

### 2019 Season highlight:

- One human case of Eastern equine encephalitis (EEE) has been reported in Somerset County. NJ last reported EEE cases in 2003 and 2016.
- One alpaca case of EEE was reported from Camden County.
- Three equine cases of EEE have been reported in Monmouth (1) and Ocean (2) counties.
- EEE has been detected in 24 mosquito pools in 7 counties. This is the highest number of positive pools reported at this point in the season in the past 7 years.
- One case of West Nile virus was reported in Hunterdon County. WNV has been detected in mosquito pools in 18 counties. The number of WNV positive pools is significantly 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<sup>a</sup>

Mosquito-borne diseases			Tickborne Diseases		
	2019 <sup>b</sup>	2018		2019 <sup>b</sup>	2018
Chikungunya	5	16	Anaplasmosis	64	118
Dengue	20	20	Babesiosis	124	249
Eastern equine encephalitis	1	-	<i>Borrelia miyamotoi</i>	12	8
Jamestown Canyon	-	-	Ehrlichiosis	55	94
Malaria	65	93	Lyme disease	1706	4000
West Nile	1	61	Powassan	3	1
Zika	5	10	Spotted fever group rickettsioses	94	147

<sup>a</sup> 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.

<sup>b</sup> Cumulative through week 32 (week ending August 10, 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):

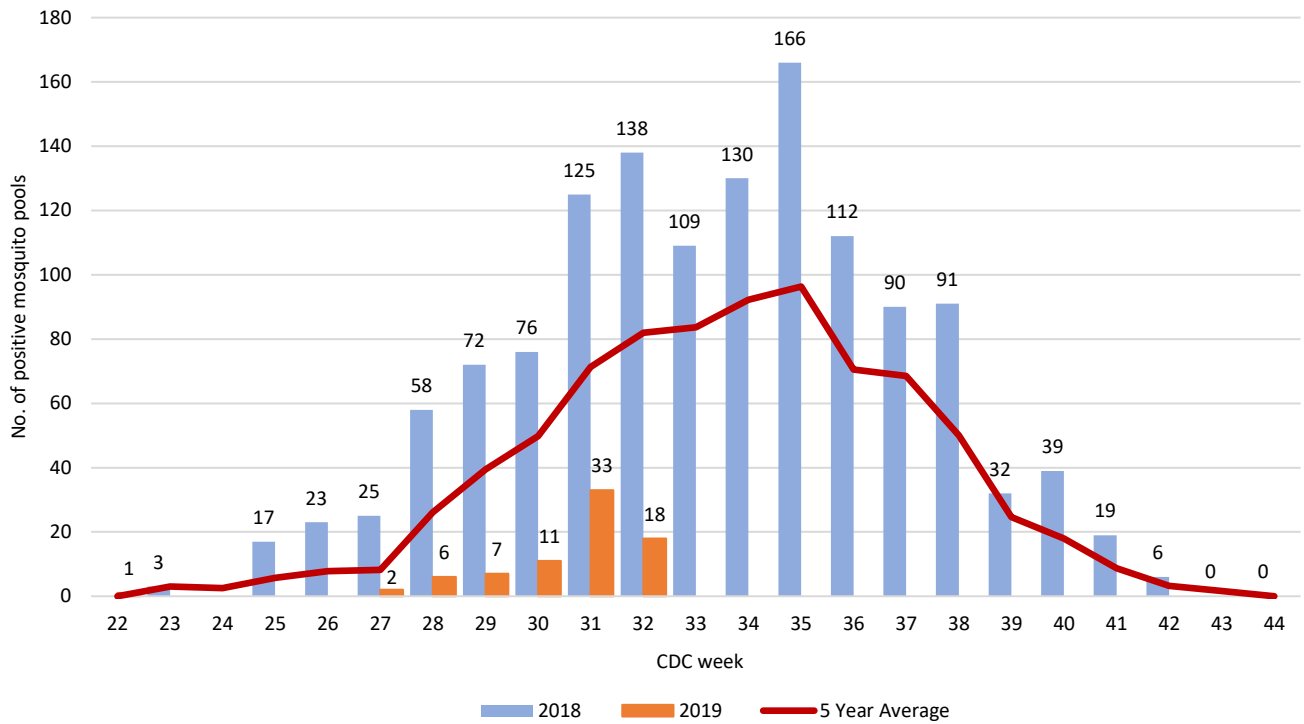
- A total of 5540 mosquito pools have been tested for WNV; 78 mosquito pools from 18 counties were positive for WNV with the highest number reported from Burlington County.
- The first positive pool was detected in week 22 (Passaic county). In 2018 the first WNV positive mosquito pool was identified in week 23. The total number of positive mosquito pools detected this season is significantly lower than historical averages (see chart below).
- The positive pools were detected in *Aedes cantator*, *Aedes japonicus*, *Aedes triseriatus*, *Culex pipiens*, *Culex spp* and *Culiseta melanura* species.

