



Vector Borne Disease 2018 Surveillance Report

Summit County Public Health

Report Weeks 9 and 10 (July 22 to August 4, 2018)
CDC/MMWR Weeks 30 and 31



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					
Weeks 13 & 14: 8/19 to 9/1					
Weeks 15 & 16: 9/2 to 9/15					
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 period Weeks 9 and 10, there were 8 tests for West Nile virus (or arbovirus panels) ordered by Summit County hospitals, and all tests had negative results (Table 1).

Lyme Disease testing (Table 2): There were 51 diagnostic test series performed for Lyme disease during Weeks 9 and 10, two 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.

Table 2. Lyme Disease tests ordered in Summit County hospitals

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					
Weeks 13 & 14: 8/19 to 9/1					
Weeks 15 & 16: 9/2 to 9/15					
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 August 4, there were 19 reported cases of Lyme disease, 5 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.

Table 3: Vector-borne diseases reported in Summit County, 2018 cumulative totals (as of 8/4/2018)

	Confirmed	Probable/Suspected	Notes
Tick-borne diseases:			
Babesiosis	0	0	
Ehrlichiosis / anaplasmosis	0	0	
Lyme disease	5	14	
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	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		
Week 13-14: 8-19 to 9-1		
Week 15-16: 9-2 to 9-15		
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 two new cases reported during Weeks 9 and 10, bringing the season total case count to 11 and the 2018 total to 17. 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 August 6, 98,043 mosquitoes were collected as 2,291 pooled samples throughout Summit County. 177 of the pooled samples tested positive for West Nile virus so far this season.

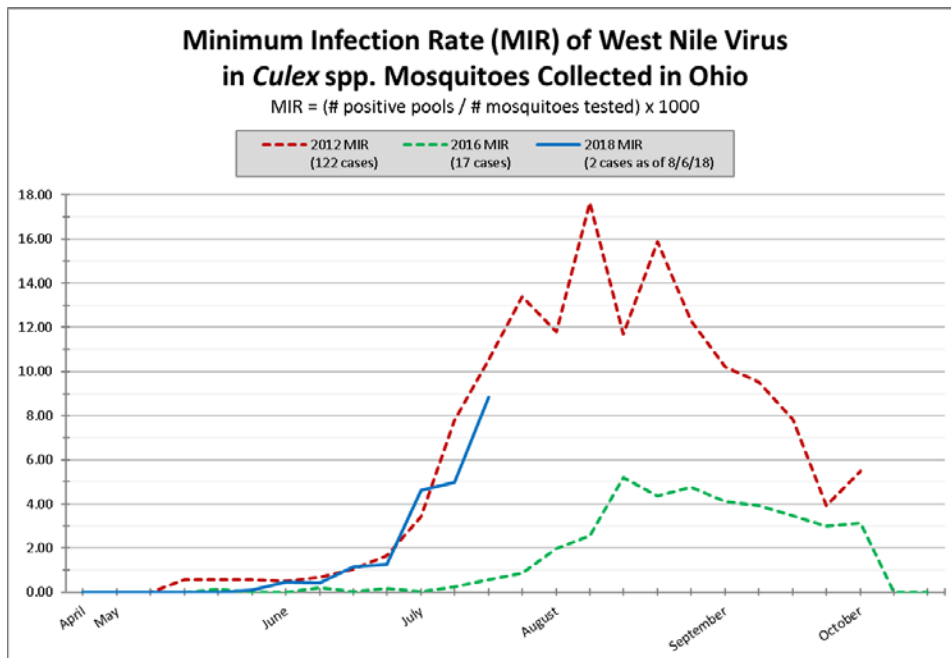
Table 5. Mosquito testing in Summit County (samples processed by noon on 8/6/2018)

Mosquitoes submitted and identified	98,043
Pooled samples tested	2,291
Positive WNV pooled samples	177

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 8/6/2018)



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. In 2012 (an active WNV year), the mosquito MIR in Ohio reached a maximum value of nearly 18.0, with a total of 122 human WNV cases. In 2016, the maximum MIR was approximately 5.0 with a 17 human WNV cases. As of 8/6/2018, the MIR in 2018 continues to be similar to the MIR seen in the high activity year 2012.

Source: Ohio Department of Health, Zoonotic Disease Program

Ohio Mosquito-borne Disease Surveillance August 6, 2018

The Ohio Department of Health (ODH) Zoonotic Disease Program, in partnership with ODH Laboratory, local public health partners and sanitary district partners, collects and tests mosquitoes from many communities in Ohio as part of statewide mosquito-borne disease surveillance. This surveillance also includes monitoring for human and veterinary cases as well.



