

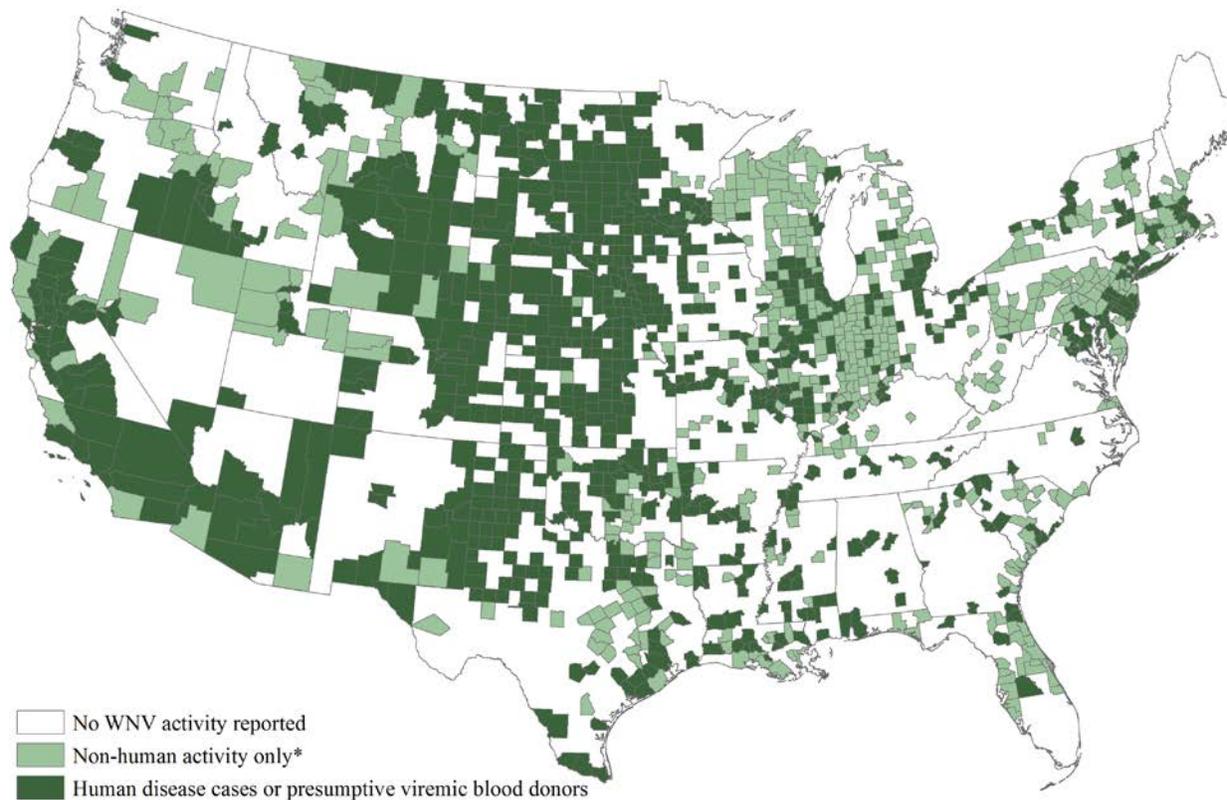
West Nile virus and other arboviral activity -- United States, 2013 Final 2013 data reported to ArboNET

These are final 2013 data reported to ArboNET for nationally notifiable arboviruses other than dengue. Additional resources for ArboNET and arboviral diseases are provided on page 10.

West Nile virus (WNV) activity in 2013

In 2013, 1,288 counties in 48 states reported WNV activity to ArboNET; 789 counties in 47 states and District of Columbia reported WNV human disease cases or presumptive viremic blood donors [Figure 1].

Figure 1. West Nile virus (WNV) activity reported to ArboNET, by county — United States, 2013



