Dallas County Health and Human Services
Arbovirus Surveillance Report

Week 44 ending November 04, 2017

- In week 43, six mosquito traps tested positive for WNV. In week 44 to date, zero mosquito traps have tested positive for WNV.
- To date, 26 human WNV cases were reported in 2017; including two patients who died.
- In 2017, two travel-associated confirmed human Zika cases have been identified in Dallas County. An additional 14 pregnant women with laboratory criteria for possible Zika infection have been reported to CDC for inclusion in the US Zika Pregnancy Registry.
- *Aedes albopictus* and *Aedes aegypti* continue to circulate in the area.

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

Week Ending	9/23	9/30	10/07	10/14	10/21	10/28	11/04	YTD
MMWR Week	38	39	40	41	42	43*	44*	
Total Traps Placed in Dallas County [a]	267	249	228	227	126	196	58	7,046
Number of Positive Mosquito Traps (PHL; IL) [c]	4; 0	4; 0	8; 0	6; 0	3; 0	6; 0	0; 0	355; 27
Number of Pools Tested (PHL; IL) [b,c]	224; 31	195; 34	181; 34	173; 24	82; 24	149; 34	55; 0	6,026; 1,030
Number of Trap Results Currently Pending	2	0	0	0	2	0	0	
Average Number of *Cx. quinquefasciatus* per Trap [d]	22.4	26.2	28.4	14.0	17.5	28.8	20.2	44.2
Total Number of *Cx. quinquefasciatus* Trapped and Tested	5,284	5,253	4,826	2,978	1,935	4,386	1,417	196,930
Number of Positive Mosquito Pools (PHL; IL) [c]	4; 0	4; 0	10; 0	6; 0	3; 0	6; 0	0; 0	358; 28
WNV Infection Rate per 1,000 *Cx. quinquefasciatus* [e]	0.76	0.77	2.16	2.08	1.58	1.39	0.00	
Weekly Vector Index (VI) [f]	0.02	0.02	0.06	0.03	0.03	0.04	0.00	
Presumptive WNV Viremic Blood Donors	0	0	0	0	0	0	0	0
WNV Human Cases (WNND; WNF) [g]	1; 1	1; 0	1; 0	1; 0	0; 0	0; 0	0; 0	15; 11

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

Week Ending	9/23	9/30	10/07	10/14	10/21	10/28	11/04	YTD
MMWR Week	38	39	40	41	42	43*	44*	
Total Biogents Sentinel-Traps Placed in Dallas County [h]	36	35	35	32	24	23	0	872
Average Number of *Aedes per* Trap [i]	10.4	4.2	6.6	33.2	22.6	10.5	0	16.7
Chikungunya Human Cases (Confirmed & Probable) [j]	0	0	0	0	0	0	0	1
Dengue Human Cases (Confirmed & Probable) [k]	0	0	0	0	0	0	0	5
Zika Human Cases (Confirmed & Probable) [l]	0	0	0	0	0	0	0	2
Pregnant Women with Possible Zika Infection [m]	0	0	0	0	0	1	0	14

