Vector Borne Disease
2020 Surveillance Report

Summit County Public Health

Report Weeks 17 and 18 (September 13 to September 26, 2020)
MMWR Weeks 38 and 39

This report will be issued from June through October of each year (or later if vector-borne diseases are still a concern). Surveillance will include human cases and testing of mosquito pools in Summit County. It will also include updates from Ohio and around the nation. It will include all vector-borne diseases that are prevalent in the Ohio and the region.

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: 5/24 to 6/6	3	0	3	0	0.0%
Weeks 3 & 4: 6/7 to 6/20	9	1	12	1	8.3%
Weeks 5 & 6: 6/21 to 7/4	6	0	18	1	5.6%
Weeks 7 & 8: 7/5 to 7/18	7	0	25	1	4.0%
Weeks 9 & 10: 7/19 to 8/1	8	1	33	2	6.1%
Weeks 11 & 12: 8/2 to 8/15	8	1	41	3	7.3%
Weeks 13 & 14: 8/16 to 8/29	6	0	47	3	6.5%
Weeks 15 & 16: 8/30 to 9/12	12	0	59	3	5.1%
Weeks 17 & 18: 9/13 to 9/26	7	0	66	3	4.6%
Weeks 19 & 20: 9/27 to 10/10					
Weeks 21 & 22: 10/11 to 10/24					

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 17 and 18, there were 7 tests for West Nile virus ordered by Summit County hospitals, none were positive. So far this season, there have been 3 positive results for IgG antibody only for the West Nile virus, which is an indication of immunity due to a past exposure and were not active infections.

Lyme disease testing (Table 2): There were 48 diagnostic test series performed for Lyme disease during Weeks 17 and 18, with 7 positive or indeterminate test results. 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 and the case is confirmed only if the EIA/IFA and the immunoblot are both positive.

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**	**Percentage of positive or indeterminate tests**
Weeks 1 & 2: 5/24 to 6/6	**41**	**5**	**41**	**5**	**12.2%**
Weeks 3 & 4: 6/7 to 6/20	**48**	**11**	**89**	**16**	**18.0%**
Weeks 5 & 6: 6/21 to 7/4	**76**	**13**	**165**	**29**	**17.6%**
Weeks 7 & 8: 7/5 to 7/18	**81**	**21**	**246**	**50**	**20.3%**
Weeks 9 & 10: 7/19 to 8/1	**57**	**14**	**303**	**64**	**21.1%**
Weeks 11 & 12: 8/2 to 8/15	**62**	**6**	**365**	**69**	**18.9%**
Weeks 13 & 14: 8/16 to 8/29	**54**	**10**	**419**	**79**	**18.9%**
Weeks 15 & 16: 8/30 to 9/12	**52**	**5**	**471**	**84**	**17.8%**
Weeks 17 & 18: 9/13 to 9/26	**48**	**7**	**519**	**91**	**17.5%**
Weeks 19 & 20: 9/27 to 10/10					
Weeks 21 & 22: 10/11 to 10/24					
Note: Reporting may not be completed each week. Numbers will be updated when reports are received					

Reported Vector-borne diseases in 2020 for Summit County residents (Table 3): As of September 26, there were 33 reported cases of Lyme disease; three were confirmed and the remaining 30 were suspected. Also reported were one confirmed case and one suspected case of LaCrosse virus disease, one suspected case of Ehrlichiosis and one suspected case of babesiosis.

Table 3: Vector-borne diseases reported in Summit County, 2020 cumulative totals			
	Confirmed	**Suspected**	**Notes**
Tick-borne diseases:			
Babesiosis	0	**1**	
Erhlichiosis / anaplasmosis	0	**1**	
Lyme disease	**3**	**30**	
Powassan virus disease	0	0	
Rocky Mountain spotted fever	0	0	
Mosquito-borne diseases:			
Chikungunya	0	0	
Dengue	0	0	
Eastern equine encephalitis	0	0	
LaCrosse virus disease	**1**	**1**	
Malaria	0	0	
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.			