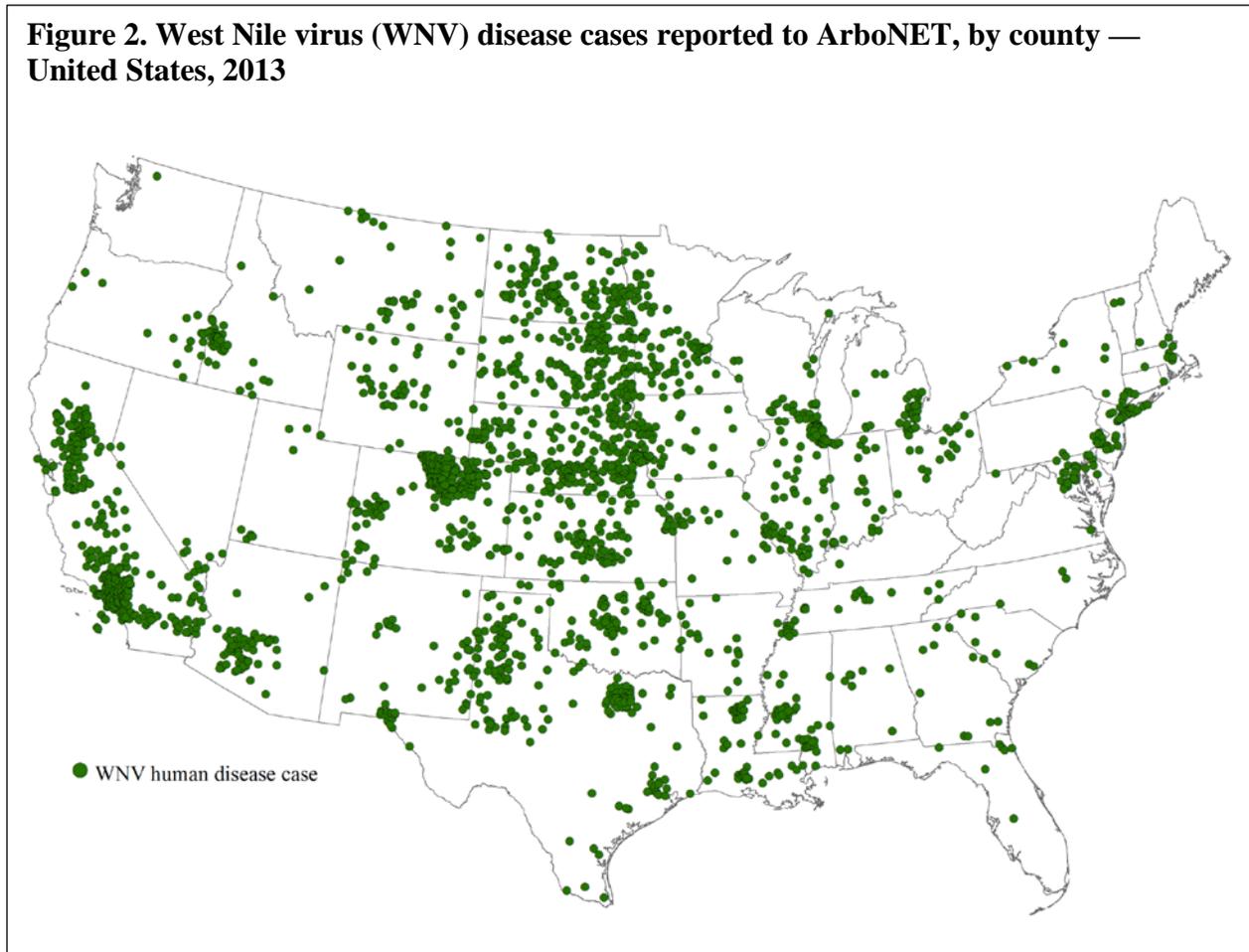
*WNV veterinary disease cases or WNV infections in mosquitoes, birds, or sentinel animals.

WNV human infections reported for 2013

Reported WNV disease cases

In 2013, a total of 2,469 human cases of WNV disease were reported from 725 counties in 47 states and the District of Columbia [Figure 2]. Of all WNV disease cases reported, 1,267 (51%) were classified as neuroinvasive disease (e.g., meningitis, encephalitis, acute flaccid paralysis) and 1,202 (49%) as non-neuroinvasive disease [Tables 1 and 2]. Ninety percent of the reported cases had onset of illness in July–September [Figure 3].

Figure 2. West Nile virus (WNV) disease cases reported to ArboNET, by county — United States, 2013



Estimated WNV disease cases

Based on previous studies, for every reported case of WNV neuroinvasive disease, there are an estimated 30-70 non-neuroinvasive disease cases. Extrapolating from the 1,267 WNV neuroinvasive disease cases reported, an estimated 38,000 – 88,500 non-neuroinvasive disease cases might have occurred in 2013. However, only 1,202 were diagnosed and reported; 1% – 3% of non-neuroinvasive disease cases estimated to have occurred.

