State of the State: Infectious Disease in Texas

Task Force on Infectious Disease Preparedness and Response

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February 27, 2018

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Health and Human Services

Texas Department of State Health Services

Texas Infectious Disease Reporting

- Texas infectious disease reporting requirements are outlined in DSHS rule[*]
  - Drive Texas disease count data
- Include:
  - Which diseases must be reported
  - Within what timeframe
- Data collection and disease investigations are intended to detect, control, and prevent the spread of diseases in Texas

[*]25 TAC §97.3

2017 Disease Investigations

- From <u>Anthrax</u> to <u>Zika</u>, unique investigations in 2017 added to the science and best practices of infectious disease
  - Health alerts were issued for brucellosis, cyclosporiasis, HIV, mumps, typhus, and Zika
- Coordination with local and regional partners is a key to quickly identifying and responding to high consequence diseases
  - Public health entities, schools, businesses, state and local agencies, etc.

Brucellosis Disease Information and Data

- Bacterial infection transmitted through contact with contaminated animals or animal products

- Risk Factors:
  - Consumption of unpasteurized dairy products such as raw milk or raw cheese
  - Goat cheese from Latin America is particularly risky

- 2017 Human Case Count: **24***

*Preliminary data

Brucellosis Community Impact

- Confirmed *Brucella* case tied to raw milk dairy resulted in investigation involving multiple jurisdictions and ≥ 800 potential human exposures
  - Patient had fever, muscle and joint pain, and fatigue; blood culture revealed *Brucella* infection
  - Source determined to be raw milk from a licensed dairy

- DSHS worked with the dairy to isolate the infected cows, sanitize equipment, and alert customers and the public about potential exposure

- The dairy halted operations until 66 days after its bulk milk specimens had last tested positive for *Brucella*
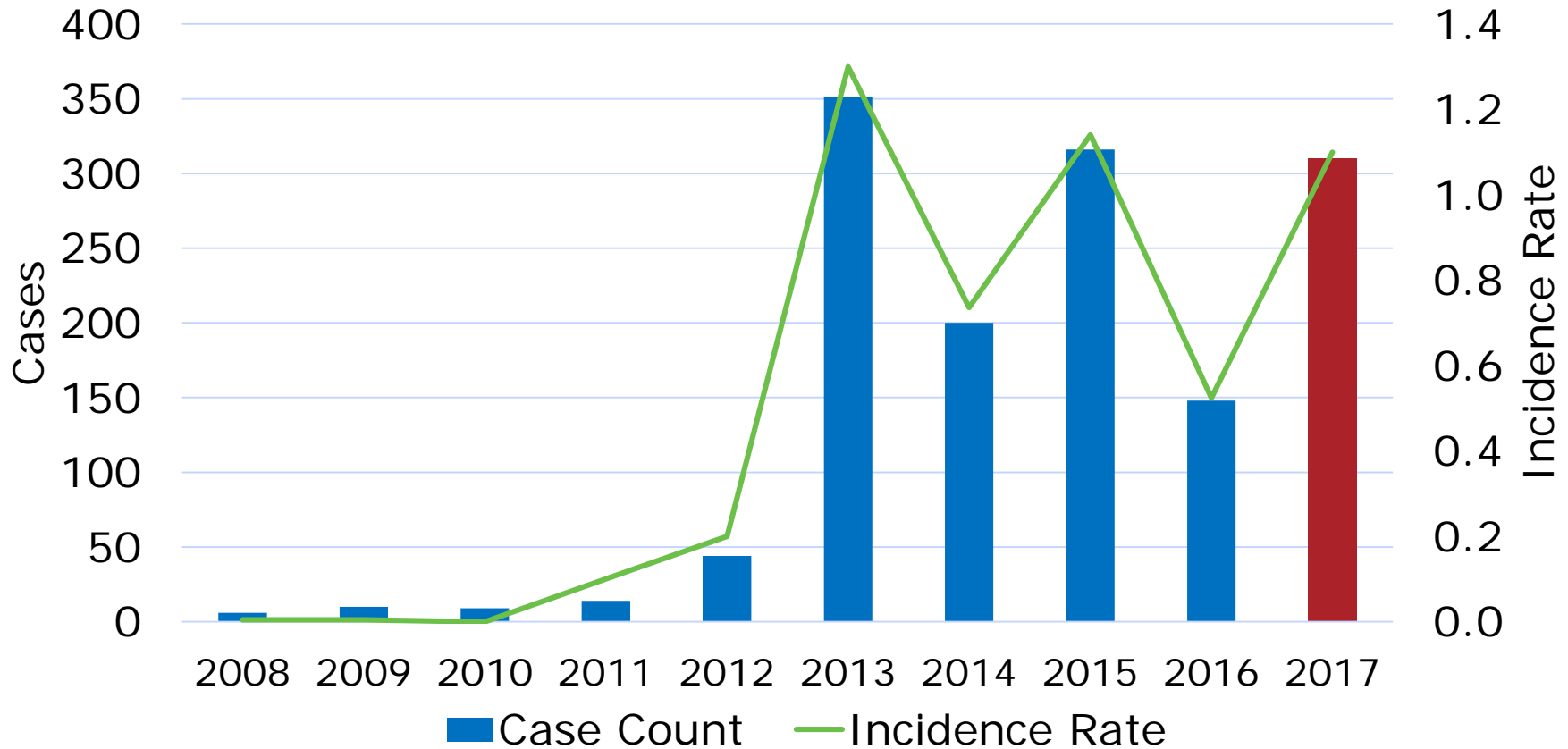
Cyclosporiasis Disease Information and Data