\*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 August 14, 2019

### WNV Positive Mosquito Pools

County	Week 32		Cumulative Total (week 32)	
	2019*	2018	2019*	2018
Burlington	9	4	21	16
Bergen		17	11	84
Union		17	11	20
Hudson		9	8	37
Middlesex	3	3	7	28
Monmouth	1	8	3	26
Somerset	1	12	3	43
Cape May	1	2	2	9
Gloucester		14	2	48
Mercer	1	2	2	34
Atlantic		3	1	9
Camden		5	1	21
Cumberland			1	4
Hunterdon	1	10	1	42
Morris	1	23	1	60
Ocean		2	1	10
Passaic		1	1	5
Warren			1	26
Essex		1		7
Salem		2		3
Sussex		3		5
<b>Total</b>	<b>18</b>	<b>138</b>	<b>78</b>	<b>537</b>

West Nile Virus Positive Mosquito Pools, NJ (2018 - 2019)



**Eastern equine encephalitis virus (EEE)**

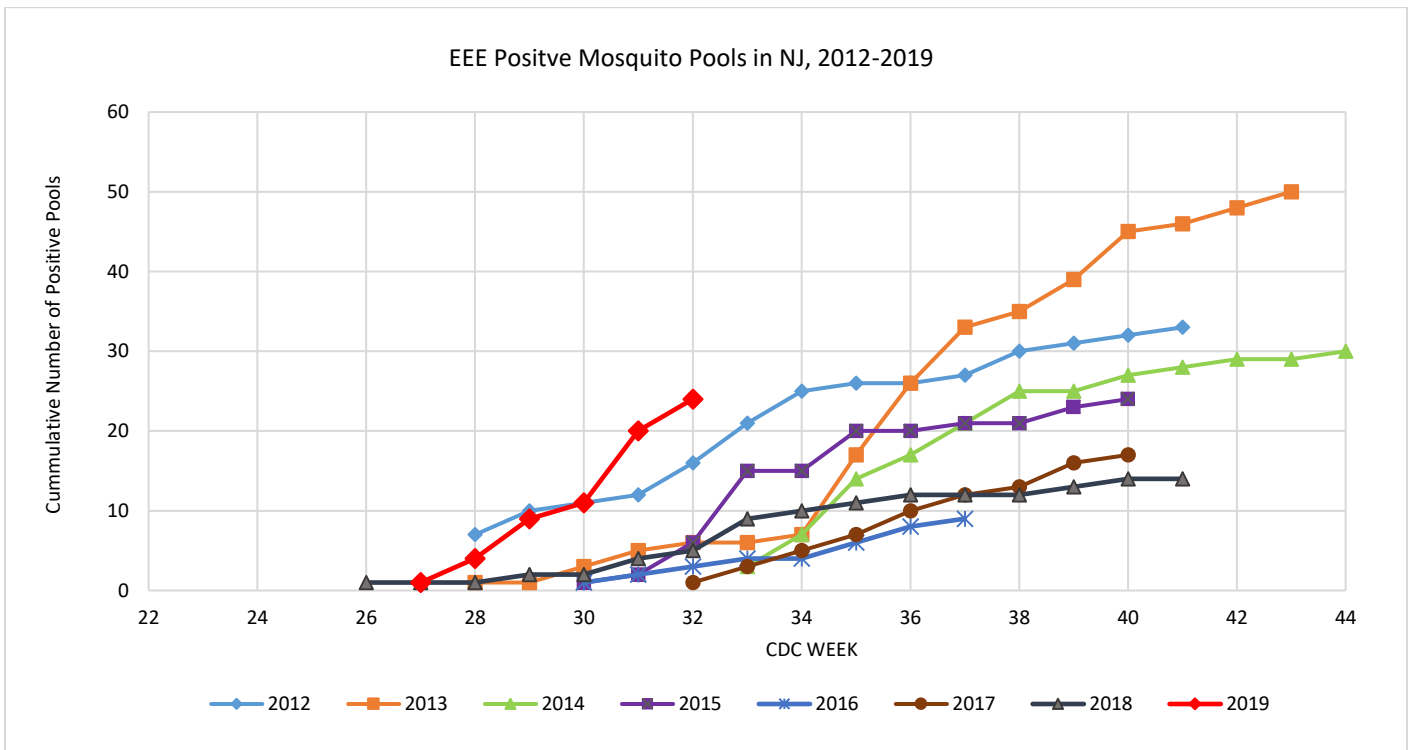
- A total of 4984 mosquito pools have been tested for EEE; 24 mosquito pools from 7 counties were positive for EEE. The highest number of positive pools was reported in Atlantic and Monmouth counties.
- The first positive pool was detected in week 27 (Monmouth county). In 2018, the first EEE mosquito pool was reported in week 26 (see chart below).
- The number of EEE positive pools exceeds the total number of EEE positive mosquito pools in 2018 (n=14) and is the highest number of pools reported at week 32 in the past 7 years.
- The positive pools were detected in *Culiseta melanura* (Atlantic, Burlington, Camden, Gloucester, Monmouth, Ocean and Salem), *Culex* spp (Ocean and Camden) and *Aedes albopictus* (Atlantic and Ocean).