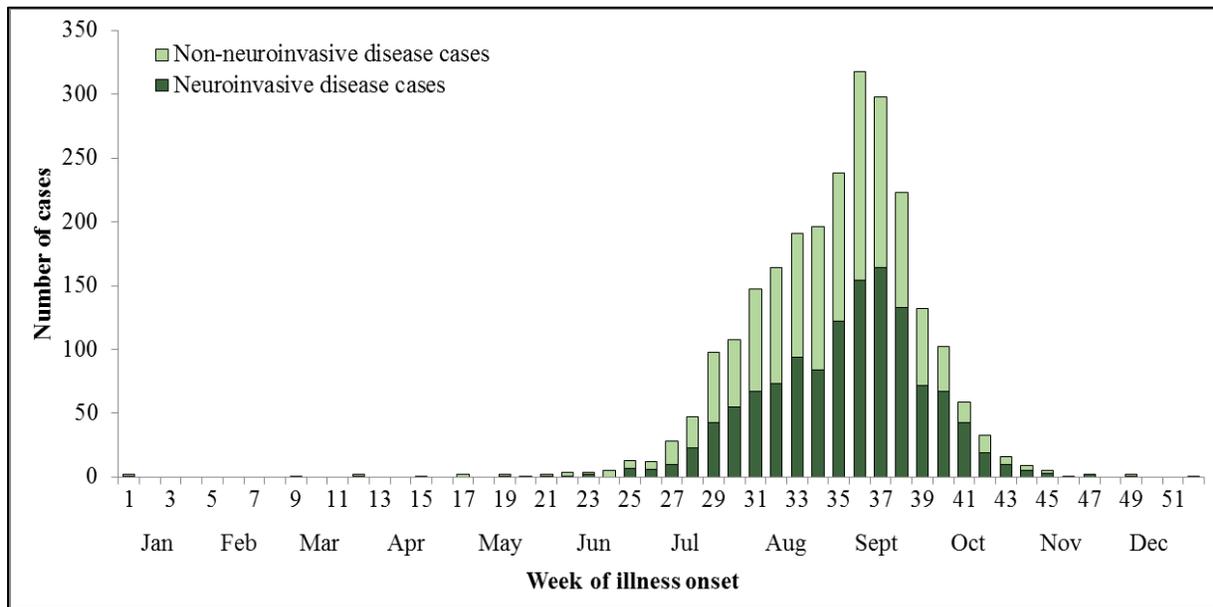
Presumptive viremic blood donors (PVDs)

In 2013, a total of 431 WNV presumptive viremic blood donors were reported from 36 states [Table 1]. Of these, 60 (14%) developed clinical illness and are also included as disease cases.

Table 1. West Nile virus infections in humans reported to ArboNET, 2013

State	Human disease cases reported to CDC*				Presumptive viremic blood donors [†]
	Neuroinvasive	Non-neuroinvasive	Total	Deaths	
Alabama	3	6	9	0	2
Arizona	50	12	62	6	6
Arkansas	16	2	18	1	6
California	237	142	379	15	68
Colorado	90	232	322	7	22
Connecticut	1	3	4	0	1
Delaware	3	0	3	0	0
District of Columbia	0	1	1	0	0
Florida	5	2	7	0	1
Georgia	4	6	10	0	3
Idaho	14	26	40	2	12
Illinois	86	31	117	12	21
Indiana	19	4	23	2	3
Iowa	24	20	44	0	12
Kansas	34	57	91	7	35
Kentucky	1	2	3	1	0
Louisiana	34	20	54	4	5
Maryland	11	5	16	1	1
Massachusetts	7	1	8	0	2
Michigan	24	12	36	2	4
Minnesota	31	48	79	3	26
Mississippi	27	18	45	5	5
Missouri	24	5	29	2	8
Montana	10	28	38	2	5
Nebraska	54	172	226	5	38
Nevada	8	3	11	1	5
New Hampshire	1	0	1	0	0
New Jersey	10	2	12	2	3
New Mexico	24	14	38	3	2
New York	18	14	32	0	9
North Carolina	3	0	3	1	0
North Dakota	64	61	125	2	15
Ohio	21	3	24	3	6
Oklahoma	60	29	89	7	18
Oregon	7	9	16	0	0
Pennsylvania	6	5	11	1	0
Rhode Island	1	0	1	0	0
South Carolina	3	4	7	0	2
South Dakota	57	92	149	3	26
Tennessee	17	7	24	2	0
Texas	113	70	183	14	39
Utah	4	3	7	0	5
Vermont	1	1	2	0	0
Virginia	6	0	6	0	0
Washington	0	1	1	0	1
West Virginia	1	0	1	0	0
Wisconsin	17	4	21	2	9
Wyoming	16	25	41	1	5
Totals	1,267	1,202	2,469	119	431

*Includes confirmed and probable cases; †Of the 431 presumptive viremic blood donors, 60 (14%) developed clinical illness and are also included as “Human disease cases reported to CDC”.

Figure 3. WNV disease cases reported to ArboNET, by week of onset — United States, 2013**Table 2. Characteristics of reported cases of arboviral disease, United States, 2013**

