

Memorandum



CITY OF DALLAS

DATE November 30, 2012

TO Honorable Mayor and Members of the City Council

SUBJECT Update on 2012 West Nile Virus Outbreak in Dallas County

On Wednesday, December 5, 2012, the Council will be updated on the 2012 West Nile Virus outbreak in Dallas County. Briefing materials are attached for your review.

Please contact me at (214) 670-3009 if you have any questions.

A handwritten signature in blue ink, appearing to read 'Joey Zapata'.

Joey Zapata
Assistant City Manager

cc: Mary K. Suhm, City Manager
Thomas P. Perkins, Jr., City Attorney
Craig D. Kinton, City Auditor
Rosa A. Rios, City Secretary
Daniel Solis, Administrative Judge
A.C. Gonzalez, First Assistant City Manager

Ryan S. Evans, Assistant City Manager
Jill A. Jordan, P.E., Assistant City Manager
Forest E. Turner, Assistant City Manager
Jeanne Chipperfield, Chief Financial Officer
Stephanie Cooper, Assistant to the City Manager



Update on 2012 West Nile Virus (WNV) Outbreak in Dallas County

Briefing to the Dallas City Council
December 5, 2012

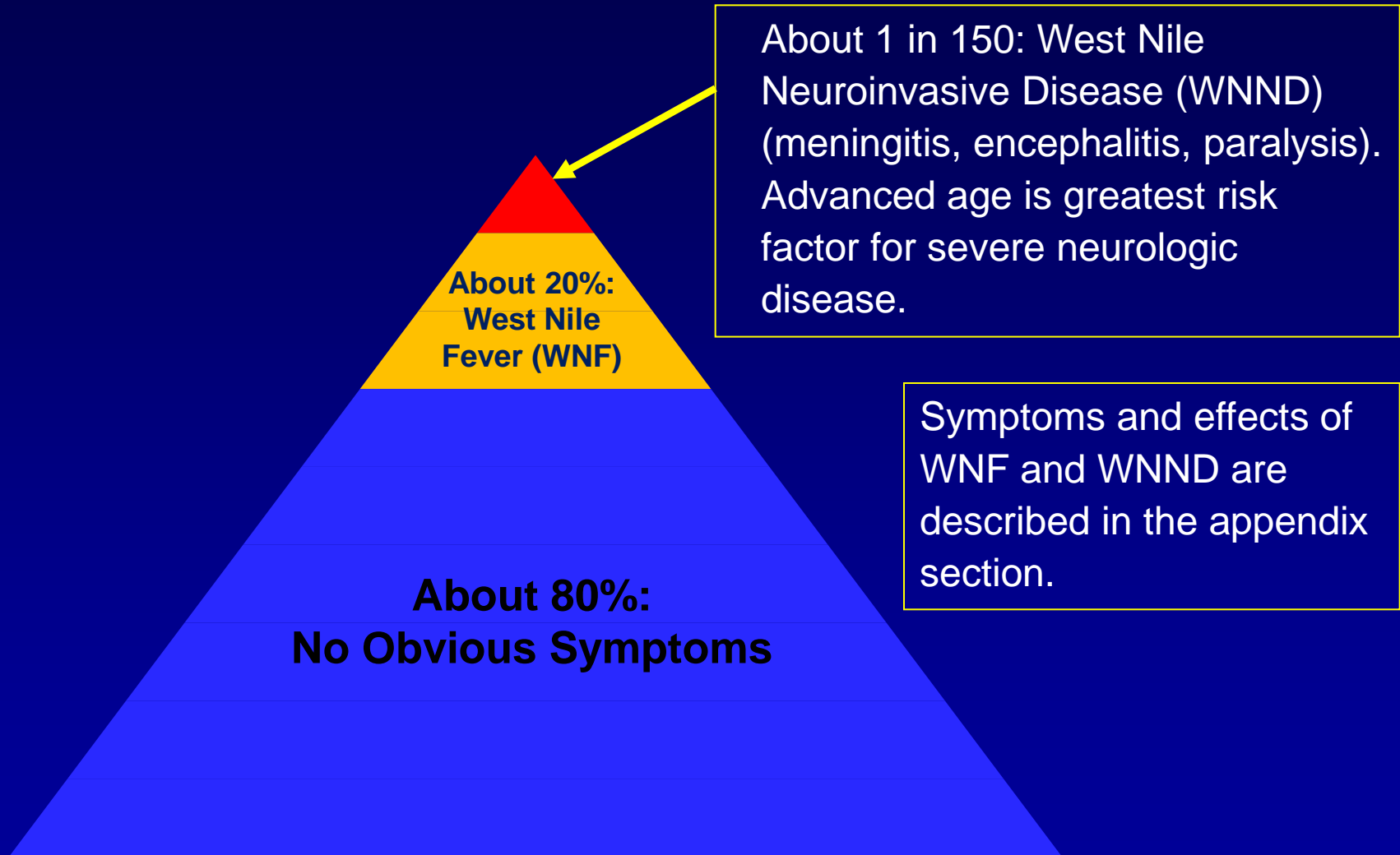
Purpose

- Present most recent results of the 2012 West Nile Virus (WNV) outbreak and County-wide efforts to address it
- Discuss next steps in preparation for the 2013 season

Outline

- WNV Background
- 2012 WNV outbreak and timeline
- Response to the outbreak
- Results
- Ongoing issues

