



Vector Borne Disease 2018 Surveillance Report

Summit County Public Health

Report Weeks 1 and 2 (May 27 to June 9, 2018)
CDC Weeks 22 and 23



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	2	0	2	0	0.0%
Weeks 3 & 4: 6/10 to 6/23					
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 1 and 2, 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 63 diagnostic test series performed for Lyme disease during Weeks 1 and 2, 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.

Table 2. Lyme Disease Tests Ordered in Summit County Hospitals

Week(s)	# of Lyme tests ordered this period	# of positive Lyme 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	63	3	63	3	4.8%
Weeks 3 & 4: 6/10 to 6/23					
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

Reported Vector-borne diseases in 2018 (Table 3): As of June 9, there were 14 reported cases of Lyme disease, one reported case 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	
Ehrlichiosis / anaplasmosis	0	0	
Lyme disease	2	12	
Rocky Mountain spotted fever	0	1	
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.

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		
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)

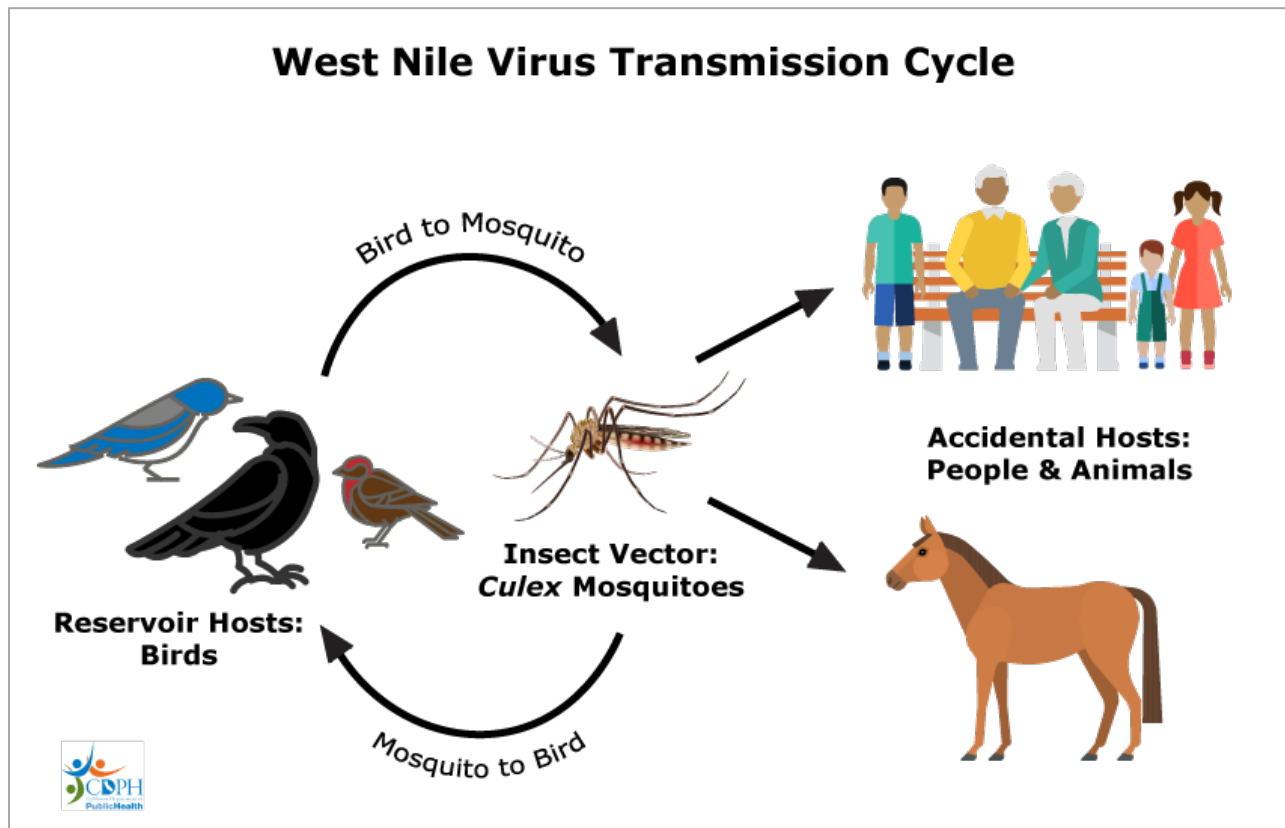
Reported aseptic meningitis cases (Table 4): Prior to the reporting season, there were six reported cases of aseptic meningitis, and two cases were reported during Weeks 1 and 2. Aseptic (viral) meningitis is the most common type of meningitis and occurs predominately in the summer and fall. While most 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 11, nearly 5,000 mosquitoes were collected as 202 pooled samples throughout Summit County. None of the samples tested positive for West Nile virus or St. Louis encephalitis virus.