	WNV (N=2,469)		LACV (N=85)		JCV (N=22)		POWV (N=15)		EEEV (N=7)	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)
Male sex	1,425	(58)	49	(58)	17	(77)	11	(73)	5	(71)
Age group										
<20 years	119	(5)	76	(89)	3	(14)	1	(7)	2	(29)
20-39 years	447	(18)	1	(1)	7	(31)	1	(7)	0	(0)
40-59 years	922	(37)	5	(6)	9	(41)	5	(33)	2	(29)
≥60 years	981	(40)	3	(4)	3	(14)	8	(53)	3	(42)
Onset of illness										
Jan – Mar	4	(<1)	0	(0)	1	(4)	0	(0)	2	(29)
Apr – Jun	49	(2)	9	(11)	5	(23)	5	(33)	1	(13)
Jul – Sep	2,223	(90)	71	(84)	14	(64)	6	(40)	2	(29)
Oct – Dec	193	(8)	5	(5)	2	(9)	4	(27)	2	(29)
Clinical syndrome										
Non-neuroinvasive	1,202	(49)	8	(10)	7	(32)	3	(20)	0	(0)
Neuroinvasive										
Encephalitis	669	(27)	65	(76)	9	(41)	10	(67)	7	(100)
Meningitis	486	(20)	8	(9)	6	(27)	2	(13)	0	(0)
Acute flaccid paralysis [†]	112	(4)	4	(5)	0	(0)	0	(0)	0	(0)
Outcome										
Hospitalization	1,494	(61)	80	(94)	12	(55)	13	(87)	7	(100)
Death	119	(5)	2	(2)	0	(0)	2	(13)	3	(43)

WNV=West Nile virus; LACV=La Crosse virus; JCV=Jamestown Canyon virus; POWV=Powassan virus; EEEV=Eastern equine encephalitis virus

[†]85 WNV disease cases classified as acute flaccid paralysis also had encephalitis or meningitis. Four LACV disease case classified as acute flaccid paralysis also had encephalitis.

La Crosse virus (LACV) activity in 2013

In 2013, a total of 58 counties in 12 states reported LACV activity to ArboNET; all 12 states reported human disease cases [Figure 4 and Table 3]. Demographic and clinical characteristics of reported cases are provided in Table 2.

Figure 4. La Crosse virus (LACV) activity reported to ArboNET, by state — United States, 2013

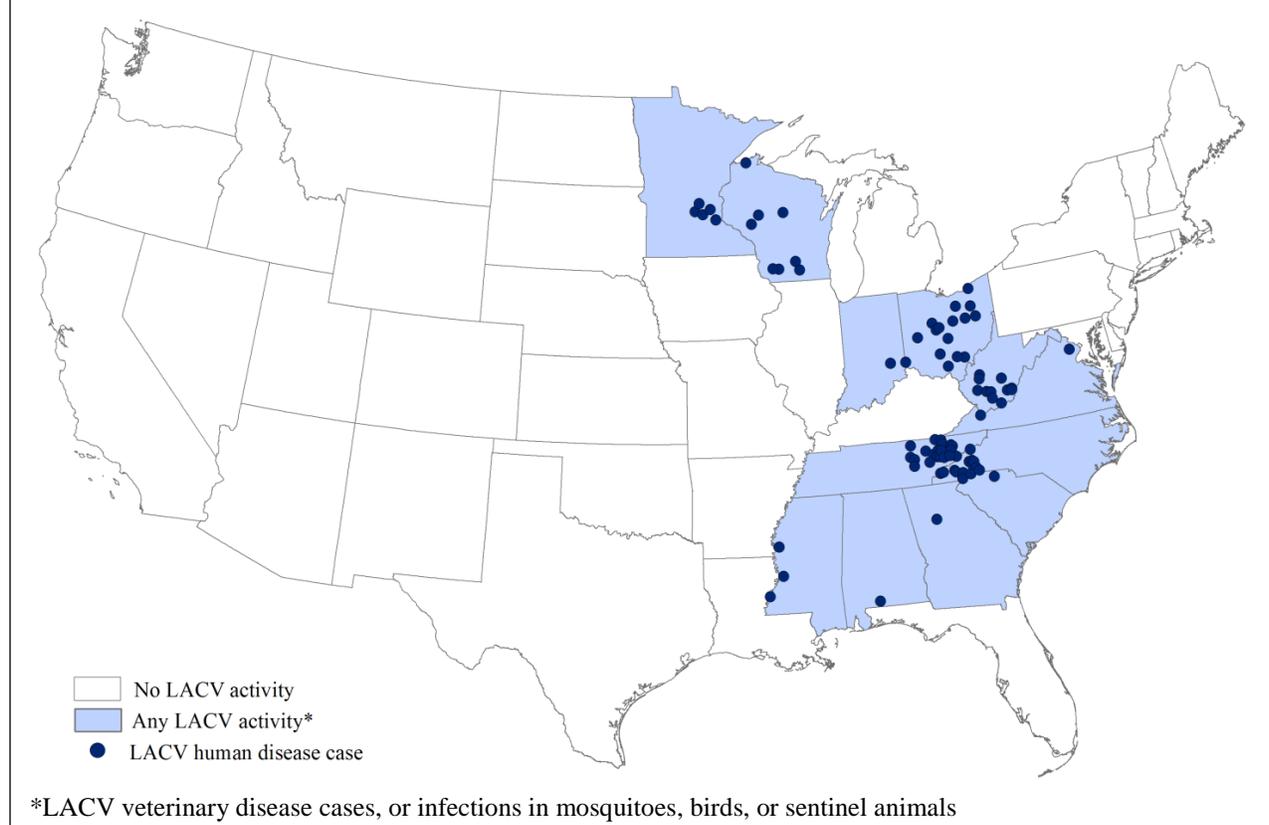


Table 3. La Crosse virus human disease cases reported to ArboNET, United States, 2013*