***Data for most recent 2 weeks are preliminary, and reflect results reported as of 12:30 p.m. November 6, 2017.**

a. All traps deployed in municipalities submitting data to DCHHS since January 1st, 2017. Includes traps without mosquitoes, malfunctioning traps and traps with pending results
b. Excludes traps without female *Culex quinquefasciatus* identified. Maximum of 50 female *Culex quinquefasciatus* per pool; more than 1 pool may be tested per trap
c. PHL = Public health laboratory (DSHS, DCHHS) testing performed by viral culture or CDC RT-PCR protocol; IL = Testing from independent labs by alternate methods
d. Average abundance of female *Culex quinquefasciatus* mosquitoes per trap night/week (excludes non-working traps)
e. WNV Infection rates calculated using a Maximum Likelihood Estimation (MLE). *Biggerstaff BJ. PooledInfRate, version 4.0; Microsoft Excel Add-In; CDC 2007*
f. The Vector Index (VI) reflects the MLE adjusted for *Culex quinquefasciatus* abundance. VI= $\sum_{i=species} \bar{N}i\hat{P}i$, where *N* is the average number of *Culex quinquefasciatus* mosquitoes collected per trap night and $\hat{P}$ is the estimated infection rate
g. Human cases by week of report to health department. WNND = West Nile Neuroinvasive Disease; WNF = West Nile Fever
h. All Biogents (BG) Sentinel traps deployed in municipalities submitting data to DCHHS since Week 13.
i. Average abundance of *Aedes albopictus* and *Aedes aegypti* mosquitoes per night/trap in BG-Traps (excludes non-working traps)
j. Human CHKV cases by week of report to health department (AT : Autochthonous case; I : imported)
k. Human Dengue cases by week of report to the health department
l. Confirmed and probable human Zika cases by week of specimen collection date
m. 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			9/23	9/30	10/07	10/14	10/21	10/28	11/04	YTD
MMWR Week			38	39	40	41	42	43*	44*	
	# Human 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	7
Balch Springs	0	1 – 4	0	0	0	0	0	0	0	3
Carrollton	0	7 – 8	0	0	0	0	0	0	0	30
Cedar Hill	0	1 – 5	0	0	0	0	0	0	0	1
Cockrell Hill	0	1 – 2	0	0	0	0	0	0	0	0
Coppell	1	6	1	0	0	0	0	0	0	30
Dallas	16	2 – 90	0	1	3	3	0	1	0	106
DeSoto	0	2 – 6	0	2	0	0	2	0	0	7
Duncanville	0	1 – 6	0	0	0	1	0	0	0	7
Farmers Branch	0	4	0	0	0	0	0	0	0	7
Garland	2	3 – 27	1	0	0	0	0	0	0	36
Glenn Heights	0	1 – 7	0	0	0	0	0	0	0	2
Grand Prairie	0	24 – 33	0	0	0	0	0	0	0	21
Highland Park	1	1 – 10	0	0	1	0	0	0	0	9
Hutchins	0	1 – 2	0	0	0	0	0	0	0	1
Irving	4	7 – 15	0	0	0	1	0	0	0	40
Lancaster	0	1 – 4	0	0	0	0	1	0	0	1
Mesquite	0	10 – 23	0	0	1	0	0	3	0	17
Richardson	2	12 – 13	0	0	1	0	0	1	0	28
Rowlett	0	2 – 7	1	0	1	0	0	1	0	15
Sachse	0	1 – 4	0	0	1	1	0	0	0	6
Seagoville	0	1 – 3	0	0	0	0	0	0	0	1
Sunnyvale	0	1 – 2	0	0	0	0	0	0	0	0
Unincorporated County	0	1 – 2	0	0	0	0	0	0	0	3
University Park	0	3 – 7	1	1	0	0	0	0	0	4
Wilmer	0	1 – 2	0	0	0	0	0	0	0	0
Total	26		4	4	8	6	3	6	0	382

*Data for most recent 2 weeks are preliminary, and reflect results reported as of 12:30 p.m. November 6, 2017. [1]Range of numbers of traps placed weekly, in weeks 1 - 44.

