



# Vector Borne Disease 2018 Surveillance Report

Summit County Public Health



Report Weeks 15 and 16 (September 2 to September 15, 2018)  
CDC/MMWR Weeks 36 and 37

**Public Health**  
Prevent. Promote. Protect.

This report will be issued from June through October of each year (or later if West Nile Virus disease is still a concern). Surveillance will include human and veterinary cases and testing of mosquito pools in Summit County. It will also include updates from Ohio and around the nation. It will include vector-borne diseases besides West Nile Virus.

## SUMMIT COUNTY SURVEILLANCE

**Table 1: West Nile virus (WNV) tests ordered in Summit County hospitals**

Week(s)	# of WNV tests ordered this period	# of positive WNV tests this period	Cumulative # of tests ordered this season	Cumulative # of positive tests this season	Percentage of positive tests
Weeks 1 & 2: 5/27 to 6/9	5	0	5	0	0.0%
Weeks 3 & 4: 6/10 to 6/23	2	0	7	0	0.0%
Weeks 5 & 6: 6/24 to 7/7	4	0	11	0	0.0%
Weeks 7 & 8: 7/9 to 7/21	6	0	17	0	0.0%
Weeks 9 & 10: 7/22 to 8/4	8	0	25	0	0.0%
Weeks 11 & 12: 8/5 to 8/18	5	0	30	0	0.0%
Weeks 13 & 14: 8/19 to 9/1	11	0	41	0	0.0%
Weeks 15 & 16: 9/2 to 9/15	8	1	49	1	2.0%
Weeks 17 & 18: 9/16 to 9/29					
Weeks 19 & 20: 9/30 to 10/13					
Weeks 21 & 22: 10/14 to 10/27					

Note: Reporting may not be completed each week. Numbers will be updated when reports are received

**West Nile virus testing (Table 1):** During surveillance Weeks 15 and 16, there were 8 tests for West Nile virus (or arbovirus panels) ordered by Summit County hospitals, and one test was positive for WNV (Table 1). The patient who tested positive was not a resident of Summit County.

**Lyme Disease testing (Table 2):** There were 24 diagnostic test series performed for Lyme disease during Weeks 15 and 16, four of which were positive. The CDC currently recommends a two-step process when testing blood for evidence of antibodies against the Lyme disease bacteria (*Borrelia burgdorferi*). Both steps can be done using the same blood sample. The first step uses a testing procedure called "EIA" (enzyme immunoassay) or rarely, an "IFA" (indirect immunofluorescence assay). If this first step is negative, no further testing of the specimen is recommended. If the first step is positive or indeterminate (sometimes called "equivocal"), then the second step should be performed. The second step uses a test called an immunoblot test, commonly, a "Western blot" test. Results are considered positive only if the EIA/IFA and the immunoblot are both positive. If the Western blot test result is deemed indeterminate, the Lyme disease diagnosis may be based on the doctor's interpretation of the results and clinical symptoms.

Week(s)	# of Lyme tests ordered this period	# of positive or indeterminate Lyme tests this period	Cumulative # of tests ordered this season	Cumulative # of positive or indeterminate tests this season	% of positive or indeterminate tests
Weeks 1 & 2: 5/27 to 6/9	63	9	63	9	14.3%
Weeks 3 & 4: 6/10 to 6/23	50	3	113	12	10.7%
Weeks 5 & 6: 6/24 to 7/7	60	5	173	17	9.8%
Weeks 7 & 8: 7/9 to 7/21	43	4	216	21	9.7%
Weeks 9 & 10: 7/22 to 8/4	51	2	267	23	8.6%
Weeks 11 & 12: 8/5 to 8/18	34	2	301	25	8.3%
Weeks 13 & 14: 8/19 to 9/1	36	1	337	26	7.7%
Weeks 15 & 16: 9/2 to 9/15	24	4	361	30	8.3%
Weeks 17 & 18: 9/16 to 9/29					
Weeks 19 & 20: 9/30 to 10/13					
Weeks 21 & 22: 10/14 to 10/27					

Note: Reporting may not be completed each week. Numbers will be updated when reports are received

**Reported Vector-borne diseases in 2018 (Table 3):** As of September 15, there were 22 reported cases of Lyme disease, 4 reported cases of Rocky Mountain spotted fever, 1 case of dengue and 3 cases of malaria (dengue and malaria cases were the result of international travel). In Summit County, there were no cases of West Nile virus infection reported, or any other locally transmitted mosquito borne illness.

