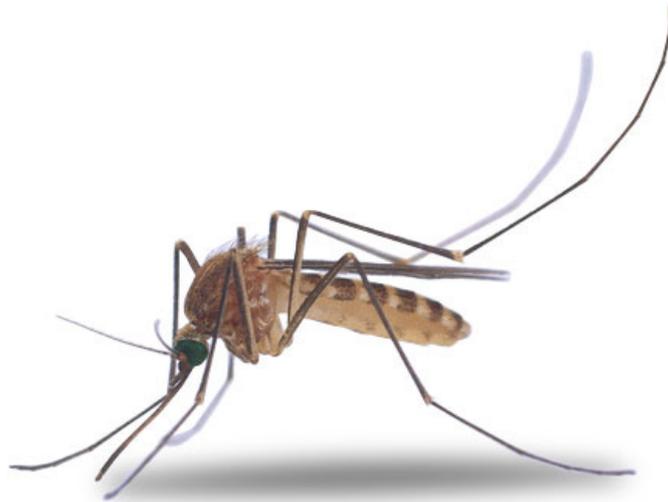


ARBOVIRAL PLAN REVIEW 2014
COMMISSIONERS COURT
SEPTEMBER 9TH, 2014

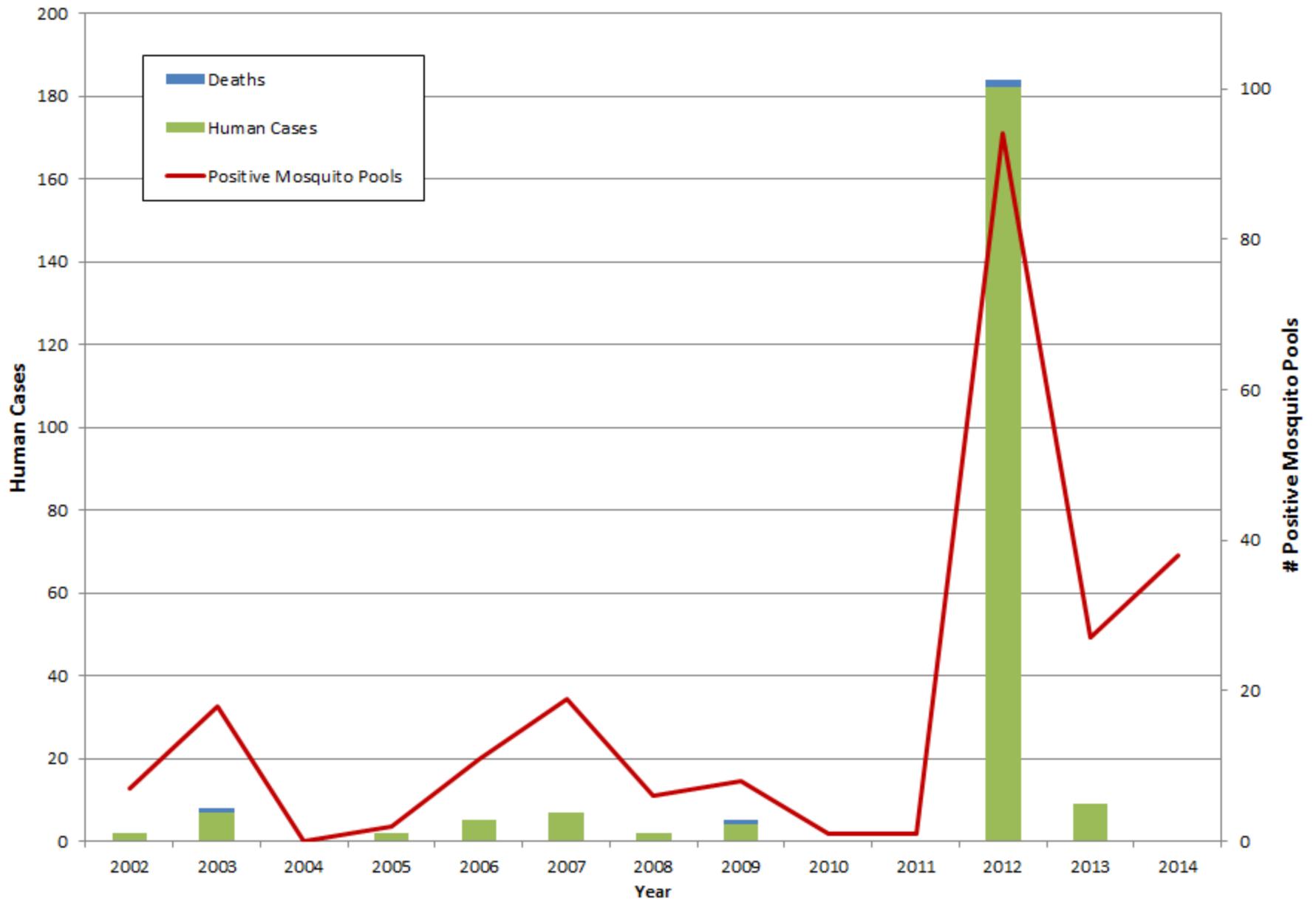
Denton County Health Department
Matt Richardson, DrPH, MPH