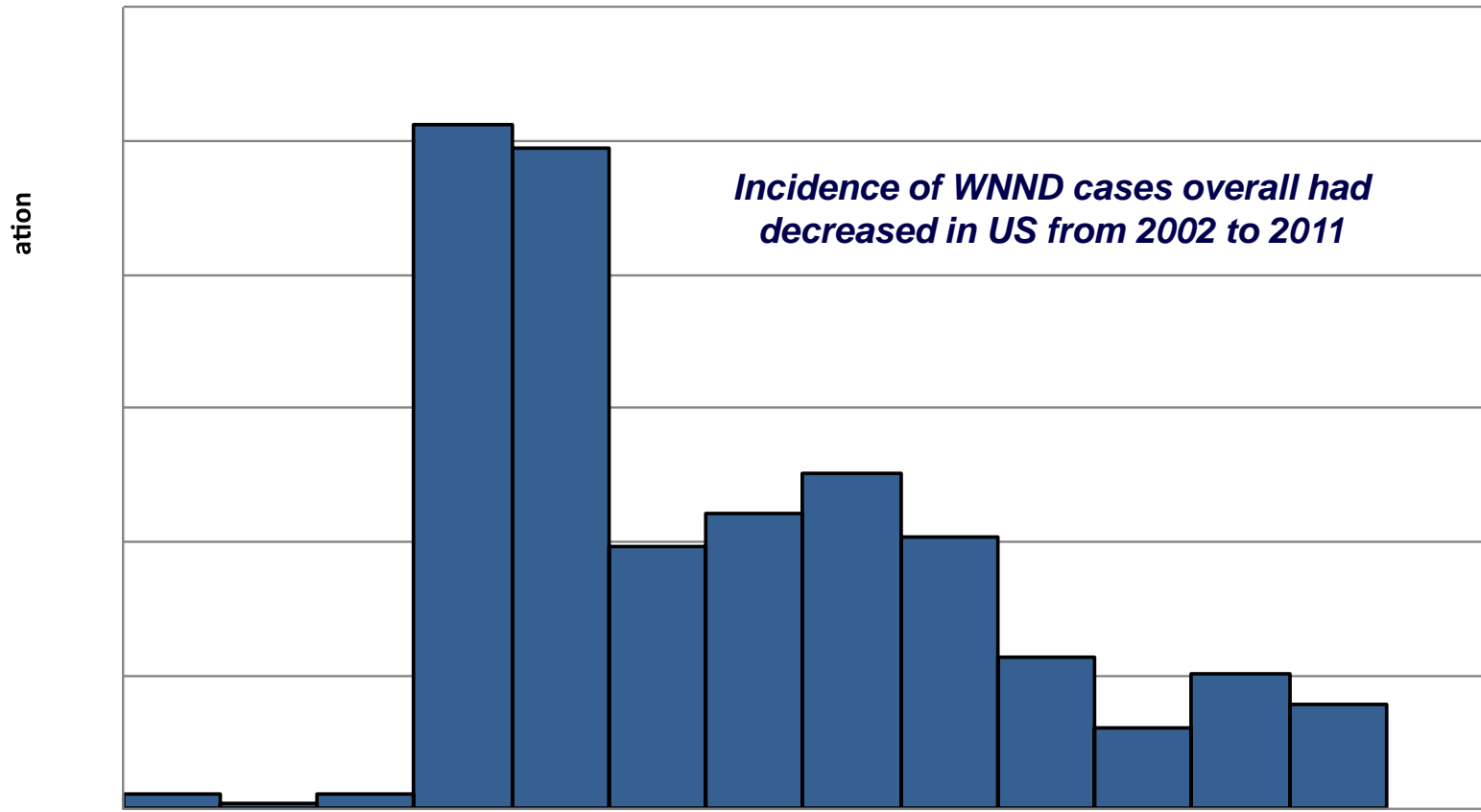
Background: Spectrum of WNV



Public Health Reporting of WNV

- All human WNV illnesses are required to be reported by law
- WNF reporting is highly variable by jurisdiction, depending on the level of interest in reporting and utilization of diagnostic testing
- WNND is more consistently reported because of severity of illness

Background: Annual Incidence WNNND in US



WNV Human Cases, Dallas County, 2002 - 2011

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Total Cases	34	48	18	44	104	23	9	16	0	2
Deaths	3	4	0	1	4	0	0	1	0	0
Male	18 (53%)	26 (54%)	14 (78%)	23 (52%)	59 (57%)	16 (70%)	6 (67%)	9 (56%)	0	2
WNF	12 (35%)	14 (29%)	9 (50%)	20 (45%)	37 (36%)	12 (52%)	1 (11%)	3 (19%)	0	1 (50%)
WNND	22 (65%)	34 (71%)	9 (50%)	24 (55%)	67 (64%)	11(48%)	8(89%)	13 (81%)	0	1 (50%)

Dallas Copes With Unpredictability of West Nile Virus

West Nile Outbreak This Year Likely To Be Second-Worst On Record: CDC



REUTERS

Medscape Infectious Diseases
NEWS

Texas Wages Air War Against West Nile Virus

The
New York
Times

West Nile Hits Hard Around Dallas, With Fear of Its Spread

Texas seeks to learn lessons from West Nile virus "disaster"

abc NEWS

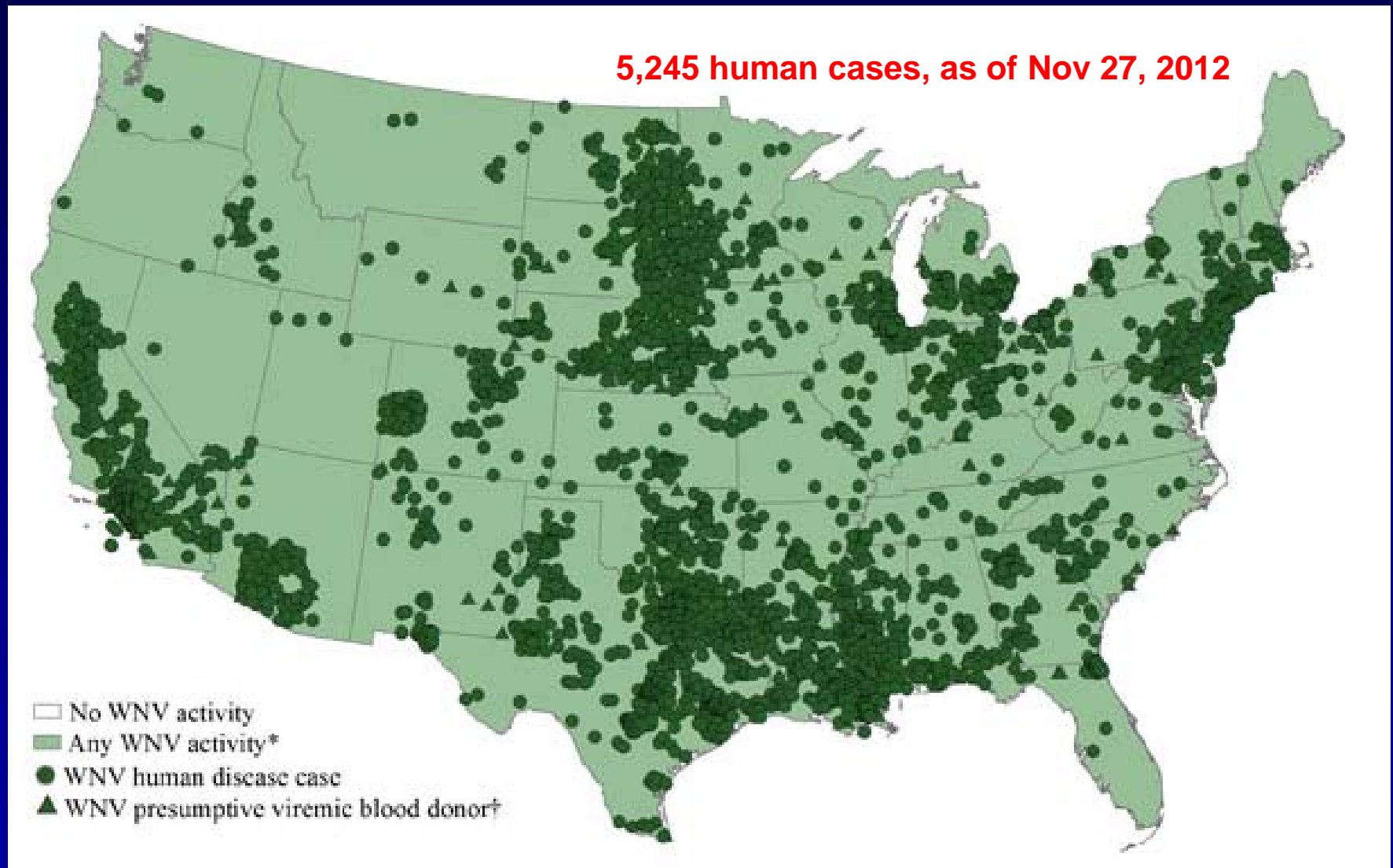
Dallas County West Nile-Related Deaths Climbing