	Confirmed	Probable/Suspected	Notes
<b>Tick-borne diseases:</b>			
Babesiosis	0	0	
Ehrlichiosis / anaplasmosis	0	0	
Lyme disease	6	16	
Rocky Mountain spotted fever	0	4	
<b>Mosquito-borne diseases:</b>			
Chikungunya	0	0	
Dengue	1	0	Case was imported
Eastern equine encephalitis	0	0	
LaCrosse virus disease	0	0	
Malaria	3	0	All cases were Imported
St. Louis encephalitis virus disease	0	0	
Zika virus infection	0	0	
West Nile virus infection	0	0	

Source: Ohio Disease Reporting System (ODRS); only confirmed, probable, and suspected cases are included. Case counts may updated as case status changes.

**Table 4: Reported aseptic meningitis cases in Summit County (confirmed & probable)**

Week(s)	Cases reported this period	Cumulative cases for the season
Aseptic meningitis cases reported prior to season (1/1 to 5/26/2018)	6	-
Week 1-2: 5-27 to 6-9	2	2
Week 3-4: 6-10 to 6-23	0	2
Week 5-6: 6-24 to 7-7	2	4
Week 7-8: 7-8 to 7-21	5	9
Week 9-10: 7-22 to 8-4	2	11
Week 11-12: 8-5 to 8-18	2	13
Week 13-14: 8-19 to 9-1	2	15
Week 15-16: 9-2 to 9-15	0	15
Week 17-18: 9-16 to 9-29		
Week 19-20: 9-30 to 10-13		
Week 21-22: 10-14 to 10-27		

Source: Ohio Disease Reporting System (ODRS)

**Reported aseptic meningitis cases (Table 4):** There were no new cases reported during Weeks 15 and 16, keeping the season total case count at 15 and the 2018 YTD total at 21. Aseptic (viral) meningitis is the most common type of meningitis and occurs predominately in the summer and fall. While most aseptic meningitis cases are due to gastrointestinal or respiratory viruses, similar symptoms may be present with arthropod-borne diseases.

**Mosquito testing (Table 5):** Based on the ODH mosquito testing summary released on September 17, 124,742 mosquitoes were collected as 3,423 pooled samples throughout Summit County. 629 of the pooled samples tested positive for West Nile virus so far this season.

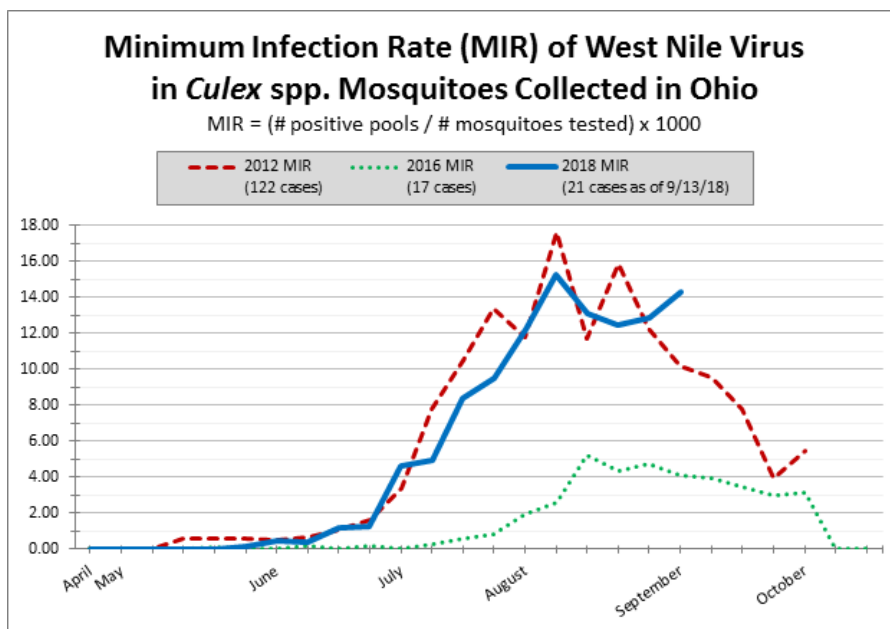
**Table 5. Mosquito testing in Summit County (samples processed by noon on 9/17/2018)**