Figure 1: All WNV Negative and Positive Mosquito Traps Collected During 2017: Weeks 1-44 (N=7,046)

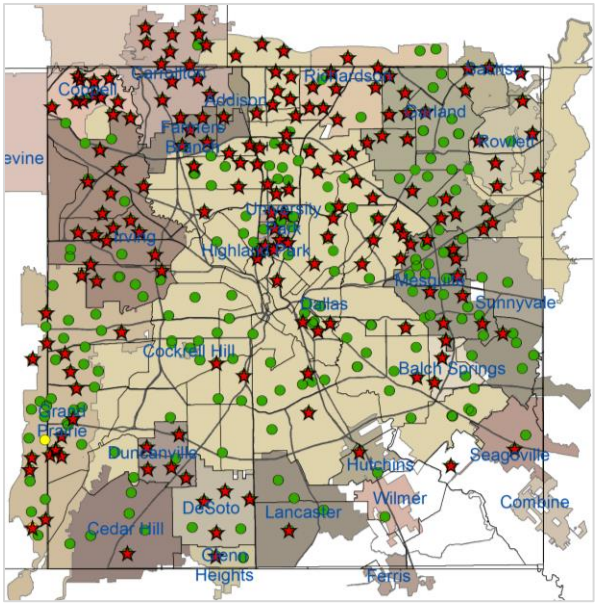
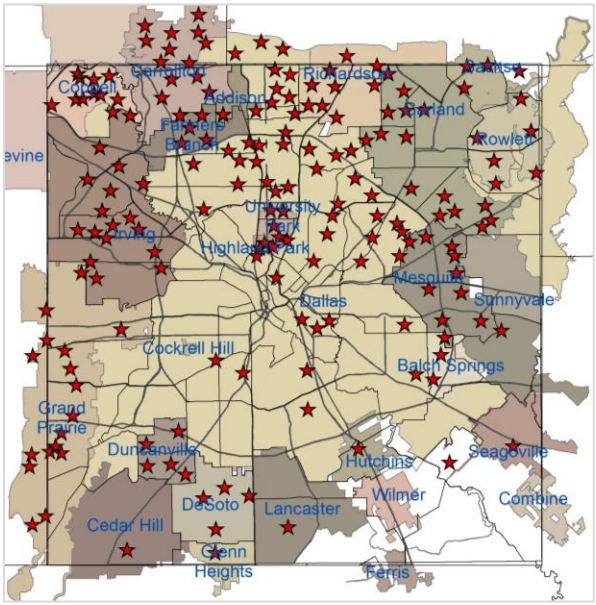


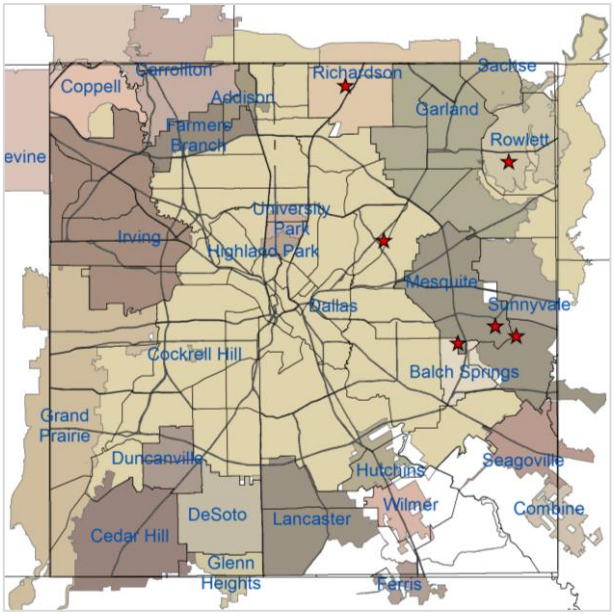
Figure 2: Cumulative WNV Positive Mosquito Traps Collected: Weeks 1-44 (N=382)



