

Dallas County Health and Human Services Arbovirus Surveillance Report



Week 20 ending May 20, 2017

- To date, 13 mosquito traps have tested positive for WNV in zip codes: 75019, 75042, 75050, 75052, 75098, 75149, 75150, 75180.
- The abundance of *Culex quinquefasciatus* has markedly increased.
- No human WNV cases have been reported to date for 2017.
- In 2017, one travel-associated confirmed human Zika case has been identified in Dallas County. An additional 10 pregnant women with laboratory criteria for possible Zika infection have been reported to CDC for US Zika Pregnancy Registry surveillance.
- *Aedes albopictus* and *Aedes aegypti* are currently circulating in the area.

Table 1. Mosquito Laboratory and Human Case Surveillance Data for WNV, Dallas County

Week Ending	4/8	4/15	4/22	4/29	5/6	5/13	5/20	YTD
MMWR Week	14	15	16	17	18	19*	20*	
Total Traps Placed in Dallas County ^a	112	140	139	142	235	240	224	1,499
Number of Positive Mosquito Traps (PHL; IL) ^c	0; 0	5; 0	1; 0	0; 1	2; 0	2; 0	1; 1	11; 2
Number of Pools Tested (PHL; IL) ^{b,c}	84; 24	113; 28	128; 23	125; 36	197; 43	240; 44	188; 37	1,225; 235
Number of Trap Results Currently Pending	0	0	0	0	0	0	20	
Average Number of <i>Cx. quinquefasciatus</i> per Trap ^d	25.5	54.7	41.7	79.7	84.9	127.9	77.9	65.1
Total Number of <i>Cx. quinquefasciatus</i> Trapped and Tested	2,487	4,789	5,036	6,133	10,337	13,989	9,321	53,933
Number of Positive Mosquito Pools (PHL; IL) ^c	0; 0	5; 0	1; 0	0; 1	2; 0	2; 0	1; 1	11; 2
WNV Infection Rate per 1,000 <i>Cx. quinquefasciatus</i> ^e	0	1.06	0.20	0.16	0.19	0.14	0.22	
Weekly Vector Index (VI) ^f	0	0.06	0.01	0.01	0.02	0.02	0.02	
Presumptive WNV Viremic Blood Donors	0	0	0	0	0	0	0	0
WNV Human Cases (WNND; WNF) ^g	0; 0	0; 0	0; 0	0; 0	0; 0	0; 0	0; 0	0; 0

Table 2. Mosquito Laboratory and Human Case Surveillance Data for Chikungunya, Dengue and Zika Virus, Dallas County

Week Ending	4/8	4/15	4/22	4/29	5/6	5/13	5/20	YTD
MMWR Week	14	15	16	17	18	19*	20*	
Total Biogents Sentinel-Traps Placed in Dallas County ^h	4	4	4	4	19	20	15	72
Average Number of <i>Aedes</i> per Trap ⁱ	4.5	4.0	0	1.0	3.4	14.3	11.7	8.0
Chikungunya Human Cases (Confirmed & Probable) ^j	0	0	0	0	0	0	0	0
Dengue Human Cases (Confirmed & Probable) ^k	0	0	0	0	0	0	0	1
Zika Human Cases (Confirmed & Probable) ^l	0	0	0	0	0	0	0	1
Pregnant Women with Possible Zika Infection ^m	0	0	1	0	0	0	0	10

*Data for most recent 2 weeks are preliminary, and reflect results reported as of May 19, 2017.