Table 5. Mosquito Testing in Summit County (samples processed by noon on 6/11/2018)

Mosquitoes identified	4,988
Pooled samples tested	202
Positive WNV pooled samples	0

Note: All mosquitoes tested were *Culex sp.*



Source: http://westnile.ca.gov/wnv_faqs_basics.php?id=74

**Ohio Mosquito-borne Disease Surveillance
June 11, 2018**

Arbovirus season is underway, and mosquito surveillance samples are coming in and being tested at the Ohio Department of Health Entomology Laboratory. So far, 18,569 mosquitoes have been submitted, and two samples have tested positive for West Nile virus. We will continue monitoring for mosquito infections throughout the summer and will report positive findings on this website. Check back periodically for updated information.



**Ohio Mosquito-borne Disease 2018 Numbers At-A-Glance
As of June 11, 2018 12:00 pm**

West Nile virus (WNV)		Notes
18,569	Mosquitoes tested	Collected in 24 counties, pooled into 895 samples
2	WNV positive mosquito samples	Collected in Franklin County
0	WNV veterinary cases	
0	WNV asymptomatic viremic blood donors	
0	WNV human cases	
1	Ohio counties with WNV activity reported	Activity reported so far in Franklin County

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*	
22	Malaria human cases	9 females, 13 males ranging in age 9 months - 65 years (median 33 years) with travel to several African countries and Peru

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.

Now is a good time to start or increase your community and public education efforts focusing on **personal protection and source reduction** to include these points:

AVOID mosquitoes and mosquito bites

- Use insect repellents when you go outdoors or wear clothing treated with permethrin or another EPA-registered repellent for extra protection.
- Take care during peak mosquito biting hours, perhaps avoiding outdoor activity and wearing appropriate clothing.

PLAN ahead for mosquitoes while traveling

- Check travel notices for mosquito-borne and other disease transmission updates. Visit the [Centers for Disease Control and Prevention \(CDC\)'s Travelers' Health website](#) to search for the latest health notices for the country you're traveling to.
- Speak to your healthcare provider about your travel plans and measures you can take to reduce your risk of mosquito-borne diseases.
- Pack appropriately to protect yourself from mosquitoes by bringing insect repellents, appropriate clothing and mosquito netting if sleeping outdoors or in unscreened structures.

STOP mosquitoes from breeding in and around your home

- Reduce the number of mosquitoes around your home by discarding and emptying water-holding containers and using products containing *Bacillus thuringiensis israelensis* (Bti), available at many garden and home improvement stores, to control mosquito larvae in containers that are too large to empty.
- Keep mosquitoes outside by installing or repairing screens on windows and doors.

Taking these steps will help protect against mosquito-borne [La Crosse](#), [West Nile](#) and [Zika](#) viruses.

