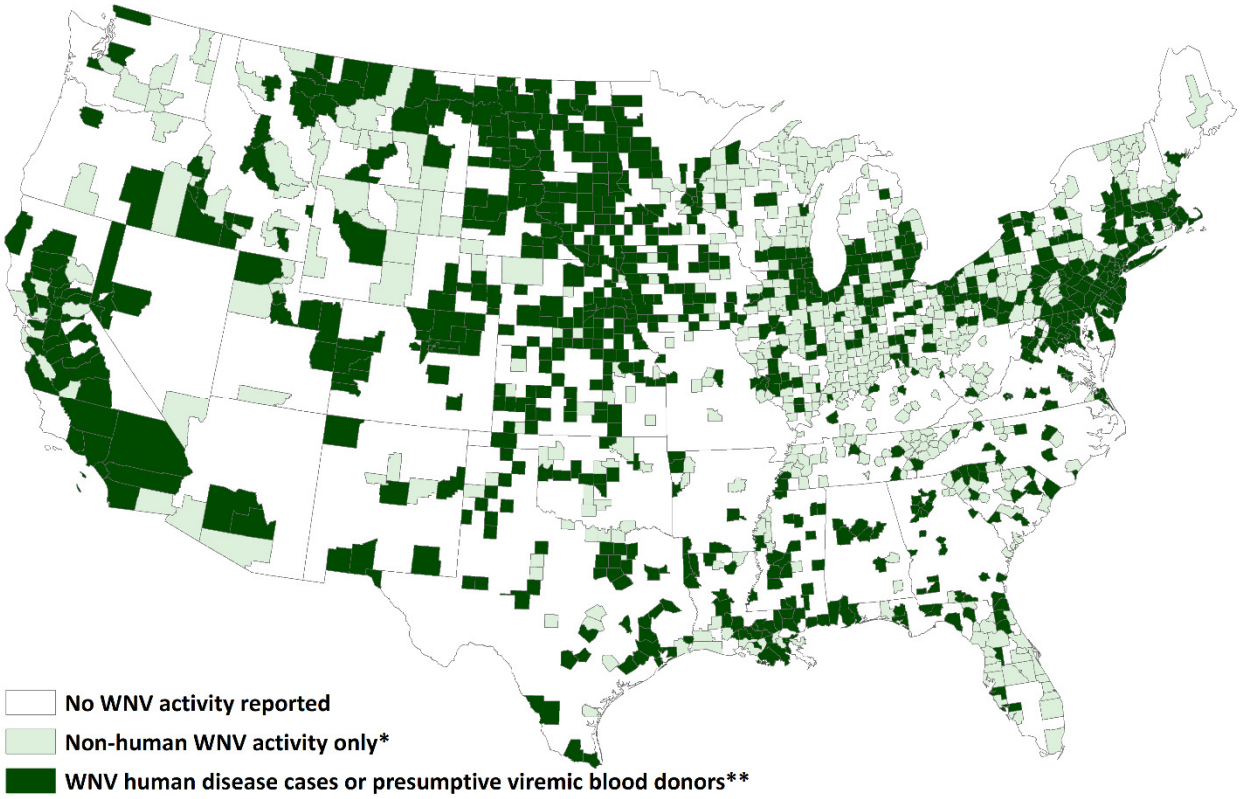
West Nile virus and other domestic arboviral activity -- United States, 2018
Final data reported to ArboNET

These are final 2018 data reported to ArboNET for nationally notifiable domestic arboviruses. Data for primarily travel-associated arboviruses (e.g., dengue, chikungunya, and Zika) are released separately on the CDC website. Additional resources for ArboNET and arboviral diseases are provided on page 10.

West Nile virus (WNV) activity in 2018

A total of 1,373 counties from 49 states and the District of Columbia reported WNV activity to ArboNET for 2018. Forty-eight states and the District of Columbia reported WNV human infections (i.e., disease cases or viremic blood donors) **[Figure 1]**.

Figure 1. West Nile virus activity reported to ArboNET, by county — United States, 2018



* WNV veterinary disease cases, or infections in mosquitoes, birds, or sentinel animals

**WNV human disease cases or presumptive viremic blood donors. Presumptive viremic blood donors have a positive screening test which has not necessarily been confirmed.

Reported WNV disease cases

In 2018, a total of 2,647 human WNV disease cases were reported from 787 counties in 48 states and the District of Columbia **[Table 1]**. Dates of illness onset for cases ranged from January–December **[Figure 2]**.

