Vector-borne Surveillance Report

CDC WEEK 43: October 21-27, 2018

Report Highlight:

- *Fifty-eight human cases of WNV have been reported from 20 New Jersey counties, including three fatalities in Bergen County.*
- *A total of 1,327 mosquito pools and one horse have tested positive for WNV.*
- *A total of 14 mosquito pools and five horses have tested positive for EEE. There have been no human EEE cases reported in 2018.*

Human Testing

New Jersey Administrative Code (N.J.A.C.) Title 8 Chapter 57 mandates public health reporting of specified vector-borne diseases to prevent further disease spread.

Human Cases [a]

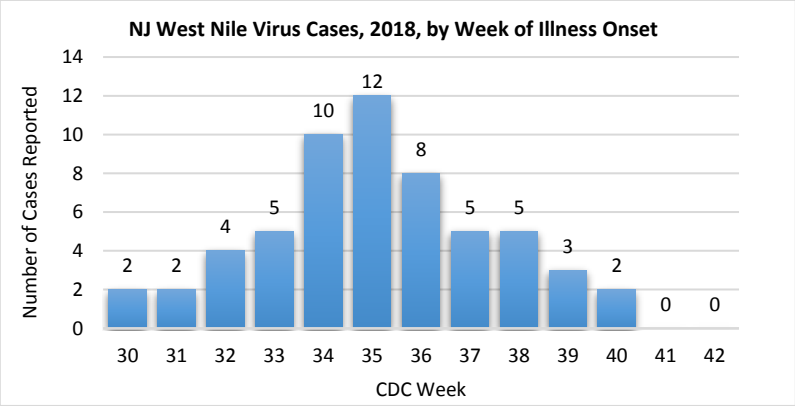
Mosquito-borne diseases			Tickborne Diseases		
	2018 [b]	2017		**2018** [b]	2017
Chikungunya	**9**	12	Anaplasmosis	**88**	154
Dengue	**14**	25	Babesiosis	**193**	193
Eastern equine encephalitis	**-**	-	Ehrlichiosis	**76**	102
Malaria	**73**	125	Lyme disease	**2995**	5107
West Nile	**58**	8	Powassan	**-**	4
Zika	**7**	37	Spotted fever group rickettsioses	**110**	137

[a] Data for 2018 reflect confirmed and probable cases that have been approved by NJDOH. This does not include cases under investigation. All 2018 numbers are preliminary and are subject to change.

[b] Cumulative through week 43: October 21-27, 2018.

2018 West Nile Virus Cases

- As of week 43, 58 WNV cases including 3 fatalities from Bergen County have been reported. An additional 2 reports are under investigation. This is the highest number of cases ever reported in the state. In 2017, there was a total of 8 reported West Nile virus cases.
- The mean age of cases is 63 years (ranging from 19 to 95 years); 39 of the 58 cases are male.
- 46 cases were hospitalized for an average of 11 days. 16 of the 46 cases required additional medical care after hospitalization.
- 41 cases were classified with neuroinvasive disease.
- 2 cases were identified through routine blood screening (Hunterdon and Morris County).
- 12 of the 58 cases had onset of symptoms in week 35 (Aug 28-Sep 1), which is also the week with the highest number of WNV positive mosquito pools.
- 3 asymptomatic presumptive viremic blood donor (PVD) reports were received from Bergen, Mercer and Middlesex County. These are not cases but are reported as PVDs.



West Nile Virus Cases*

County	No. of Cases
Bergen	10
Middlesex	5
Hudson	4
Morris	4
Somerset	4
Warren	4
Burlington	3
Camden	3
Hunterdon	3
Monmouth	3
Passaic	3
Cape May	2
Cumberland	2
Ocean	2
Atlantic	1
Essex	1
Gloucester	1
Mercer	1
Sussex	1
Union	1
Total	**58**

** Represents confirmed and probable cases that have been approved by NJDOH. This does not include cases under investigation. All 2018 numbers are preliminary and are subject to change.*

Mosquito Testing*

The New Jersey Department of Health Public Health and Environmental Laboratories (PHEL) and the Cape May County Department of Mosquito Control Bio-safety Level 3 Laboratory (CMBSL3) perform arboviral testing on mosquito pools collected by county mosquito control agencies throughout New Jersey.