Ohio Mosquito-borne Disease 2018 Numbers At-A-Glance As of August 6, 2018 12:00 pm

West Nile virus (WNV)	Notes
320,268 Mosquitoes tested	Collected by 77 agencies in 66 counties, pooled into 10,009 samples
1,078 WNV positive mosquito samples	Athens (4), Clermont (2), Coshocton (1), Cuyahoga (18), Delaware (2), Fairfield (3), Franklin (569), Guernsey (2), Hamilton (4), Hancock (1), Hocking (1), Huron (3), Lake (21), Licking (45), Lorain (1), Lucas (104), Mahoning (1), Medina (1), Miami (1), Montgomery (13), Morgan (1), Noble (1), Ottawa (20), Portage (25), Richland (4), Ross (1), Scioto (4), Seneca (11), Stark (24), Summit (177), Tuscarawas (5), Vinton (1), Warren (1), Washington (5) and Wood (1) counties
0 WNV veterinary cases	
2 WNV asymptomatic viremic blood donors	2 males ranging in age 30-53 years in Franklin County
2 WNV human cases	2 males ranging in age 71-81 years in Lake and Ross counties, onset of symptoms 06/23/2018-07/16/2018
35 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
3 La Crosse human cases	1 male, 2 females ranging in age 5-16 years (median 6 years) in Fairfield, Morgan and Stark counties, onset of symptoms 06/20/2018-06/27/2018

Travel-associated mosquito-borne disease cases	Notes
0 Chikungunya virus human cases*	
1 Dengue human cases*	1 female age 39 years with travel to Mexico, onset of symptoms 04/07/2018
0 Zika virus human cases*	
29 Malaria human cases	11 females, 18 males ranging in age 9 months - 72 years (median 36 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 8/4) cumulative
Babesiosis	0
Chikungunya	0
Dengue (includes dengue-like illness)	2
Eastern equine encephalitis	0
Ehrlichiosis / anaplasmosis	13
LaCrosse virus disease	4
Lyme Disease	306
Malaria	30
Spotted fever rickettsiosis	46
St. Louis encephalitis virus disease	0
West Nile virus infection	1
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

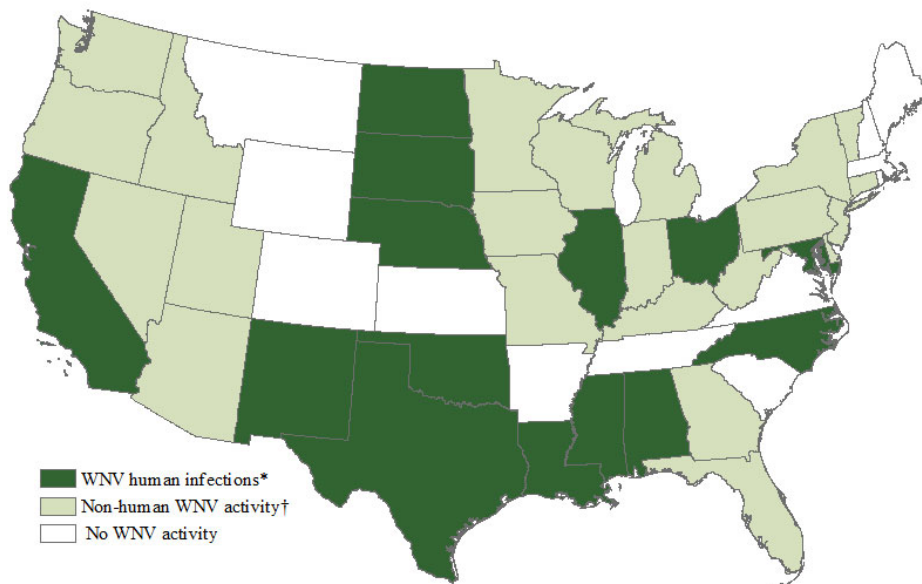
Table 7. Reported vector borne disease in the United States, 2018

Disease	Week 9 (7/22 to 7/28)	2018 (as of 7/28) Cumulative
Babesiosis	41	540
Chikungunya	0	31
Dengue (includes dengue-like illness)	1	84
Eastern equine encephalitis	0	1
Ehrlichiosis / anaplasmosis	76	2374
LaCrosse virus disease	0	7
St. Louis encephalitis virus disease	0	0
Malaria	10	650
Spotted fever rickettsiosis	82	2138
West Nile virus infection		
Neuroinvasive	1	33
Non neuroinvasive	1	27
Zika virus infection, non congenital	0	38

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 July 24, 2018)



Like most states in the Midwest, Ohio has reported West Nile virus activity in mosquitoes only. Human cases of West Nile virus infection have been reported in Ohio, Maryland, North Carolina, Alabama, Mississippi, Louisiana, Texas, Oklahoma, New Mexico, North Dakota, South Dakota, Nebraska, and California.

*WNV human disease cases or presumptive viremic blood donors. Presumptive viremic blood donors have a positive screening test which has not necessarily been confirmed.

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

VECTOR BORNE DISEASE NEWS

Invasive longhorned tick confirmed in Pennsylvania and Maryland

The Asian longhorned tick has been identified in Pennsylvania and Maryland, making them the seventh and eighth states to confirm the presence of this species. So far, testing of US-collected longhorned ticks has found that they are currently not carriers of any disease-causing pathogens. The present concern with this species is the threat it poses to livestock: infestations by these aggressive feeders can weaken and even kill their host animal.

In its native range in East Asia, Australia and New Zealand, the tick is a serious livestock pest known to carry human and animal pathogens. *The Ohio Department of Agriculture encourages veterinarians and animal owners to be vigilant and to report the finding of unusual ticks, particularly in large numbers, to the Ohio State Veterinarian office at 614-728-6220 during regular work hours.*



Figure 3. Female adult longhorned tick, which is similar in size to the deer tick (actual size of deer tick shown on right)

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@sched.org) or Tracy Rodriguez (trodriguez@sched.org), Summit County Public Health Communicable Disease Unit (330-375-2662). This report was issued on **August 8, 2018.**