Of these, 1,658 (63%) were classified as neuroinvasive disease (such as meningitis or encephalitis) and 989 (37%) were classified as non-neuroinvasive disease **[Figure 3]**.

Presumptive viremic donors (PVDs)

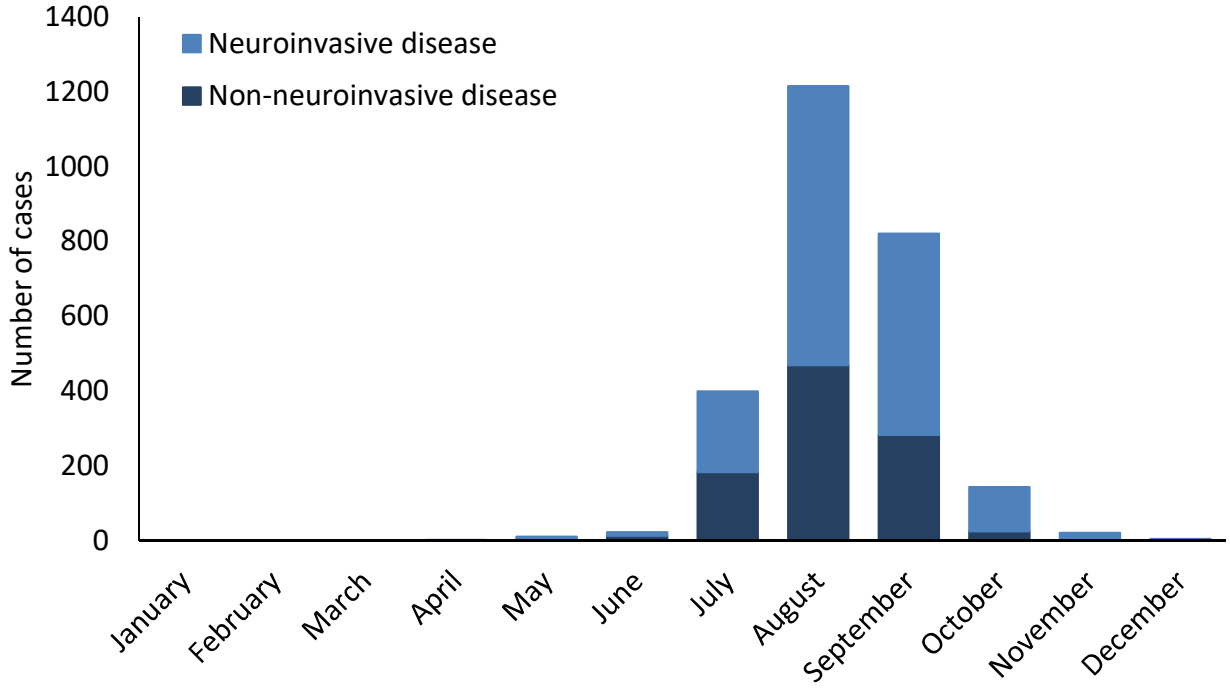
A total of 372 WNV PVDs were reported from 35 states **[Table 1]** for 2018. Of these, 75 (20%) developed clinical illness and are also included as disease cases.

Table 1. West Nile virus disease cases* and presumptive viremic blood donors reported to ArboNET, 2018

State	Human disease cases reported to CDC				Presumptive viremic blood donors
	Neuroinvasive	Non-neuroinvasive	Total	Deaths	
Alabama	16	12	28	1	5
Alaska	1	0	1	0	0
Arizona	25	1	26	6	0
Arkansas	6	2	8	1	0
California	154	63	217	11	27
Colorado	52	44	96	5	4
Connecticut	18	5	23	1	1
Delaware	8	2	10	2	1
District of Colombia	7	6	13	0	0
Florida	30	5	35	4	7
Georgia	30	6	36	2	2
Hawaii	0	0	0	0	0
Idaho	10	6	16	1	0
Illinois	126	50	176	17	15
Indiana	26	9	35	4	16
Iowa	59	45	104	9	8
Kansas	23	24	47	5	4
Kentucky	9	3	12	0	0
Louisiana	56	27	83	6	12
Maine	1	1	2	0	0
Maryland	35	10	45	2	5
Massachusetts	42	7	49	2	2
Michigan	80	22	102	9	12
Minnesota	34	29	63	2	24
Mississippi	31	19	50	0	3
Missouri	17	6	23	3	6
Montana	25	22	47	1	5
Nebraska	124	127	251	11	46
Nevada	3	6	9	0	2
New Hampshire	0	0	0	0	0
New Jersey	44	17	61	3	6
New Mexico	5	2	7	1	2
New York	77	21	98	6	10
North Carolina	10	0	10	2	0
North Dakota	60	144	204	2	33
Ohio	45	20	65	6	18
Oklahoma	12	6	18	2	6
Oregon	2	0	2	0	0
Pennsylvania	95	35	130	8	27
Puerto Rico	0	0	0	0	0
Rhode Island	0	1	1	0	0
South Carolina	12	3	15	1	4
South Dakota	47	122	169	4	19
Tennessee	11	1	12	4	1
Texas	108	38	146	11	24
Utah	7	4	11	1	0
Vermont	1	0	1	0	0
Virginia	38	10	48	8	5
Washington	2	1	3	0	2
West Virginia	2	0	2	1	0
Wisconsin	29	4	33	1	8
Wyoming	3	1	4	1	0
Totals	**1,658**	**989**	**2,647**	**167**	**372**