West Nile virus (WNV):

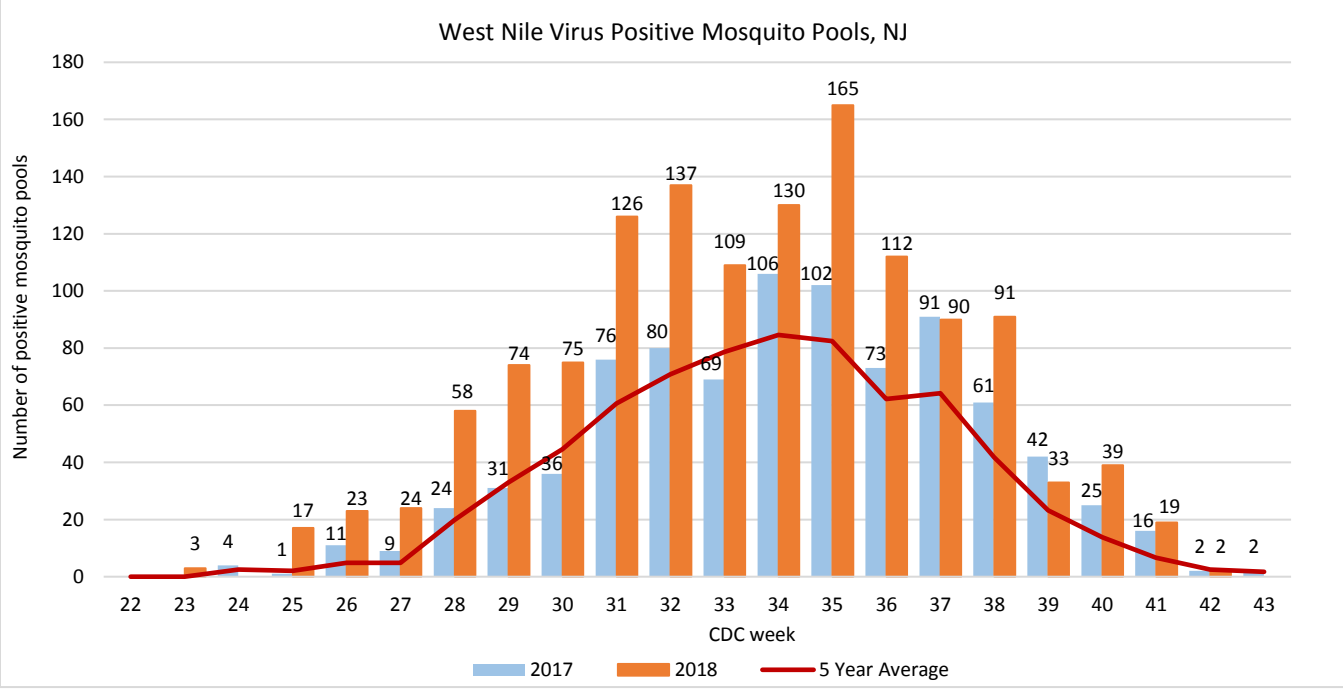
- A total of 1,327 mosquito pools have tested positive for WNV. This exceeds the total number of positive pools reported in 2017 (*n=861*) and is the first time since 2012 the number of positive pools reported in a season has exceeded 1000+ pools.
- 90% (*n=1,196*) of the positive pools were *Culex sp.* A total of 18 species have tested positive for WNV this season compared with 10 species in 2017.
- As of week 43, Morris, Hunterdon and Bergen Counties have the highest number of WNV positive pools in the State.
- 165 WNV positive pools were reported in week 35. 24% of the total pools collected in week 35 were positive for WNV. This is the highest ratio of positive pools to total pools collected in a week this season.
- Overall, 17 counties are reporting increased WNV activity this season compared with 2017.

