



Vector Borne Disease 2018 Surveillance Report

Summit County Public Health



Report Weeks 17 and 18 (September 16 to September 29, 2018)
CDC/MMWR Weeks 38 and 39

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	5	1	54	2	3.7%
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 17 and 18, there were 5 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 is a Summit County resident, but the case was reported to SCPH after September 29 and will be included in the case counts for the next report.

Lyme Disease testing (Table 2): There were 26 diagnostic test series performed for Lyme disease during Weeks 17 and 18, none 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	26	0	387	30	7.6%
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 29, there were 24 reported cases of Lyme disease, 5 reported cases of Rocky Mountain spotted fever, 1 case of dengue and 4 cases of malaria (dengue and malaria cases were the result of international travel). In September, a positive blood screening result for West Nile virus from an asymptomatic blood donor was also investigated by SCPH. However, since the donor did not experience symptoms and not meet the case definition, they will not be included in the case counts.

	Confirmed	Probable/Suspected	Notes
Tick-borne diseases:			
Babesiosis	0	0	
Ehrlichiosis / anaplasmosis	0	0	
Lyme disease	7	17	
Rocky Mountain spotted fever	0	5	
Mosquito-borne diseases:			
Chikungunya	0	0	
Dengue	1	0	Case was imported
Eastern equine encephalitis	0	0	
LaCrosse virus disease	0	0	
Malaria	4	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	6	21
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 six new cases reported during Weeks 17 and 18, increasing the season total case count to 21 and the 2018 YTD total to 27. 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 October 1, 127,224 mosquitoes were collected as 3,538 pooled samples throughout Summit County. 646 of the pooled samples tested positive for West Nile virus so far this season.

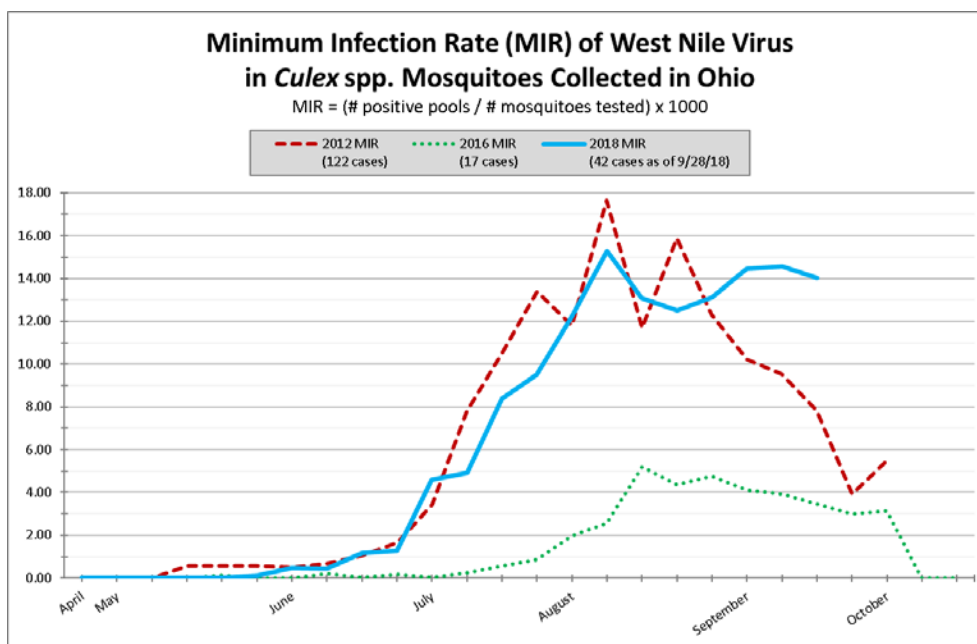
Table 5. Mosquito testing in Summit County (samples processed by noon on 10/1/2018)

Mosquitoes submitted and identified	127,224
Pooled samples tested	3,538
Positive WNV pooled samples	646

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 10/1/2018)



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 10/1/2018, the MIR in 2018 has reached rates similar to the higher MIR activity in year 2012, but the MIR in 2018 has remained elevated far later in the season, while the MIR gradually declined throughout September of 2012. In the past two weeks, reported cases of WNV reported in Ohio have doubled from 21 cases to 42 cases.