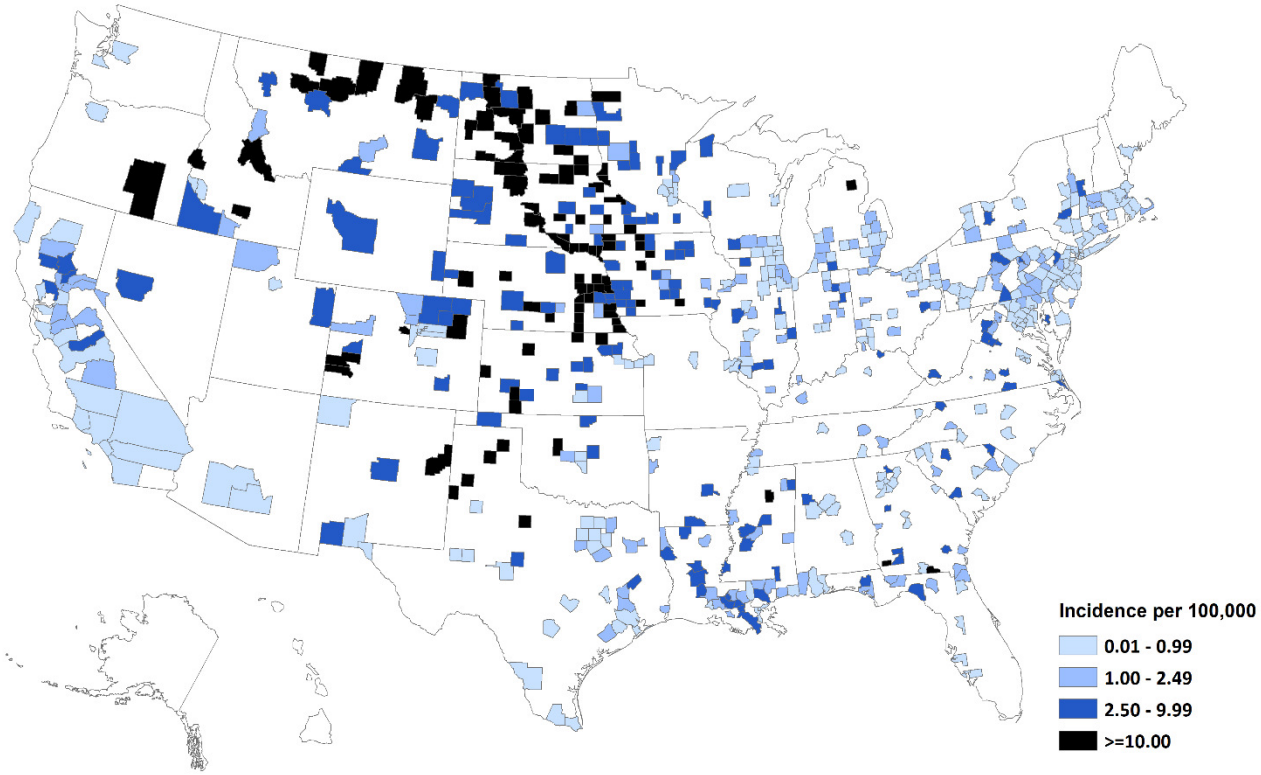
* Includes confirmed and probable cases

Figure 2. West Nile virus disease cases reported to ArboNET, by month of onset* — United States, 2018



*Cases missing onset date (n=1)

Figure 3. West Nile virus neuroinvasive disease incidence* reported to ArboNET, by county — United States, 2018

