Vector-borne Surveillance Report

CDC WEEK 30: July 21-27, 2019

2019 Season highlight:

- ***Three cases of Powassan have been reported in Sussex County.***
- ***Two equine cases of Eastern equine encephalitis (EEE) have been reported in Ocean County in week 30. There have been no human EEE cases reported in 2019.***
- ***EEE has been detected in mosquito pools in 5 counties (Atlantic Camden, Monmouth, Ocean and Salem).***
- ***One case of West Nile virus was reported in Hunterdon County. WNV has been detected in mosquito pools in 11 counties. The number of WNV positive pools is lower than historical averages.***

1. 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.

Table 1.1 Human Cases [a]

Mosquito-borne diseases			Tickborne Diseases		
	2019 [b]	2018		**2019** [b]	2018
Chikungunya	**3**	16	Anaplasmosis	**64**	118
Dengue	**12**	20	Babesiosis	**93**	249
Eastern equine encephalitis	**-**	-	*Borrelia miyamotoi*	**10**	8
Jamestown Canyon	**-**	-	Ehrlichiosis	**55**	94
Malaria	**52**	93	Lyme disease	**1403**	4000
West Nile	**1**	61	Powassan	**3**	1
Zika	**4**	10	Spotted fever group rickettsioses	**76**	147

[a] Data for 2019 reflect confirmed and probable cases that have been approved by NJDOH. This does not include cases under investigation. All 2019 numbers are preliminary and are subject to change. 2018 numbers represent total number of cases for the year.

[b] Cumulative through week 30 (week ending July 27, 2019).

2. 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 4340 mosquito pools have been tested for WNV; 18 mosquito pools from 11 counties were positive for WNV. The first positive pool was detected in week 22 (Passaic county). In 2018 the first WNV positive mosquito pool was identified in week 23.

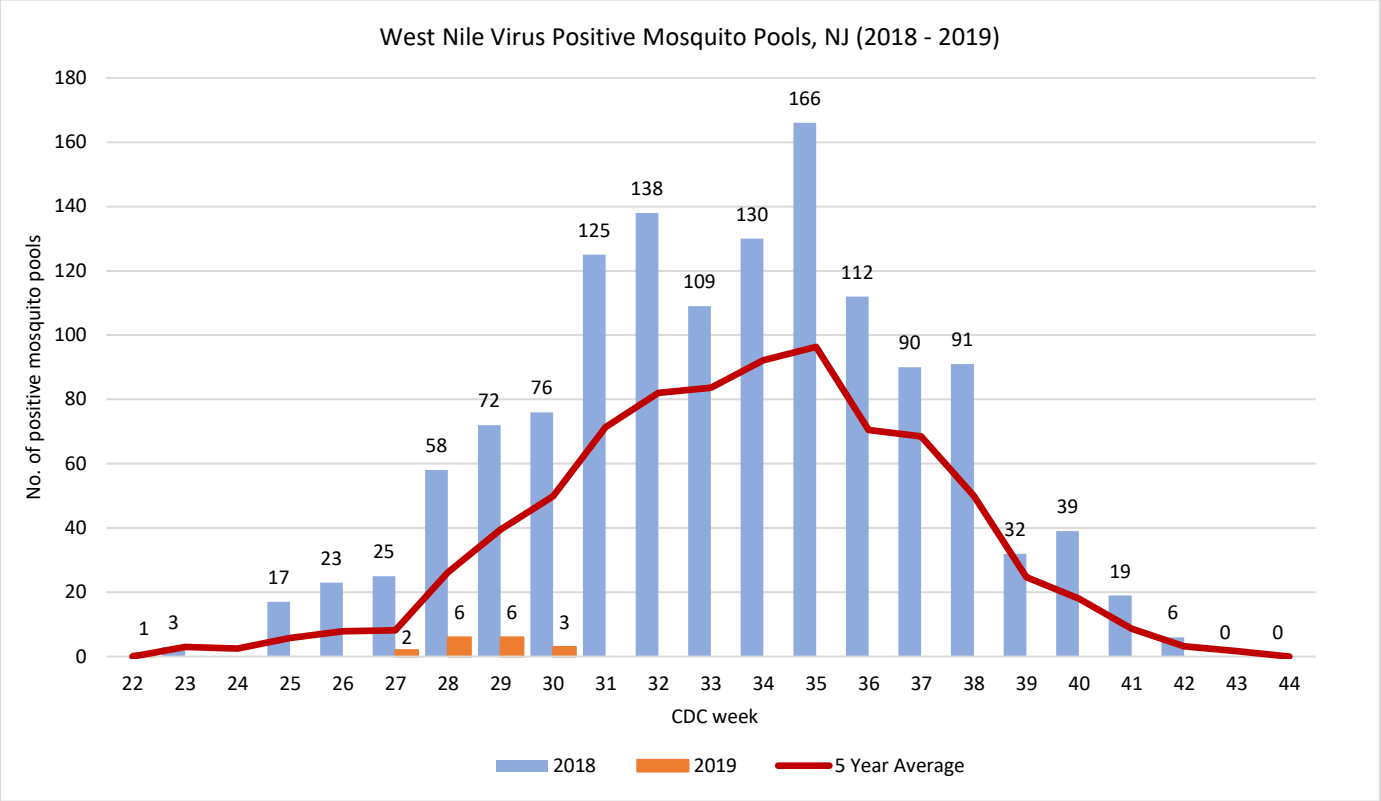
- The positive pools were detected in *Aedes cantator, Aedes japonicus, Aedes triseriatus, Culex pipiens, Culex* spp and *Culiseta melanura* species.