EEE Positive Mosquito Pools

County	Week 32		Cumulative Total (week 32)	
	2019*	2018	2019*	2018
Atlantic			5	
Monmouth	2		5	
Burlington	2	1	4	
Gloucester			4	
Ocean			3	
Camden			2	3
Salem			1	1
Bergen				
Cape May				
Cumberland				
Essex				
Hudson				
Hunterdon				
Mercer				
Middlesex				
Morris				
Passaic				
Somerset				
Sussex				
Union				
Warren				
<b>Total</b>	<b>4</b>	<b>1</b>	<b>24</b>	<b>5</b>

Week 32: August 5-11, 2018; August 4-10, 2019

EEE Positive Mosquito Pools in NJ, 2012-2019



**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 31<sup>st</sup> (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<sup>a</sup>)**

County	SLE		JCV		LAC		CHIKV		DENV		ZIKV	
	Pools	Pos	Pools	Pos	Pools	Pos	Pools	Pos	Pools	Pos	Pools	Pos
Atlantic	253		253				36		36		36	
Bergen	162		162	1	19							
Burlington	202		202	1	17							
Camden	54		44				2		2		2	
Cape May	1330		25		151		306				306	
Cumberland	152		152									
Essex	74		74		1							
Gloucester	264		256				17		17		17	
Hudson	129		129		8							
Hunterdon	166		166		3							
Mercer	215		215		18							
Middlesex	165		165		4		10		10		10	
Monmouth	273		273		19							
Morris	257		257									
Ocean	215		215									
Passaic	137		137		18	1						
Salem	305		298		18							
Somerset	147		147									
Sussex	185		185	1	13							
Union	92		92		10							
Warren	207		207									
<b>Total</b>	<b>4984</b>	<b>-</b>	<b>3654</b>	<b>3</b>	<b>299</b>	<b>1</b>	<b>371</b>		<b>65</b>	<b>-</b>	<b>371</b>	<b>-</b>

<sup>a</sup> 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.

- One alpaca case and three equine cases of EEE have been reported this season. The alpaca case was reported from Camden County in a 7-year-old male alpaca of unknown vaccination status (onset August 2<sup>nd</sup>, euthanized August 3<sup>rd</sup>).