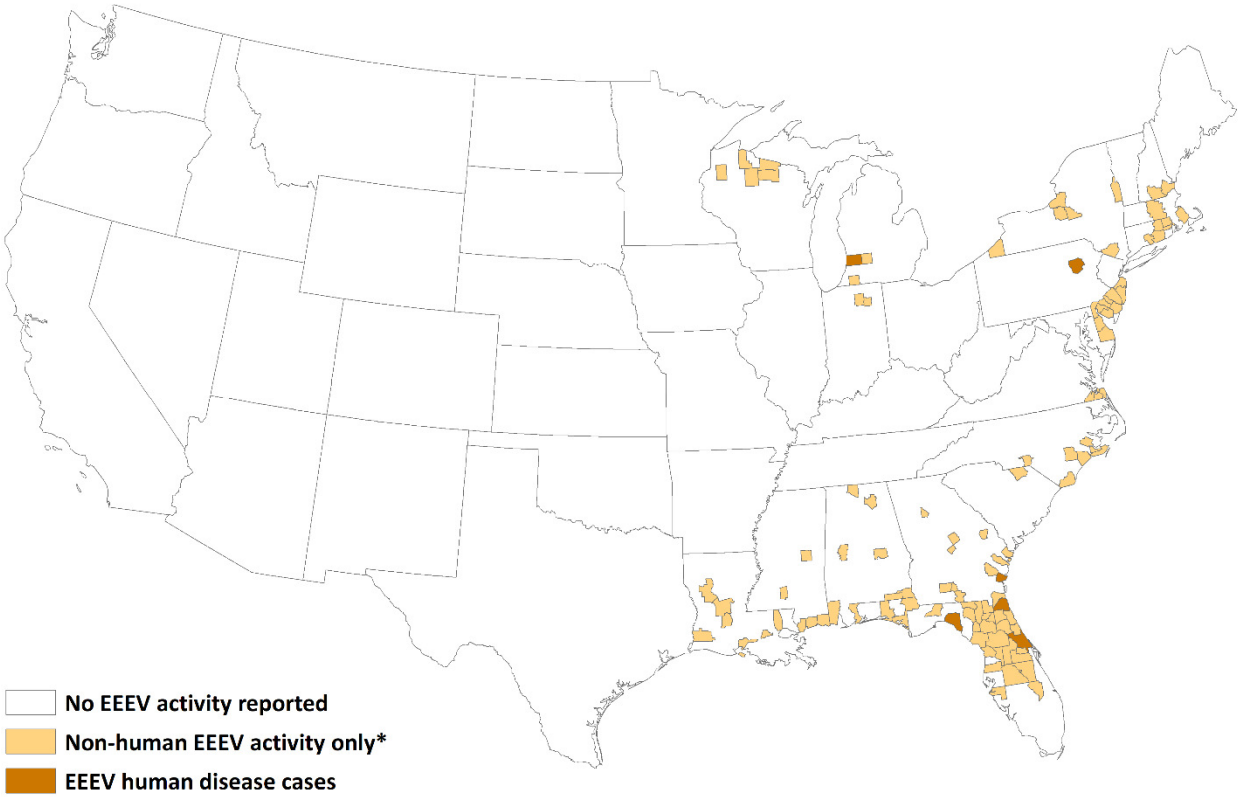


*Incidence per 100,000 population

Eastern equine encephalitis virus (EEEV) activity in 2018

A total of six counties in four states reported human cases of EEEV disease to ArboNET for 2018 **[Figure 4 and Table 2]**. One hundred and six additional counties in 18 states reported EEEV activity in non-human species only.

Figure 4. Eastern equine encephalitis virus activity reported to ArboNET, by county — United States, 2018



* EEEV veterinary disease cases, or infections in mosquitoes, birds, or sentinel animals

Table 2. Eastern equine encephalitis virus human disease cases reported to ArboNET, United States, 2018

