West Nile virus and other arboviral activity -- United States, 2015
Provisional data reported to ArboNET
Tuesday, July 21, 2015

This update from the CDC Arboviral Disease Branch includes provisional data reported to ArboNET for **January 1 – July 21, 2015** for nationally notifiable arboviruses other than dengue and chikungunya viruses. Additional resources for ArboNET and arboviral diseases are provided on page 9.

West Nile virus (WNV) activity in 2015

As of July 21st, 205 counties from 33 states have reported WNV activity to ArboNET for 2015, including 16 states with reported WNV human infections (i.e., disease cases or viremic blood donors) and 17 additional states with reported WNV activity in non-human species only (i.e., veterinary cases, mosquito pools, dead birds, or sentinel animals) **[Figure 1]**.

Figure 1. West Nile virus (WNV) activity reported to ArboNET, by state — United States, 2015 (as of July 21, 2015)

WNV human infections*
Non-human WNV activity†
No WNV activity

*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

Reported WNV disease cases

To date, 23 human WNV disease cases have been reported from 22 counties in 14 states **[Table 1]**. Of these, nine (39%) were classified as neuroinvasive disease (such as meningitis or encephalitis) and 14 (61%) were classified as non-neuroinvasive disease **[Figure 2]**.

Presumptive viremic donors (PVDs)

Fifteen WNV PVDs have been reported from nine states **[Table 1]**.

Table 1. West Nile virus infections in humans reported to ArboNET, 2015

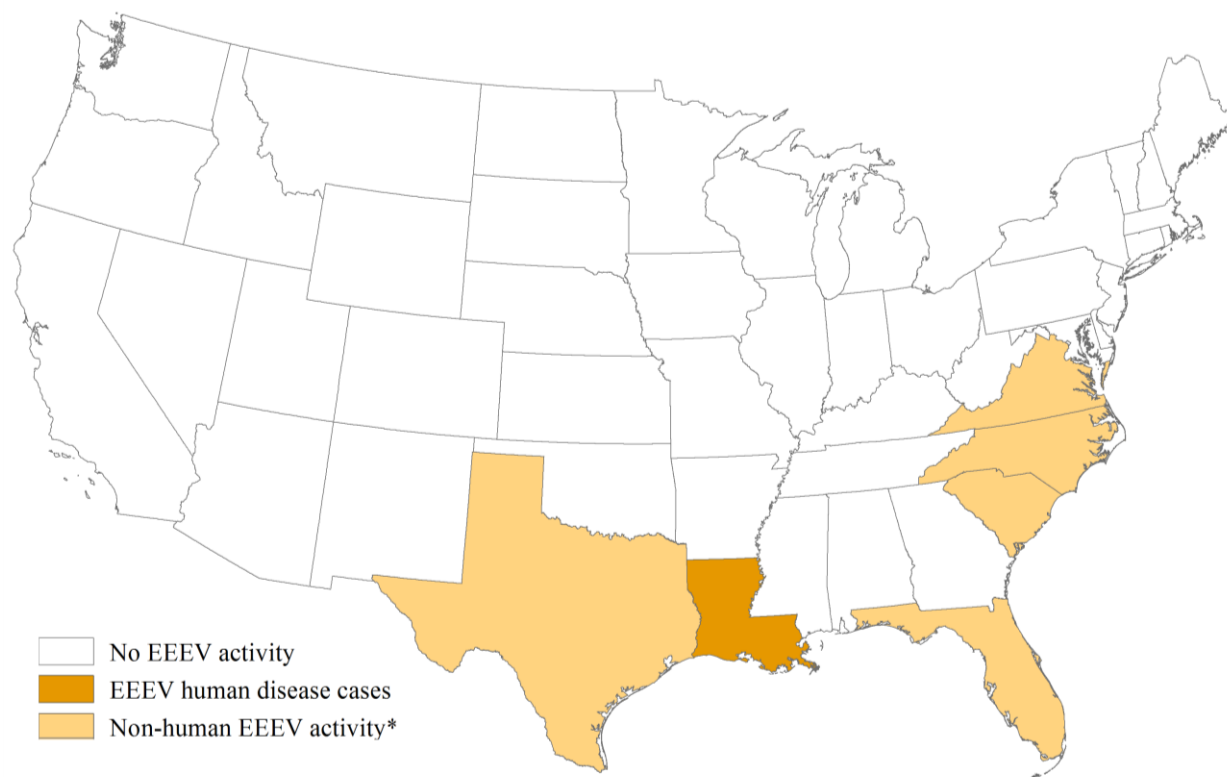| State	Human disease cases reported to CDC*				Presumptive viremic blood donors
	Neuroinvasive	Non-neuroinvasive	Total	Deaths	
Arizona	1	0	1	0	3
California	0	0	0	0	2
Colorado	1	0	1	0	0
Delaware	0	1	1	0	0
Kansas	0	2	2	0	1
Louisiana	2	0	2	0	1
Mississippi	0	1	1	0	0
Montana	1	0	1	0	0
Nebraska	0	1	1	0	3
Nevada	0	0	0	0	2
New Mexico	1	0	1	0	0
Oklahoma	2	3	5	0	0
South Dakota	0	2	2	0	1
Texas	1	2	3	0	1
Washington	0	1	1	0	1
Wyoming	0	1	1	0	0
Totals	**9**	**14**	**23**	**0**	**15**