Table 4. Notable mosquito and tick species identifications in Summit County (as of September 24, 2020)		
Species name	**Diseases associated**	**# identified**
Mosquito species		
Aedes albopictus	Chikungunya, dengue fever, yellow fever	0
Aedes triseriatus	La Crosse encephalitis	24
Coquillettidia perturbans	Eastern equine encephalitis, West Nile virus	21
Tick species		
Amblyomma americanum	Ehrlichiosis, tularemia, red meat allergy	1
Dermacentor variabilis	Rocky Mountain spotted fever, tularemia	31
Ixodes scapularis	Lyme disease, babesiosis, anaplasmosis	12
Source: Ohio Department of Health (Identification via mailed specimens, emailed photos and iNaturalist observations)		

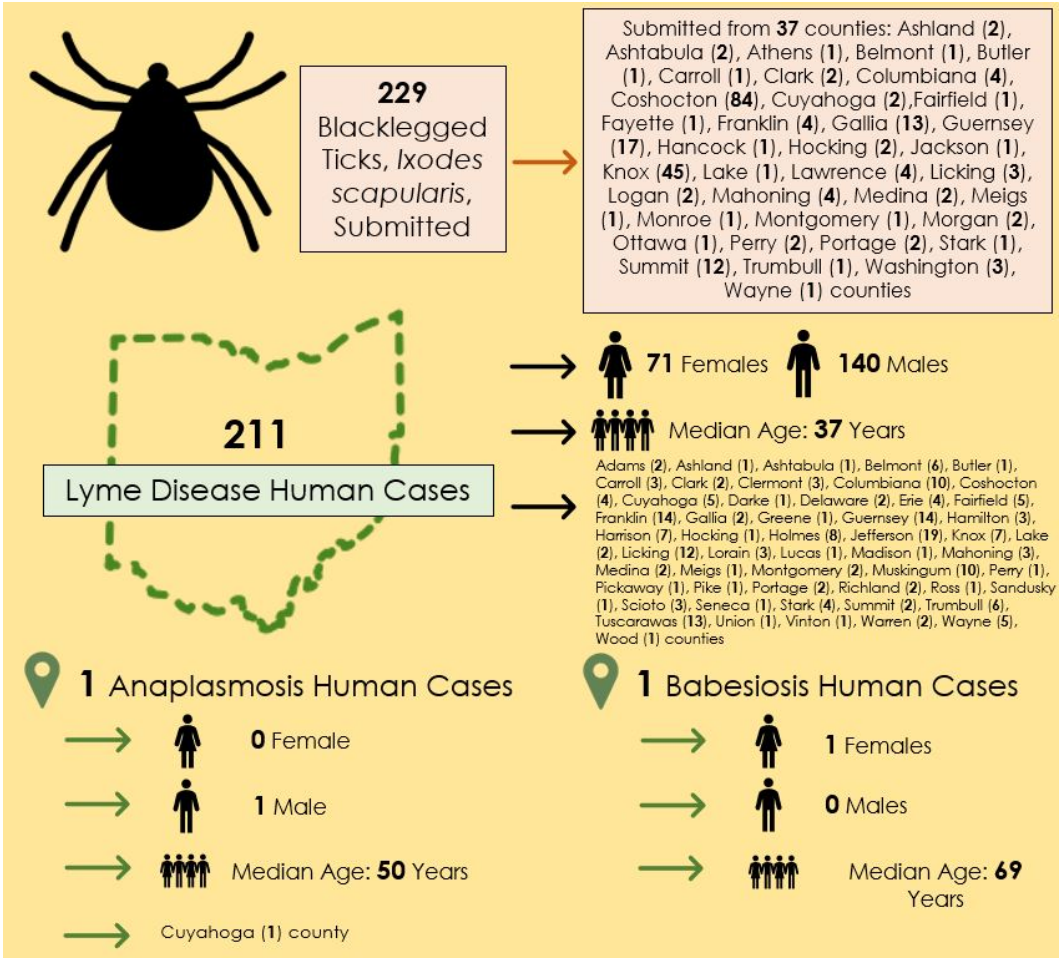
Table 5. Reported Aseptic/viral meningitis cases in Summit County (confirmed & probable)		
Week(s)	**Cases reported this period**	**Cumulative cases for the season**
Aseptic meningitis cases reported prior to season (1/1 to 5/23/2020)	**5**	**-**
Weeks 1 & 2: 5/24 to 6/6	**1**	**1**
Weeks 3 & 4: 6/7 to 6/20	**0**	**1**
Weeks 5 & 6: 6/21 to 7/4	**1**	**2**
Weeks 7 & 8: 7/5 to 7/18	**0**	**2**
Weeks 9 & 10: 7/19 to 8/1	**2**	**4**
Weeks 11 & 12: 8/2 to 8/15	**0**	**4**
Weeks 13 & 14: 8/16 to 8/29	**0**	**4**
Weeks 15 & 16: 8/30 to 9/12	**0**	**4**
Weeks 17 & 18: 9/13 to 9/26	**1**	**5**
Weeks 19 & 20: 9/27 to 10/10		
Weeks 21 & 22: 10/11 to 10/24		
Source: Ohio Disease Reporting System (ODRS)		