5 NBCDFW.COM

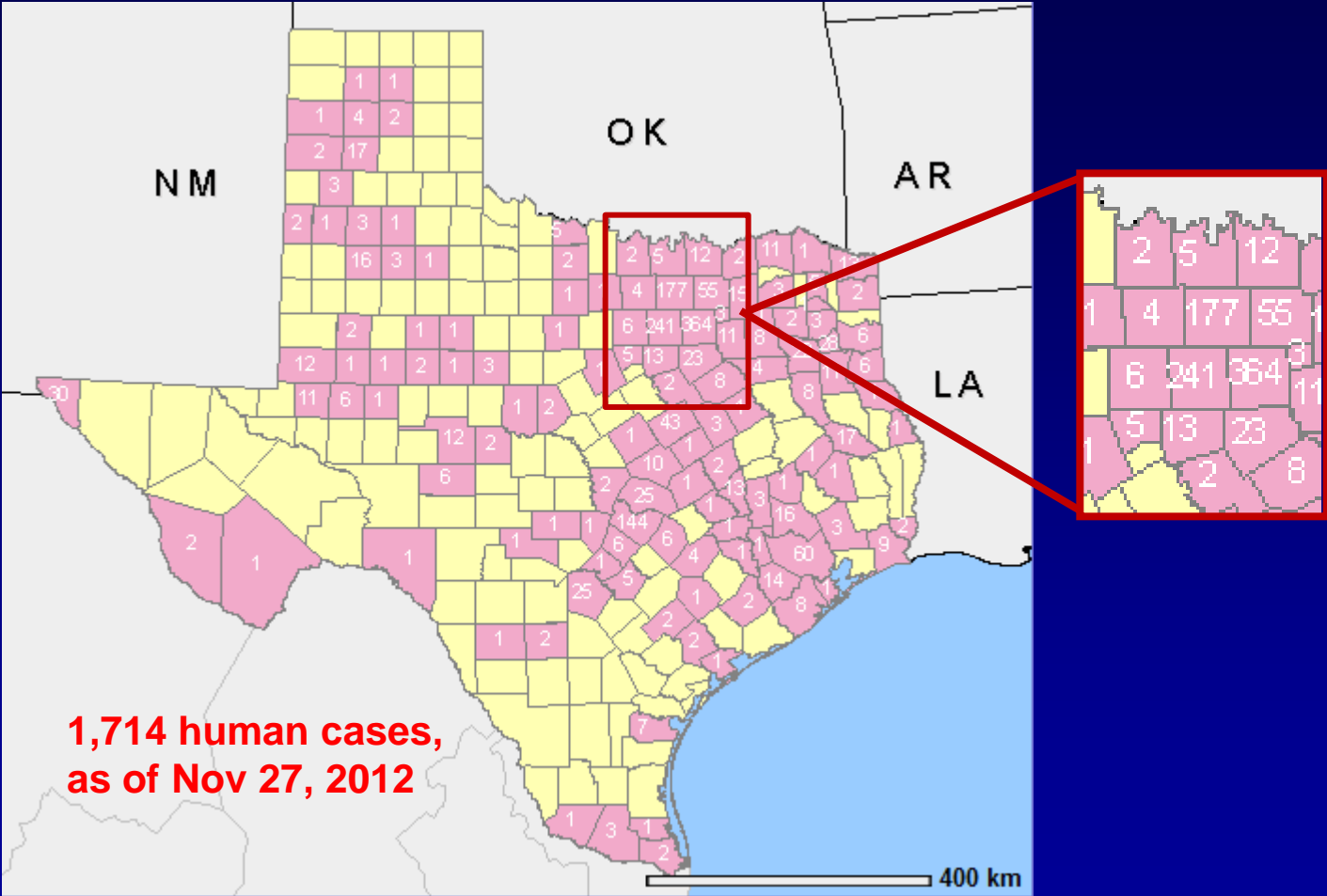
Dallas Mayor Declares Emergency Over West Nile Virus

Dallas County Declares West Nile Virus State of Emergency

2012 WNV Activity in the US



2012 WNV Activity in Texas



2012 WNV Cases in DFW Metroplex

	Total WNV cases	West Nile Fever	West Nile Neuroinvasive	Deaths
Dallas County	393	220	173	18
Tarrant County	277	177	100	11
Denton County	184	129	55	2
Collin County	76	53	23	4
Four-county totals	930	579	1509	35
Texas DSHS*	1763*	962*	801*	81*

- Provisional numbers for Dallas reported as of 11/29/12; Denton as of 11/9/12; Collin as of 10/30/12; Tarrant as of 11/19/12.
- Statewide numbers reported by DSHS as of 11/19/12 reflect an expected reporting lag and are not as current as case counts obtained directly from local jurisdictions.

2012 WNV Outbreak Timeline

- May
 - County press conference on WNV held May 24
 - 78 mosquito collections, 44 larvicide applications
 - 65 mosquito related service requests
- June
 - 1st WNV+ mosquito pool on June 5, collected 5/30; 1st Health Advisory issued
 - 1st human WNV case reported on June 20; 2nd County press conference held
 - 105 mosquito collections, 62 larvicide applications
 - 257 mosquito related service requests

2012 WNV Outbreak Timeline

- July
 - Total WNV cases rise from 10 to 64 from July 9 to July 25
 - Five reported deaths (July 16, 19, 27, 30 (2)); County press conferences held on July 13, 19, 27
 - 2nd WNV Health Advisory; County conference call with CDC, TX DSHS on July 25
 - 81 mosquito collections, 104 larvicide applications
 - 491 mosquito related service requests

2012 WNV Outbreak Timeline

- August
 - 3rd WNV Health Advisory on August 2
 - Eight reported deaths between August 3 and 29
 - State of Emergency declared in County on August 9
 - Total 181 cases as of August 10; County press conference for plans for aerial spraying measures
 - 1st pass spraying on August 16-17 and 19, truncated by rain; 2nd pass aerial completed over remainder of Dallas on August 20 (Map attached in appendix)
 - Southern and eastern sector cities in Dallas County received aerial spraying in two passes on August 22-23
 - 87 mosquito collections, 71 larvicide applications
 - 1,303 mosquito related service requests, 2,698 mosquito related information requests

2012 WNV Outbreak Timeline

● August

- Mayor held multiple press conferences in conjunction with County Judge
- Dallas Fire/Rescue distributed 60,000+ informational, bilingual flyers at apartments and places of worship
- Code and DPD placed over 550 signs throughout City
- Over 95,000 visits to WNV information at DallasCityHall.com
- Social media updates to over 27,000 Facebook & Twitter contacts
- Over 350,000 reverse 911 calls
- 10 electronic billboard locations utilizing existing PSA agreement with ClearChannel for 157,498 exposures



2012 WNV Outbreak Timeline

- August
 - 202 radio spots on 12 stations in all markets for 1,843,200 impressions
 - Used private-public partnerships to reach over 17,000 e-mail contacts with daily updates
 - Individuals signed up for updates at DallasCityHall.com
 - Registered HOAs, NAs, and crime watch groups
 - Business and Chamber of Commerce contacts
 - Developer contacts
 - Special events organizers
 - Park & Recreation groups
 - School district contacts
 - Restaurant association contacts
 - Apartment association contacts
 - Mayor and Council contacts

2012 WNV Outbreak Timeline

- August

- Staff press conference on Tuesday, Aug 21

- Featured staff from multiple departments
- Announced City's resolve in fighting mosquito breeding
- Requested residents' assistance in removing standing water and calling 311 for help



2012 WNV Outbreak Timeline

- August
 - Police, Fire-Rescue, Code, OEM, Marshal's Office, 3-1-1 all involved in ridding areas of stagnant, standing water
 - Code Compliance officers enlisted for 24-hour response to standing water concerns
 - Code Compliance distributed an additional 1,300 signs with the "Drain Standing Water" message
 - City Marshal's Office picked up more than 1,000 junk tires and visited tire shops to address standing water

2012 WNV Outbreak Timeline

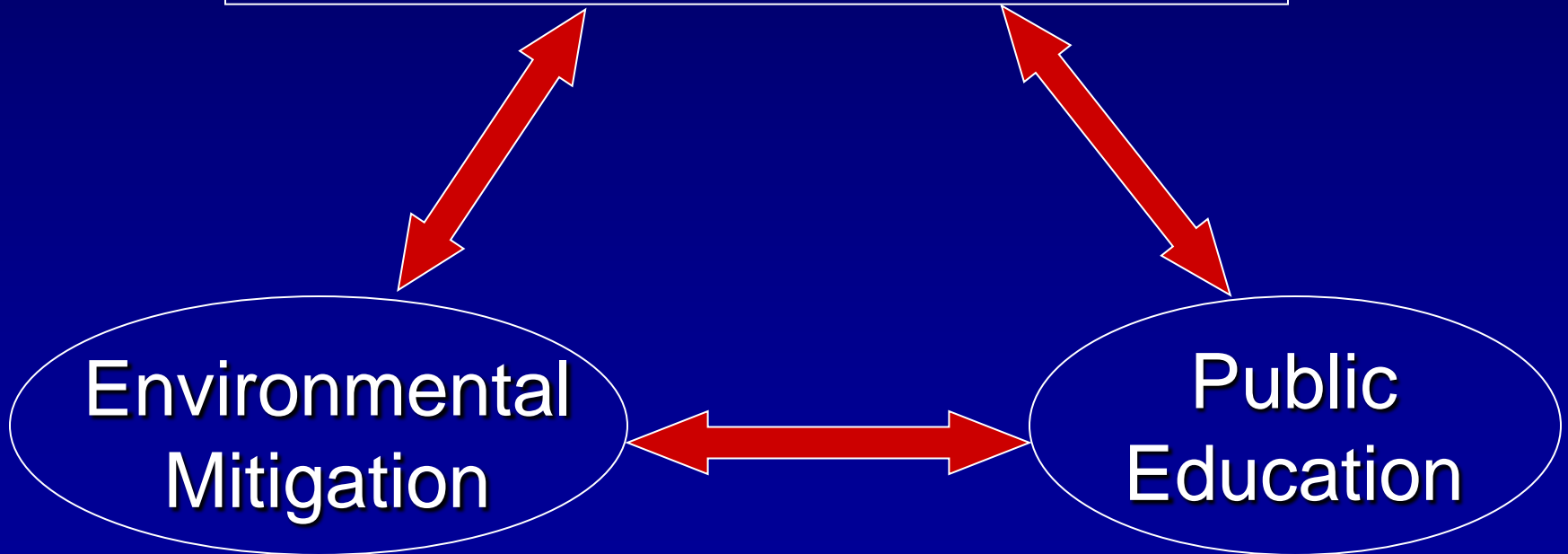
- September
 - Four reported deaths between September 6 and 25
 - Continued ground-spraying response where appropriate
 - 67 mosquito collections, 32 larvicide applications
 - 415 mosquito related service requests, 114 mosquito related information requests
- October
 - 1 reported death on October 8
 - 91 mosquito collections, 66 larvicide applications
 - 113 mosquito related service requests, 25 mosquito related information requests