- All traps deployed in municipalities submitting data to DCHHS since January 1st, 2017. Includes traps without mosquitoes, malfunctioning traps and traps with pending results
- Excludes traps without female *Culex quinquefasciatus* identified. Maximum of 50 female *Culex quinquefasciatus* per pool; more than 1 pool may be tested per trap
- PHL = Public health laboratory (DSHS, DCHHS) testing performed by viral culture or CDC RT-PCR protocol; IL = Testing from independent labs by alternate methods
- Average abundance of female *Culex quinquefasciatus* mosquitoes per trap night/week (excludes non-working traps)
- WNV Infection rates calculated using a Maximum Likelihood Estimation (MLE). *Biggerstaff BJ. PooledInfRate, version 4.0; Microsoft Excel Add-In; CDC 2007*
- The Vector Index (VI) reflects the MLE adjusted for *Culex quinquefasciatus* abundance. $VI = \sum_{i=1}^{species} N_i \bar{P}_i$, where N is the average number of *Culex quinquefasciatus* mosquitoes collected per trap night and \bar{P} is the estimated infection rate
- Human cases by week of report to health department. WNND = West Nile Neuroinvasive Disease; WNF = West Nile Fever
- All Biogents (BG) Sentinel traps deployed in municipalities submitting data to DCHHS since Week 13.
- Average abundance of *Aedes albopictus* and *Aedes aegypti* mosquitoes per night/trap in BG-Traps (excludes non-working traps)
- Human CHKV cases by week of report to health department (AT : Autochthonous case; I : imported)
- Human Dengue cases by week of report to the health department
- Confirmed and probable human Zika cases by week of specimen collection date
- Possible Zika Virus Infection Among Pregnant Women — United States and Territories, May 2016, <http://www.cdc.gov/mmwr/volumes/65/wr/mm6520e1.htm/>

Table 3. WNV Positive Gravid Mosquito Traps and Human WNV Cases by City, Dallas County, 2017

Week Ending			4/8	4/15	4/22	4/29	5/6	5/13	5/20	YTD
MMWR Week			14	15	16	17	18	19*	20*	
	# Human WNV Cases	Range Total # of Traps/Week ¹	# WNV+ Traps	# WNV+ Traps	# WNV+ Traps	# WNV+ Traps	# WNV+ Traps	# WNV+ Traps	# WNV+ Traps	
Addison	0	2	0	0	0	0	0	0	0	0
Balch Springs	0	1 - 3	0	2	0	0	0	0	0	2
Carrollton	0	7	0	0	0	0	0	0	0	0
Cedar Hill	0	1 - 5	0	0	0	0	0	0	0	0
Cockrell Hill	0	1	0	0	0	0	0	0	0	0
Coppell	0	6	0	0	0	0	1	0	0	1
Dallas	0	2 - 68	0	0	0	0	0	0	0	0
DeSoto	0	2 - 6	0	0	0	0	0	0	0	0
Duncanville	0	1 - 5	0	0	0	0	0	0	0	0
Farmers Branch	0	3 - 4	0	0	0	0	0	0	0	0
Garland	0	3 - 27	0	0	0	0	0	1	0	1
Glenn Heights	0	1 - 2	0	0	0	0	0	0	0	0
Grand Prairie	0	24 - 32	0	0	0	1	0	0	1	2
Highland Park	0	1 - 6	0	0	0	0	0	0	0	0
Hutchins	0	1	0	0	0	0	0	0	0	0
Irving	0	7 - 14	0	0	0	0	0	0	0	0
Lancaster	0	1 - 4	0	0	0	0	0	0	0	0
Mesquite	0	10 - 22	0	3	1	0	0	0	1	5
Richardson	0	12	0	0	0	0	0	0	0	0
Rowlett	0	2 - 6	0	0	0	0	0	0	0	0
Sachse	0	1 - 3	0	0	0	0	0	0	0	0
Seagoville	0	1 - 2	0	0	0	0	0	0	0	0
Sunnyvale	0	1 - 2	0	0	0	0	0	0	0	0
Unincorporated County	0	1 - 2	0	0	0	0	1	1	0	2
University Park	0	3 - 4	0	0	0	0	0	0	0	0
Wilmer	0	1	0	0	0	0	0	0	0	0
Total	0		0	5	1	1	2	2	2	13

*Data for most recent 2 weeks are preliminary, and reflect results reported as of May 19, 2017. ¹Range of numbers of traps placed weekly, in weeks 1 - 20.