- Intestinal illness caused by microscopic parasite *Cyclospora cayetanensis*

- Symptoms usually begin 2 - 14 days after ingesting infective parasites

- Risk Factors:
  - Ingesting food or water contaminated with feces
  - Past outbreaks associated with imported fresh produce, including cilantro, raspberries, basil, and snow peas

- 2017 Case Count: **310***
  - 190 acquired domestically
  - 9 hospitalizations, no deaths
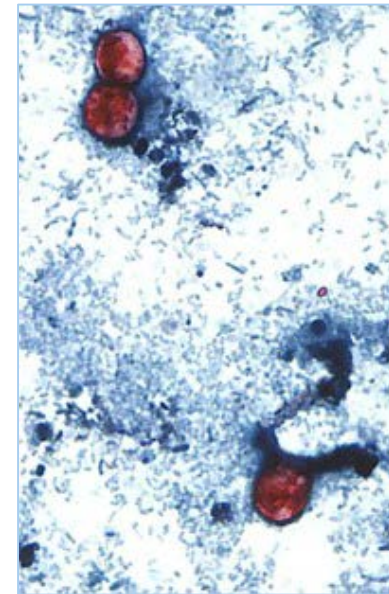
*Preliminary data. Image Credit: CDC

Reported Cyclosporiasis Case Counts and Incidence Rates in Texas, 2008-2017
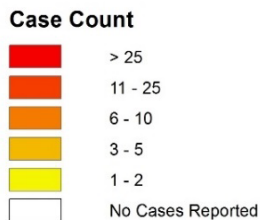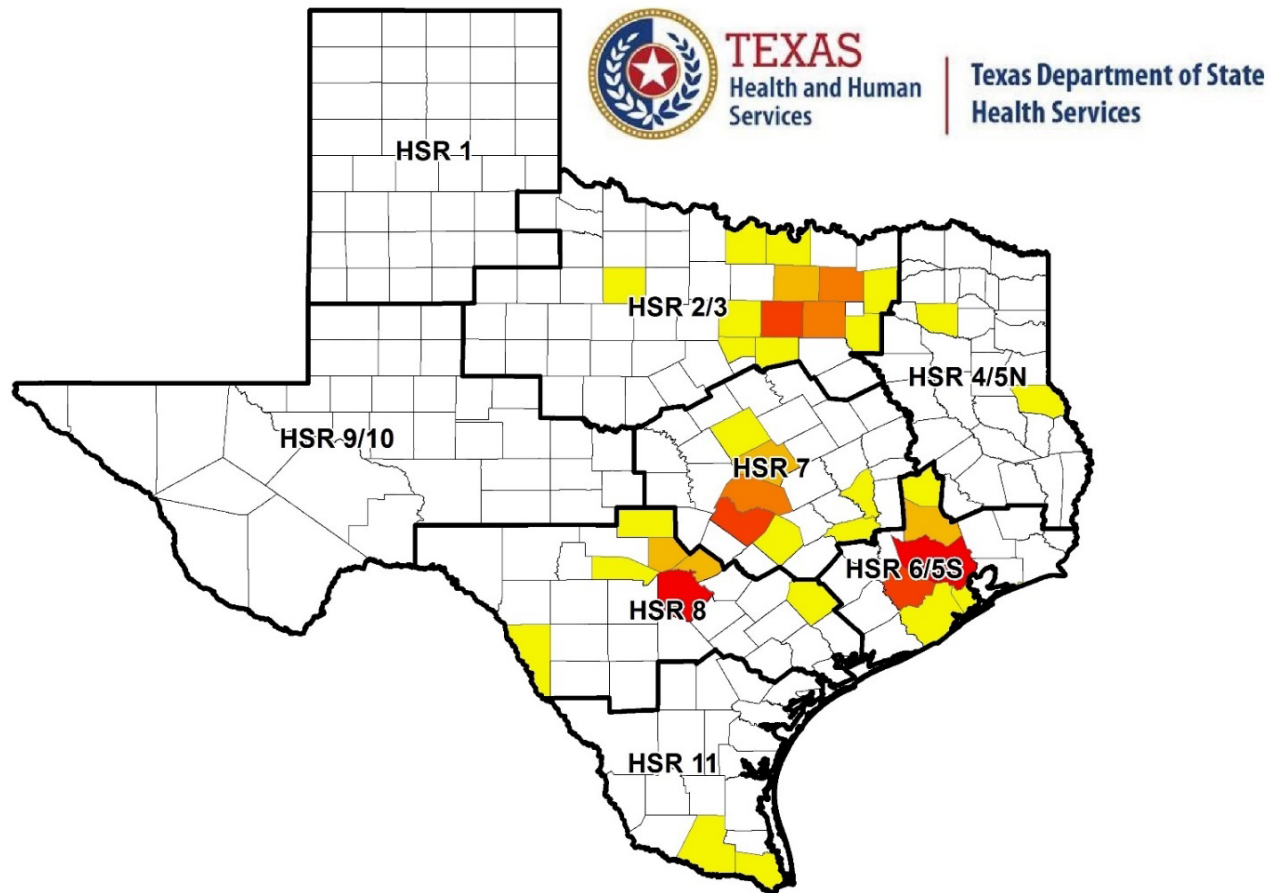
2017 provisional data, as of 12/29/17

Domestically Acquired Cases of Cyclosporiasis in Texas, 2017*

Case Count

- > 25
- 11 - 25
- 6 - 10
- 3 - 5
- 1 - 2
- No Cases Reported

HSR 1

HSR 2/3

HSR 4/5N

HSR 9/10

HSR 7

HSR 6/5S

HSR 8

HSR 11

Source: Texas Department of State Health Services, Infectious Disease Control Unit.