** Test results may be incomplete; Counties submit pools for testing on specific weekdays. Mosquito testing data reflects test results received from PHEL, CMBSL3 and US Army Public Health as of October 31, 2018*

WNV Positive Mosquito Pools

	Week 43		Cumulative Total (week 43)	
County	**2018***	2017	**2018***	2017
Morris			166	29
Bergen			161	125
Hunterdon			159	90
Gloucester			117	103
Somerset			84	37
Warren			82	31
Union			78	100
Hudson			68	71
Monmouth			63	16
Middlesex			56	57
Sussex			56	40
Mercer			43	24
Camden			40	38
Burlington		1	35	27
Ocean			26	15
Atlantic			24	5
Cape May		1	20	27
Passaic			16	7
Essex			14	6
Cumberland			10	3
Salem			9	10
Total	**-**	2	**1327**	861

Week 43: October 22-28, 2017; October 21-27, 2018



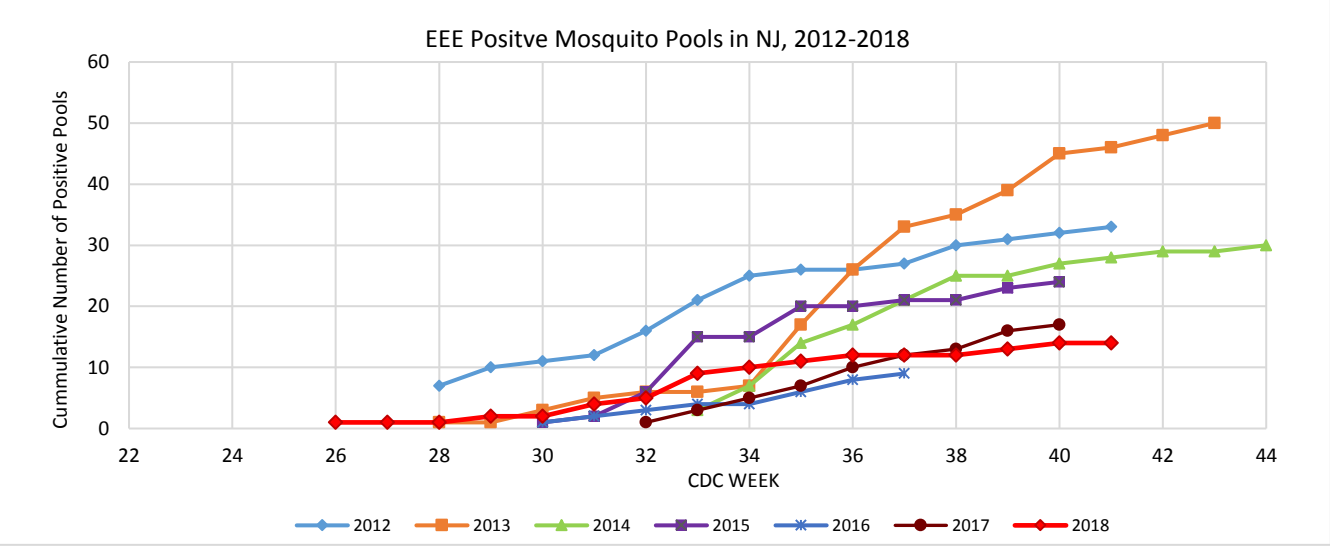
Eastern equine encephalitis virus (EEE)

- To date, 2,516 mosquito pools from 16 counties have been tested for EEE.
- A total of 14 mosquito pools from 6 counties have tested positive for EEE this season.
- The first EEE positive pool was reported in week 26. This is the earliest EEE positive pool identified in the state in the past 7 years (see chart below).
- All EEE positive pools were *Culiseta melanura* species.

EEE Positive Mosquito Pools

	Week 43		Cumulative Total (week 43)	
County	**2018**	2017	**2018**	2017
Burlington			5	3
Camden			4	1
Salem			2	5
Atlantic			1	3
Cumberland			1	1
Monmouth			1	1
Cape May				3
Gloucester				1
Total	-	-	**14**	18

Week 43: October 22-28, 2017; October 21-27, 2018



Other viruses:

Mosquito pools from 11 counties (Atlantic, Bergen, Burlington, Cape May, Gloucester, Middlesex, Monmouth, Ocean, Salem, Somerset and Sussex) have been tested for other arboviruses. No positive mosquito pools were identified.