Figure 1: All WNV Negative and Positive Mosquito Traps Collected During 2017: Weeks 1-20 (N=1,499)

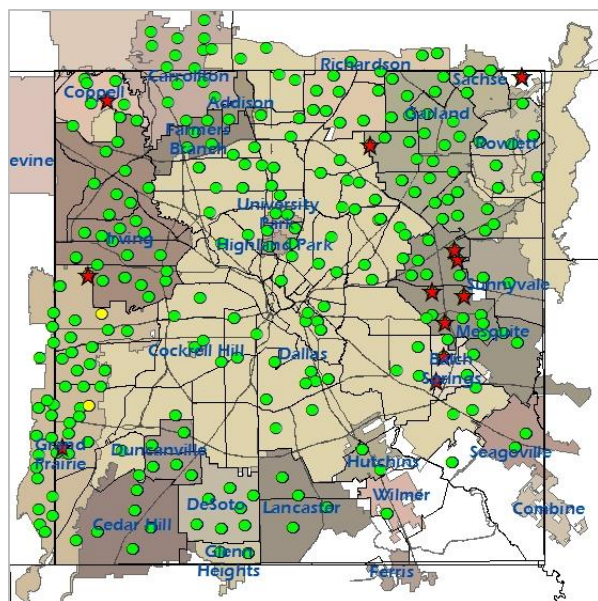
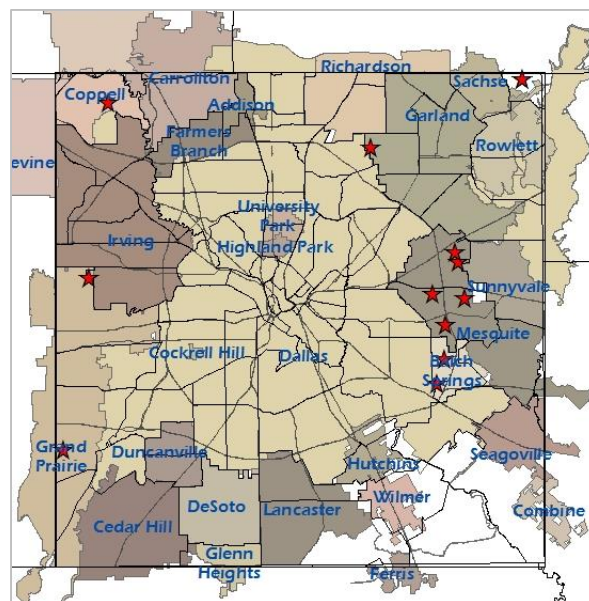


Figure 2: Cumulative WNV Positive Mosquito Traps Collected: Weeks 1-20 (N=13)



★ Positive Traps

● Negative Traps

● Pending Traps

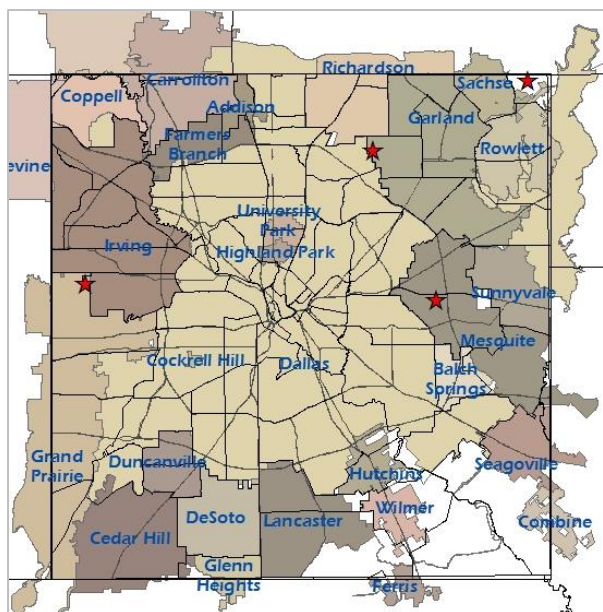
*Data for most recent 2 weeks are preliminary

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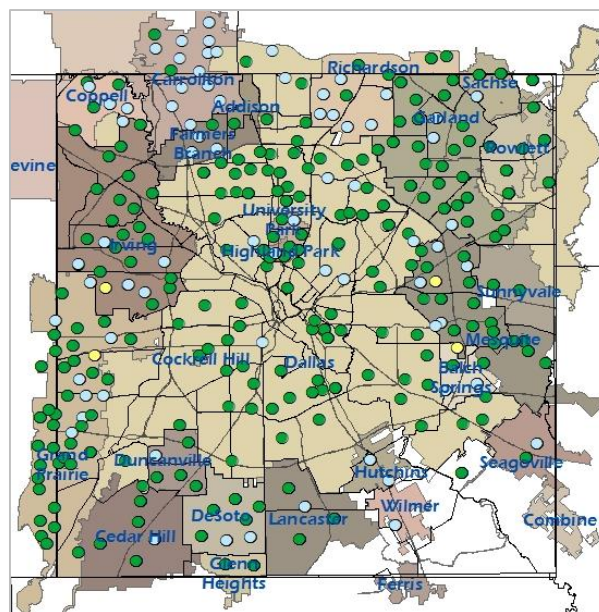
WEB