Positive Traps Negative Traps Pending Traps

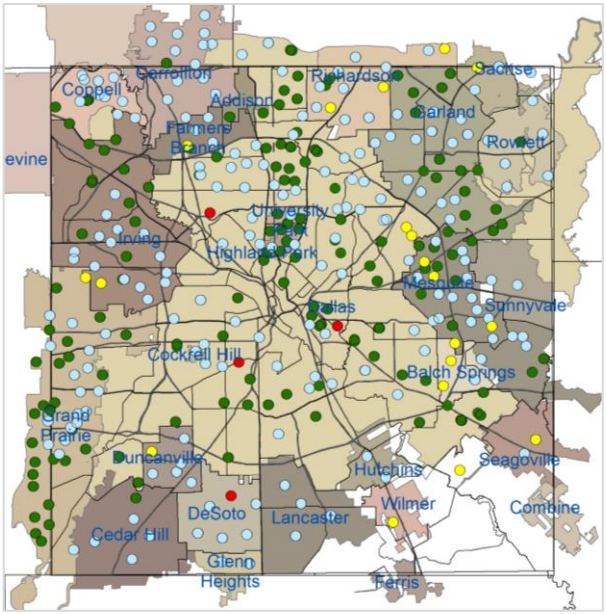
*Data for most recent 2 weeks are preliminary

Figure 3: WNV Positive Mosquito Traps Collected During 2017: Weeks 43 and 44* (N=6)



Positive Traps

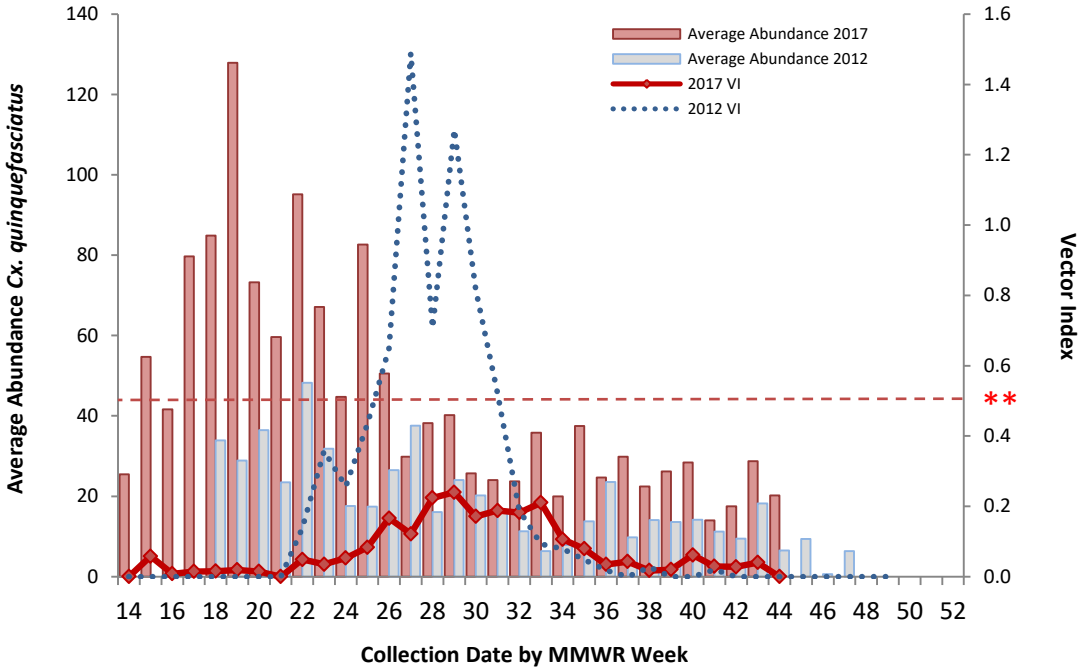
Figure 4: Trap Counts of Female *Cx. quinquefasciatus* from 2017 Season: Weeks 1-44*



< 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 5: Average Numbers of Female *Cx. quinquefasciatus* per Trap-night and WNV Vector Index by Week: 2012 Season and 2017 Season (through Week 44*)