But first, a brief look back...

Summary of WNV activity 2012-Today

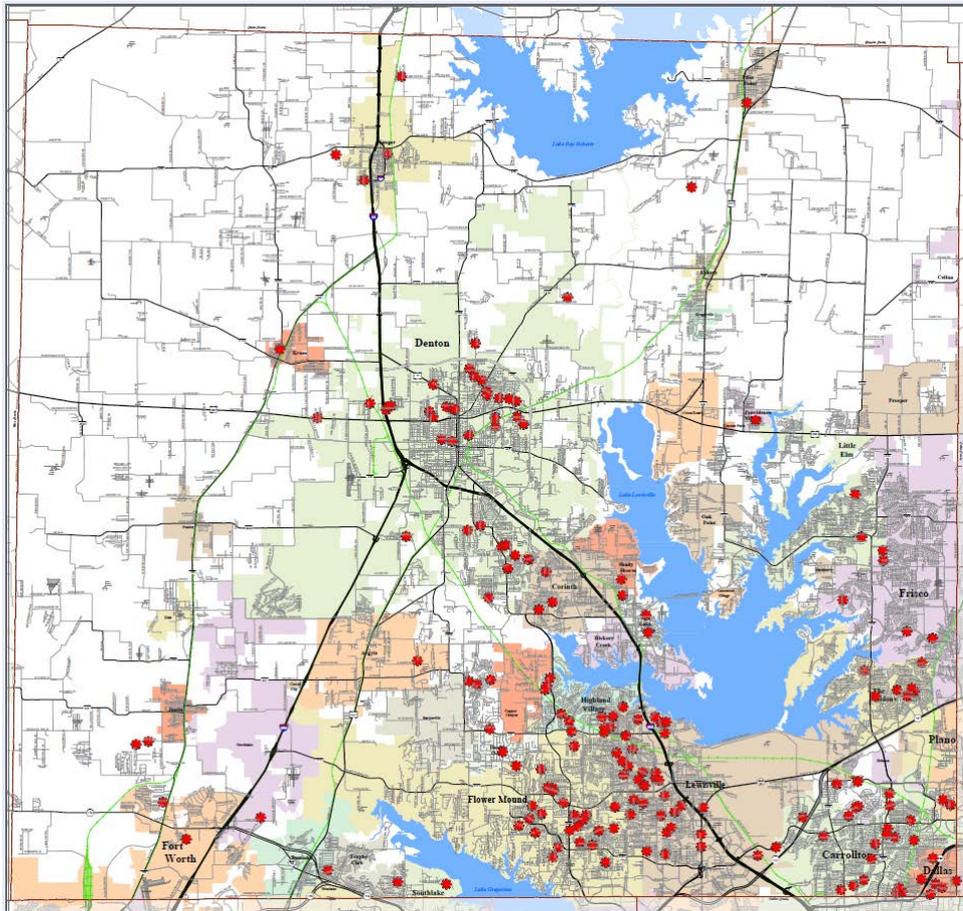


West Nile Virus Denton County 2002-2014



WNV Human Cases – 2012

184 Cases Reported



Municipality	Cases	% of Cases	Population	Rate/100K
Denton	36	19.6%	117,187	30.7
Lewisville	34	18.5%	98,737	34.4
Flower Mound	27	14.7%	67,019	40.3
Carrollton	19	10.3%		
Unincorporated Denton County	13	7.1%		
Highland Village	10	5.4%	15,602	64.1
The Colony	7	3.8%	37,653	18.6
Castle Hills	5	2.7%		
Dallas	5	2.7%		
Frisco	5	2.7%		
Corinth	3	1.6%	20,662	14.5
Lake Dallas	3	1.6%	7,363	40.7
Little Elm	2	1.1%	26,844	7.5
Plano	2	1.1%		
Sanger	2	1.1%	7,168	27.9
Trophy Club	2	1.1%	8,311	24.1
Argyle	1	0.5%		
Double Oak	1	0.5%		
Ft. Worth	1	0.5%		
Krum	1	0.5%		
Northlake	1	0.5%		
Pilot Point	1	0.5%		
Providence Village	1	0.5%		
Shady Shores	1	0.5%		
Southlake	1	0.5%		
Total	184	100.0%	770,509	23.9

What are we doing?

Denton County Vector Infectious Disease Control Plan

- The Denton County Integrated Vector Infectious Disease Management Plan is designed to provide a comprehensive strategy for effective control of infectious disease commonly transmitted by vectors that threaten the health and safety of Denton County citizens. It is intended that this plan serve as the foundation for an integrated approach in improving public health by reducing vector impact on human populations.

Denton County Vector Infectious Disease Control Plan

- **Prevention and Mitigation Strategies**
- **Epidemiological Surveillance**
- **Entomological Surveillance**
- **Chemical Suppression Options**
- **Information Sharing**

Risk Levels

- Risk Levels have been determined for each phase that may occur during a typical mosquito season.
- Each risk level contains recommend activities that may be **considered** during a response.