Mosquitoes submitted and identified	124,742
Pooled samples tested	3,423
Positive WNV pooled samples	629

Note: All mosquitoes tested for WNV were *Culex sp.*

## OHIO ARBOVIRUS SURVEILLANCE

**Figure 1. Ohio West Nile virus activity in 2012, 2016 and 2018 (as of 9/17/2018)**



Source: Ohio Department of Health, Zoonotic Disease Program

The minimum infection rate (MIR) functions as an indicator of seasonal West Nile virus (WNV) activity. A high MIR in mosquitoes is commonly associated with higher WNV case counts in humans. As of 9/17/2018, the MIR in 2018 continues to remain elevated at levels seen in the higher activity year 2012. However, the MIR continues to be elevated later in the season, while the MIR gradually declined in September of 2012. Fortunately, only 21 cases of WNV have been reported in Ohio in 2018, which is far lower than the Ohio WNV total of 122 cases in 2012.

Ohio Mosquito-borne Disease 2018 Numbers At-A-Glance  
As of September 17, 2018 12:00 pm

West Nile virus (WNV)		Notes
<b>475,079</b>	<b>Mosquitoes tested</b>	Collected by 81 agencies in 68 counties, pooled into 15,786 samples
<b>2,923</b>	<b>WNV positive mosquito samples</b>	Adams (6), Ashland (4), Ashtabula (5), Athens (19), Belmont (1), Brown (5), Butler (6), Clark (9), Clermont (12), Columbiana (1), Coshocton (1), Cuyahoga (34), Delaware (5), Fairfield (4), Franklin (1,156), Geauga (1), Greene (2), Guernsey (2), Hamilton (8), Hancock (11), Henry (12), Hocking (13), Huron (8), Jefferson (2), Lake (88), Licking (70), Lorain (26), Lucas (279), Mahoning (10), Medina (1), Meigs (1), Miami (6), Montgomery (60), Morgan (2), Morrow (7), Noble (1), Ottawa (20), Pickaway (20), Portage (84), Richland (30), Ross (10), Scioto (26), Seneca (16), Stark (64), Summit (629), Trumbull (3), Tuscarawas (29), Union (5), Vinton (1), Warren (53), Washington (13), Williams (5), Wood (34) and Wyandot (3) counties
<b>17</b>	<b>WNV veterinary cases</b>	17 equines in Ashtabula (1), Champaign (1), Coshocton (1), Geauga (2), Holmes (5), Knox (1), Lorain (2), Medina (1), Seneca (1), Stark (1) and Wayne (1) counties, onset of symptoms 08/06/2018-09/03/2018
<b>6</b>	<b>WNV asymptomatic viremic blood donors</b>	2 females, 4 males ranging in age 30-69 years (median 53 years) in Carroll (1), Cuyahoga (1), Franklin (2), Henry (1) and Lucas (1) counties
<b>23</b>	<b>WNV human cases</b>	9 females, 14 males ranging in age 24-85 years (median 60 years) in Cuyahoga (4), Erie (1), Franklin (2), Fulton (1), Hamilton (1), Hardin (1), Lake (1), Lucas (1), Medina (1), Montgomery (1), Paulding (1), Preble (1), Ross (2), Stark (3) and Wayne (2) counties, onset of symptoms 06/23/2018-09/06/2018
<b>64</b>	<b>Ohio counties with WNV activity reported</b>	Includes counties with WNV positive mosquitoes, equine WNV cases, human WNV cases and human WNV asymptomatic viremic blood donors
Other locally-acquired mosquito-borne cases		Notes
<b>17</b>	<b>La Crosse human cases</b>	12 females, 5 males ranging in age 3-17 years (median 7 years) in Coshocton (1), Fairfield (1), Hocking (2), Knox (1), Licking (2), Miami (1), Morgan (1), Morrow (2), Muskingum (1), Perry (1), Richland (1) and Stark (3) counties, onset of symptoms 06/20/2018-08/25/2018
<b>2</b>	<b>Unspecified California virus human cases</b>	2 males ranging in age 11-16 years in Franklin (1) and Morrow (1) counties, onset of symptoms 07/06/2018-07/21/2018
Travel-associated mosquito-borne disease cases		Notes
<b>0</b>	<b>Chikungunya virus human cases*</b>	
<b>4</b>	<b>Dengue human cases*</b>	3 females, 1 male ranging in age 6-45 years (median 28.5 years) with travel to Haiti (2), Mexico (1) and Venezuela (1), onset of symptoms 04/07/2018-08/01/2018
<b>0</b>	<b>Zika virus human cases*</b>	
<b>38</b>	<b>Malaria human cases</b>	15 females, 23 males ranging in age 9 months-72 years (median 37.5 years) with travel to several African countries and Peru