** 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.*

Figure 6: WNV Vector Index by Week: 2012 - 2017 Seasons

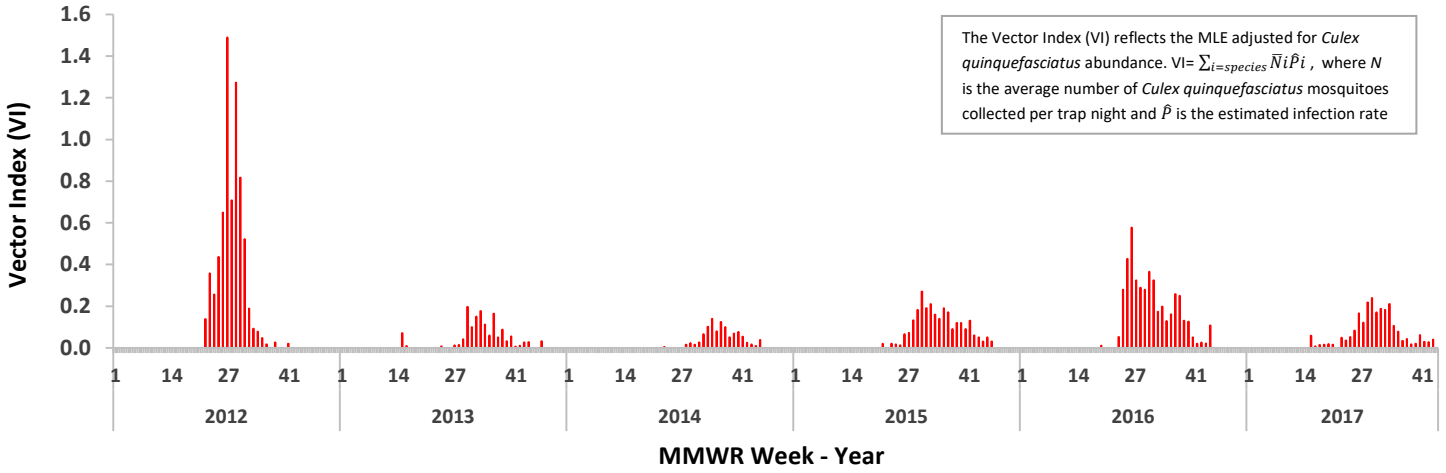


Figure 7: Average Numbers of Female *Cx. quinquefasciatus* per Trap-night by Week: 2012 - 2017 Seasons