Equine cases:

- Ocean: The first case was a 12-year-old mare (onset July 23<sup>rd</sup>, euthanized July 23<sup>rd</sup>). The mare was not currently vaccinated. The second case was an unvaccinated 20-year-old gelding (onset July 29<sup>th</sup>, euthanized July 29<sup>th</sup>).
- Monmouth: One-year-old vaccinated colt (onset August 5<sup>th</sup>, euthanized August 5<sup>th</sup>)

This is the earliest report of equine cases in the state since 2012.

- Routine avian testing has been discontinued but is available upon request at PHEL.

**WNV/EEE Positive Test Results**

	Week 32		Cum. Total (Year)	
	2019	2018	2019	2018
Equine (EEE)	1	-	3	-
Equine (WNV)				
Avian (WNV)				
Other:				
Alpaca (EEE)	1	-	1	-

Week 32: August 5-11, 2018; August 4-10, 2019

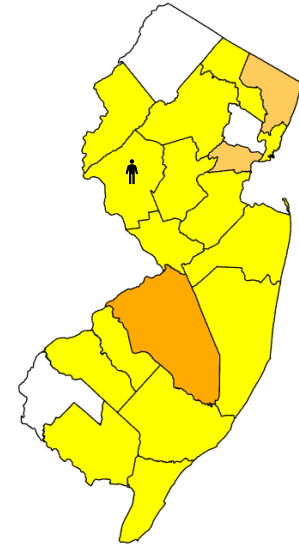
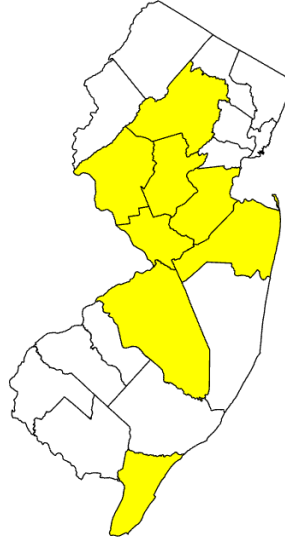
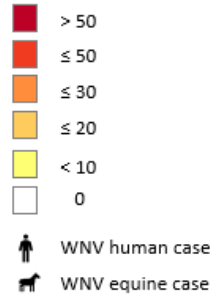
## 4. Surveillance Maps

### West Nile Virus (WNV)

Week 32 WNV Activity (2019)\*

Cumulative WNV Activity 2019

**WNV Positive Pools**

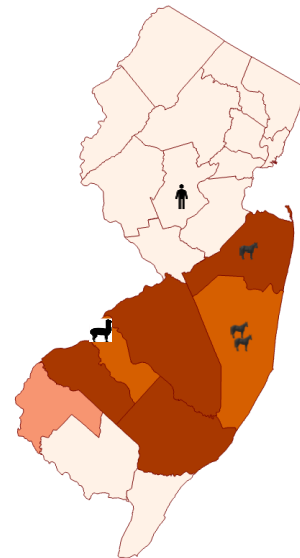
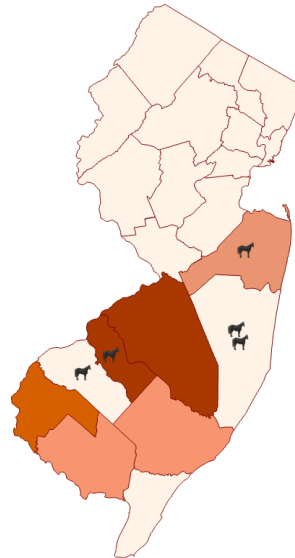
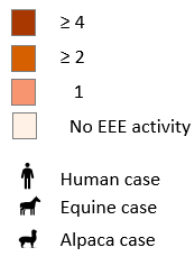


### Eastern equine encephalitis (EEE)

2018 EEE Activity

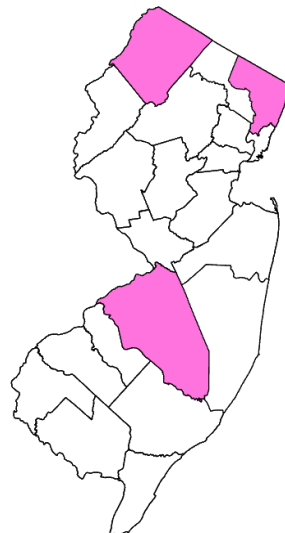
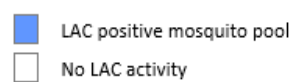
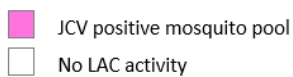
Cumulative EEE Activity 2019