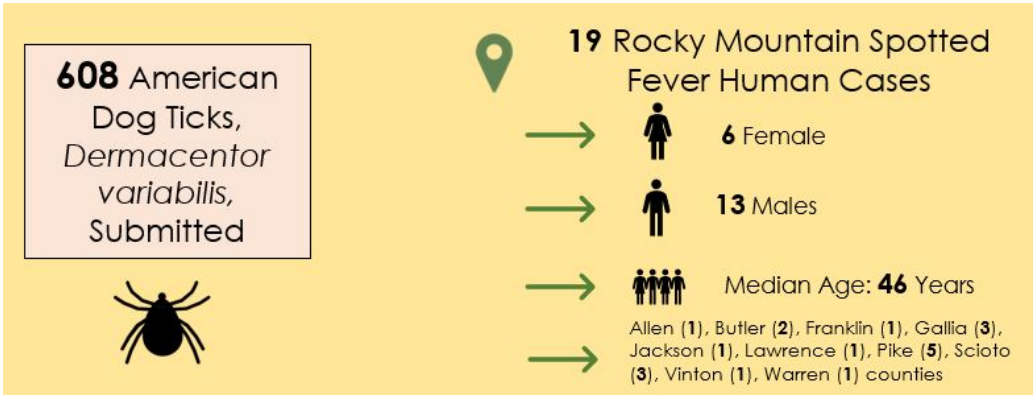
Reported aseptic/viral meningitis cases (Table 5): Prior to the reporting season, there were five reported cases of aseptic meningitis. One case was reported during Weeks 17 and 18, increasing the season total to five cases. Aseptic/viral meningitis is the most common type of meningitis and occurs predominately in the summer and fall. While most aseptic/viral meningitis cases are due to gastrointestinal or respiratory viruses, similar symptoms may be present with arthropod-borne diseases.