WNV Public Health Response

Mosquito Surveillance

+

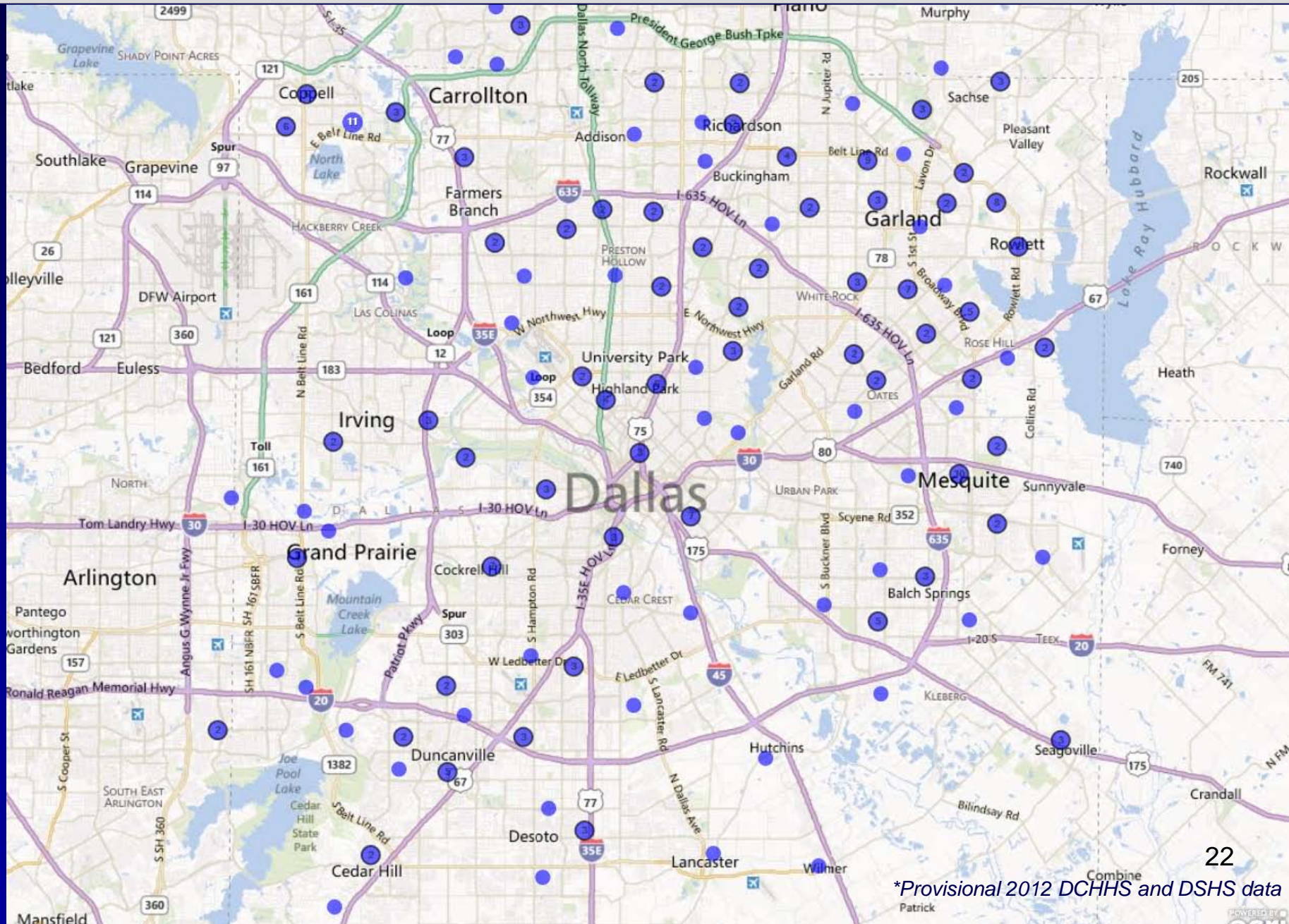
Human Case Surveillance

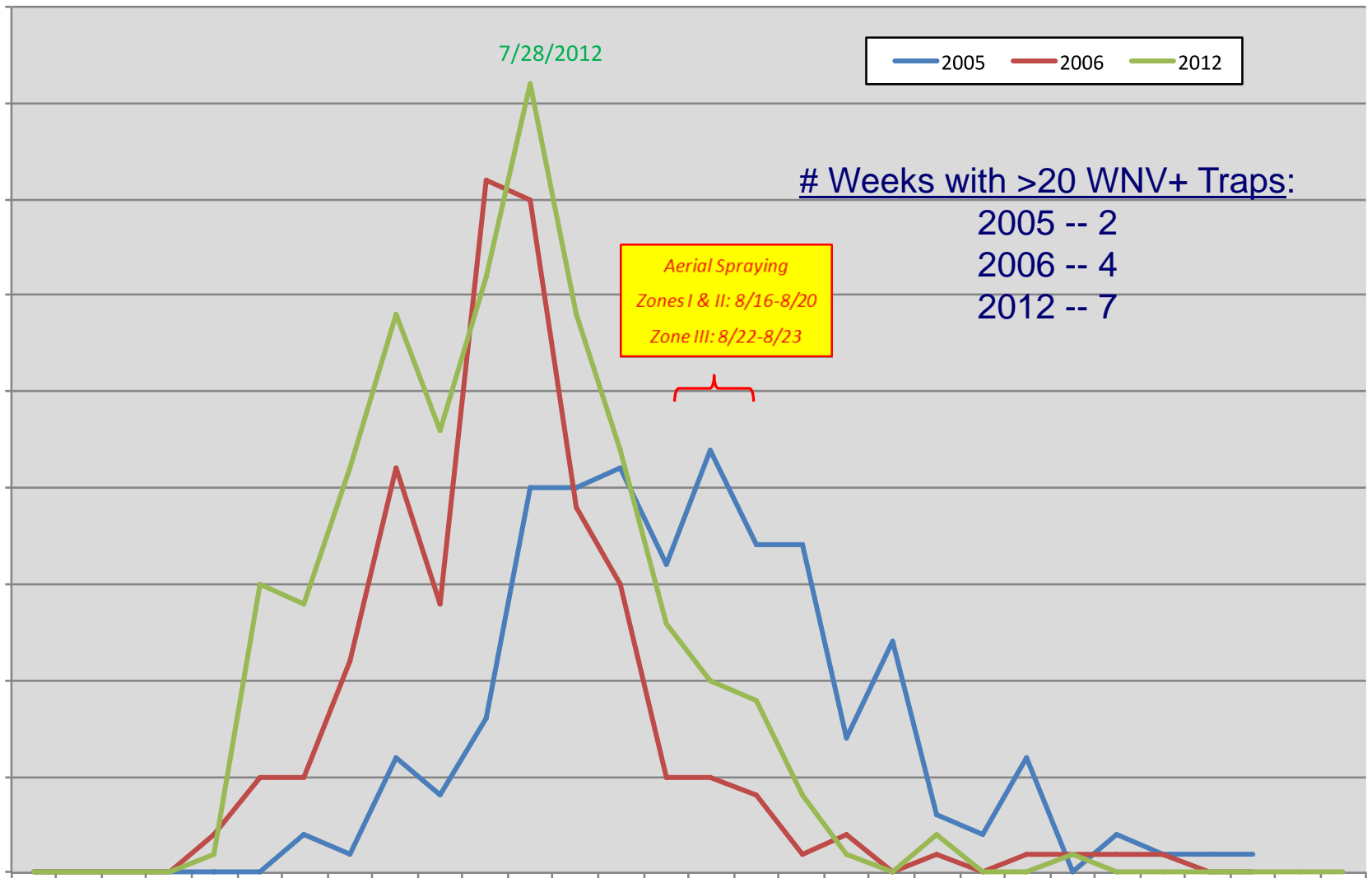


Mosquito Surveillance



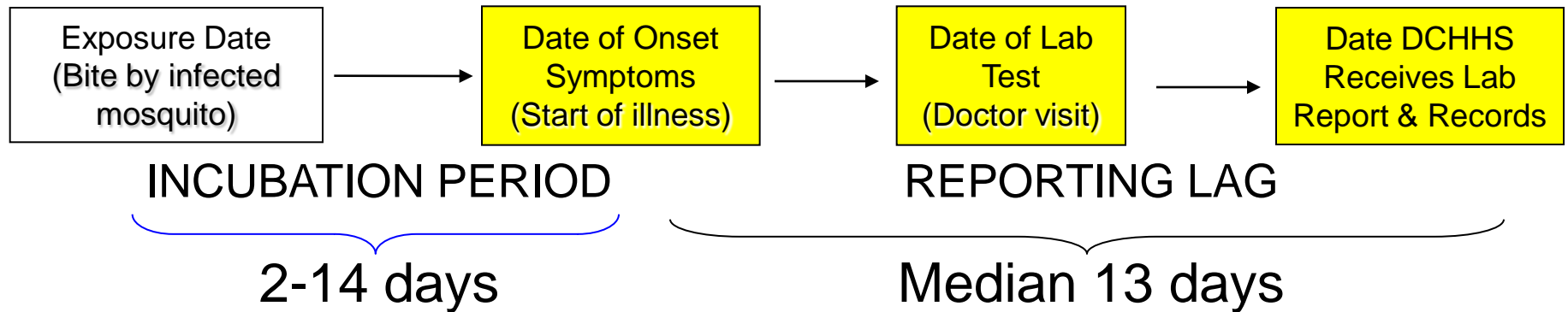
Distribution of Cumulative WNV+ Mosquito Traps Dallas County, Collected 5/30 through 11/18/12 (N=266)





(2012 YTD--Results received from dates of collection through 11/24/12)

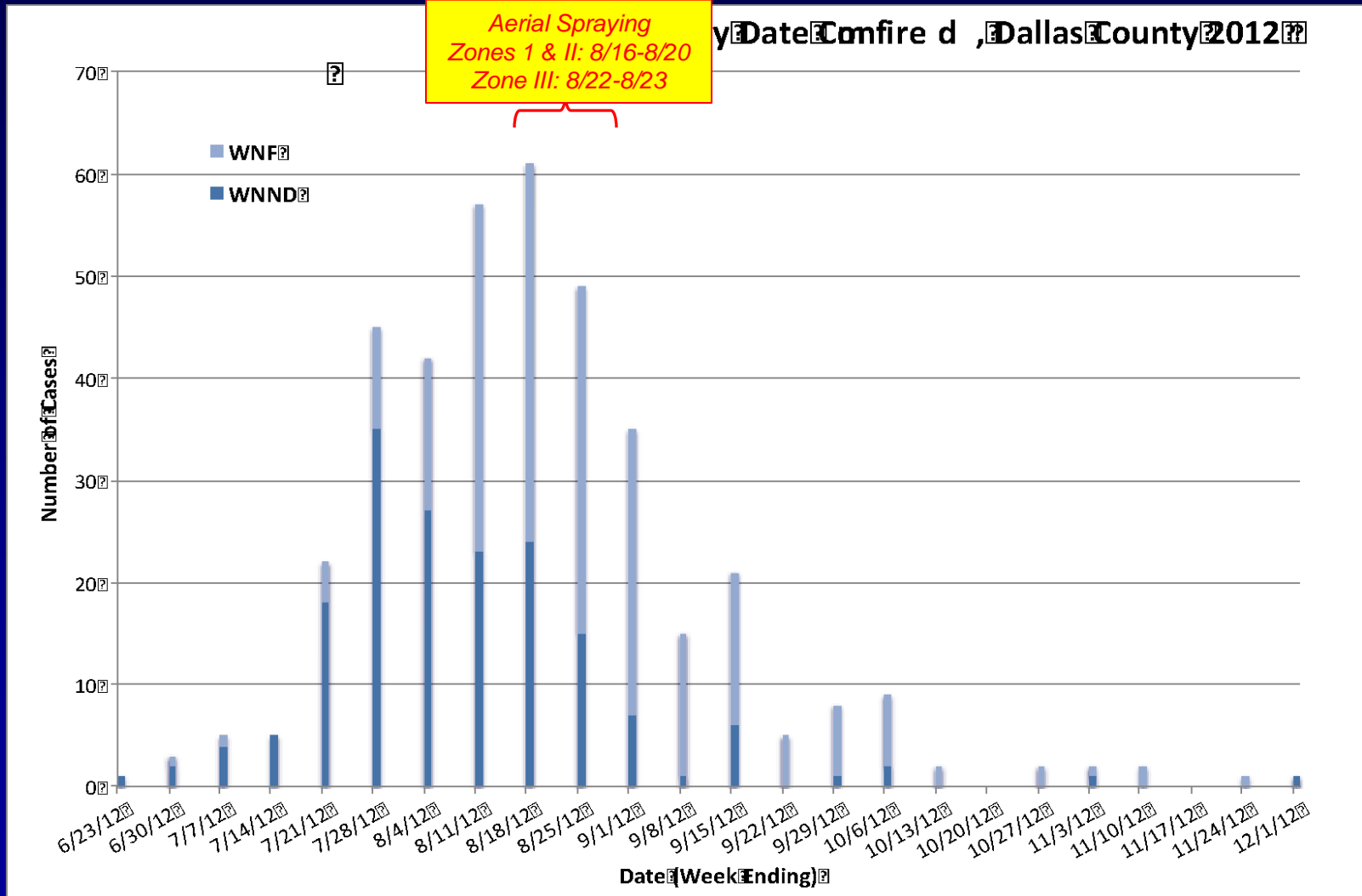
Human Case Surveillance



- Importance of incubation period and reporting lag in human case surveillance
 - Incubation Period: Date Onset Symptoms – Exposure Date
 - Reporting Lag: *Typical to all disease-reports to public health*
Date DCHHS Received Report – Date of Onset of Symptoms
- When is the outbreak over?
 - When no new cases for at least 2 Incubation Periods + Reporting Lag period, from time of last illness onset
 - Approximately 41 days for WNV

WNF and WNND Cases (Confirmation) Dallas County

(N = 386, as of 11/29/12)



Date of Confirmation represents earliest date which sufficient supporting clinical information has been received, in addition to positive test result, for announcement of human case to municipalities.