Figure 3: WNV Positive Mosquito Traps Collected During 2017: Weeks 19 and 20* (N=4)



★ Positive Traps

Figure 4: Trap Counts of Female *Cx. quinquefasciatus* from 2017 Season: Weeks 1-20*

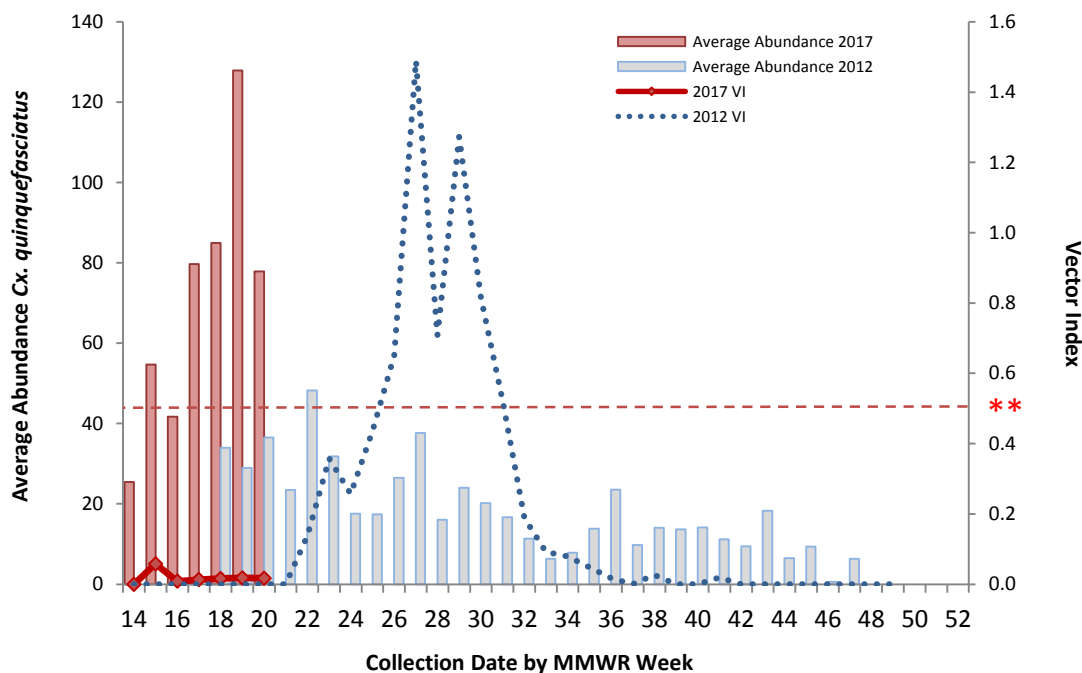


● < 100 Mosquitoes/Trap ○ 100 - 499 Mosquitoes/Trap
● 500 - 1000 Mosquitoes/Trap ● >1000 Mosquitoes/Trap

*Figure 4 only shows traps for which results were available; malfunctioning traps were excluded. Almost all traps are at fixed sites.

Note: Most recent 1-2 weeks data are preliminary and subject to change following receipt of data still pending.

Figure 4: Average Numbers of Female *Cx. quinquefasciatus* per Trap-night and WNV Vector Index by Week: 2012 Season and 2017 Season (through Week 20*)



** Vector Index of 0.50 is the historical threshold associated with larger local epidemics of WNV illnesses in humans.

Note: Most recent 1-2 weeks data are preliminary and subject to change following receipt of data still pending.