WNV Positive Mosquito Pools

	Week 30		Cumulative Total (week 30)	
County	**2019***	2018	**2019***	2018
Atlantic		1	1	5
Bergen		16		51
Burlington	1	1	7	11
Camden		2		14
Cape May		3	1	4
Cumberland			1	4
Essex		2		4
Gloucester		8	1	26
Hudson		9	2	19
Hunterdon		13		19
Mercer		11	1	21
Middlesex		2		23
Monmouth		6		12
Morris		16		21
Ocean		3	1	5
Passaic		4	1	1
Salem				
Somerset	1	13	1	18
Sussex				
Union		3	1	2
Warren		12		14
Total	**2**	125	**18**	274

Week 30: July 22-28, 2018; July 21-27, 2019

**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 July 31, 2019*



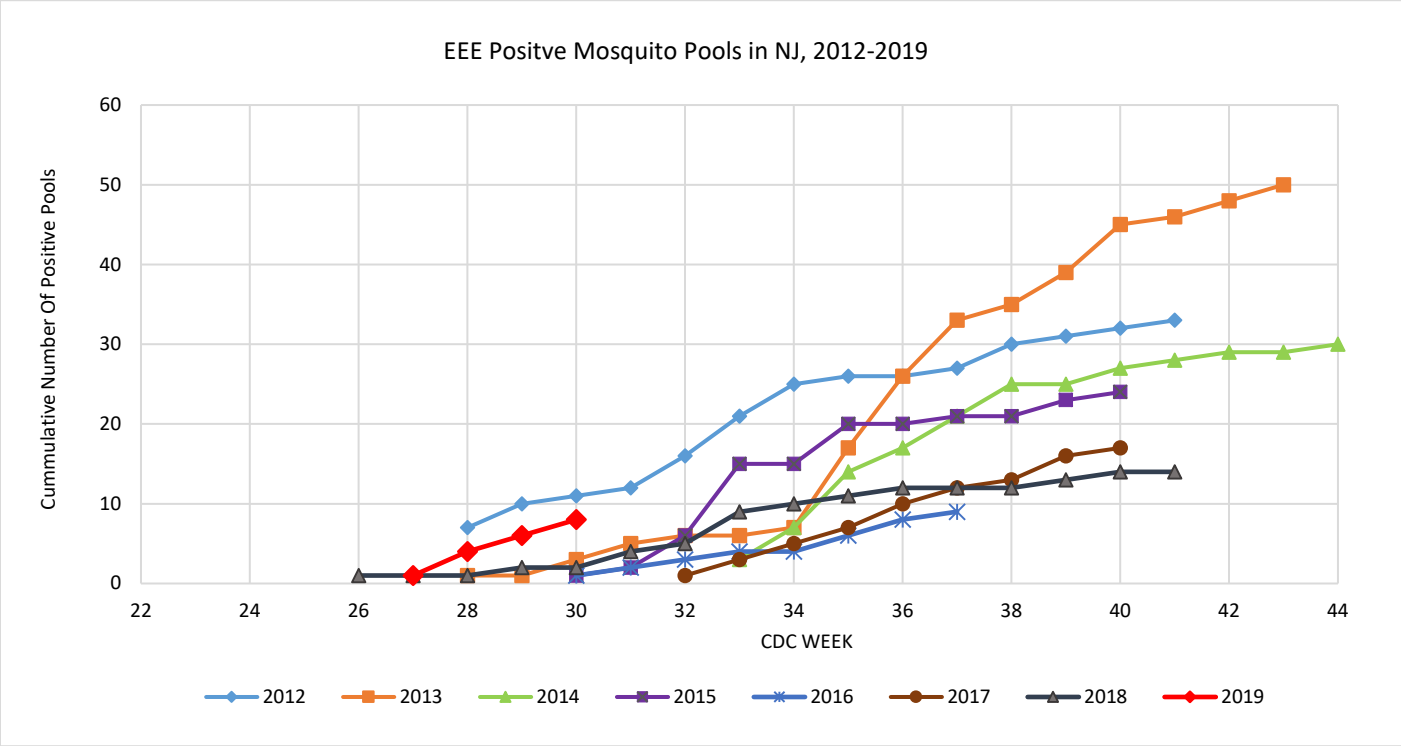
Eastern equine encephalitis virus (EEE)