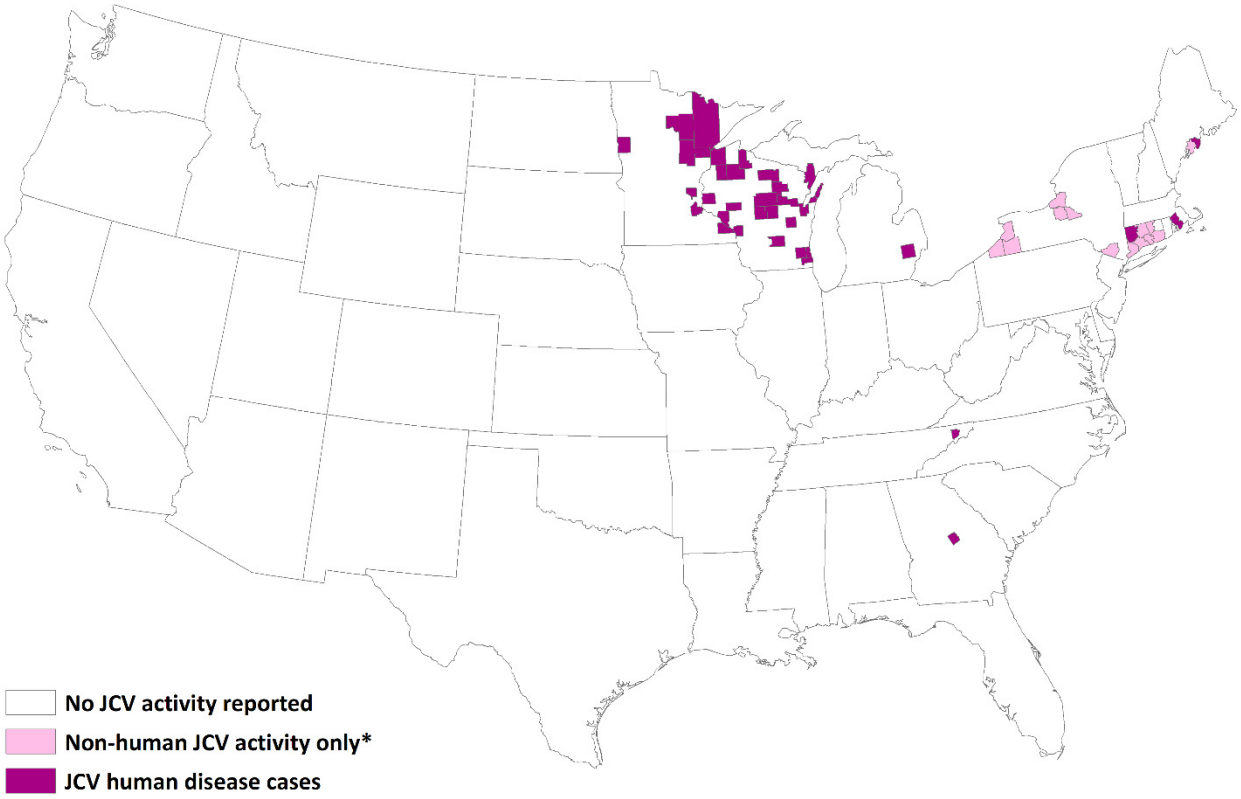
State	Neuroinvasive disease cases	Non-neuroinvasive disease cases	Total cases*	Deaths
Florida	3	0	3	0
Georgia	1	0	1	1
Michigan	1	0	1	0
Pennsylvania	1	0	1	0
Totals	**6**	**0**	**6**	**1**

*Includes confirmed and probable cases.

Jamestown Canyon virus (JCV) activity in 2018

A total of 36 counties in eight states reported human cases of JCV disease to ArboNET for 2018 **[Figure 5 and Table 3]**. Fourteen additional counties in three states reported JCV activity in non-human species only.

Figure 5. Jamestown Canyon virus activity reported to ArboNET, by county — United States, 2018



* JCV veterinary disease cases, or infections in mosquitoes, birds, or sentinel animals

Table 3. Jamestown Canyon virus human disease cases reported to ArboNET, United States, 2018