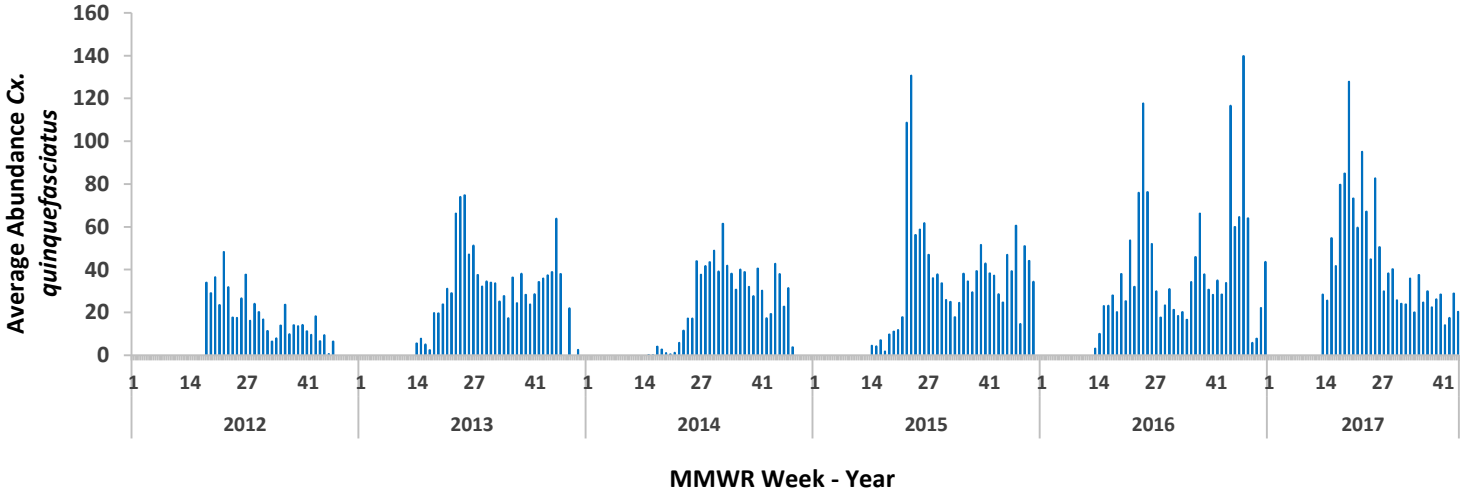


Figure 8: MLE (WNV Infection Rate per 1,000 *Cx. quinquefasciatus*) by Week: 2012 - 2017 Seasons

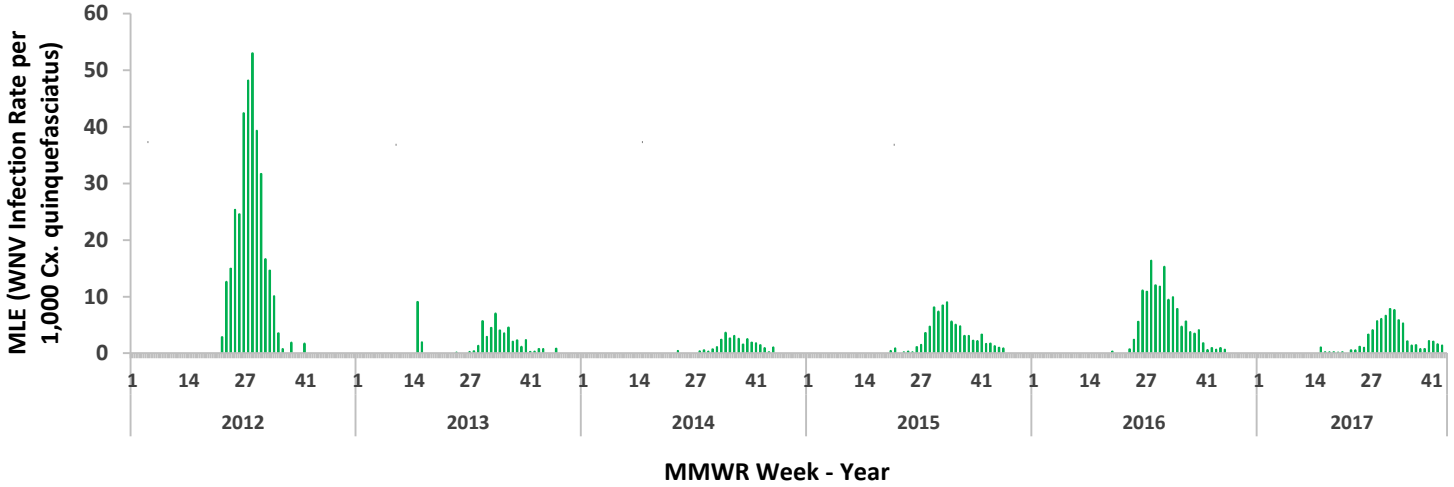


Figure 9: BG-Sentinel Trap Counts of Female *Aedes aegypti* and *Aedes albopictus* During 2017: Weeks 13 through 43[†]