*Includes confirmed and probable cases

Figure 2. West Nile virus (WNV) neuroinvasive disease incidence reported to ArboNET, by state — United States, 2015 (as of July 21, 2015)

0.0
0.01 - 0.24
0.25 - 0.49
0.50 - 0.99
>=1.00
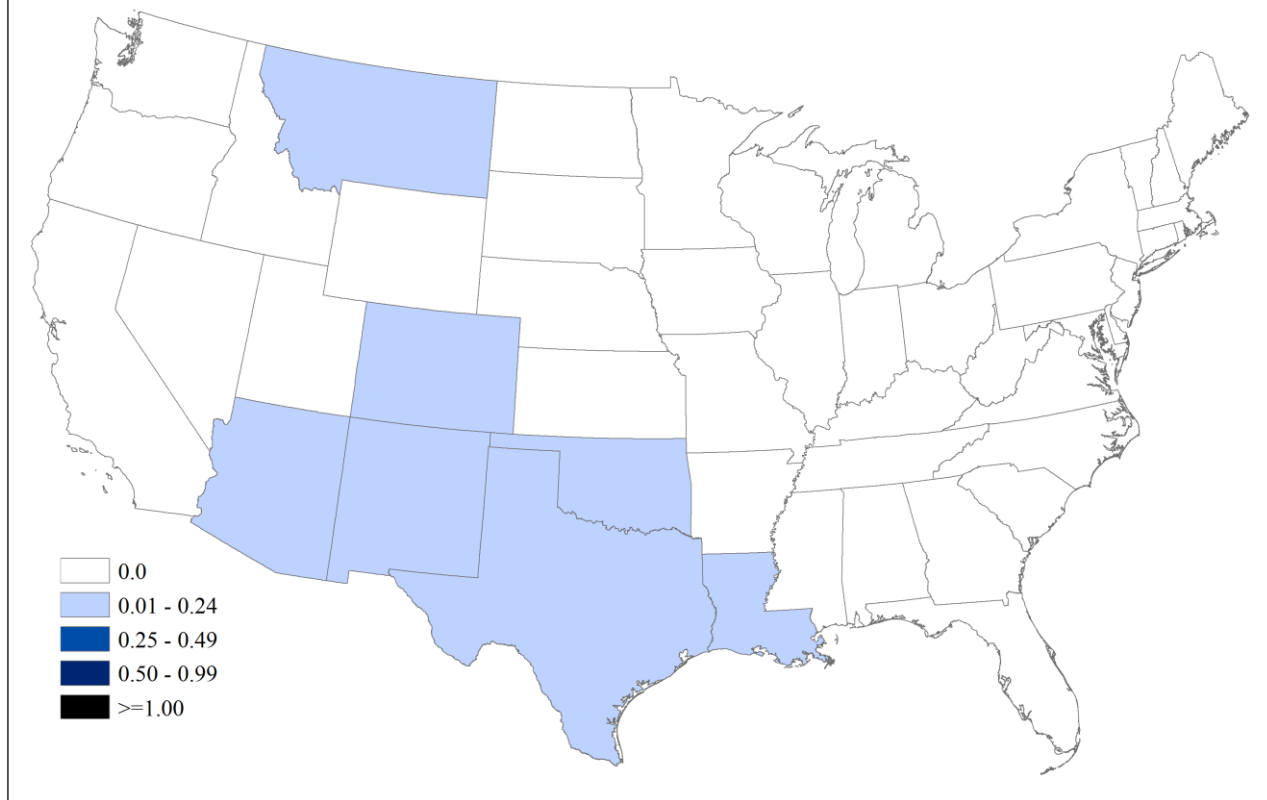
Eastern equine encephalitis virus (EEEV) activity in 2015

As of July 21st, one county in Louisiana reported a human case of EEEV disease to ArboNET for 2015 **[Figure 3 and Table 2]**. Twenty five additional counties in five states have reported EEEV activity in non-human species only.