- Activities may or may not be used during a response, depending upon access to available resources.

Normal Conditions

The following activities may be considered:

- **Routine epidemiological monitoring** of public health threats
- **Initiate public education** and community outreach programs focused on risk potential, personal protection and emphasizing residential physical, environmental and biological source reduction.
- Environmental Health **field investigations**
- **Secure surveillance and control resources** necessary to enable appropriate response.
- Contact and strengthen relationships with **community partners**.

Risk Level One – Surveillance Operations

April through November, Denton County Health will conduct mosquito surveillance to detect the presence of disease. Additionally, the Epidemiology department will be on heightened alert for human surveillance. The following activities may be considered:

- **Passive epidemiological surveillance** for hospitalized cases of encephalitis
- **Distribution of general alerts** to key health care personnel.
- Encouragement of a **high clinical suspicion** for arboviral encephalitis.
- Monitor **larval and adult vector** densities.
- **Use larvicides** at specific sources identified by mosquito surveillance.
- **Use of gravid and light traps** as part of entomologic surveys.
- **Sorting** (counting and species/gender identification) samples.
- **Laboratory testing** for presence of disease.
- Public **education and community outreach**.
- Environmental Health **field investigations**
- **Encourage** implementation of physical, environmental and biological source **reduction measures**

Risk Level two – Enhanced Responses

An infectious disease is detected in a mosquito population within Denton County. The following activities may be considered:

- **Increase epidemiological surveillance** of hospitalized cases of encephalitis.
- **Distribution of threat-specific alerts** to key health care personnel.
- **Assist with public education and community outreach programs focused on risk potential, personal protection and emphasizing residential source reduction.**
- **Implementation of physical, environmental and biological source reduction measures (can include ULV ground/truck –based spraying near positive pool)**
- Encouragement of a high clinical suspicion for arboviral encephalitis.
- Other response activities same as Risk Level One

Risk Level three – Public Health Warning

An arbovirus is detected in human population and/or several mosquito pools in different areas of Denton County are confirmed positive with an arbovirus. The following activities may be considered:

- **Active surveillance for hospitalized cases of encephalitis.**
- **Contacting physicians in appropriate specialties/distribution of public health warnings.**
- **Use of ground based ULV adulticide application of positive sites and expanded areas around site.**
- **Other activities same as Risk Level Two**

Risk Level Four – Public Health Emergency

In the event of an outbreak, as determined by the Denton County Health Department, the following activities may be considered:

- ❑ **Recommendation for a declaration of public health emergency/distribution of emergency alerts.**
- ❑ **Extensive epidemiological investigations to include increase staff and/or MRC volunteers.**
- ❑ **Use of private contractors for additional ground based ULV adulticide assistance.**
- ❑ **Potential use of aerial adulticide application in targeted zones for potential treatment.**
- ❑ **Expand public information program to include TV, radio, and newspapers.**
- ❑ **Increase visibility of public messages, engage key local partners.**
- ❑ **Enhance risk communication about adult mosquito control.**
- ❑ **Monitor efficacy of spraying on target mosquito populations.**
- ❑ **Emphasize urgency of personal protection through community leaders and media, and emphasize use of repellent.**
- ❑ **Same as Risk Level Three**

How do we find it?

Mosquito Surveillance

- Larvicide program throughout the County.
- Beginning in *May*, DCHD began weekly mosquito surveillance in unincorporated areas of Denton County.