State	Neuroinvasive	Non-neuroinvasive	Total cases	Deaths
Alabama	1	0	1	0
Georgia	1	0	1	0
Indiana	1	0	1	1
Minnesota	4	1	5	0
Mississippi	2	1	3	0
North Carolina	13	0	13	0
Ohio	14	2	16	0
South Carolina	1	0	1	0
Tennessee	23	0	23	0
Virginia	2	0	2	0
West Virginia	10	1	11	0
Wisconsin	5	3	8	1
Totals	77	8	85	2

*Includes confirmed and probable cases.

Jamestown Canyon virus (JCV) activity in 2013

In 2013, a total of 29 counties in 11 states reported JCV activity to ArboNET, including 10 states with human disease cases and one additional state with reported JCV activity in non-human species only [Figure 5 and Table 4]. Demographic and clinical characteristics of reported cases are provided in Table 2.

Figure 5. Jamestown Canyon virus (JCV) activity reported to ArboNET, by state — United States, 2013

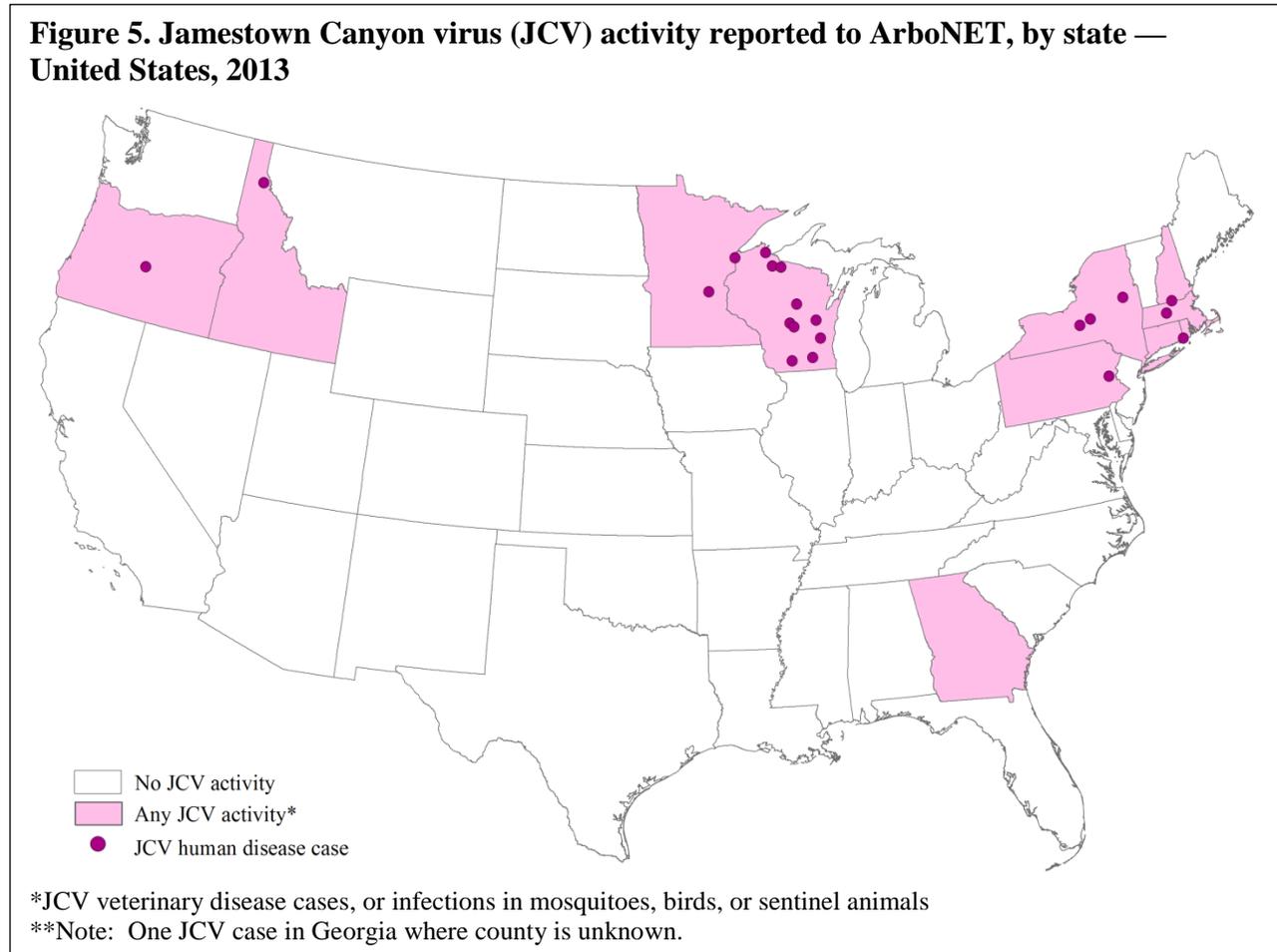


Table 4. Jamestown Canyon virus human disease cases reported to ArboNET, United States, 2013*

