Vector Borne Disease
2018 Surveillance Report

Summit County Public Health

Report Weeks 3 and 4 (June 10 to June 23, 2018)
CDC Weeks 24 and 25

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					
Weeks 7 & 8: 7/9 to 7/21					
Weeks 9 & 10: 7/22 to 8/4					
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 3 and 4, there were 2 tests for West Nile virus ordered by Summit County hospitals, and both tests had negative results (Table 1).

Lyme Disease testing (Table 2): There were 50 diagnostic test series performed for Lyme disease during Weeks 3 and 4, three 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					
Weeks 7 & 8: 7/9 to 7/21					
Weeks 9 & 10: 7/22 to 8/4					
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					
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Reported Vector-borne diseases in 2018 (Table 3): As of June 25, there were 13 reported cases of Lyme disease, two reported cases of Rocky Mountain spotted fever, and one case of malaria (travel-related). There were no cases of West Nile virus infection reported, or any other mosquito borne illness (except for the malaria case).

Table 3: Vector-borne diseases reported in Summit County, 2018 cumulative totals			
	Confirmed	**Suspected**	**Notes**
Tick-borne diseases:			
Babesiosis	0	0	
Erhlichiosis / anaplasmosis	0	0	
Lyme disease	**2**	**11**	
Rocky Mountain spotted fever	0	**2**	
Mosquito-borne diseases:			
Chikungunya	0	0	
Dengue	0	0	
Eastern equine encephalitis	0	0	
LaCrosse virus disease	0	0	
Malaria	**1**	0	Imported case
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		
Week 7-8: 7-9 to 7-21		
Week 9-10: 7-22 to 8-4		
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): Prior to the reporting season, there were six reported cases of aseptic meningitis, and no new cases were reported during Weeks 3 and 4. 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 June 25, 28,299 mosquitoes were collected as 764 pooled samples throughout Summit County. Six of the pooled samples tested positive for West Nile virus.

Table 5. Mosquito Testing in Summit County (*samples processed by noon on 6/25/2018*)	
Mosquitoes submitted and identified	28,299
Pooled samples tested	764
Positive WNV pooled samples	6
Note: All mosquitoes tested for WNV were *Culex sp.*	

Can you become allergic to red meat from a tick bite?

Figure 1. Lone Star tick adult female

Although this sounds like an urban legend, the answer is YES. About ten years ago, health practitioners realized that patients who developed allergies to beef, pork and lamb frequently had a history of a recent tick bite. The allergy is specifically caused by a carbohydrate in red meat known as "alpha gal", which humans do not produce. Alpha gal is also present in dairy products, and about 15-20% of those with meat allergies will also develop a dairy allergy. Allergy symptoms that develop may include stuffy/runny nose, hives/skin rash, nausea/vomiting/diarrhea, headaches, asthma, and anaphylaxis. The mechanism of how a tick bite can lead to a meat allergy is not yet understood. Nationally, there are about 5,000 known meat allergies due to tick bites.

Fortunately, only one tick species in Ohio, the Lone Star tick (*Amblyomma americanum*), is associated with the allergy, but unfortunately, the geographic range of this species has recently expanded into Ohio. Female adults and nymphs are most likely to bite humans, and the female adult can be identified by a single distinct white spot her back. The Lone Star tick is also a known vector for other tick-borne diseases, including ehrlichiosis and tularemia. If you enjoy eating steaks and burgers, you have another reason to be sure to follow the methods to prevent tick bites on the last page of this report.

Sources: https://acaai.org/allergies/types/food-allergies/types-food-allergy/meat-allergy
NPR: Red Meat Allergies Caused By Tick Bites Are On The Rise

Ohio Mosquito-borne Disease Surveillance
June 25, 2018

Mosquito season is here. 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.

Collections of mosquitoes are identified and tested at ODH Laboratory, and the results are shared with our partners who use the information to help guide public health interventions. We will continue monitoring for mosquito infections throughout the summer and will report positive findings and summary statistics on this website. The website will be updated each Monday at noon, so check back periodically for updated information.

Ohio Mosquito-borne Disease 2018 Numbers At-A-Glance
As of June 25, 2018 12:00 pm

West Nile virus (WNV)		Notes
71,316	Mosquitoes tested	Collected by 52 agencies in 47 counties, pooled into 2,730 samples
26	WNV positive mosquito samples	Franklin (7), Lucas (11), Portage (1), Ross (1) and Summit (6) counties
0	WNV veterinary cases	
0	WNV asymptomatic viremic blood donors	
0	WNV human cases	
5	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
0	La Crosse human cases	

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*	
23	Malaria human cases	9 females, 14 males ranging in age 9 months - 65 years (median 34 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 6/23) cumulative
Babesiosis	2
Chikungunya	0
Dengue (includes dengue-like illness)	1
Eastern equine encephalitis	0
Erlichiosis / anaplasmosis	12
LaCrosse virus disease	1
Lyme Disease	210
Malaria	24
Spotted fever rickettsiosis	48
St. Louis encephalitis virus disease	0
West Nile virus infection	
Neuroinvasive	0
Non neuroinvasive	0
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	Weeks 3 and 4 (6/10 to 6/23)	2018 (as of 6/23) cumulative
Babesiosis	15	138
Chikungunya	1	19
Dengue (includes dengue-like illness)	0	54
Eastern equine encephalitis	0	1
Erlichiosis / anaplasmosis	182	1248
LaCrosse virus disease	0	1
St. Louis encephalitis virus disease	0	0
Malaria	33	483
Spotted fever rickettsiosis	69	1073
West Nile virus infection		
Neuroinvasive	0	6
Non neuroinvasive	0	5
Zika virus infection, non congenital	0	31

Note: Data is provisional and subject to change

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

Source link: https://insideclimatenews.org/content/infographic-preventing-tick-bites-home-hiking-woods

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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 **June 29, 2018**.