*Data for most recent 2 weeks are preliminary

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Figure 5: WNV Vector Index by Week: 2012 - 2017 Seasons

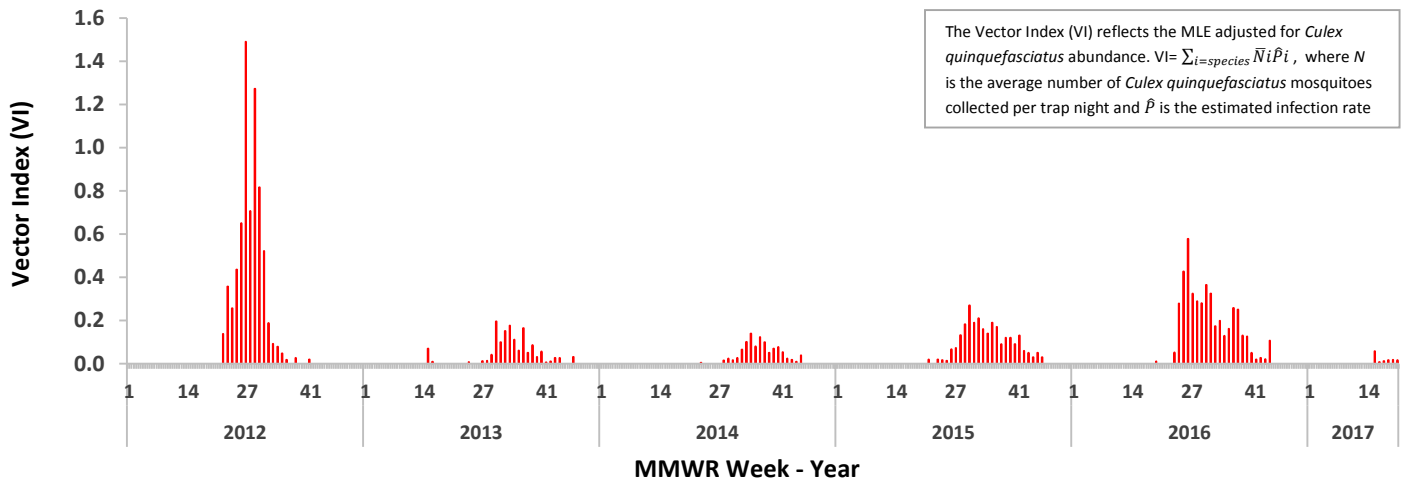


Figure 6: Average Numbers of Female *Cx. quinquefasciatus* per Trap-night by Week: 2012 - 2017 Seasons