State	Neuroinvasive	Non-neuroinvasive	Total cases	Deaths
Georgia	0	1	1	0
Idaho	0	1	1	0
Massachusetts	1	0	1	0
Minnesota	1	0	1	0
New Hampshire	1	0	1	0
New York	3	0	3	0
Oregon	1	0	1	0
Pennsylvania	0	1	1	0
Rhode Island	1	0	1	0
Wisconsin	7	4	11	0
Totals	15	7	22	0

*Includes confirmed and probable cases.

Powassan virus (POWV) activity in 2013

In 2013, a total of 13 counties in seven states reported human cases of POWV disease to ArboNET [Figure 6 and Table 5]. Demographic and clinical characteristics of reported cases are provided in Table 2.

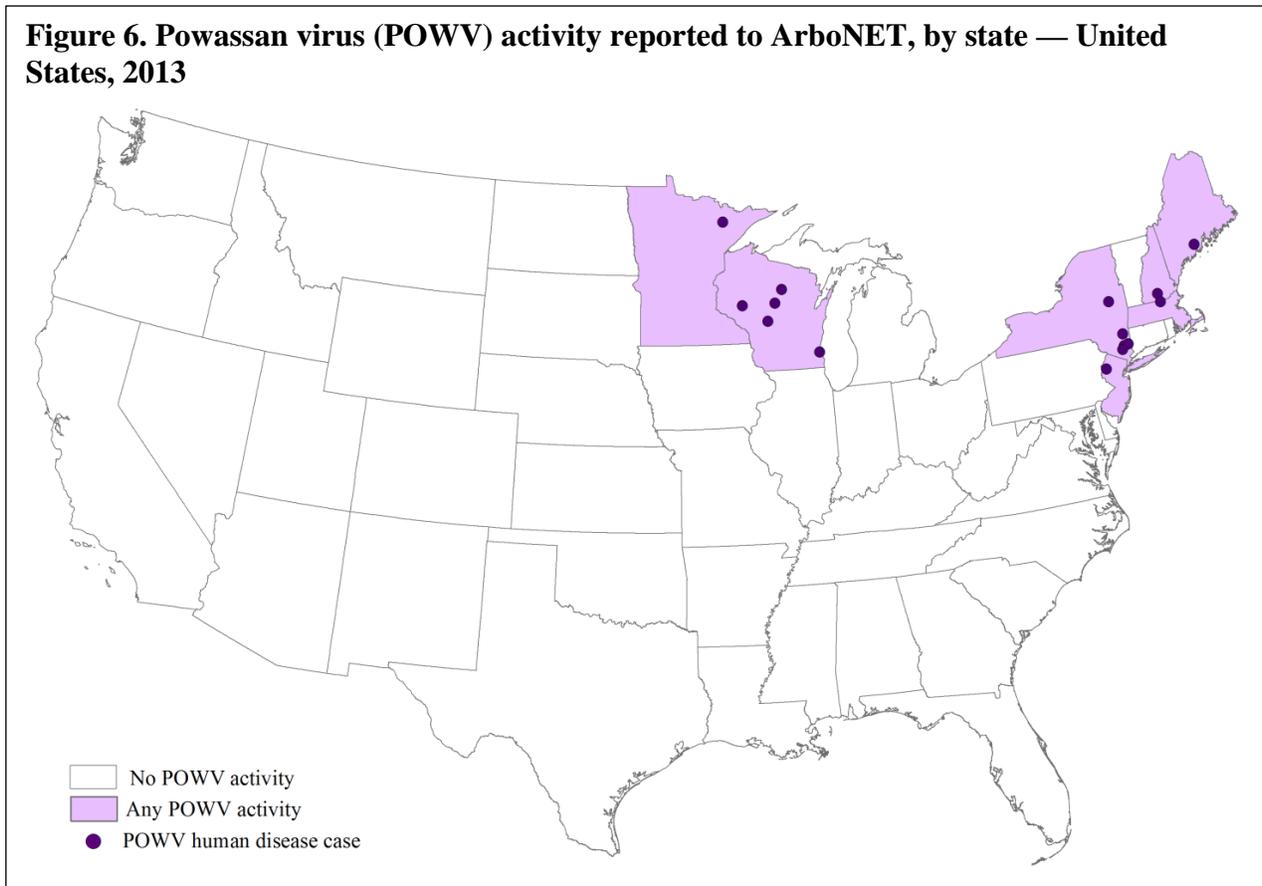


Table 5. Powassan virus human disease cases reported to ArboNET, United States, 2013*

State	Neuroinvasive	Non-neuroinvasive	Total cases	Deaths
Massachusetts	1	0	1	0
Maine	1	0	1	1
Minnesota	1	0	1	0
New Hampshire	1	0	1	0
New Jersey	1	0	1	1
New York	4	1	5	0
Wisconsin	3	2	5	0
Totals	12	3	15	2

*Includes confirmed and probable cases.