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

UNITED STATES SURVEILLANCE

Table 5. Reported Vector Borne disease in the United States, 2018

Disease	Weeks 1 and 2 (5/27 to 6/9)	2018 Cumulative
Babesiosis	14	83
Chikungunya	0	11
Dengue	2	45
Eastern equine encephalitis	0	0
Erlichiosis / anaplasmosis	156	698
LaCrosse virus disease	1	1
St. Louis encephalitis virus disease	0	0
Malaria	29	402
Spotted fever rickettsiosis	71	779
West Nile virus infection		
Neuroinvasive	0	1
Non neuroinvasive	0	0
Zika virus infection, non congenital	0	24

Source: https://wonder.cdc.gov/ndss/ndss_weekly_tables_menu.asp

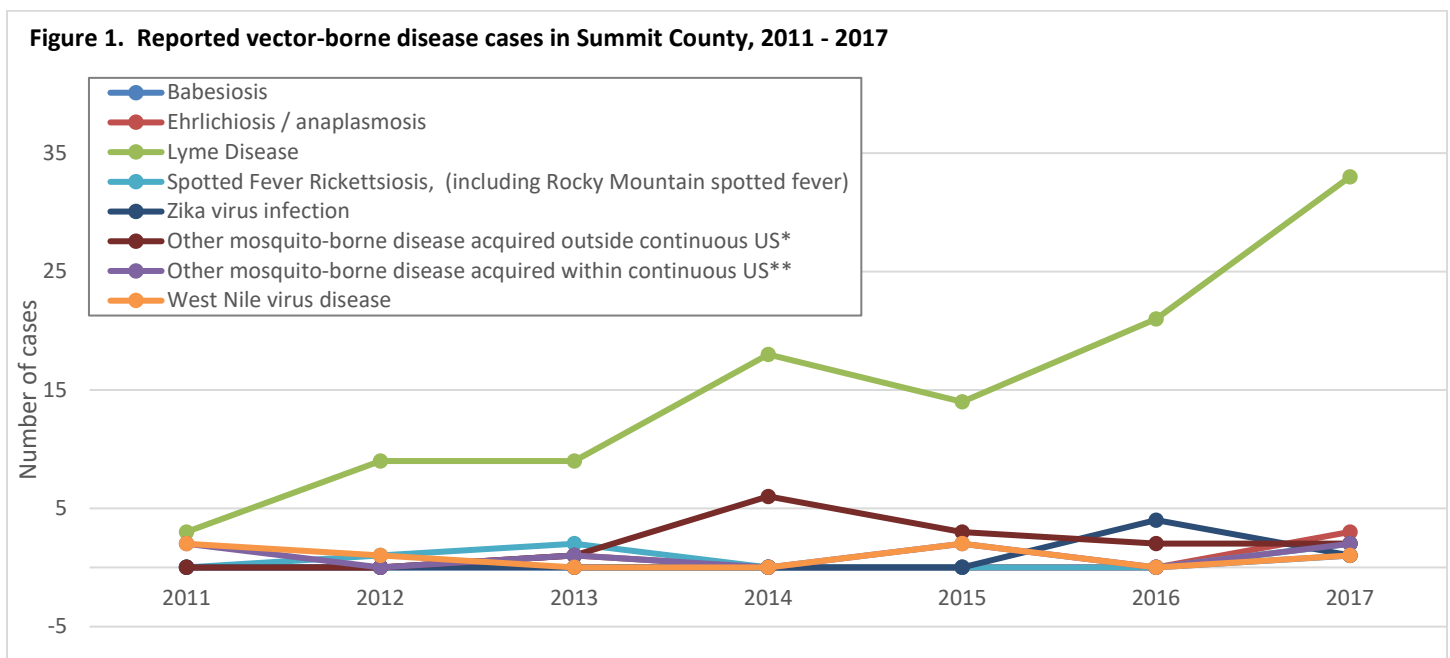
TRENDS IN VECTOR BORNE DISEASE IN SUMMIT COUNTY, 2011 - 2017

Table 6 provides data on the vector borne disease that were reported in Summit County from 2011 to 2017. As indicated in Table 6 and Figure 1, the number of Lyme Disease cases in Summit County has followed an increasing trend, with an average of about 4 additional cases per year. The vector for Lyme disease, the blacklegged tick (*Ixodes scapularis*), was first identified in Ohio in 1989, but populations did not begin to increase dramatically until 2009. The blacklegged tick is now established throughout eastern and southern Ohio, and has been collected in counties near the Michigan border.