Figure 3. Eastern equine encephalitis virus (EEEV) activity reported to ArboNET, by state — United States, 2015 (as of July 21, 2015)

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

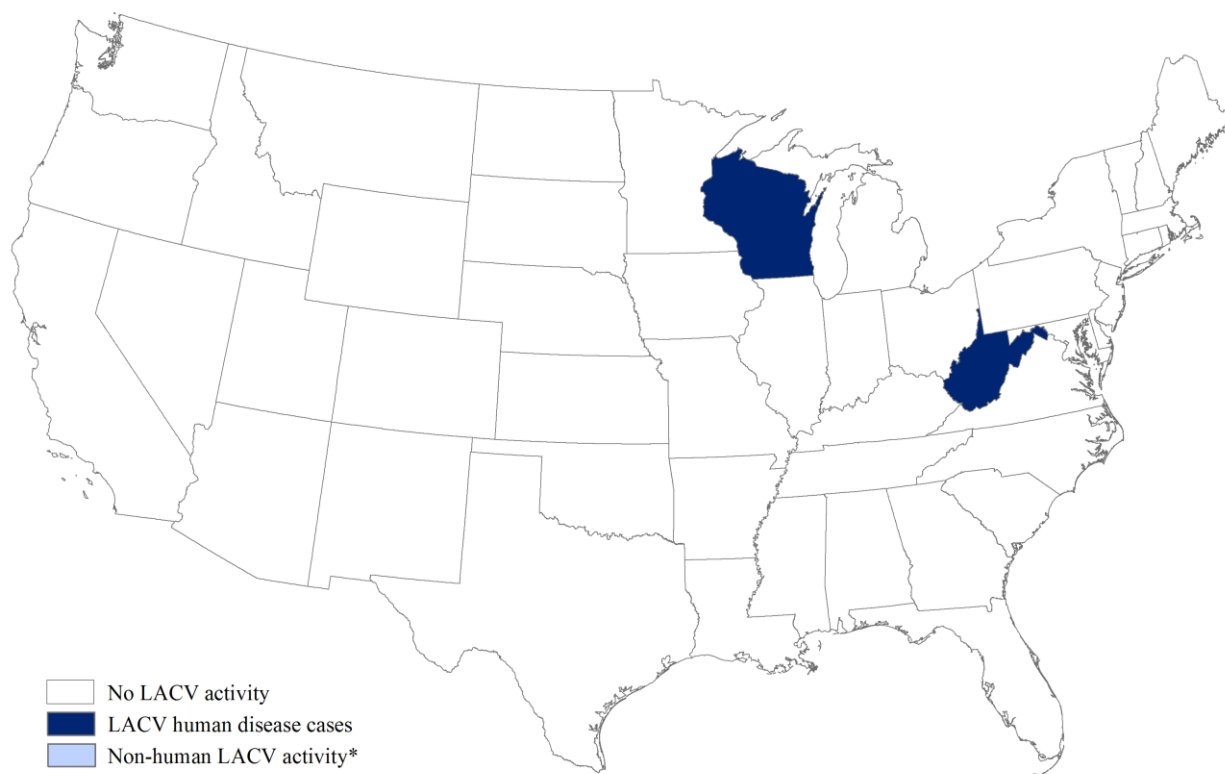**Table 2. Eastern equine encephalitis virus human disease cases reported to ArboNET, United States, 2015**

	Neuroinvasive disease cases	Nonneuroinvasive disease cases	Total cases*	Deaths
Louisiana	1	0	1	0
Totals	**1**	**0**	**1**	**0**

*Includes confirmed and probable cases.

Jamestown Canyon virus (JCV) activity in 2015

As of July 21st, one county in Wyoming reported a human case of JCV disease to ArboNET for 2015 **[Figure 4 and Table 3]**. Six additional counties in Connecticut have reported JCV activity in non-human species only.