Source: Ohio Department of Health, Zoonotic Disease Program

Ohio Mosquito-borne Disease 2018 Numbers At-A-Glance
 As of October 1, 2018 12:00 pm

West Nile virus (WNV)	Notes
495,765 Mosquitoes tested	Collected by 82 agencies in 69 counties, pooled into 16,559 samples
3,220 WNV positive mosquito samples	Adams (6), Ashland (4), Ashtabula (5), Athens (22), Belmont (1), Brown (5), Butler (7), Clark (9), Clermont (12), Columbiana (2), Coshocton (1), Cuyahoga (34), Delaware (6), Fairfield (4), Franklin (1,319), Geauga (1), Greene (3), Guernsey (2), Hamilton (9), Hancock (11), Henry (12), Hocking (13), Huron (8), Jefferson (2), Lake (98), Licking (75), Lorain (26), Lucas (292), Mahoning (10), Medina (1), Meigs (1), Miami (6), Montgomery (71), Morgan (2), Morrow (7), Noble (1), Ottawa (20), Pickaway (35), Portage (88), Richland (39), Ross (10), Scioto (28), Seneca (16), Stark (103), Summit (646), Trumbull (3), Tuscarawas (29), Union (5), Vinton (2), Warren (53), Washington (13), Williams (5), Wood (34) and Wyandot (3) counties
38 WNV veterinary cases	38 equines in Ashtabula (2), Champaign (1), Coshocton (2), Geauga (2), Holmes (17), Knox (1), Lorain (2), Medina (1), Pickaway (1), Seneca (1), Stark (1), Trumbull (1), Tuscarawas (1) and Wayne (5) counties, onset of symptoms 08/06/2018-09/19/2018
8 WNV asymptomatic viremic blood donors	2 females, 6 males ranging in age 30-69 years (median 55.5 years) in Carroll (1), Cuyahoga (1), Darke (1), Franklin (2), Henry (1) Lucas (1) and Summit (1) counties
42 WNV human cases	18 females, 24 males ranging in age 23-85 years (median 62 years) in Auglaize (2), Clark (1), Cuyahoga (7), Defiance (1), Erie (1), Franklin (2), Fulton (1), Guernsey (1), Hamilton (4), Hardin (1), Lake (1), Lucas (2), Medina (1), Montgomery (2), Paulding (1), Preble (1), Ross (2), Stark (5), Trumbull (2), Wayne (2), Williams (1) and Wyandot (1) counties, onset of symptoms 06/23/2018-09/16/2018
67 Ohio counties with WNV activity reported	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
22	La Crosse human cases	14 females, 8 males ranging in age 3-17 years (median 7 years) in Coshocton (1), Fairfield (1), Hocking (2), Knox (1), Licking (4), Lorain (1), Miami (1), Morgan (1), Morrow (2), Muskingum (1), Perry (1), Richland (1), Stark (3) and Union (1) counties, onset of symptoms 06/20/2018-09/03/2018
3	Unspecified California virus human cases	1 female, 2 males ranging in age 11-16 years (median 11 years) in Franklin (1), Medina (1) and Morrow (1) counties, onset of symptoms 07/06/2018-08/06/2018

Travel-associated mosquito-borne disease cases		Notes
0	Chikungunya virus human cases*	
4	Dengue human cases*	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
0	Zika virus human cases*	
42	Malaria human cases	17 females, 25 males ranging in age 9 months-72 years (median 35 years) with travel to several African countries, Peru and Thailand

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 9/29) cumulative
Babesiosis	3
Chikungunya	0
Dengue (includes dengue-like illness)	4
Eastern equine encephalitis	0
Ehrlichiosis / anaplasmosis	19
LaCrosse virus disease	23
Lyme Disease	297
Malaria	43
Spotted fever rickettsiosis	53
St. Louis encephalitis virus disease	0
West Nile virus infection	43
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