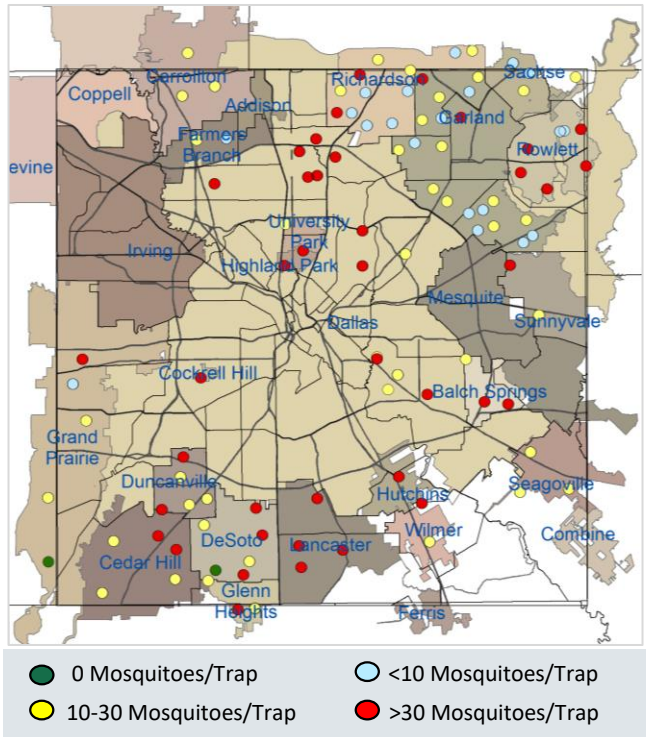


Figure 10: Average Numbers of *Aedes aegypti* per Trap-night: 2016 and 2017 Seasons*,[†]

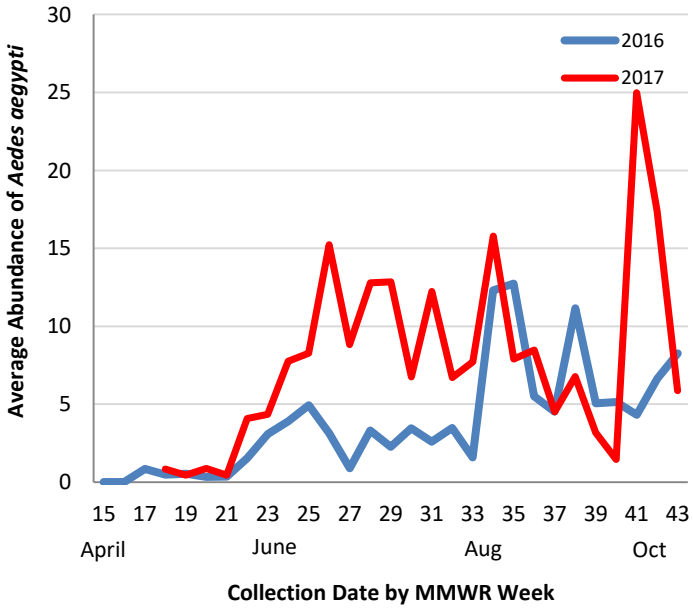
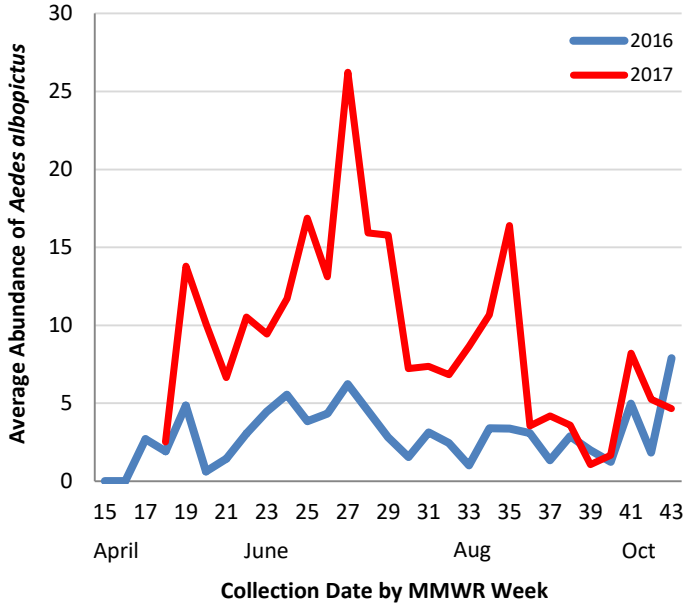


