

Memorandum



DATE August 19, 2016

TO Honorable Members of the Quality of Life & Environment Committee: Sandy Greyson (Chair),
Tiffinni A. Young (Vice Chair), Rickey D. Callahan, Mark Clayton, Philip T. Kingston, B. Adam McGough

SUBJECT **West Nile Virus & Zika Virus Update**

On September 22, 2015, the City of Dallas entered into an interlocal agreement (ILA) with Dallas County for the professional services of the Dallas County Health & Human Services (DCHHS) to act as its health authority. In this role, DCHHS provides the City with essential public health services that include identifying health hazards and developing policies and plans that improve public health.

As the City's health authority, DCHHS has gathered, reported and reviewed the local presence of West Nile Virus (WNV). On July 12, 2016, Dallas County authorized aerial spraying with consent from cities in Dallas County as an option to combat the growing WNV infection rate among mosquitoes.

To date, 97 positive WNV traps have been confirmed in various locations throughout Dallas, exceeding the number of positive traps in prior years. There have been 12 confirmed human cases of WNV in the City of Dallas this season.

Month	# of Positive Traps			
	2013	2014	2015	2016
May	0	0	0	0
June	0	0	0	29
July	4	8	22	41
Aug*	13	12	50	27

**2016 as of 8/18/16*

Recently, aerial spraying has been included as an option to combat the Zika virus based on lessons learned from the State of Florida. DCHHS is reviewing aerial spraying for the Zika virus with Dallas County cities and the aerial spraying contractor.

To date, there have been 15 travel-associated Zika virus cases in the City of Dallas. None of the cases resulted from local mosquito transmission. The City continues to follow the established response protocol and urges travelers to take extra precautions to avoid mosquito exposure when traveling to areas where Zika virus is active and ongoing.

This week, DCHHS provided an update to the Dallas County Commissioners Court on West Nile and Zika. DCHHS briefing materials are attached for your review. On Monday, August 22, 2016, DCHHS and City staff will be available to respond to questions.

Please contact me if you have any questions or need additional information.

Joey Zapata
Assistant City Manager

West Nile Virus & Zika Virus Update
August 19, 2016

Attachment

c: Honorable Mayor and Members of City Council
A.C. Gonzalez, City Manager
Christopher D. Bowers, Interim City Attorney
Craig D. Kinton, City Auditor
Rosa A. Rios, City Secretary
Daniel F. Solis, Administrative Judge
Ryan S. Evans, First Assistant City Manager

Eric D. Campbell, Assistant City Manager
Jill A. Jordan, P.E., Assistant City Manager
Mark McDaniel, Assistant City Manager
Jeanne Chipperfield, Chief Financial Officer
Sana Syed, Public Information Officer
Elsa Cantu, Assistant to the City Manager – Mayor & Council

DCHHS Update

West Nile and Zika

August 16, 2016

Zachary Thompson

Director

Dallas County Health and Human Services

Dr. Christopher Perkins

Medical Director/Health Authority

Dallas County Health and Human Services

Tammara Scroggins

Asst. Director, Public Health & Communicable Disease

Dallas County Health and Human Services



DCHHS
Safe families, healthy lives.

Dallas County Health and Human Services

Dallas County Confirmed Cases

Country	# Confirmed Cases
Belize	1
Colombia	1
Dominican Republic	2
El Salvador	1
Guatemala	3
Honduras	3
Jamaica	4
Mexico	5
Nicaragua	1
Puerto Rico	2
Trinidad	1
Venezuela	2
Virgin Islands	1
Total	27

Dallas County Health and Human Services Arbovirus Surveillance Report



Week 32 ending Aug 13, 2016

- In week 31, 56[†] mosquito traps tested positive for WNV. In week 32 to date, 26 mosquito traps have tested positive for WNV in zip codes: 75038, 75048, 75062, 75063, 75081, 75082, 75089, 75115, 75116, 75134, 75137, 75141, 75149, 75180, 75181, 75218, 75224, 75228, 75244, 75252.
- Nineteen human WNV cases, including 11 patients with neuroinvasive disease have been reported.
- Twenty six travel-associated confirmed cases of Zika infection have been identified in Dallas. An additional 12 pregnant women with laboratory criteria for possible Zika infection have been reported to CDC for US Zika Pregnancy Registry surveillance, 3 of whom had symptoms.^m
- *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	7/2	7/9	7/16	7/23	7/30	8/6	8/13	YTD
MMWR Week	26	27	28	29	30	31*	32*	
Total Traps Placed in Dallas County ^a	255	238	240	249	239	252	239	3,912
Number of Positive Mosquito Traps (PHL; IL) ^c	62; 10	50 [†] ; 5	45; 4	41; 3	52; 3	51 [†] ; 5	26; 0	399; 36
Number of Pools Tested (PHL; IL) ^{b,c}	258; 25	218; 26	192; 31	209; 22	214; 30	182; 24	149; 16	3,498; 402
Number of Trap Results Currently Pending	0	0	0	0	0	32	52	
Average Number of <i>Cx. quinquefasciatus</i> per Trap ^d	52.0	29.9	17.6	23.3	31.0	21.2	18.5	35.9
Total Number of <i>Cx. quinquefasciatus</i> Trapped and Tested	9,312	5,954	3,853	4,617	6,191	4,442	3,331	104,712
Number of Positive Mosquito Pools (PHL; IL) ^c	74; 10	50; 5	47; 4	43; 3	56; 3	53; 5	27; 0	430; 36
WNV Infection Rate per 1,000 <i>Cx. quinquefasciatus</i> ^e	11.09	10.86	16.37	12.01	11.78	16.83	9.52	
Weekly Vector Index (VI) ^f	0.58	0.32	0.29	0.28	0.36	0.36	0.18	
Presumptive WNV Viremic Blood Donors	0	0	0	0	0	0	0	0
WNV Human Cases (WNND; WNF) ^g	0; 0	1; 0	1; 0	1; 6	4; 1	3; 1	1; 0	11; 8

