53
Cx. tarsalis	46	46	0
Cx. restuans	370	334	36
Cx. territans	11	10	1
Cx. salinarius	15	14	1
Cx. erraticus	88	83	5
Total	**881**	**785**	**96**

La Crosse Virus

La Crosse (LAC) virus is passed to humans through the bite of an infected *Aedes triseriatus* mosquito. These mosquitoes are most active during the daytime, especially in or near wooded areas.

In 2023, one case of LAC virus has been reported in Iowa. The last case of LAC virus identified in Iowa was in 2017.

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. Six cases of dengue have been reported in Iowa, thus far in 2023. In 2022, two cases of dengue were reported to Iowa HHS.

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.

Thirty-one 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 2022, 11 cases of malaria were reported to Iowa HHS.

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.

One case of RMSF has been reported in Iowa. In 2022, 10 cases of RMSF were reported to Iowa HHS.

Anaplasmosis

Anaplasmosis is a disease caused by the bacterium *Anaplasma phagocytophilum*. *A. phagocytophilum* is transmitted by the bite of an infected blacklegged tick (or deer tick, *Ixodes scapularis*) in Iowa.

Twelve cases of anaplasmosis have been reported in Iowa. In 2022, 11 cases of anaplasmosis were reported to Iowa HHS.

Ehrlichiosis

There are three species of bacteria responsible for ehrlichiosis in the United States: *Ehrlichia chaffeensis, Ehrlichia ewingii,* and *Ehrlichia muris eauclairensis*. *E.chaffeensis* and *E. ewingii* are transmitted by the bite of an infected lone star tick (*Amblyomma americanum*), which is found in Iowa. The majority of all reported cases of ehrlichiosis are due to infection by *E. chaffeensis.*

Fifteen cases of ehrlichiosis have been reported in Iowa. In 2022, seven cases of ehrlichiosis were reported to Iowa HHS.

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.

Five cases of babesiosis have been reported in Iowa. In 2022, three case of babesiosis were reported to Iowa HHS.

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 December 29th, 205 confirmed and probable cases of Lyme disease have been reported in Iowa [Figure 3]. In 2022, 154 cases of Lyme disease were reported to Iowa HHS.

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Figure 3. 2023 Lyme disease case count and incidence rate by county of residence.