Figure 4. Jamestown Canyon virus (JCV) activity reported to ArboNET, by state — United States, 2015 (as of July 21, 2015)

No JCV activity
JCV human disease cases
Non-human JCV activity*
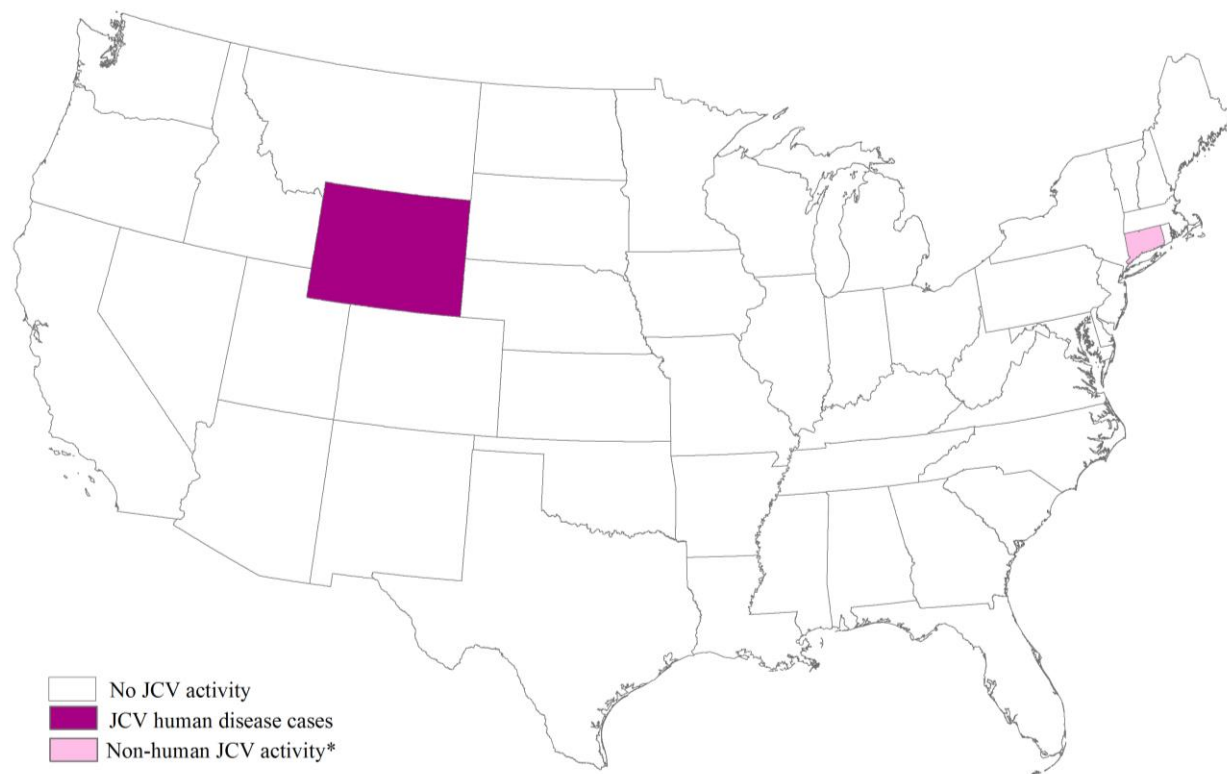
*JCV veterinary disease cases, or infections in mosquitoes, birds, or sentinel animals

Table 3. Jamestown Canyon virus human disease cases reported to ArboNET, United States, 2015

	Neuroinvasive disease cases	Nonneuroinvasive disease cases	Total cases*	Deaths
Wyoming	0	1	1	0
Totals	**0**	**1**	**1**	**0**

*Includes confirmed and probable cases.

La Crosse encephalitis virus (LACV) activity in 2015

As of July 21st, two counties in two states have reported human cases of LACV disease to ArboNET for 2015 **[Figure 5 and Table 4]**.

Figure 5. La Crosse encephalitis virus (LACV) activity reported to ArboNET, by state — United States, 2015 (as of July 21, 2015)

No LACV activity
LACV human disease cases
Non-human LACV activity*

*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, 2015

	Neuroinvasive disease cases	Nonneuroinvasive disease cases	Total cases*	Deaths
West Virginia	0	1	1	0
Wisconsin	1	0	1	0
Totals	**1**	**1**	**2**	**0**

*Includes confirmed and probable cases.

Powassan virus (POWV) activity in 2015

As of July 21st, one county in New Jersey has reported a human case of POWV disease to ArboNET for 2015 [Figure 6 and Table 5].

Figure 6. Powassan virus (POWV) activity reported to ArboNET, by state — United States, 2015 (as of July 21, 2015)

No POWV activity
POWV human disease cases

Table 5. Powassan virus human disease cases reported to ArboNET, United States, 2015

	Neuroinvasive disease cases	Nonneuroinvasive disease cases	Total cases*	Deaths
New Jersey	1	0	1	0
Totals	**1**	**0**	**1**	**0**

*Includes confirmed and probable cases.