Cumulative 2018 Mosquito Pool Testing (Other Viruses [a])

	SLE		LAC		CHIKV		DENV		ZIKV	
County	Pools	Positives	Pools	Positives	Pools	Positives	Pools	Positives	Pools	Positives
Atlantic					55		55		55	
Bergen					1		1		1	
Burlington	36		16							
Cape May	987								665	
Gloucester					7		7		7	
Middlesex					2		2		2	
Monmouth					2		2		2	
Ocean			4		67		67		67	
Salem			3							
Somerset					1				1	
Sussex			3		3		3		3	
Total	1023	-	26	-	138	-	138	-	803	-

[a] St. Louis encephalitis virus (SLE), La Crosse encephalitis virus (LAC), Chikungunya virus (CHIKV), Dengue virus (DENV), Zika Virus (ZIKV)

Numbers in white columns represent number of pools tested to date in 2018

Numbers in green shaded columns represent positive pools in 2018

Equine/Avian /Other Animal Testing

Equine testing for WNV and EEE is conducted at the New Jersey Department of Agriculture's Animal Health and Diagnostic Laboratory.

- Five equine cases of EEE have been reported this season:
  - Monmouth County: 5-year-old mare. Onset Aug 17th.
  - Camden County: 12-year-old gelding. Onset Aug 26th.
  - Ocean County: 2 geldings (7-year-old and one of unknown age). Onset Sep 3rd and 4th.
  - Gloucester County: 12-year-old gelding. Onset Sep 12th.

  All horses with EEE were euthanized.

WNV/EEE Positive Test Results

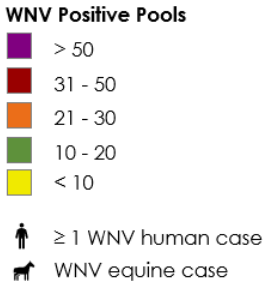
	Week 43		Cum. Total (Year)	
	2018	2017	**2018**	2017
Equine (EEE)			**5**	5
Equine (WNV)			**1**	2
Avian (WNV)			**13**	
Other				

Week 43: October 22-28, 2017; October 21-27, 2018

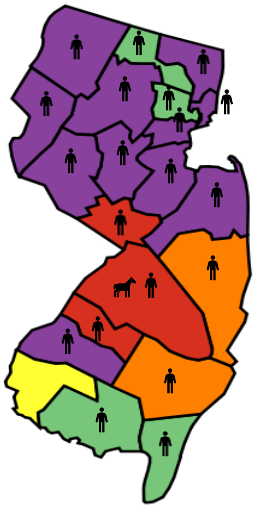
- One equine case of WNV was reported from Burlington County in week 36 (onset Sep 4th).
- WNV has been detected in 13 dead bird carcasses from 7 counties submitted to NJDEP/NJDA for testing. The species of birds tested were the American crow, Broad-winged hawk, Cooper's Hawk, Fish crow and Red-tailed Hawk.