Prepared: January, 2018
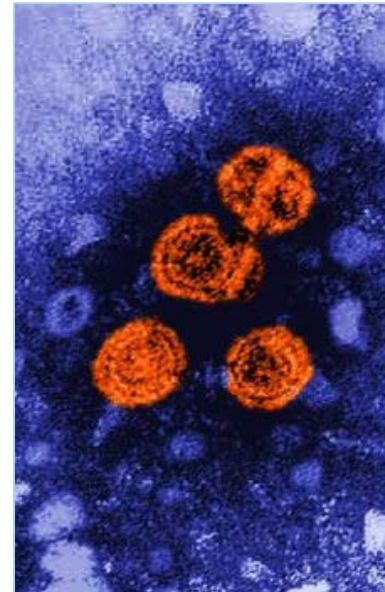(n = 190)

*As of 1/9/2018

Cyclosporiasis Community Impact

- In response to a spike in reported cases, DSHS asked healthcare providers to be on guard for the illness, pursue testing, and report cases to their local health department:
  - July 17: DSHS health alert released
  - July 24: Texas Rapid Response Team activated
  - August 9: Requested epi assistance from the CDC to investigate a restaurant cluster

- Restaurant case-control investigation:
  - Green onions were associated with cyclosporiasis – first time in the U.S.
  - Trace back investigations to determine the sources of the green onions were ultimately inconclusive

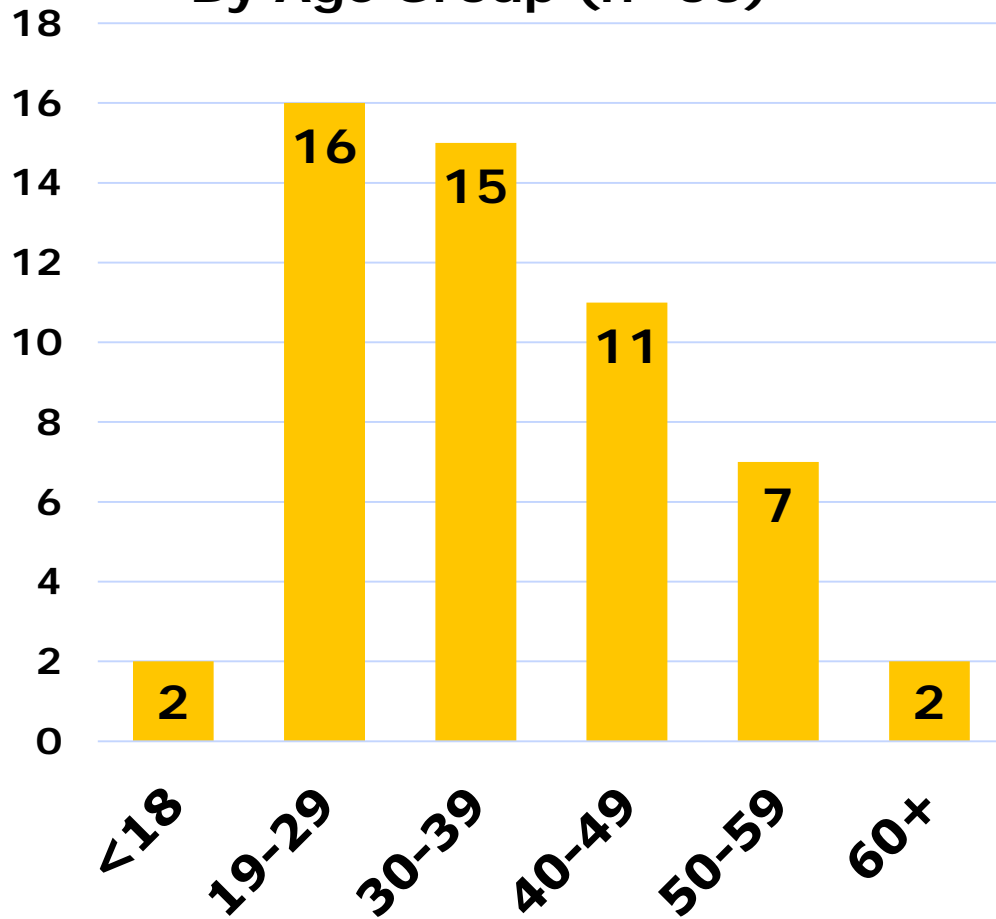# Hepatitis C Disease Information and Data