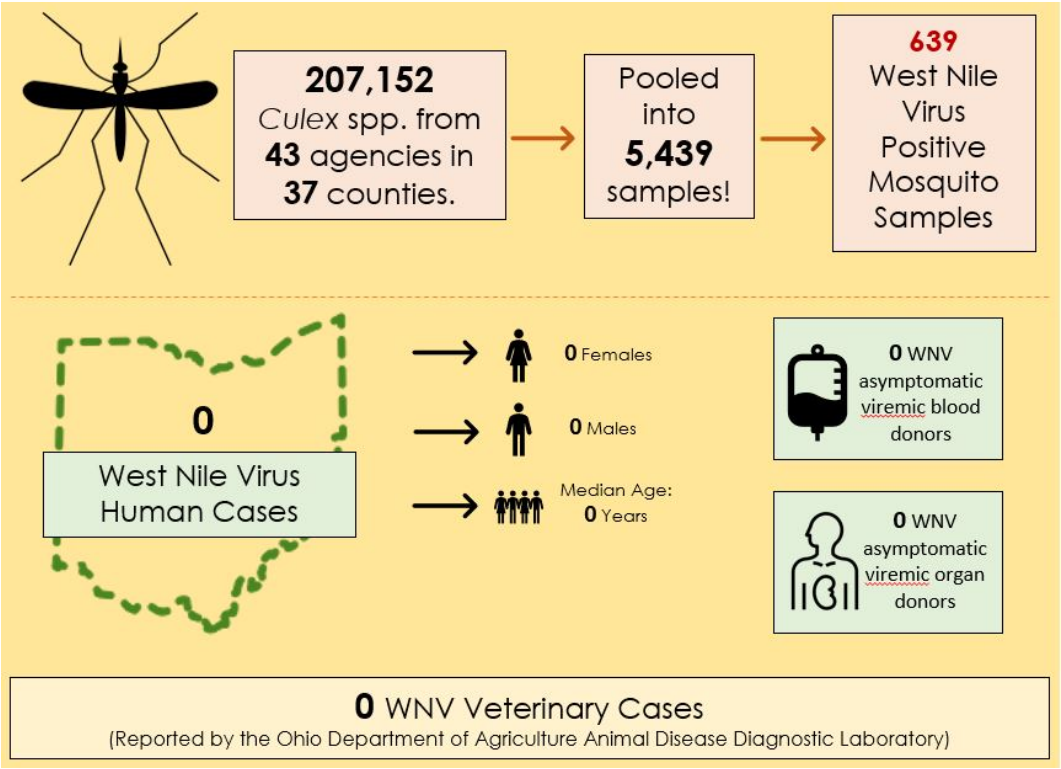
Mosquito testing (Table 6): Based on the ODH mosquito testing summary released on September 24, 6,482 mosquitoes were collected throughout Summit County, and 2,279 *Culex spp*. were combined as pooled samples. 87 of the pooled samples were tested (14 samples are pending) for West Nile virus, and two were positive.

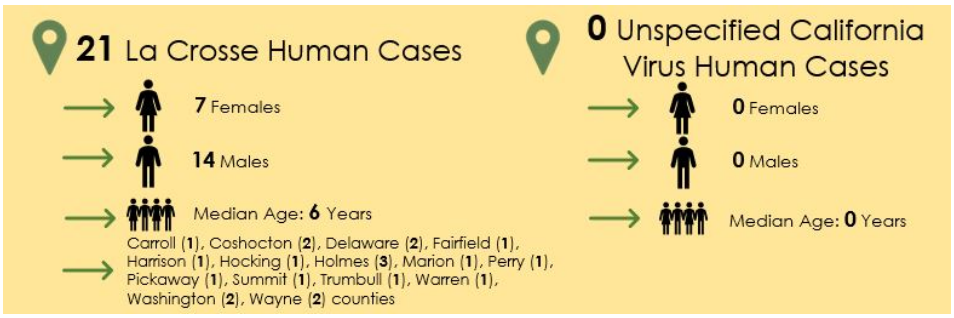
Table 6. Mosquito Testing in Summit County (***samples processed by noon on 9/24/2020***)	
Mosquitoes identified	6,482
Pooled samples tested	87
Positive WNV pooled samples	2
Note: All mosquitoes pools tested were *Culex spp.*	