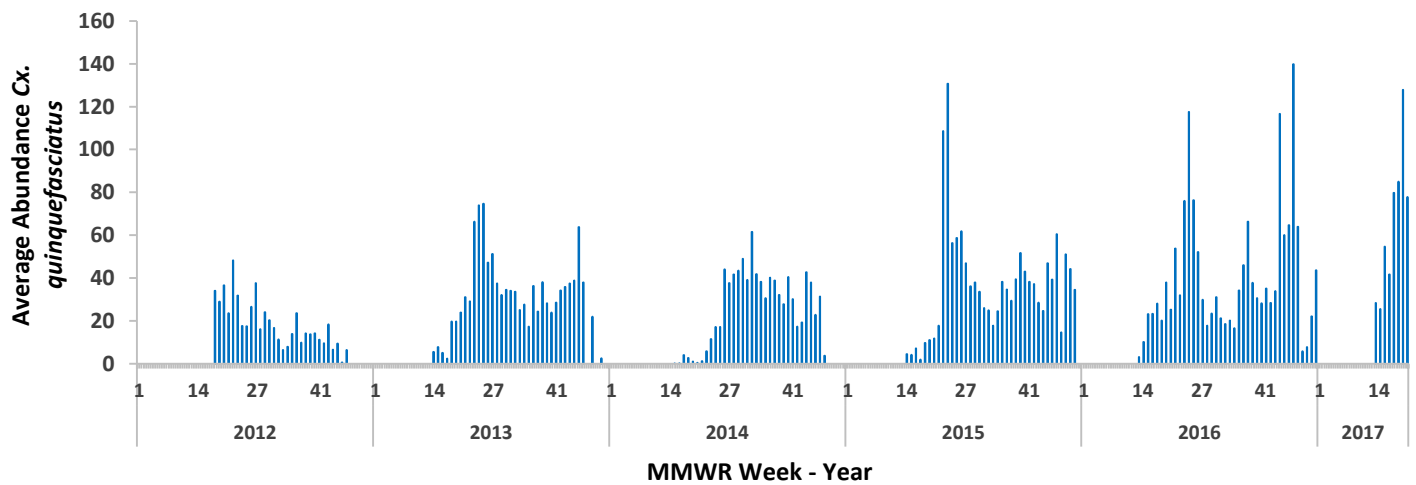
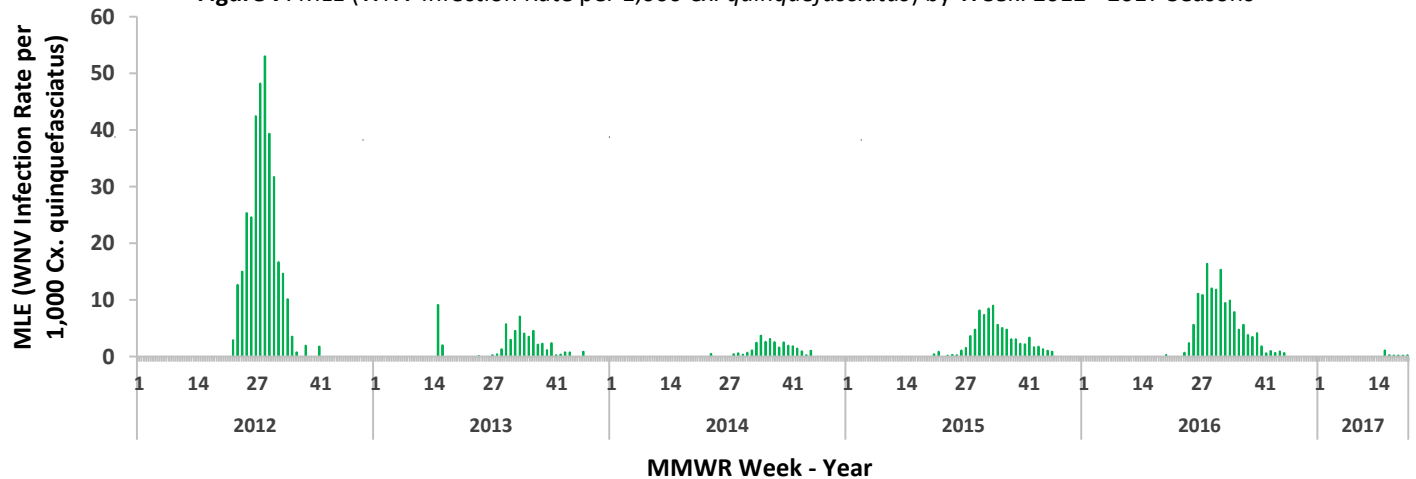


Figure 7: MLE (WNV Infection Rate per 1,000 *Cx. quinquefasciatus*) by Week: 2012 - 2017 Seasons



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Figure 11: BG-Sentinel Trap Counts of Female *Aedes aegypti* and *Aedes albopictus* During 2017: Weeks 13 through 20

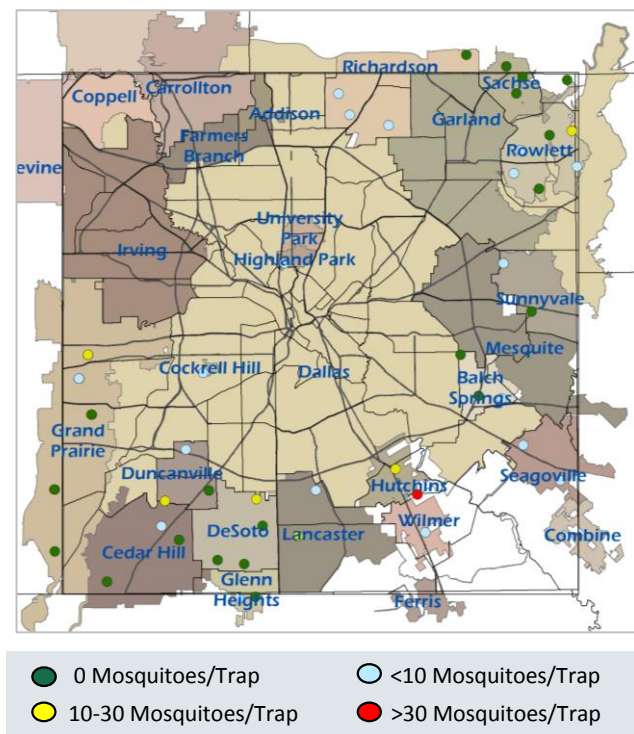


Figure 12: Average Numbers of *Aedes aegypti* per Trap-night: 2016 and 2017 Seasons*