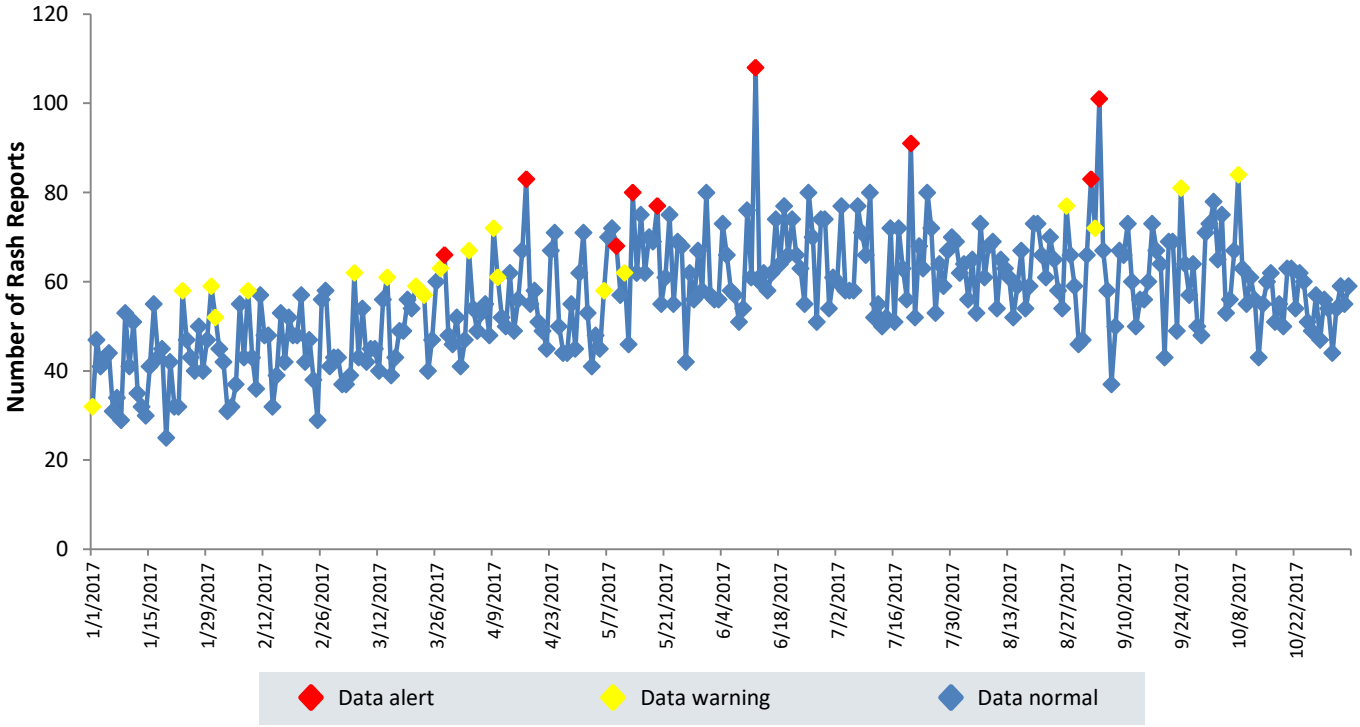
Figure 11: Average Numbers of *Aedes albopictus* per Trap-night: 2016 and 2017 Seasons*,[†]



*Data for most recent 2 weeks are preliminary

[†]Routine *Aedes* BG-Sentinel trapping was conducted during week 15 - 43 in 2016 and 2017

Figure 12: Syndromic Surveillance of Emergency Department Visits for Chief Complaints of Rash, Dallas County: January 1, 2017 – Nov 04, 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:

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

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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