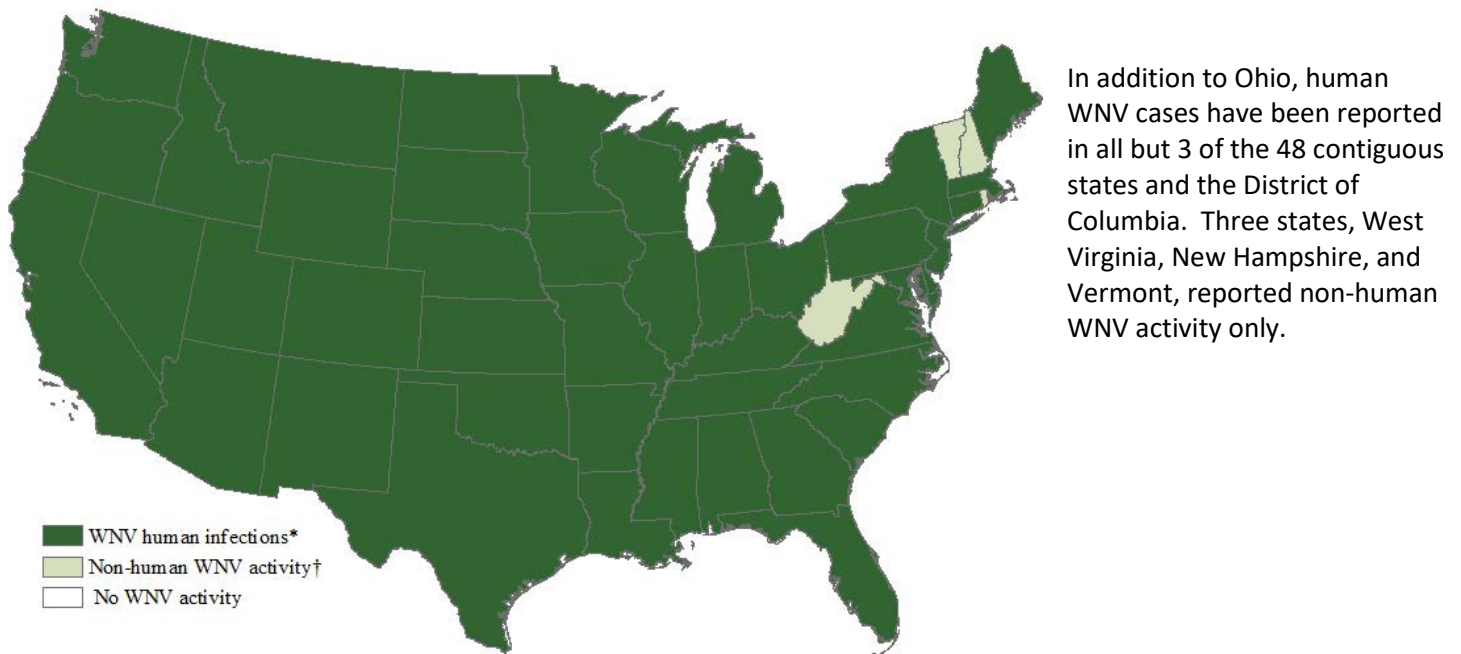
Table 7. Reported vector borne disease in the United States, 2018

Disease	Week s 17 & 18 (9/16 to 9/29)	2018 (as of 9/29) Cumulative
Babesiosis	24	1315
Chikungunya	0	58
Dengue (includes dengue-like illness)	2	163
Eastern equine encephalitis	0	5
Ehrlichiosis / anaplasmosis	88	3828
LaCrosse virus disease	0	43
St. Louis encephalitis virus disease	0	2
Malaria	19	1000
Spotted fever rickettsiosis	99	3641
West Nile virus infection		
Neuroinvasive	9	907
Non neuroinvasive	9	720
Zika virus infection, non-congenital	0	49

Note: Data is provisional and subject to change

Source: https://wonder.cdc.gov/nndss/nndss_weekly_tables_menu.asp

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



Source: <https://www.cdc.gov/westnile/statsmaps/preliminarymapsdata2018/activitybystate2018.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 **October 5, 2018**.