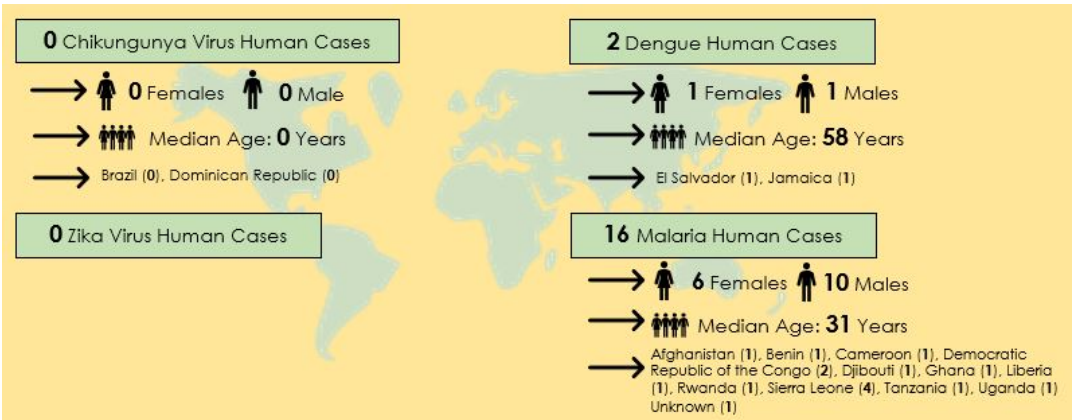
OHIO (GRAPHICS AS OF 9/24/2020) AND UNITED STATES SURVEILLANCE











Source: https://odh.ohio.gov/wps/portal/gov/odh/know-our-programs/zoonotic-disease-program/news-and-events/vectorborne-disease-update

Special note for travelers:

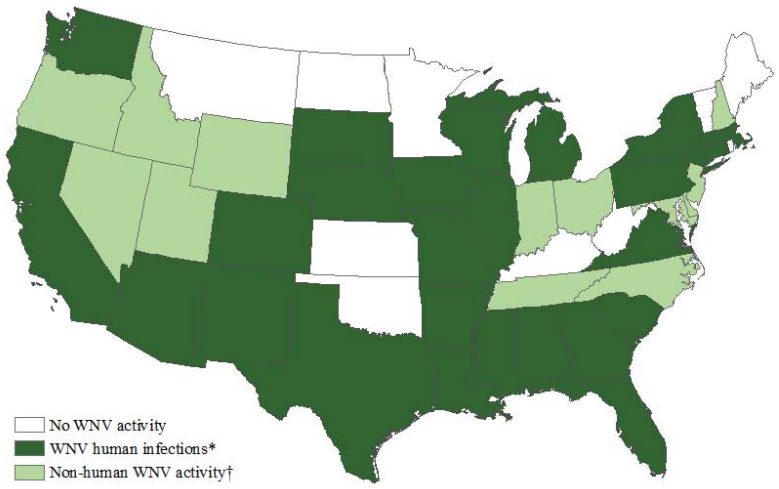
Ohioans traveling to areas where local transmission is occurring should be aware of the ongoing situation and make every effort to avoid mosquito bites. Additional information can be found from the Centers for Disease Control and Prevention (CDC)'s Travelers' Health and Pan-American Health Organization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

Table 7. Reported Vector Borne disease in Ohio and the United States, 2020

	OHIO		UNITED STATES	
Disease	2020 (as of 9/26) cumulative		Weeks 17 and 18 (9/13 to 9/26)	2020 (as of 9/26) Cumulative
Babesiosis	7		21	1225
Chikungunya	1		0	19
Dengue (includes dengue-like illness)	2		7	226
Eastern equine encephalitis	0		0	8
Erlichiosis / anaplasmosis	35		51	3337
Jamestown Canyon virus disease	0		0	5
LaCrosse virus disease	21		0	37
Lyme Disease	1206		Not reported weekly by CDC	
Malaria	19		2	303
Powassan virus disease	0		0	13
Spotted fever rickettsiosis	138		Not reported weekly by CDC	
St. Louis encephalitis virus disease	0		0	6
West Nile virus infection	0		3	243
Zika virus infection, non-congenital	0		0	2
Note: Data is provisional and subject to change				

Source: https://wonder.cdc.gov/nndss/nndss_weekly_tables_menu.asp **and Ohio Disease Reporting System (ODRS)**

Figure 1. West Nile virus activity by state – United States, 2020 (as of September 22, 2020)



*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.

Ohio has not yet reported West Nile virus activity in humans or non-humans. Human cases of West Nile virus infection have been reported to CDC ArboNET from the following states: Alabama, Arizona, Arkansas, California, Colorado, Connecticut, Florida, Georgia, Illinois, Iowa, Louisiana, Massachusetts, Michigan, Mississippi, Missouri, Nebraska, New Mexico, New York, Pennsylvania, South Carolina, South Dakota, Texas, Virginia, Washington, and Wisconsin.

Source: https://www.cdc.gov/westnile/statsmaps/preliminarymapsdata2020/activitybystate2020.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 the Summit County Public Health Communicable Disease Unit (330-375-2662). This report was issued on **October 2, 2020**.