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

Week Ending	7/2	7/9	7/16	7/23	7/30	8/6	8/13	YTD
MMWR Week	26	27	28	29	30	31*	32*	
Total Biogenets Sentinel-Traps Placed in Dallas County ^h	44	27	37	37	39	39	27	551
Average Number of <i>Aedes</i> per Trap ⁱ	7.5	7.1	7.8	5.1	5.0	5.7	6.2	5.8
Chikungunya Human Cases (Confirmed & Probable) ^j	0	0	1	0	0	0	0	2
Dengue Human Cases (Confirmed & Probable) ^k	0	0	0	0	1	1	0	2
Zika Human Cases (Confirmed Only) ^l	1	1	3	3	3	1	4	26
Pregnant Women with Possible Zika Infection ^m	0	1	0	1	0	0	0	12

[†]One mosquito trap containing only *Aedes albopictus* was positive for WNV, and is not included in VI calculations.

^{*}Data for most recent 2 weeks are preliminary, and reflect results reported as of 10:30 a.m. August 15, 2016.

^a All traps deployed in municipalities submitting data to DCHHS since Week 13. 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. PooledInRate, version 4.0; Microsoft Excel Add-in; CDC 2007*

^f The Vector Index (VI) reflects the MLE adjusted for *Culex quinquefasciatus* abundance. $VI = \sum_{i=1}^{n} \frac{N_i}{N} \bar{P}_i$, where N is the average number of *Culex quinquefasciatus*

mosquitoes collected per trap night and \bar{P} is the estimated infection rate

^g Human cases by week of report to health department. WNND = West Nile Neuroinvasive Disease; WNF = West Nile Fever

^h All Biogenets (BG) Sentinel traps deployed in municipalities submitting data to DCHHS since Week 15. Includes traps without mosquitoes, malfunctioning traps

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

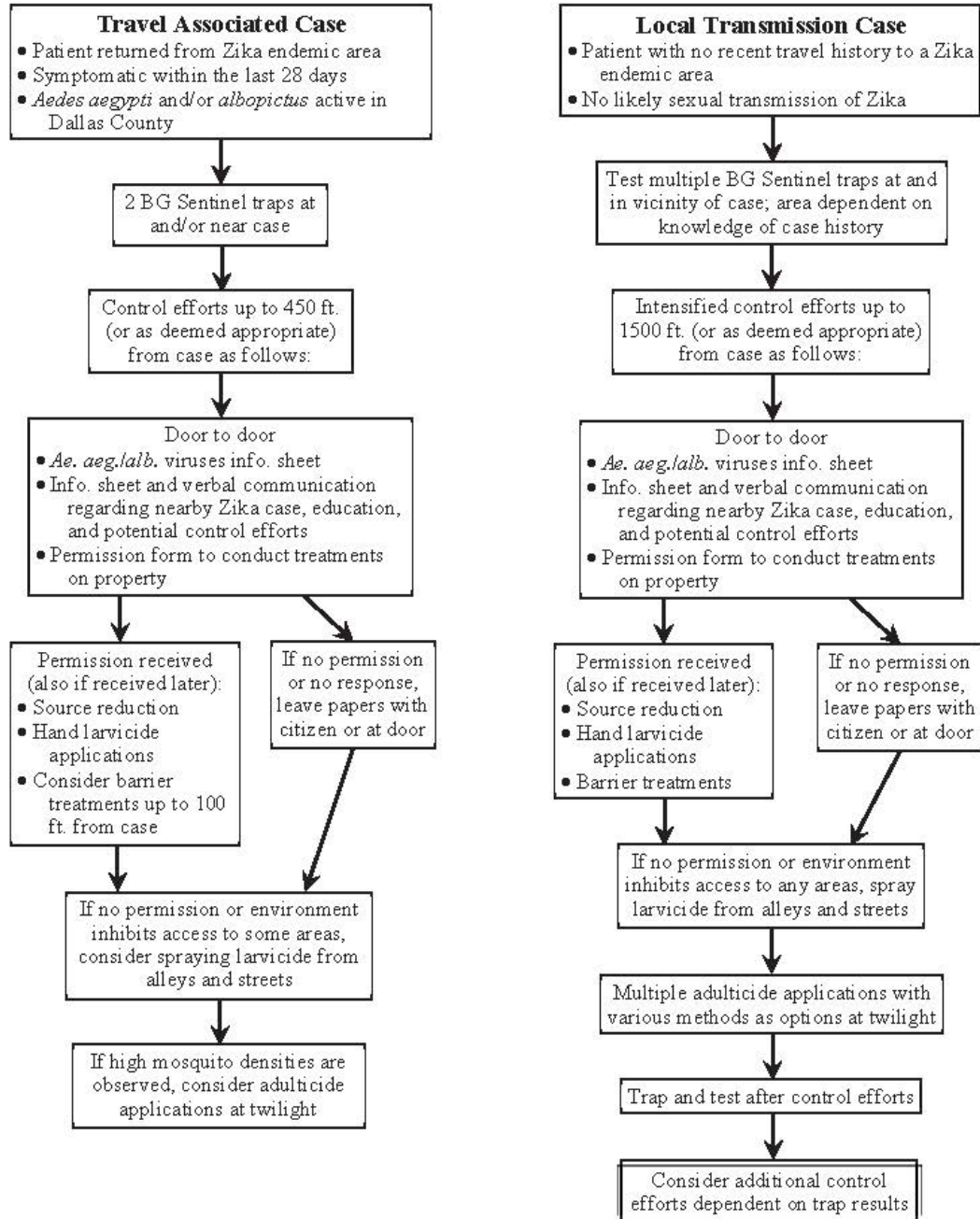
^l Confirmed human Zika cases by week of report to health department (Excludes any pregnant cases)