**EEE Positive Pools**



Jamestown Canyon Virus Activity 2019

La Crosse Virus Activity 2019

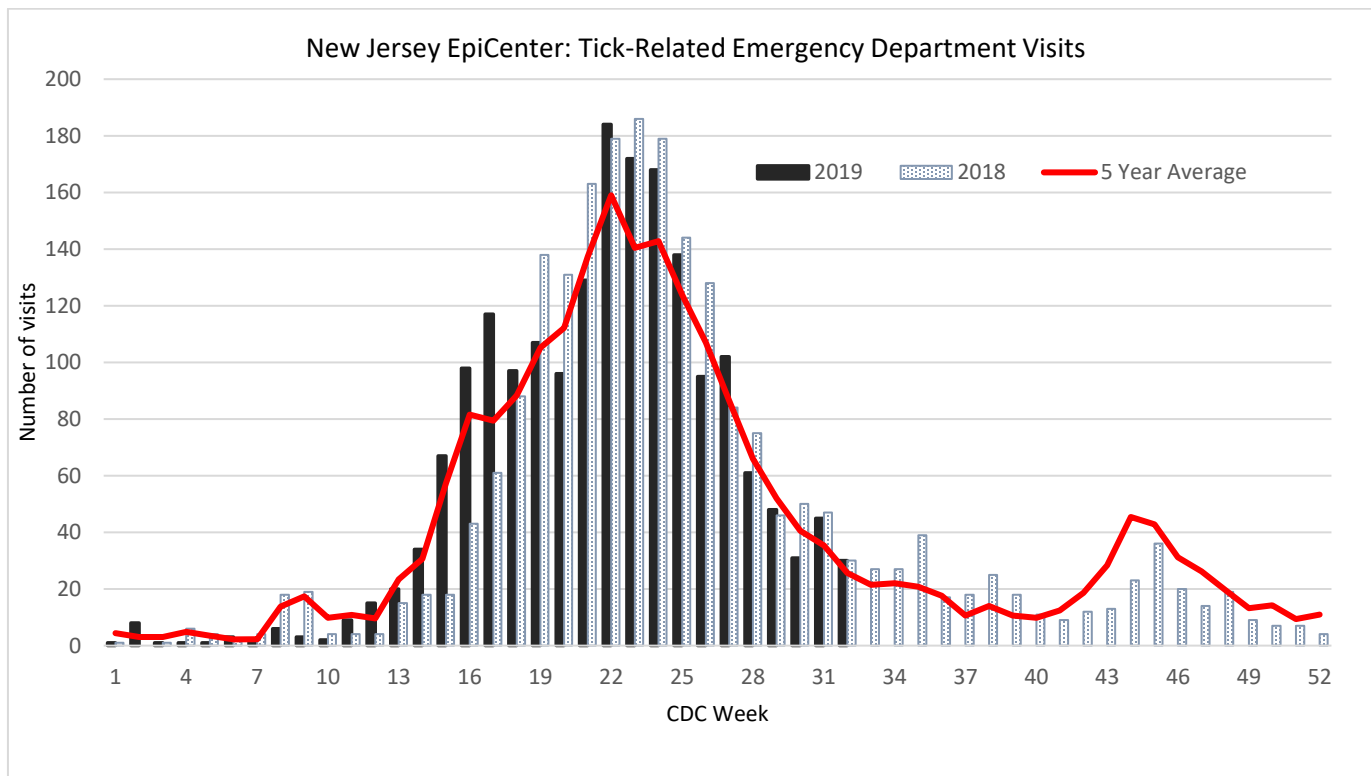


## 5. Syndromic Surveillance for Tick-related Emergency Department Visits

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 32, the number of tick related ED visits is comparable to trends observed in past 5 years.



Data reflects ED visits downloaded from EpiCenter as of August 14, 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/>