- A total of 3905 mosquito pools have been tested for EEE; 8 EEE positive mosquito pools have been identified in 2019.
- The first positive pool was detected in week 27 (Monmouth county). In 2018, the first EEE mosquito pool was reported in week 26 (see chart below).
- The positive pools were detected in *Culiseta melanura* (Atlantic, Camden, Monmouth, Ocean and Salem county), *Culex* spp (Camden County) *and Aedes albopictus* (Ocean County).

EEE Positive Mosquito Pools

	Week 30		Cumulative Total (week 30)	
County	**2019***	2018	**2019***	2018
Atlantic	1		1	
Bergen				
Burlington				
Camden	1		2	1
Cape May				
Cumberland				
Essex				
Gloucester				
Hudson				
Hunterdon				
Mercer				
Middlesex				
Monmouth			2	
Morris				
Ocean			2	
Passaic				
Salem			1	1
Somerset				
Sussex				
Union				
Warren				
Total	**2**		**8**	2

Week 30: July 22-28, 2018; July 21-27, 2019



Other viruses:

In 2019, PHEL and Cape May County BLS3 brought on new capacity to test for viruses as a panel. Mosquito pools from all counties have been tested for other arboviruses: St. Louis encephalitis virus (SLE), Jamestown Canyon Virus (JCV), La Crosse encephalitis virus (LAC), Chikungunya virus (CHIKV), Dengue virus (DENV), Zika Virus (ZIKV).

Positive pools for other viruses have been detected in 4 counties (Bergen, Burlington, Passaic and Sussex).

La Crosse encephalitis virus (LAC):

- A mosquito pool collected on May 31st (week 22) in Passaic County tested positive for La Crosse virus at PHEL. The positive pool was detected in *Aedes triseriatus* species.
  In 2014, 2 mosquito pools collected from the Joint Base MDL (Burlington County) by the Department of the Airforce tested positive for LACV. The virus was detected in both *Ochlerotatus triseriatus and* Aedes albopictus.
- There have not been any human La Crosse virus cases reported in at least the past 20 years.

Jamestown Canyon virus (JCV):

- Three mosquito pools have tested positive for Jamestown Canyon virus at PHEL. The first pool was from Sussex County (week 23), second from Bergen County (week 25) and the third from Burlington County (week 27).
- The positive pools were detected in *Aedes abserratus*, *Aedes cantator* and *Anopheles crucians* species.
- NJ reported its first and only human case of Jamestown Canyon virus in 2015 in a Sussex County resident.