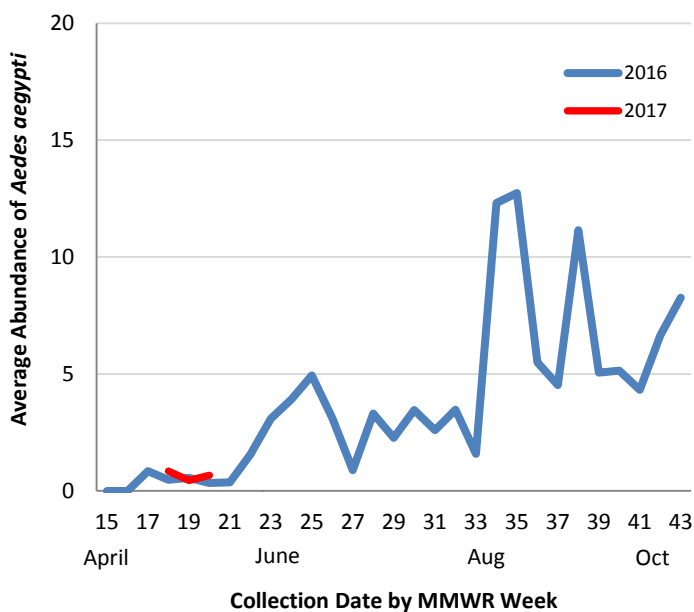
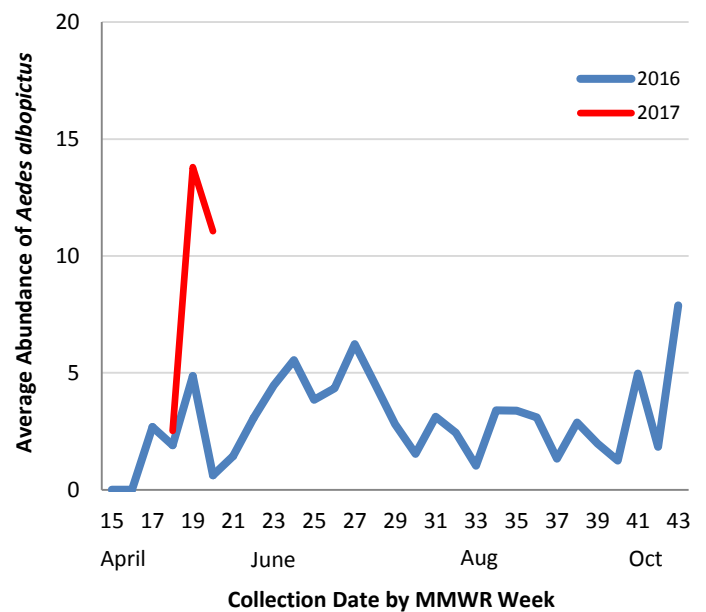


Figure 13: Average Numbers of *Aedes albopictus* per Trap-night: 2016 and 2017 Seasons*