Other notable events in vector borne disease surveillance were the increase in Chikungunya cases in 2014 (reported as other arthropod-borne diseases) and the Zika epidemic of 2016. The incidence of other vector-borne diseases, including West Nile virus disease and other tick-borne illness have remained consistently low.

	2011	2012	2013	2014	2015	2016	2017	2018
Babesiosis	0	0	0	0	0	0	1	0
Ehrlichiosis / anaplasmosis	0	0	1	0	0	0	3	0
Lyme Disease	3	9	9	18	14	21	33	14
Spotted Fever Rickettsiosis, (including Rocky Mountain spotted fever)	0	1	2	0	0	0	2	1
West Nile virus disease	2	1	0	0	2	0	1	0
Zika virus infection	0	0	0	0	0	4	1	0
Other mosquito-borne disease acquired outside continuous US*	0	0	1	6	3	2	2	1
Other mosquito-borne disease acquired within continuous US**	2	0	1	0	2	0	2	0

Source: Ohio Disease Reporting System (ODRS), confirmed, probable and suspected cases
 * Includes imported cases of malaria, dengue and chikungunya
 ** Includes LaCrosse virus disease and St. Louis encephalitis virus disease



VECTOR BORNE DISEASE NEWS

The presence of a new invasive species of tick, the longhorned tick, has been confirmed in four states: New Jersey, Virginia, West Virginia, and Arkansas. This tick species is native to China, Japan, the Korean peninsula, Russia, New Zealand and Australia. As with native species, the longhorned tick is associated with bacteria and viruses that cause disease in humans, pets and livestock. Of additional concern is the ability of the longhorned tick to reproduce asexually (parthenogenesis) and heavily infest livestock. Below is a statement released by the West Virginia State Department of Agriculture:

Longhorned tick discovered in West Virginia

On Monday May 21st, the National Veterinary Services Laboratories (NVSL) confirmed *Haemaphysalis longicornis* (longhorned) tick's presence in West Virginia. Ticks samples were collected from cattle on two separate premises in Hardy County. These farms are located on the border with Virginia, approximately 100 miles from Albemarle County, VA. The tick's presence was confirmed in Virginia last week by the Virginia Department of Agriculture and Consumer Services.

"We want people to understand we now have confirmation this tick is in West Virginia. Livestock producers and the public should take extra precautions," said Commissioner of Agriculture Kent Leonhardt. "We will be working with veterinarians throughout the state on how to handle outbreaks."



Figure 2. Three stages of the longhorned tick: Adult female (left), partially engorged nymph (center), and larvae (right). A fully engorged adult will be about the size of a pea.

In November of 2017, the United State Department of Agriculture (USDA), Animal and Plant Inspection Services (APHIS) first identified the longhorned tick in New Jersey. This was the first confirmed presence within the United States. West Virginia is the third state in which APHIS has identified the tick, indicating the distribution is much broader than originally thought. APHIS is not aware of any direct links between West Virginia and Virginia or New Jersey.

"Livestock producers, animal owners and veterinarians should notify the State Veterinarian's office if they notice any unusual ticks, or ticks that occur in large numbers on an individual animal," said State Veterinarian Dr. James Maxwell. "Livestock producers can work with their veterinarians to develop a tick prevention and control program."

The longhorned tick is A non-native species to the United States. The USDA considers the tick as a serious threat to livestock. Heavy tick infestations may cause stunted growth, decreased production and animal deaths. This tick species is known to carry several diseases prone to affect livestock and humans alike, some of which are not prevalent in the United States.

"This tick has been associated with bacterial and viral tick borne disease in other parts of the world," said Miguella Mark-Carew, Director of Epidemiology and Prevention Services for the West Virginia Department of Health and Human Resources, Bureau for Public Health. "Like deer ticks that transmit Lyme disease, longhorned ticks are very small and can be difficult to find on people and animals. It is important to conduct full-body tick checks when returning from time outdoors in wooded areas."

Sources: <https://agriculture.wv.gov/news/Pages/First-Detection-of-Longhorned-Tick-in-West-Virginia.aspx>
<https://fonseca-lab.com/research/global-health-the-tick-that-binds-us-all/>

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 18, 2018**.