Source: <https://www.odh.ohio.gov/arboupdate>

**Special note for travelers:** Ohioans traveling to areas where local transmission is occurring should be aware of the ongoing situation and make every effort to avoid mosquito bites. Additional information can be found from the [Centers for Disease Control and Prevention \(CDC\)'s Travelers' Health](#) and [Pan-American Health Organization](#) websites.

**Table 6. Reported Vector Borne disease in Ohio, 2018**

Disease	2018 (as of 9/15) cumulative
Babesiosis	2
Chikungunya	0
Dengue (includes dengue-like illness)	4
Eastern equine encephalitis	0
Ehrlichiosis / anaplasmosis	17
LaCrosse virus disease	18
Lyme Disease	295
Malaria	38
Spotted fever rickettsiosis	51
St. Louis encephalitis virus disease	0
West Nile virus infection	21
Zika virus infection, non-congenital	0

Note: Data is provisional and subject to change

Source: Ohio Disease Reporting System (ODRS), MMWR weekly reports

## UNITED STATES SURVEILLANCE

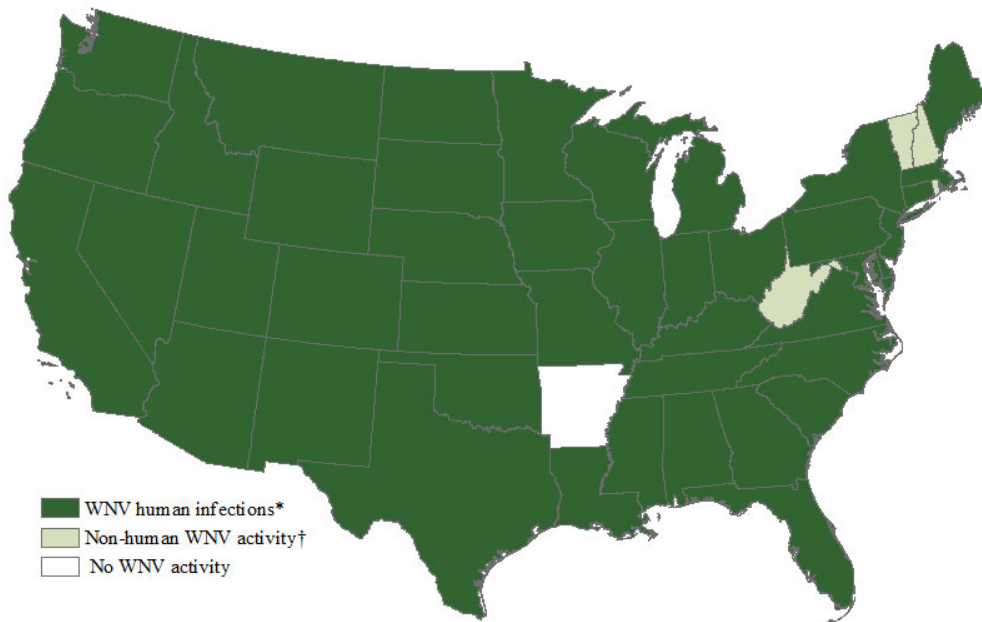
**Table 7. Reported vector borne disease in the United States, 2018**