Eastern equine encephalitis virus (EEEV) activity in 2013

In 2013, a total of 154 counties in 22 states reported EEEV activity to ArboNET, including five states with human disease cases and 17 additional states with EEEV activity in non-human species only [Figure 7 and Table 6]. Demographic and clinical characteristics of reported cases are provided in Table 2.

Figure 7. Eastern equine encephalitis virus (EEEV) activity reported to ArboNET, by state — United States, 2013

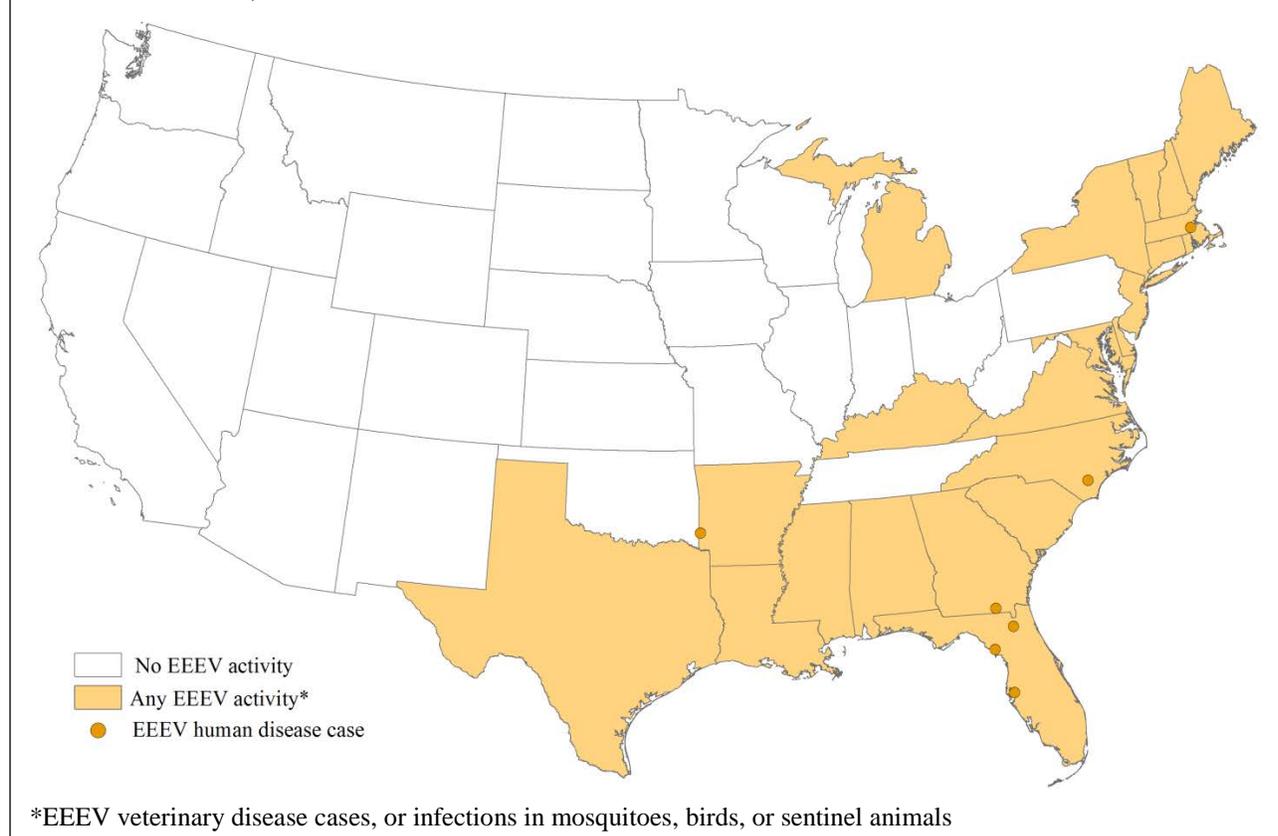


Table 6. Eastern equine encephalitis virus human disease cases reported to ArboNET, United States, 2013*

State	Neuroinvasive	Non-neuroinvasive	Total cases	Deaths
Arkansas	1	0	1	1
Florida	3	0	3	1
Georgia	1	0	1	0
Massachusetts	1	0	1	1
North Carolina	1	0	1	0
Totals	7	0	7	3

*Includes confirmed and probable cases.