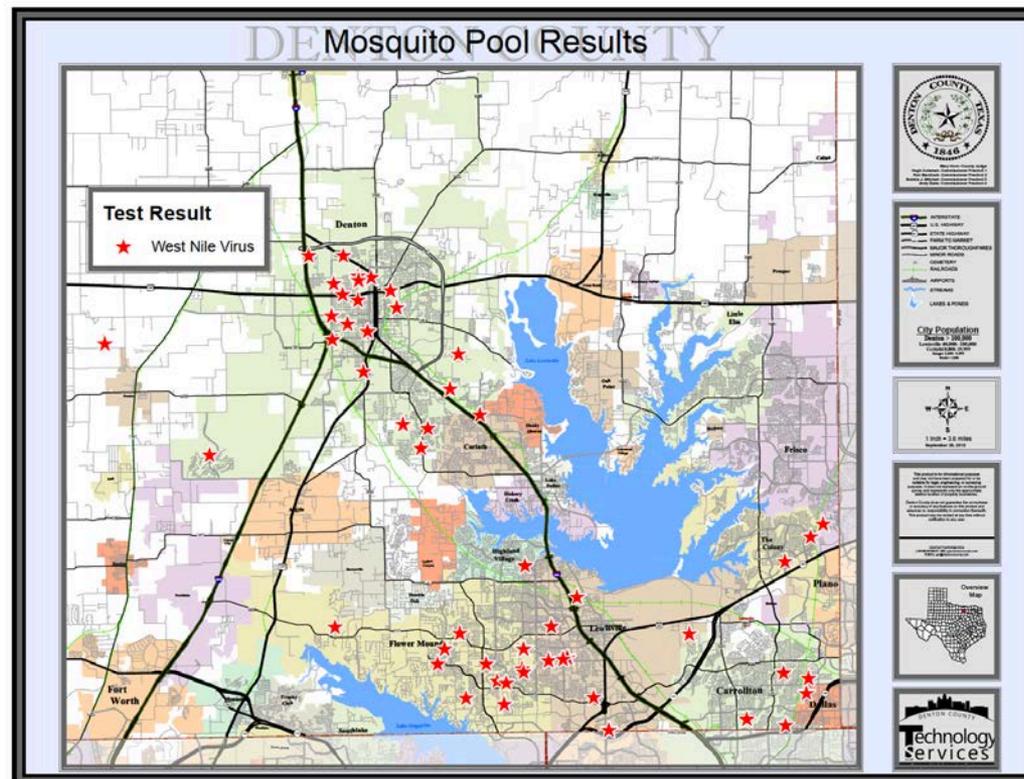


Laboratory Testing

- Typically twice a week, mosquitoes are sent to the DSHS lab in Austin, TX for species identification and WNV testing.
- Runs lab on Tues and Fridays. Cell culture takes about 3-5 days for results.
- Free testing, but must pay for shipping.

Denton County GIS Support

- Environmental Health (2012—today)
 - ▣ Map mosquito trap locations countywide when needed
 - ▣ Data from cities (example below from 2012)



Role of GIS Partnership

- Preparedness, Planning and Response
 - ▣ GIS assists us in determining needs and prioritizing the response
 - ▣ Health Dept.
 - Continued mapping support
 - Spatial analysis of health events
 - ▣ Environmental Health
 - Web mapping
 - Mobile mapping
 - Population Density to prioritize spray locations around positive pools

2014 WNV Program

- Human surveillance and investigation
- Environmental Health field investigations
- Public Education (2014 Kick Off—April 15)
 - West Nile Website- www.dentoncounty.com/wnv
 - WNV Information Line – 940-349-2907
 - DSHS/CDC Update to 4 D's Language
 - Educational Resources – New this year~Introduced “Skeeter” Cartoon Mosquito
 - Fact sheets, flyers, posters, & a few new items
- Larvaciding for 2014 season
- Ground spraying in two locations to date:
 - North Lantana
 - East of Oak Point/west of Lake Lewisville
- Immediate communication with public on latest news/developments

Brief note about Chikungunya virus (ChikV)

- Mosquito-borne viral disease characterized by acute onset of fever and severe polyarthralgia (joint pain)
- Different mosquito than WNV carrier (*albopictus* and *aegypti*)
- Often occurs as large outbreaks with high attack rates
 - ▣ Africa, Asia, Europe, India, Pacific Oceans
- 2013 first local transmission in the Americas reported on islands in Caribbean



Symptoms

- Common Symptoms
 - Fever
 - Arthralgia
 - Polyarthrititis
 - Backache
 - Headache
 - Rash

Clinical

- Incubation period 2-12 days (3-7 usually)
- Illness duration few days-few weeks. Prolonged fatigue for several weeks or arthritis for weeks or months
- No vaccine or specific antiviral treatment.
- Communicable (person-mosquito-person)
- Infected people should avoid mosquito bites first week of illness