Disease	Week s 15 & 16 (9/2 to 9/15)	2018 (as of 9/15) Cumulative
Babesiosis	28	1142
Chikungunya	0	49
Dengue (includes dengue-like illness)	0	137
Eastern equine encephalitis	0	5
Ehrlichiosis / anaplasmosis	114	3558
LaCrosse virus disease	1	41
St. Louis encephalitis virus disease	0	1
Malaria	20	919
Spotted fever rickettsiosis	63	3276
West Nile virus infection		
Neuroinvasive	6	615
Non neuroinvasive	11	519
Zika virus infection, non-congenital	0	48

Note: Data is provisional and subject to change

Source: [https://wonder.cdc.gov/nndss/nndss\\_weekly\\_tables\\_menu.asp](https://wonder.cdc.gov/nndss/nndss_weekly_tables_menu.asp)

Figure 2. West Nile virus activity by state – United States, 2018 (as of September 18, 2018)



In addition to Ohio, human WNV cases have been reported in all but 4 of the 48 contiguous states and the District of Columbia. Three states reported non-human WNV activity. Only Arkansas has not yet reported WNV activity in 2018.

\*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.

Source: <https://www.cdc.gov/westnile/statsmaps/preliminarymapsdata2018/activitybystate2018.html>

## VECTOR BORNE DISEASE NEWS: Information about Lacrosse encephalitis

La Crosse virus (LACV) is an arthropod-borne virus (arbovirus) in the California group of viruses spread by the bite of infected mosquitoes. Most people are infected in Ohio by the eastern treehole mosquito, *Aedes triseriatus*, an aggressive daytime biting mosquito commonly found in wooded areas. La Crosse virus is endemic in Ohio, and Ohio has reported more human cases than any other state in the United States, averaging about 20 cases per year. As of 9/15/2018, there have been 41 cases of LACV reported in the United States, and 18 cases reported in Ohio.



Figure 3. *Aedes triseriatus*

Many people infected with La Crosse virus have no apparent symptoms. For those who do, symptoms typically begin five to 15 days after a mosquito bite and initially include nonspecific symptoms such as: fever, headache, nausea, vomiting, and lethargy. Severe disease most often occurs among children less than 16 years of age and is characterized by: seizures, coma, and paralysis. Fortunately, death from infection with La Crosse virus is rare and occurs in < 1 percent of cases. However, those that recover from neuroinvasive LACV can suffer from a variety of neurological complications. **The best way to prevent La Crosse virus disease is to prevent mosquito bites.**

Sources: <https://www.odh.ohio.gov/lacv>  
<https://www.cdc.gov/lac/index.html>

**About this report:** Reporting agencies include Summit County hospital laboratories and the Ohio Department of Health. Vector-borne disease case data for Summit County are obtained from the Ohio Disease Reporting System.

**Many thanks to all agencies who report vector-borne disease data weekly.**

Reporting from participants may not be complete each week. Numbers may change as updated reports are received. For questions, please contact Joan Hall (jhall@schd.org) or Tracy Rodriguez (trodriguez@schd.org), Summit County Public Health Communicable Disease Unit (330-375-2662). This report was issued on **September 21, 2018.**