Cumulative 2019 Mosquito Pool Testing (Other Viruses [a])

County	SLE		JCV		LAC		CHIKV		DENV		ZIKV	
	Pools	Pos	Pools	Pos	Pools	Pos	Pools	Pos	Pools	Pos	Pools	Pos
Atlantic	195		195				27		27		27	
Bergen	123		123	1	17							
Burlington	150		150	1	14							
Camden	27		20									
Cape May	1140		21		125		232				232	
Cumberland	102		102									
Essex	59		59		1							
Gloucester	165		159									
Hudson	97		97		8							
Hunterdon	126		126		3							
Mercer	167		167		16							
Middlesex	111		111		4		10		10		10	
Monmouth	225		225		12							
Morris	210		210									
Ocean	175		175									
Passaic	118		118		16	1						
Salem	230		225		16							
Somerset	112		112									
Sussex	146		146	1	13							
Union	60		60		10							
Warren	167		167									
Total	3905	-	2768	**3**	255	**1**	269		37	-	269	-

[a] St. Louis encephalitis virus (SLE), Jamestown Canyon Virus (JCV), 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 2019

Numbers in blue shaded columns represent positive pools in 2019

3. 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.

- Two equine cases of EEE have been reported from Ocean County in week 30. This is the earliest report of equine cases in the state since 2012.
  - The first case was a 12-year-old mare (onset July 23rd, euthanized July 23rd). The mare was vaccinated in 2019.
  - Then second case was a 20-year-old gelding with unknown vaccination status (onset July 29th, euthanized July 29th).
- Routine avian testing has been discontinued but is available upon request at PHEL.

WNV/EEE Positive Test Results

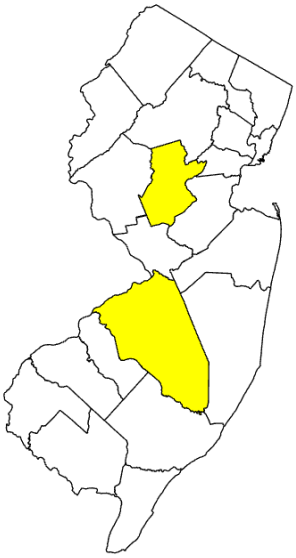
	Week 30		Cum. Total (Year)	
	2019	2018	**2019**	2018
Equine (EEE)	2	-	**2**	-
Equine (WNV)				
Avian (WNV)				
Other				

Week 30: July 22-28, 2018; July 21-27, 2019

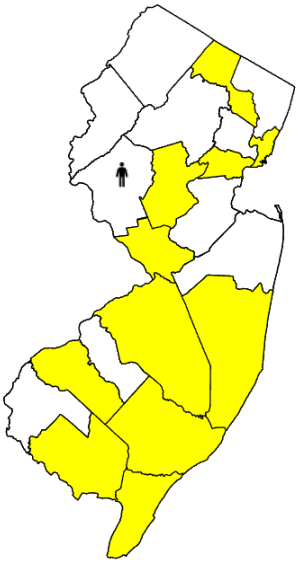
4. Surveillance Maps

West Nile Virus (WNV)

Week 30 WNV Activity (2019)*



Cumulative WNV Activity 2019



WNV Positive Pools

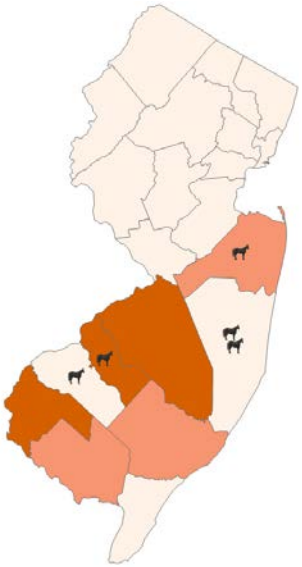
- > 50
- ≤ 50
- ≤ 30
- ≤ 20
- < 10
- 0

WNV human case

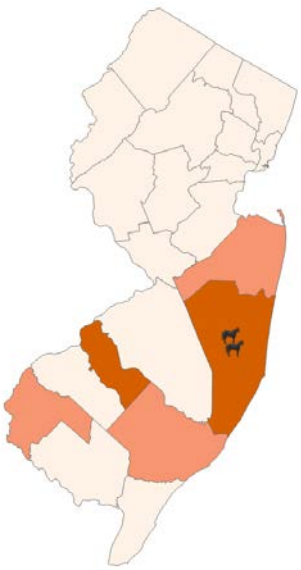
WNV equine case

Eastern equine encephalitis (EEE)