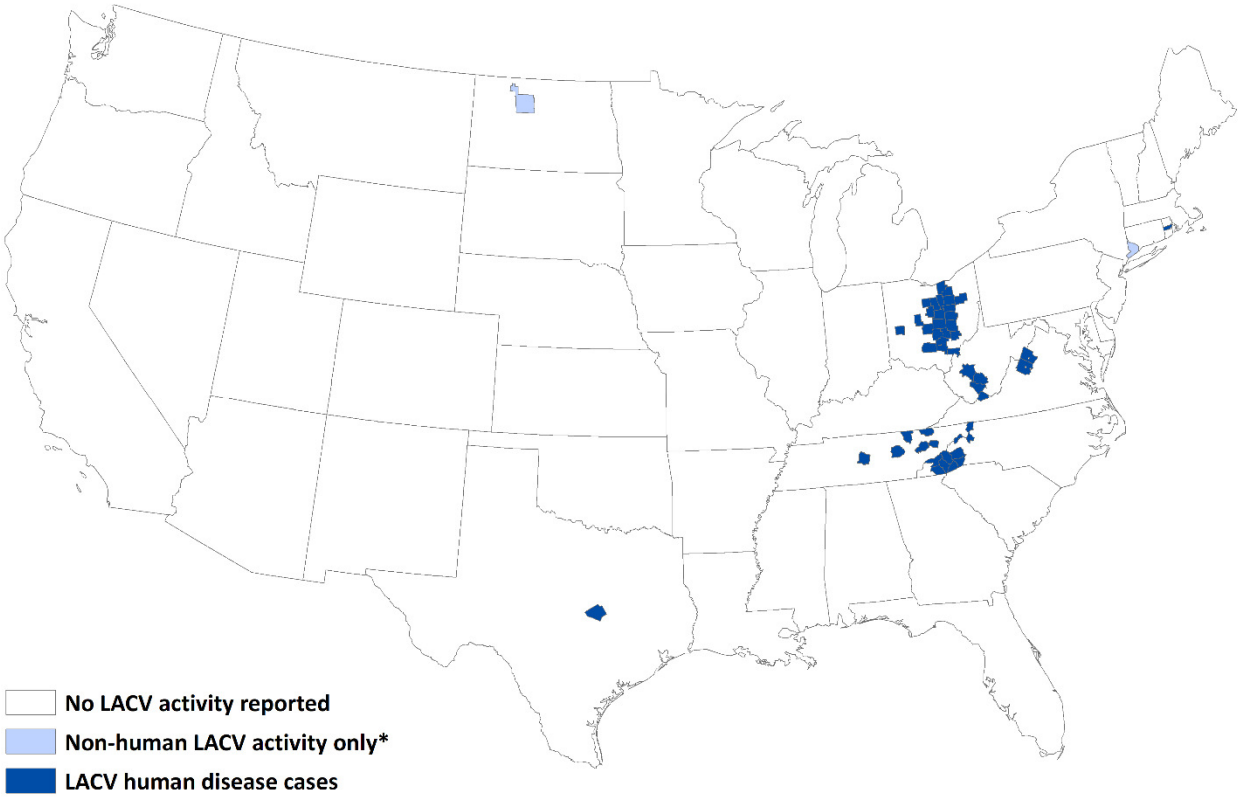
State	Neuroinvasive disease cases	Non-neuroinvasive disease cases	Total cases*	Deaths
Connecticut	1	0	1	0
Georgia	0	1	1	0
Maine	1	0	1	1
Massachusetts	1	0	1	0
Michigan	1	1	2	0
Minnesota	7	4	11	0
Tennessee	1	0	1	0
Wisconsin	13	10	23	0
Totals	**25**	**16**	**41**	**1**

*Includes confirmed and probable cases.

La Crosse encephalitis virus (LACV) activity in 2018

A total of 47 counties in seven states reported human cases of LACV disease to ArboNET for 2018 **[Figure 6 and Table 4]**. Two additional counties (one each in North Dakota and Connecticut) reported LACV activity in non-human species only.

Figure 6. La Crosse encephalitis virus activity reported to ArboNET, by county — United States, 2018



* LACV veterinary disease cases, or infections in mosquitoes, birds, or sentinel animals

Table 4. La Crosse encephalitis virus human disease cases reported to ArboNET, United States, 2018

State	Neuroinvasive disease cases	Non-neuroinvasive disease cases	Total cases*	Deaths
North Carolina	24	0	24	0
Ohio	38	1	39	0
Rhode Island	1	0	1	0
Tennessee	12	1	13	0
Texas	1	0	1	0
Virginia	2	0	2	0
West Virginia	5	1	6	0
Totals	**83**	**3**	**86**	**0**

*Includes confirmed and probable cases.

Powassan virus (POWV) activity in 2018

A total of 18 counties in eight states reported human cases of POWV disease to ArboNET for 2018 **[Figure 7 and Table 5].**

Figure 7. Powassan virus activity reported to ArboNET, by county — United States, 2018