**N of I-30, W of Tollway, N of 635:
WNND Incidence Rate = 6.5**

**N of I-30, West of Tollway:
WNND Incidence Rate = 5.7**

**N of I-30, W of Tollway, S 635:
WNND Incidence Rate = 14.8**

**South of I-30, East of 35:
WNND Incidence Rate = 6.0**

**South of I-30, West of 35:
WNND Incidence Rate = 4.1**

Distribution of Human WNV Cases, Dallas County (as of 11/29/12)

WNND Incidence Rates by City

(Includes cases residing in Dallas and Denton Counties, as of 11/28/12)

City	2011 Pop Estimate	Case Count	Incidence Rate (per 100,000)
Highland Park	8,740	3	34.3
Wilmer	3,749	1	26.7
University Park	23,490	5	21.3
Addison	13,323	2	15.0
Seagoville	15,094	2	13.3
Rowlett	57,463	6	10.4
Farmers Branch	29,200	3	10.3
Duncanville	39,310	4	10.2
Carrollton*	122,640	11	9.0
Dallas*	1,223,229	95	7.8
Lewisville*	98,737	7	7.1
Richardson	101,742	7	6.9
DeSoto	50,045	3	6.0
Garland	231,517	13	5.6
Lancaster	37,097	2	5.4
Coppell	39,462	2	5.1
Grand Prairie	179,100	9	5.0
Mesquite	142,674	6	4.2
Balch Springs	24,211	1	4.1
Irving	220,702	7	3.2
Cedar Hill	45,945	1	2.2
*includes residents of Dallas and Denton Counties			

Summary of Human WNV Cases, Dallas County*

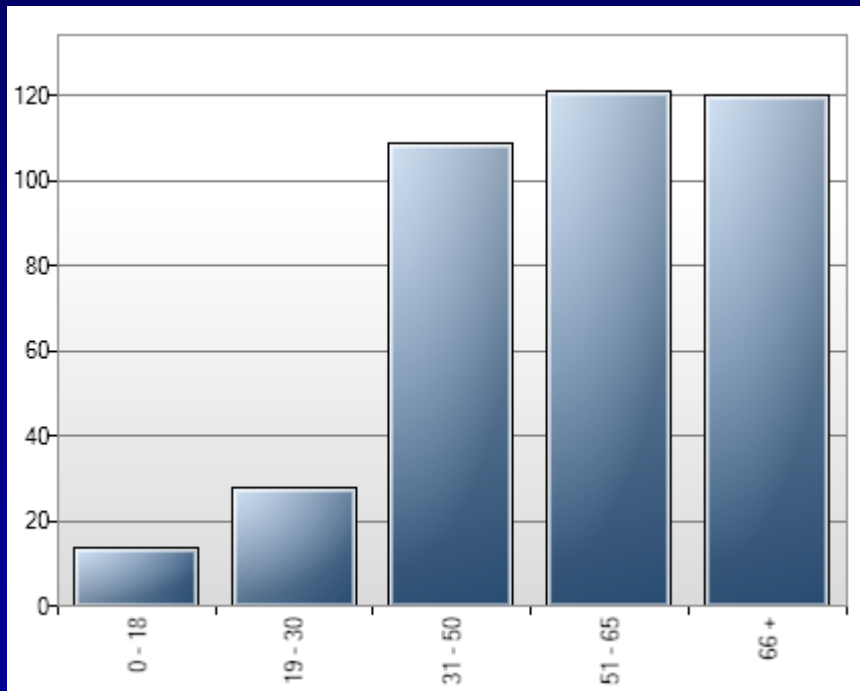
- WNND Cases: 173
 - 167 became inpatient hospitalizations
 - 60 required ICU admissions
 - 18 deaths (WNND Fatality Rate = 11%)
- WNF Cases: 220
 - 49 hospitalizations; 6 ICU stays
- 393 total cases of WNV infection reported

Summary of Human WNV Cases: City of Dallas*

- WNND Cases: 95
 - 93 became inpatient hospitalizations
 - 32 required ICU admissions*
 - 6 deaths (WNND Case Fatality Rate = 6%)
- WNF Cases: 118
 - 25 hospitalizations; 5 ICU stays
- 213 total cases of WNV infection reported

Demographic Summary of 2012 Human WNV Cases, Dallas County

Number of WNV Cases by Age Group



*Age Range: 3 – 93 years
(Median: 57 years)*

WNND Cases:

- 69% >50 yrs; median 62 y
- 62% Male

WNF Cases:

- 56% > 50 yrs; median 53 y
- 50% Male

Race/Ethnicity of Cases:

- 68% White
- 13% Hispanic
- 8% Black
- 2% Other; 9% Unknown

Environmental Mitigation

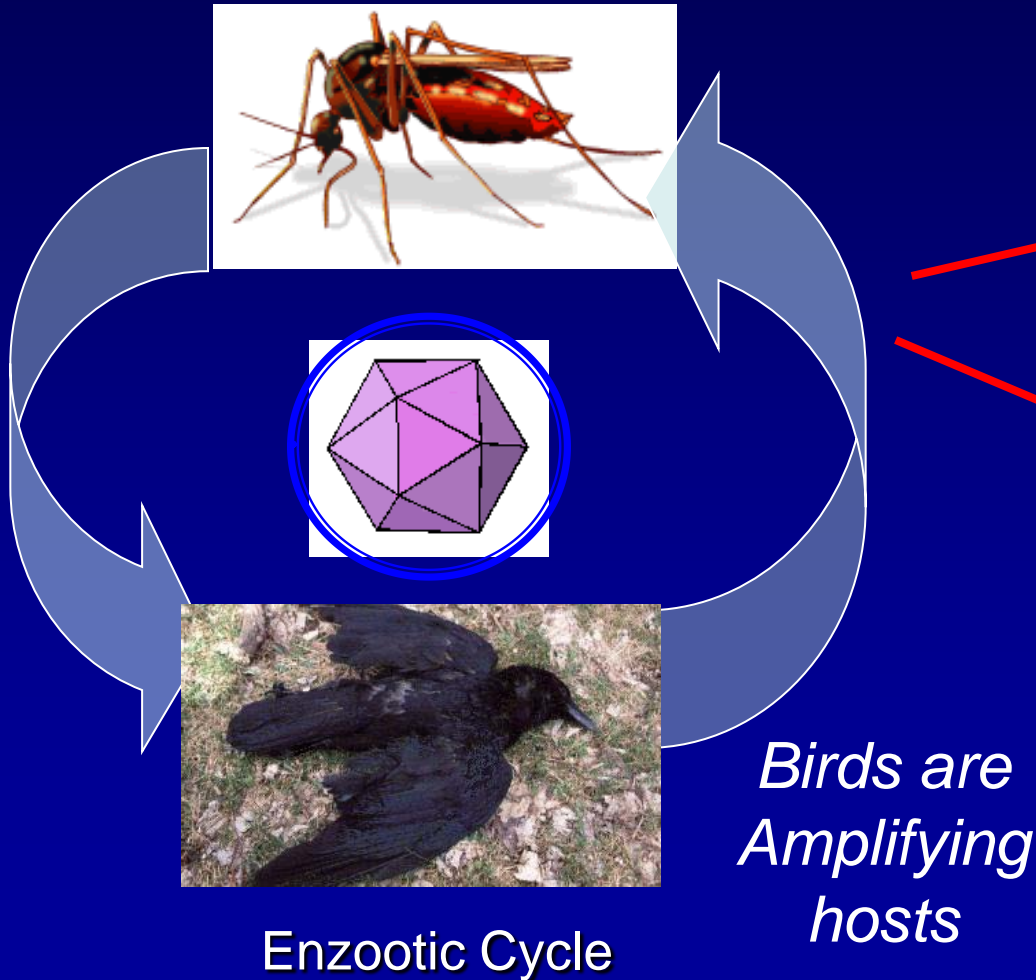


- Source reduction: Investigate and remove water sources that support mosquito breeding habitats
- Larvicide: Use of EPA-approved products to kill mosquito larva in standing water
- Adulticide: Spraying of EPA-approved products from trucks to reduce mosquito populations