2018 EEE Activity



Cumulative EEE Activity 2019



EEE Positive Pools

- ≥ 1
- 1
- No EEE activity

Equine case

Human case

Jamestown Canyon Virus Activity 2019

JCV positive mosquito pool

No LAC activity

La Crosse Virus Activity 2019

LAC positive mosquito pool

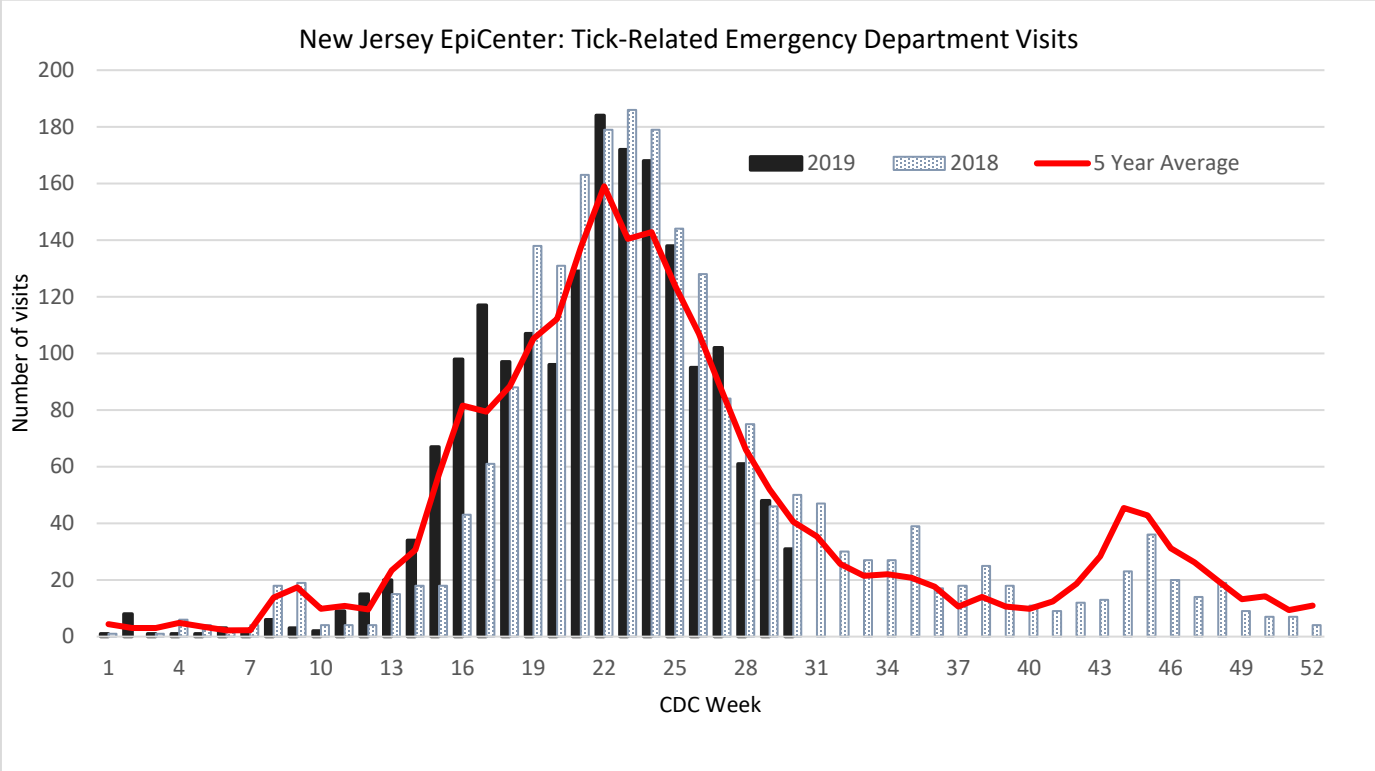
No LAC activity

5. 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. Tick-related ED visits occur throughout the year with peak number of visits in the summer months and a smaller peak in the fall weeks when adult Ixodes scapularis (blacklegged ticks) are active.

As of week 30, the number of tick related ED visits was lower than trends observed in past 5 years.



Data reflects ED visits downloaded from EpiCenter as of July 23, 2019

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/