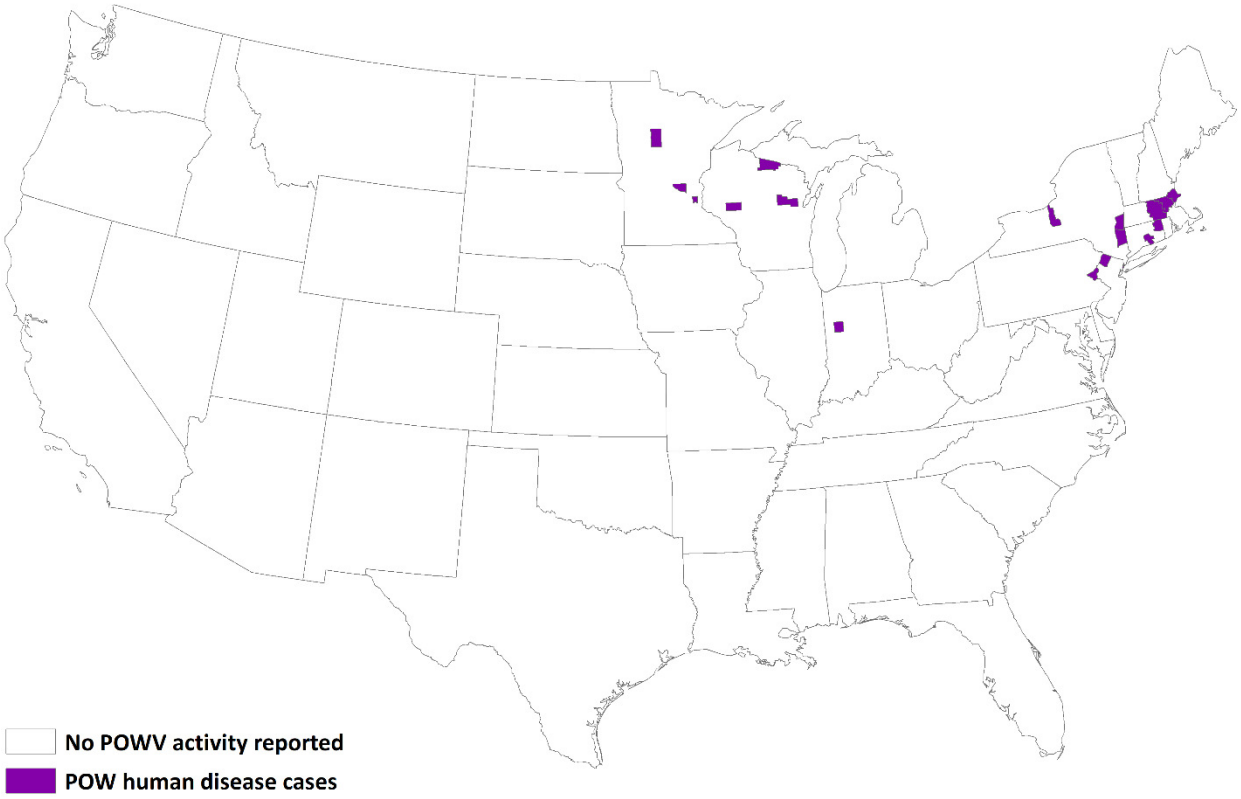


Table 5. Powassan virus human disease cases reported to ArboNET, United States, 2018

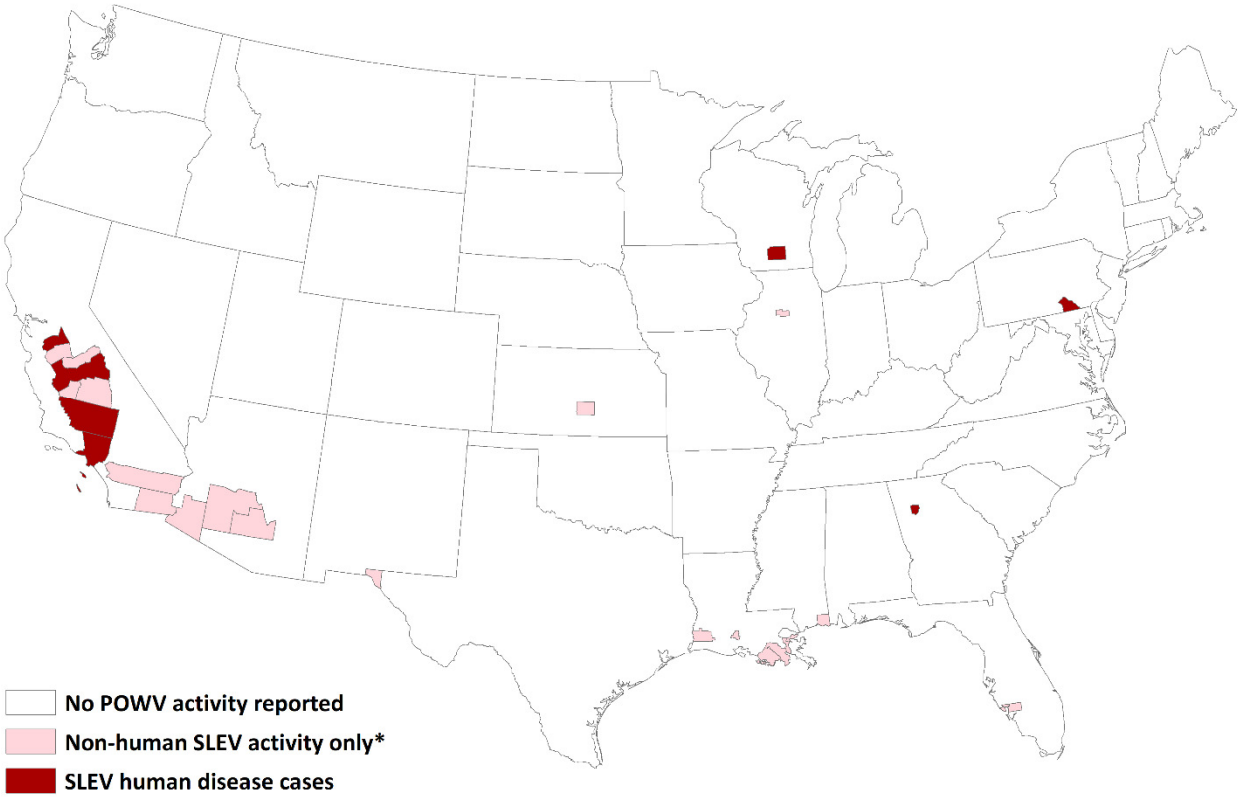
State	Neuroinvasive disease cases	Non-neuroinvasive disease cases	Total cases*	Deaths
Connecticut	2	0	2	0
Indiana	1	0	1	0
Massachusetts	6	0	6	1
Minnesota	3	0	3	0
New Jersey	1	0	1	0
New York	4	0	4	0
Pennsylvania	1	0	1	1
Wisconsin	3	0	3	1
Totals	**21**	**0**	**21**	**3**