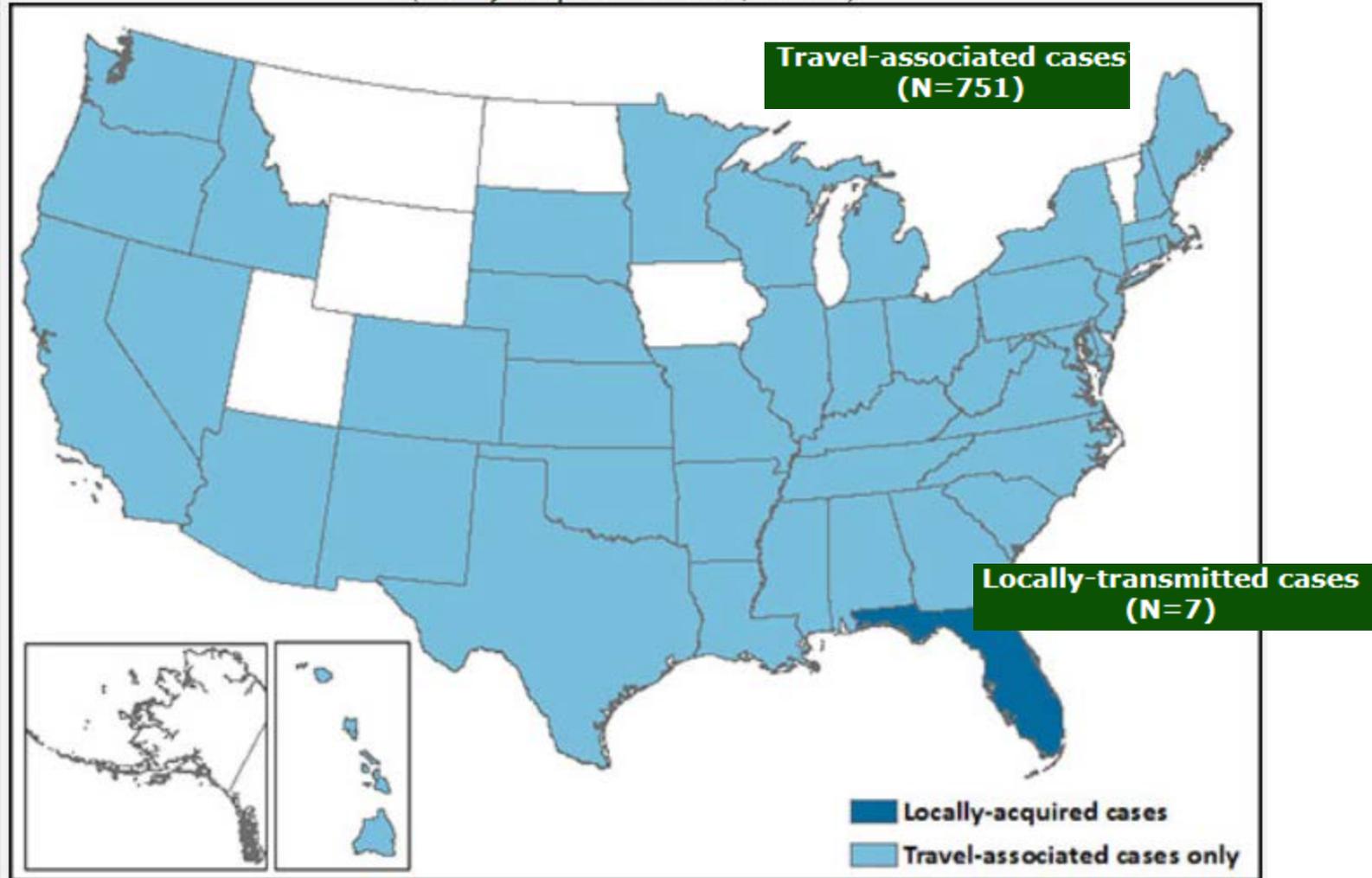
Distribution in the Americas

Countries and territories in the Americas where chikungunya cases have been reported* (as of September 2, 2014)



Chikungunya virus in the United States

Chikungunya virus disease cases reported by state - United States, 2014
(as of September 2, 2014)



Chikungunya virus in Texas

County	Travel-associated cases	
	(N=18)	
	No.	(%)
Bexar	3	16.67%
Brazoria	1	5.56%
Collin	1	5.56%
Dallas	2	11.11%
Gonzales	1	5.56%
Harris	3	16.67%
Midland	1	5.56%
Montgomery	1	5.56%
Tarrant	2	11.11%
Travis	2	11.11%
Williamson	1	5.56%

Response for ChikV vs. WNV

- **Mosquitos may not be tested** by the state health department and CDC
- If they are tested, **testing may require different traps** as feeding for ChikV mosquito species is different than the WNV carrier
- **Concentrate prevention and response efforts on infected individuals** as they are the host or reservoir, but due to clinical testing delays, this is problematic
- **Spraying areas targeted to human case locations vs. mosquito pool positives**
- **Scope and scale is unknown today**
- **Science is evolving** and recommendations are changing weekly
- DCHD will update as available

Questions?