St. Louis encephalitis virus (SLEV) activity in 2013

In 2013, a total of 16 counties in five states reported SLEV activity to ArboNET; including one state with a human disease case and four additional states with reported SLEV activity in non-human species only [Figure 8 and Table 7].

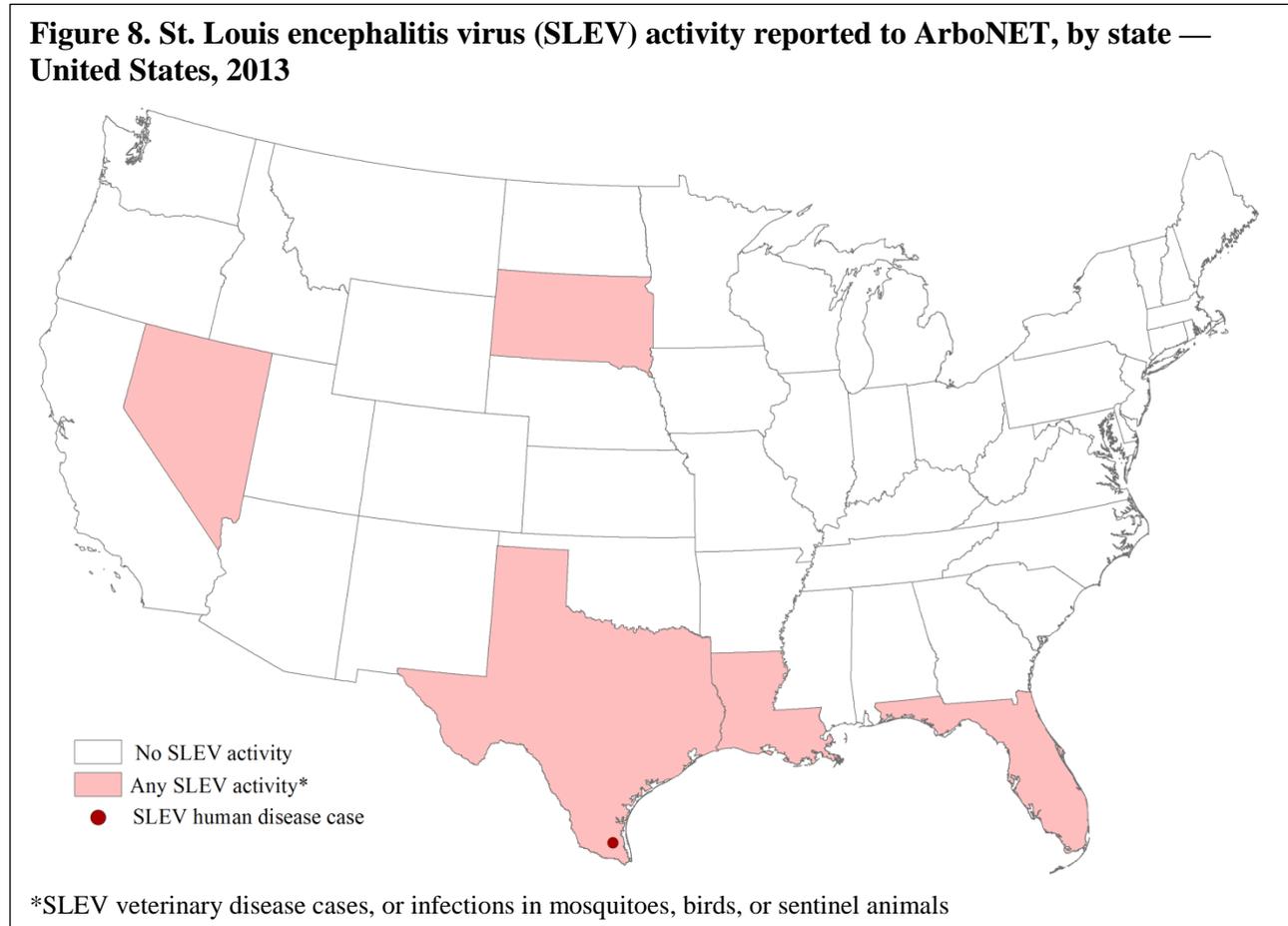


Table 7. St. Louis encephalitis virus human disease cases reported to ArboNET, United States, 2013*

State	Neuroinvasive	Non-neuroinvasive	Total cases	Deaths
Texas	1	0	1	0
Totals	1	0	1	0

*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 over time.

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/script/casedef.aspx?CondYrID=616&DatePub=1/1/2011%2012:00:00%20AM>
- U.S. Geological Survey (USGS):
<http://diseasemaps.usgs.gov/>
- AABB (American Association of Blood Banks):
www.aabb.org/programs/biovigilance/Pages/wnv.aspx