Surveillance Maps*

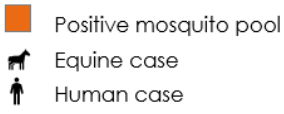
Week 43 WNV Activity (2018)*

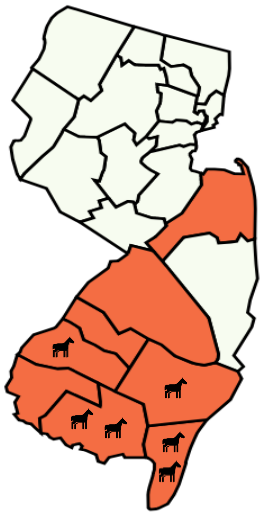


Cumulative WNV Activity 2018

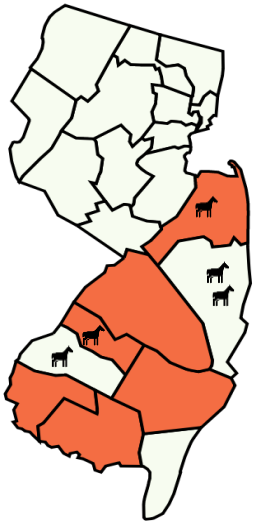


2017 EEE Activity





Cumulative EEE Activity 2018

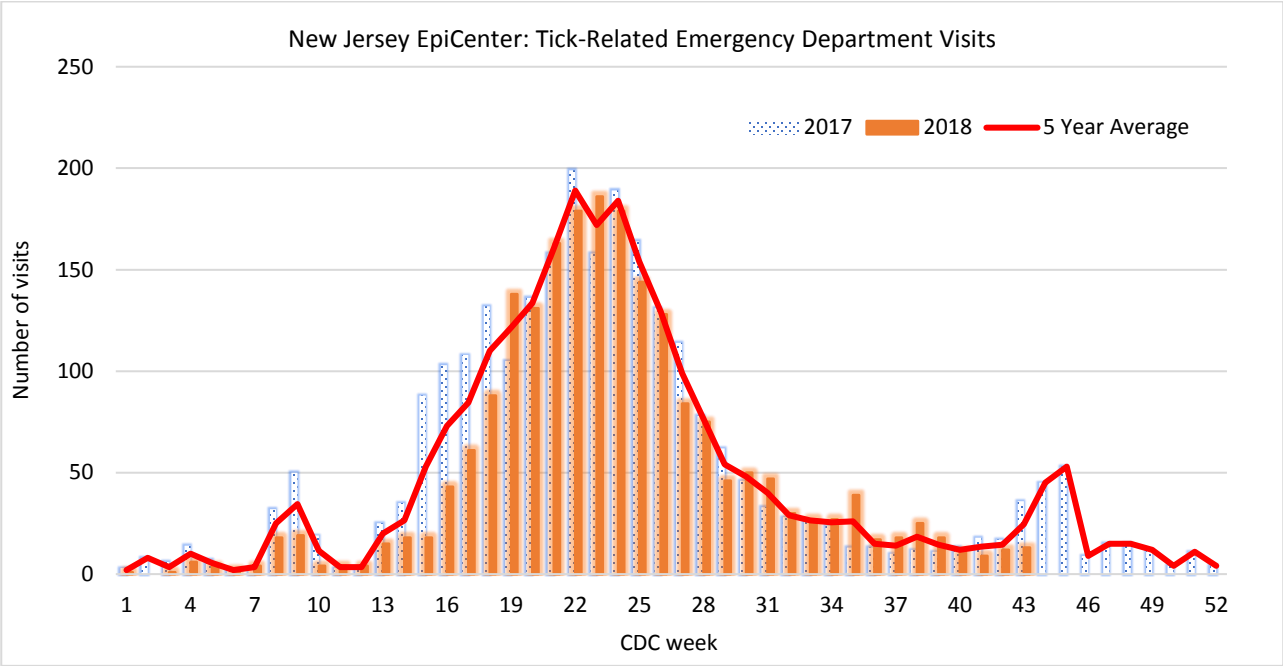


**Test results may be incomplete. Data reflects mosquito test results received from PHEL, CMBSL3 and US Army Public Health as of October 31, 2018*

Syndromic Surveillance for Tick-related Emergency Department Visits

EpiCenter is a syndromic surveillance system developed and maintained by Health Monitoring Systems, Inc, for monitoring by health departments in the United States. New Jersey's EpiCenter receives real time Emergency Department (ED) data from 78 acute care and satellite health (99 percent reporting) facilities statewide. The system collects "chief complaint" information and limited patient registration data from existing ED computer systems.

The chart below represents NJ residents seen at emergency departments state wide with a tick-bite complaint or signs/symptoms associated with a reported tick-bite.



Data reflects ED visits downloaded from EpiCenter as of October 31, 2018

For More Information

- NJDOH Communicable Disease Service: http://nj.gov/health/cd/topics/vectorborne.shtml
- NJDEP Office of Mosquito Control Coordination: http://www.nj.gov/dep/mosquito/
- NJDA Division of Animal Health: http://www.nj.gov/agriculture/divisions/ah/
- Rutgers Center for Vector Biology: http://vectorbio.rutgers.edu/