Efforts are to Interrupt Transmission Cycle

Most important cycle is from
mosquito to bird to mosquito



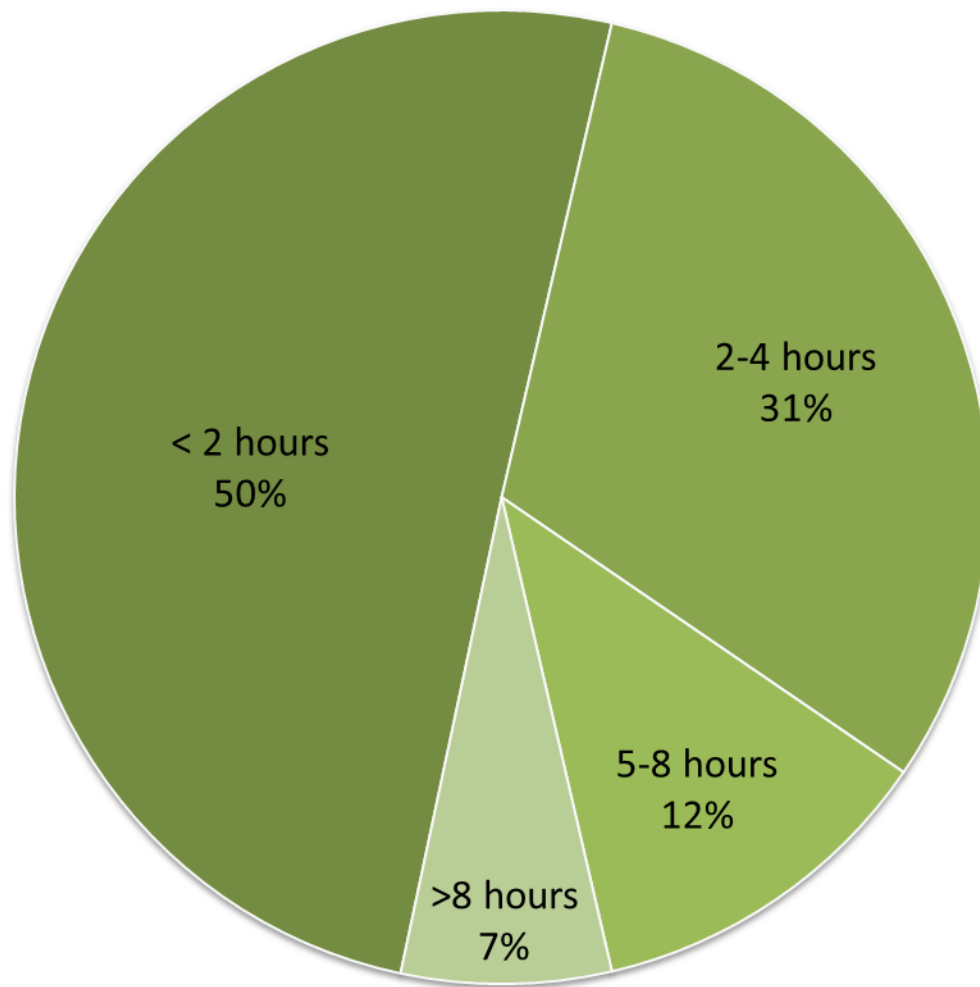
“Incidental” infections:
unlikely amplifying hosts



Public Education

- Personal Prevention/4-Ds
 - Emphasize precautions during high mosquito activity (Dawn/Dusk)
 - Use mosquito repellent (DEET)
 - Wear long sleeves, pants (Dress)
- Household precautions
 - Use and maintain window screens
 - Empty standing water
- The need for spraying and what to expect

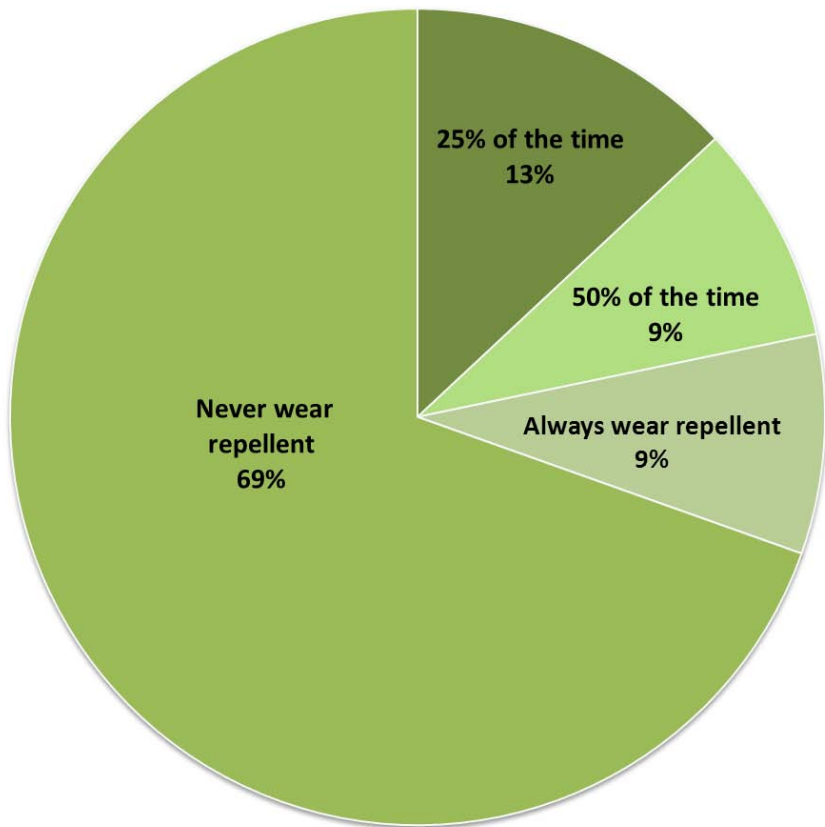
Amount of Time WNV Cases Reporting Spending Outdoors Daily During Month Prior to Illness Onset: June-Oct 2012, Dallas County



Percentage of WNV Cases Reporting Wearing Insect Repellent When Outdoors: June vs August 2012, Dallas County

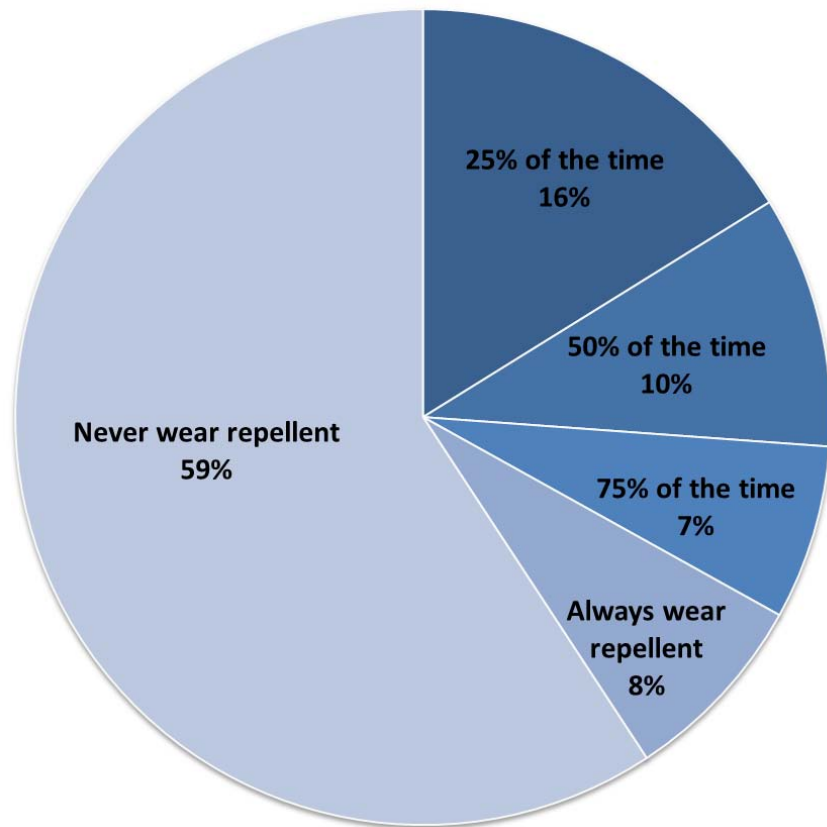
June 2012

(N=23)



August

(N=130)



Ongoing Issues

- Understanding the intensity and focality of this outbreak
 - Was it an aberration?
 - Has environment now structurally changed?
- How can such outbreaks be better predicted?
- How can surveillance and response guidelines be more specific and more standardized?