- Liver infection caused by blood-borne virus
- Hepatitis C can be a short-term illness (acute), but for 70%-85% of people it becomes a long-term infection (chronic)
- Risk Factors:
  - Persons born between 1945 and 1965 Current or former injection drug users
  - People with HIV
  - Recipients of certain blood products, blood transfusions, or solid organ transplants before early 1990s
  - Children born to hepatitis C virus (HCV) positive mothers
- 2017 New Acute Cases: **53***
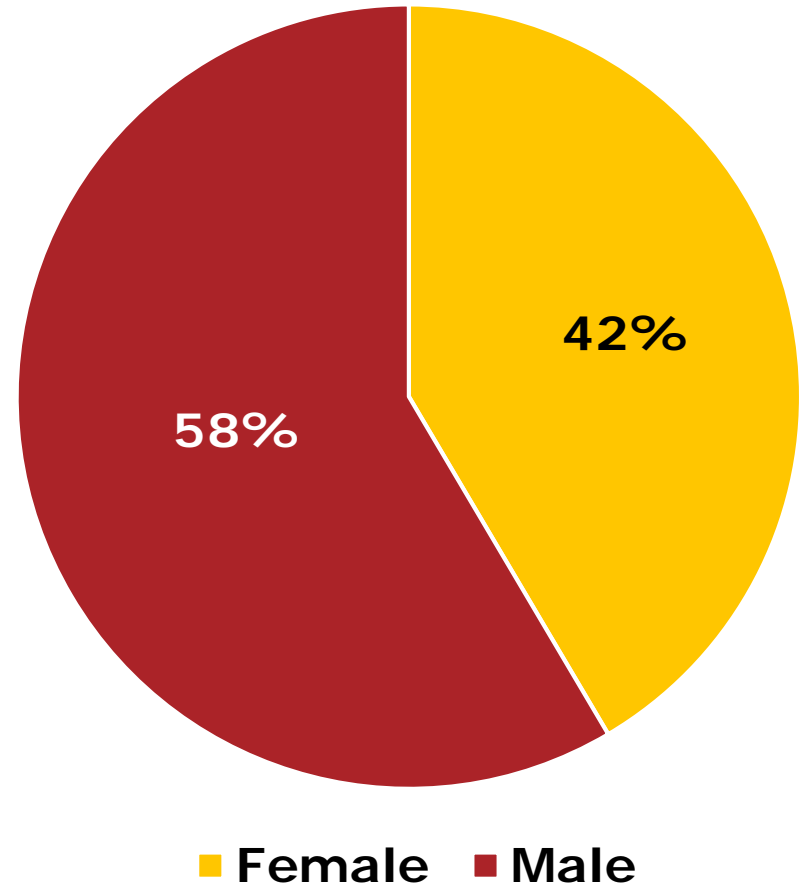- Estimated Number of Chronic HCV Cases: **550,000-750,000**

*As of 12/29/2017, Image Credit: CDC

Acute HCV Cases, 2017

By Age Group (n=53)

Age Group	Count
<18	2
19-29	16
30-39	15
40-49	11
50-59	7
60+	2

By Gender (n=53)

- Female: 42%
- Male: 58%

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Hepatitis C Community Impact

- More effective treatments with less side effects are now being offered

- At the end of 2017, DSHS began collaborating with UT-Southwestern to focus additional surveillance resources and staff on hepatitis C

HIV Disease Information and Data

- Virus that reduces the number of CD4 cells (T cells) in the body, making the person more susceptible to other infections or infection-related cancers

- Transmission:
  - Sexual contact
  - Injection drug use
  - Mother to baby during pregnancy, birth, or breastfeeding

- Disproportionately impacted groups:
  - Men who have sex with men have the largest proportion of PLWH and new diagnoses
  - Men, people aged 20-34, and Black and Hispanic Texans have higher rates of HIV diagnoses