^m Possible Zika Virus Infection Among Pregnant Women — United States and Territories, May 2016, <http://www.cdc.gov/mmwr/volumes/65/wr/mm6520e1.htm/>

Zika Action Risk Levels

Risk Level 1(A)		
Conditions: Probability of human outbreak is low (Year-round status in the absence of escalating triggers)		Trigger: Normal mosquito activity with no evidence of mosquito-borne viruses
Surveillance	Information/Education	Control Measures
<ul style="list-style-type: none"> • Routine monitoring of cases by DCHHS Epidemiology Division 	<ul style="list-style-type: none"> • Public education and community outreach programs focused on risk potential, personal protection and residential source reduction 	<ul style="list-style-type: none"> • Source Reduction • Biological – mosquito fish • Larvicide
Risk Level 1(B)		
Conditions: Probability of outbreak is moderate		Trigger: Imported / travel human case
Surveillance	Information/Education	Control Measures
<ul style="list-style-type: none"> • Deploy BG Sentinel traps based on vector biology and activity 	<ul style="list-style-type: none"> • Public health advisory released • Advise the public and emphasize source reduction, personal protection and disease symptoms • Notify Police and Fire Departments of scheduled treatments 	<ul style="list-style-type: none"> • Continue as Risk Level 1(A) • Localized treatments considered around case <ul style="list-style-type: none"> - Barrier treatment - Thermal fogger - Backpack/machine larvicide - ULV adulticide
Risk Level 2		
Conditions: Probability of outbreak is high		Trigger: Local vector-borne transmission case and/or virus circulating in mosquitoes
Surveillance	Information/Education	Control Measures
<ul style="list-style-type: none"> • Expand BG Sentinel trapping • Initiate mosquito virus testing 	<ul style="list-style-type: none"> • Public health alert released • Warn the general public of the probability of disease and provide guidance 	<ul style="list-style-type: none"> • Continue as Risk Level 1(B) • Expand area and intensity of treatments • Contact vendor for possible aerial
Risk Level 3		
Conditions: Human outbreak is confirmed		Trigger: Multiple vector-borne cases
Surveillance	Information/Education	Control Measures
<ul style="list-style-type: none"> • Continued mosquito surveillance and testing in areas of confirmed human and/or infected mosquitoes 	<ul style="list-style-type: none"> • Public health emergency considered • Distribution of emergency alerts 	<ul style="list-style-type: none"> • Continue as Risk Level 2 • Recommend targeted aerial adulticide application

Mosquito Control Zika Case Response Flowchart



DCHHS Lessons Learned from Florida Response

- Updated door-to-door outreach plans to address Zika virus local transmission
- Updated neighborhood canvassing training to address Zika virus local transmission and added sections and notes adapted from Florida's training (including conducting a quick property check to look for potential mosquito breeding sites)
- Working on updating the talking points and FAQs to include key points used in the Florida materials (which specifically address local transmission)
- Working on updating the Zika Virus guide and recommendations for local jurisdictions to incorporate the response actions done in Florida (particularly the door-to-door sample collection)
- DCHHS is reviewing aerial spraying for the Zika virus with Dallas County cities and the aerial spraying contractor.
- Discussion with Dallas County cities about their interest in VectoBac WDG wide-area or targeted aerial spray for control of container mosquitoes.
- DCHHS is requesting a new Vector Surveillance Epidemiologist position