Ongoing Issues

- Should aerial spraying be an automatic under certain criteria?
 - Given reporting lag for human cases, should that criteria be exclusively driven by mosquito surveillance?
- How should our existing program adapt to outbreaks on this scale?
 - Organizational structure
 - Procedures (e.g. trapping, testing, spraying, etc)
 - Health reporting
 - Environmental mitigation
 - Public education
 - Resources/funding

Next Steps: Planning for 2013

- Brief Transportation & Environment Committee beginning in January on planning for 2013
 - Update Mosquito Control Plan in coordination with Dallas County
 - Better define trigger points for spraying, who pays
 - Expand mosquito trapping and testing for more robust identification of WNV
 - Review/respond to forthcoming CDC analysis of WNV outbreak and vector control efforts

Appendix

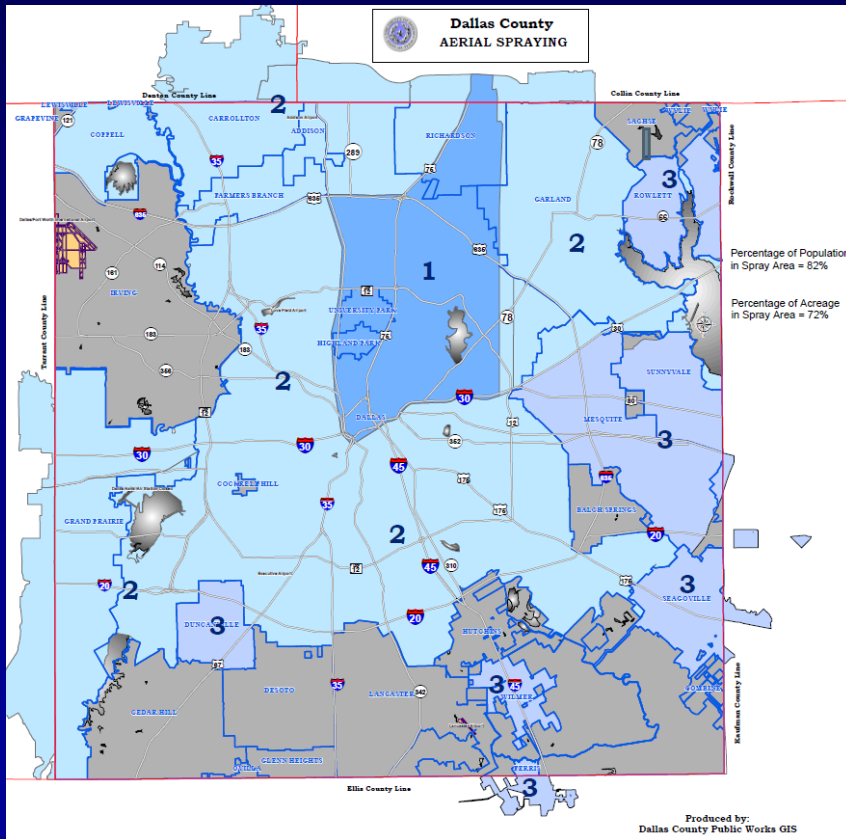
West Nile Fever (WNV)

- Most who get sick from WNV infection have WNV fever
- Time from mosquito bite to illness ranges from 2-14 days
- Usually self-resolves within 3 - 6 days
- Fever, chills, headache (71%, median 10 days), fatigue can be severe; overall case fatality rate <1%
- Some symptoms can persist for weeks to months: Persistent fatigue common -- even among healthy persons
 - In one study, “~96% of patients with WNV ...described post-illness fatigue that lasted a median of 36 days”

West Nile Neuroinvasive Disease (WNND)

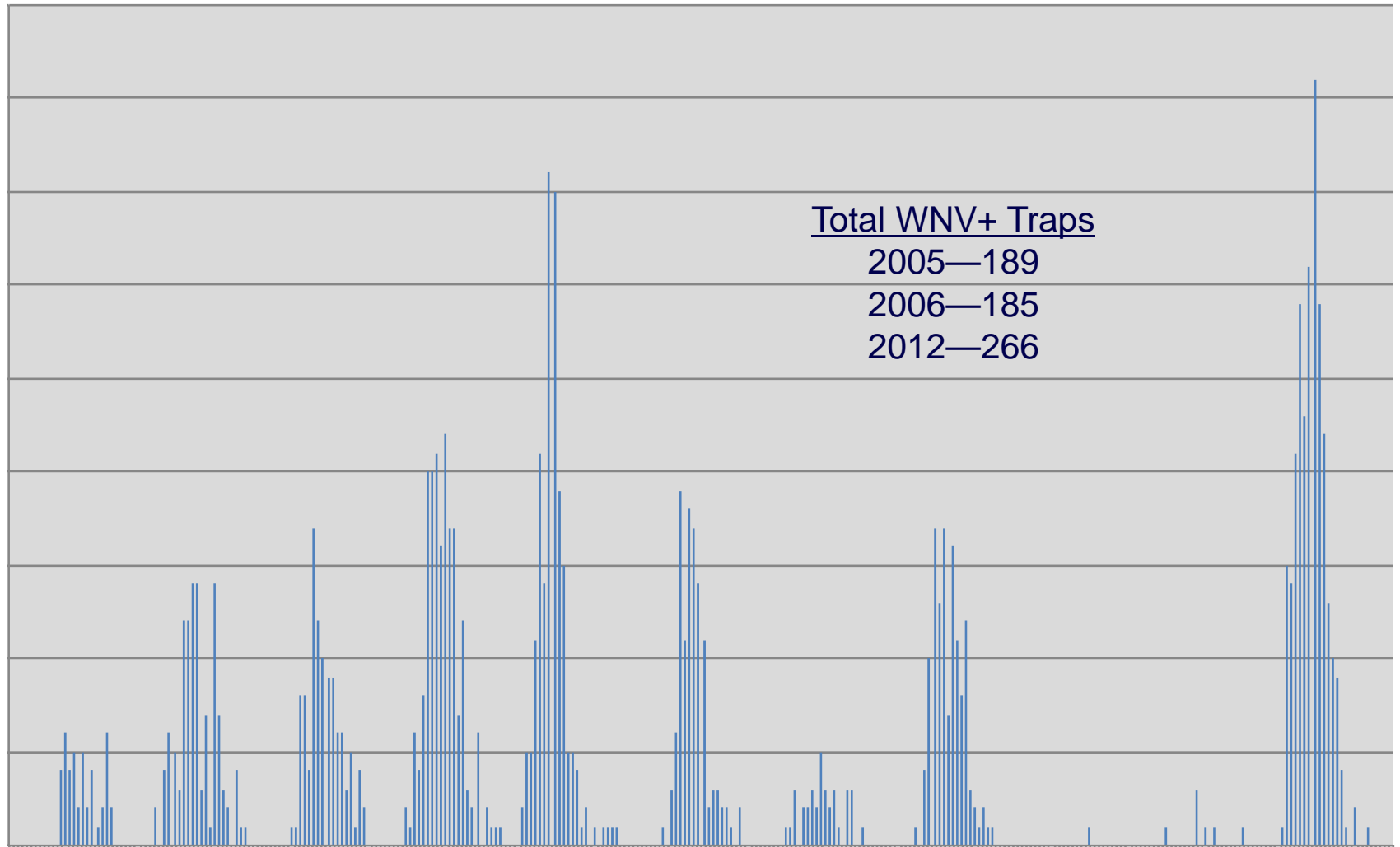
- Most require hospitalization; Case fatality 10%
- 50-75% need assisted living or rehabilitation
- Includes:
 - Meningitis: Fever, headache, stiff neck
 - Encephalitis: Fever, headache, altered mental status; severity from mild confusion to coma
 - Acute Flaccid Paralysis: 10% of WNND; weakness can often be in only one limb
 - Persistent symptoms common: fatigue, weakness, and memory, concentration, motor problems

Aerial Spraying Zones, Dallas County



- Two aerial passes completed 8/16-8/23, due to inclement weather and scheduling
 - Zone 1: 8/16, 8/17, 8/19
 - Zone 2: 8/17, 8/19, 8/20
 - Zone 3: 8/22, 8/23

Collection, Dallas County: 2002-2012 YTD



(2012 YTD--Results received from dates of collection through 11/24/12)

City of Dallas Mosquito Trap Locations