*Includes confirmed and probable cases.

St. Louis encephalitis virus (SLEV) activity in 2018

A total of seven counties in four states reported human cases of SLEV disease to ArboNET for 2018 **[Figure 8 and Table 6]**. Twenty additional counties in eight states reported SLEV activity in non-human species only.

Figure 8. St. Louis encephalitis virus activity reported to ArboNET, by county — United States, 2018



* SLEV veterinary disease cases, or infections in mosquitoes, birds, or sentinel animals

Table 6. St. Louis encephalitis virus human disease cases reported to ArboNET, United States, 2018

State	Neuroinvasive disease cases	Non-neuroinvasive disease cases	Total cases*	Deaths
California	4	1	5	0
Georgia	0	1	1	0
Pennsylvania	0	1	1	0
Wisconsin	1	0	1	1
Totals	**5**	**3**	**8**	**1**

*Includes confirmed and probable cases.

About ArboNET

ArboNET is a national arboviral surveillance system managed by CDC and state health departments. In addition to human disease, ArboNET maintains data on arboviral infections among presumptive viremic blood donors (PVDs), veterinary disease cases, mosquitoes, dead birds, and sentinel animals. As with other national surveillance data, ArboNET data has several limitations that should be considered in analysis, interpretation, and reporting **[Box]**.

Box: Limitations of ArboNET data

The following should be considered in the analysis, interpretation, and reporting of ArboNET data:

1. ArboNET is a passive surveillance system. It is dependent on clinicians considering the diagnosis of an arboviral disease and obtaining the appropriate diagnostic test, and reporting of laboratory-confirmed cases to public health authorities. Diagnosis and reporting are incomplete, and the incidence of arboviral diseases is underestimated.
2. Reported neuroinvasive disease cases are considered the most accurate indicator of arboviral activity in humans because of the substantial associated morbidity. In contrast, reported cases of nonneuroinvasive arboviral disease are more likely to be affected by disease awareness and healthcare-seeking behavior in different communities and by the availability and specificity of laboratory tests performed. Surveillance data for nonneuroinvasive disease should be interpreted with caution and generally should not be used to make comparisons between geographic areas or

Additional resources

For additional arboviral disease information and data, please visit the following websites:

- CDC's Division of Vector-Borne Diseases:
  http://www.cdc.gov/ncezid/dvbd/
- National Notifiable Diseases Surveillance System:
  http://wwwn.cdc.gov/nndss/conditions/arboviral-diseases-neuroinvasive-and-non-neuroinvasive/case-definition/2015/
- CDC Disease Maps:
  https://wwwn.cdc.gov/arbonet/Maps/ADB_Diseases_Map/index.html
- AABB (American Association of Blood Banks):
  www.aabb.org/programs/biovigilance/Pages/wnv.aspx