*Routine *Aedes* BG-Sentinel trapping was conducted during week 15 - 43 in 2016

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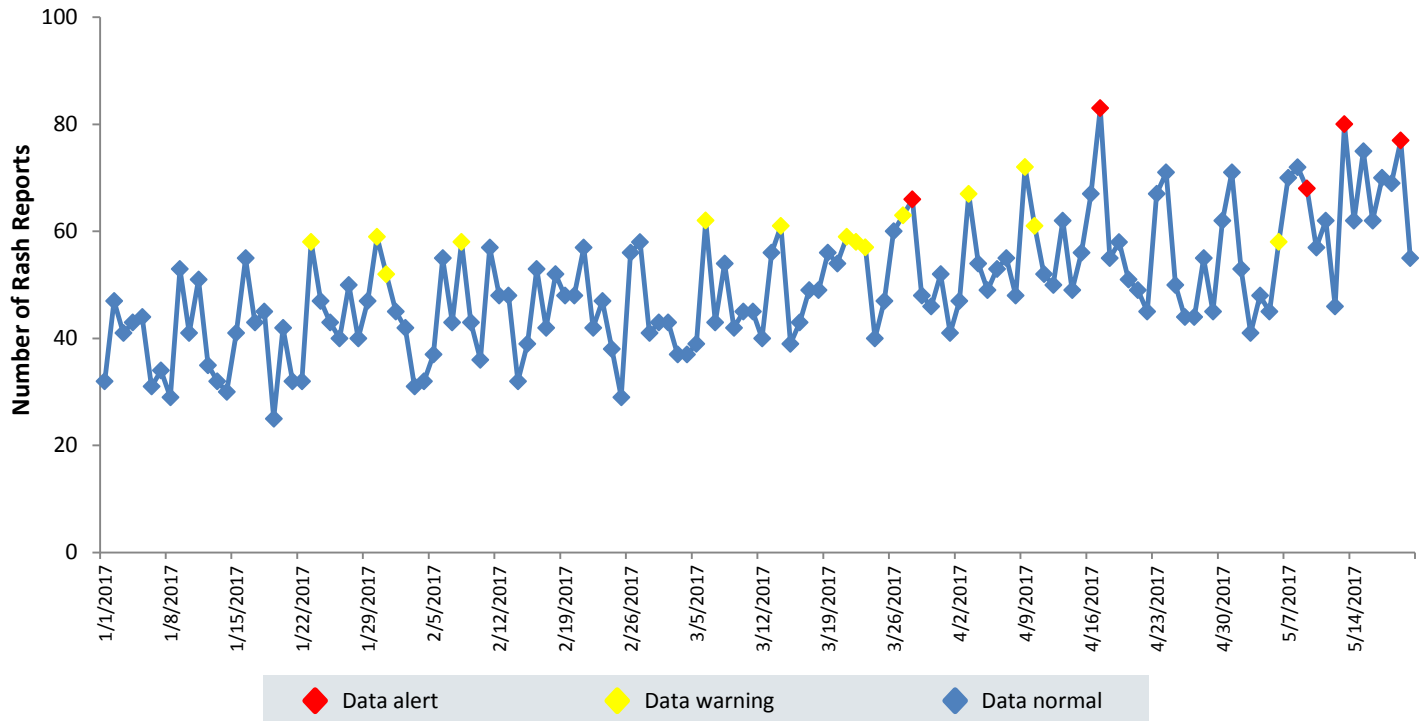
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Figure 14: Syndromic Surveillance of Emergency Department Visits for Chief Complaints of Rash, Dallas County:
January 1, 2017 – May 20, 2017



Data source: 18 emergency departments in Dallas County hospitals participating in the Electronic Surveillance System for the Early Notification Of Community-based Epidemics (ESSENCE) voluntarily reporting the numbers of persons presenting with self-reported chief complaints of rash.

Acknowledgements:

We are grateful for the partnership of the following contributors to our county-wide Arboviral Surveillance Report:

Mosquito Trapping and Data from Environmental Health Services Divisions of the Following Cities:

Addison	Highland Park
Balch Springs	Hutchins
Carrollton	Irving
Cedar Hill	Lancaster
Cockrell Hill	Mesquite
Coppell	Richardson
Dallas	Rowlett
DeSoto	Sachse
Duncanville	Seagoville
Farmers Branch	Sunnyvale
Garland	University Park
Glenn Heights	Wilmer
Grand Prairie	

Mosquito Trapping and Data From:

DCHHS Environmental Health Services: Vector Control Division
Municipal Mosquito
Vector Disease Control International

Mosquito Speciation and Laboratory Testing:

DCHHS Environmental Health Services: Mosquito Lab
DCHHS LRN Laboratory
DSHS Laboratory Services, Arbovirus-Entomology Team
Municipal Mosquito

Human Case Reports and Investigations:

Area Acute Care Hospitals and Healthcare Providers
Dallas County Medical Examiner's Office
City of Dallas Vital Statistics Unit
Carter Blood Care
American Red Cross
DCHHS Acute Communicable Disease Epidemiology Division
Zika Pregnancy Registry Team
Arboviral Case Investigation and Clinical Inquiries Team

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