St. Louis encephalitis virus (SLEV) activity in 2015

As of July 21st, one county in Arizona reported a human case of SLEV disease to ArboNET for 2015 **[Figure 7 and Table 6]**. Three additional counties in two states have reported SLEV activity in non-human species only.

Figure 7. St. Louis encephalitis virus (SLEV) activity reported to ArboNET, by state — United States, 2015 (as of July 21, 2015)

No SLEV activity
SLEV human disease cases
Non-human SLEV activity*
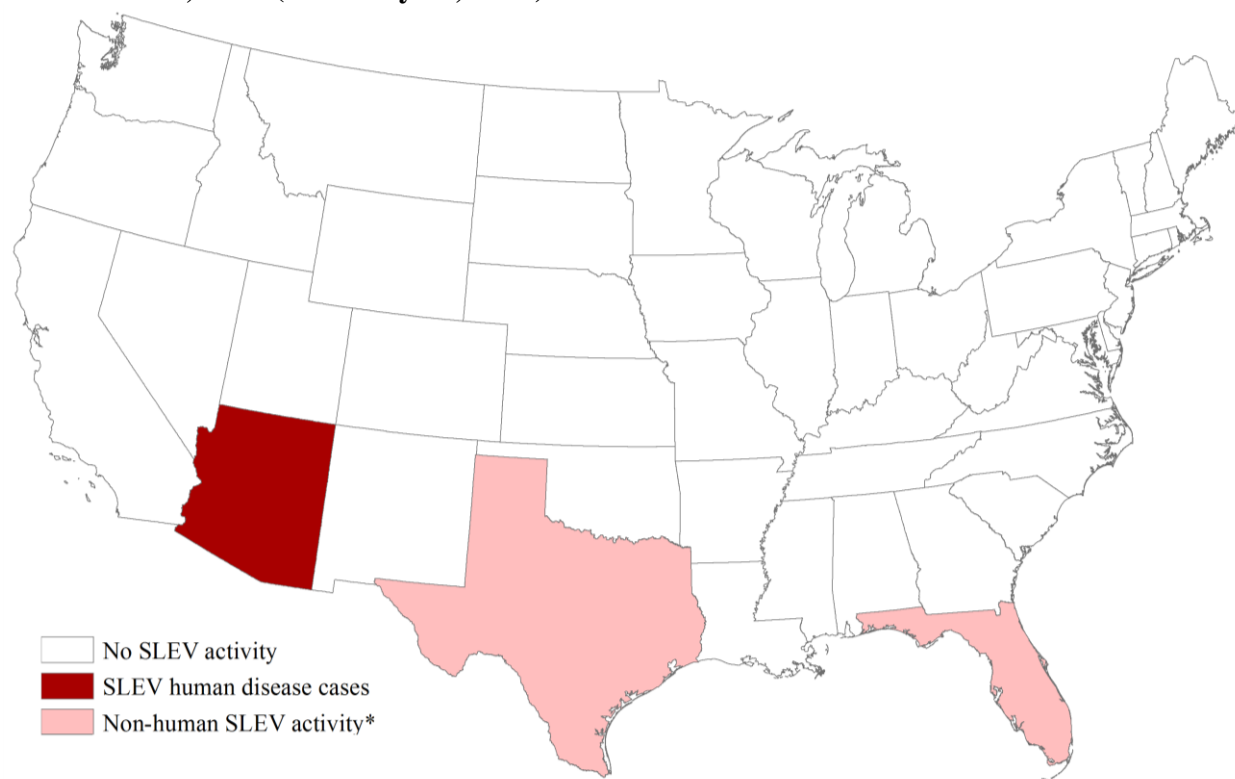
*SLEV veterinary disease cases, or infections in mosquitoes, birds, or sentinel animals

Table 6. St. Louis encephalitis virus human disease cases reported to ArboNET, United States, 2015

	Neuroinvasive disease cases	Nonneuroinvasive disease cases	Total cases*	Deaths
Arizona	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/conditions/arboviral-diseases-neuroinvasive-and-non-neuroinvasive/case-definition/2015/

- U.S. Geological Survey (USGS):
  http://diseasemaps.usgs.gov/ or http://diseasemaps.usgs.gov/mapviewer/

- AABB (American Association of Blood Banks):
  www.aabb.org/programs/biovigilance/Pages/wnv.aspx