- New Cases Diagnosed in 2016: **4,493**

- People Living with HIV (PLWH) 2016: **86,669**

Image Credit: CDC

Texas PLWH, New Diagnoses, and HIV-Related Deaths*, 2007 - 2016
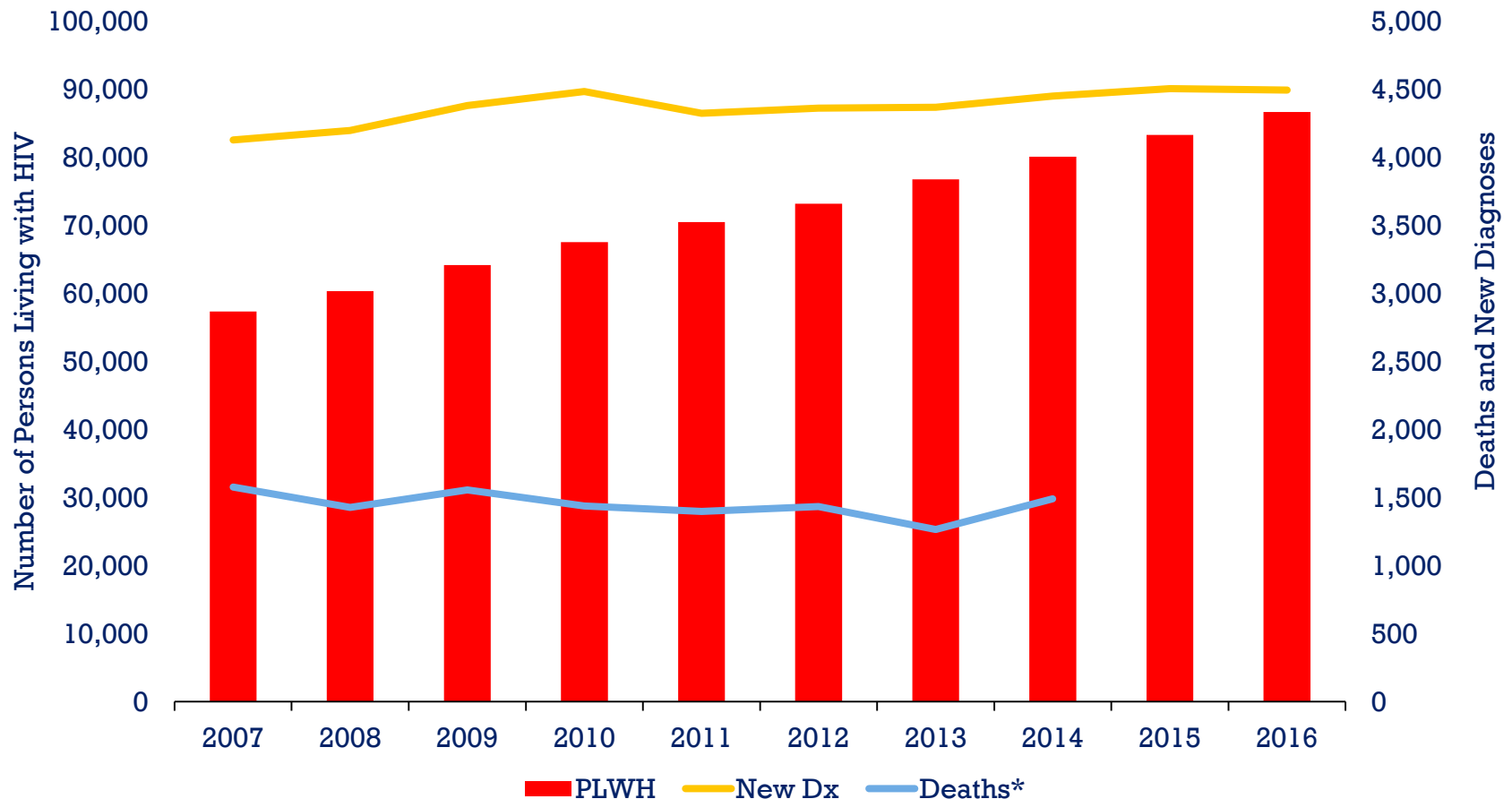
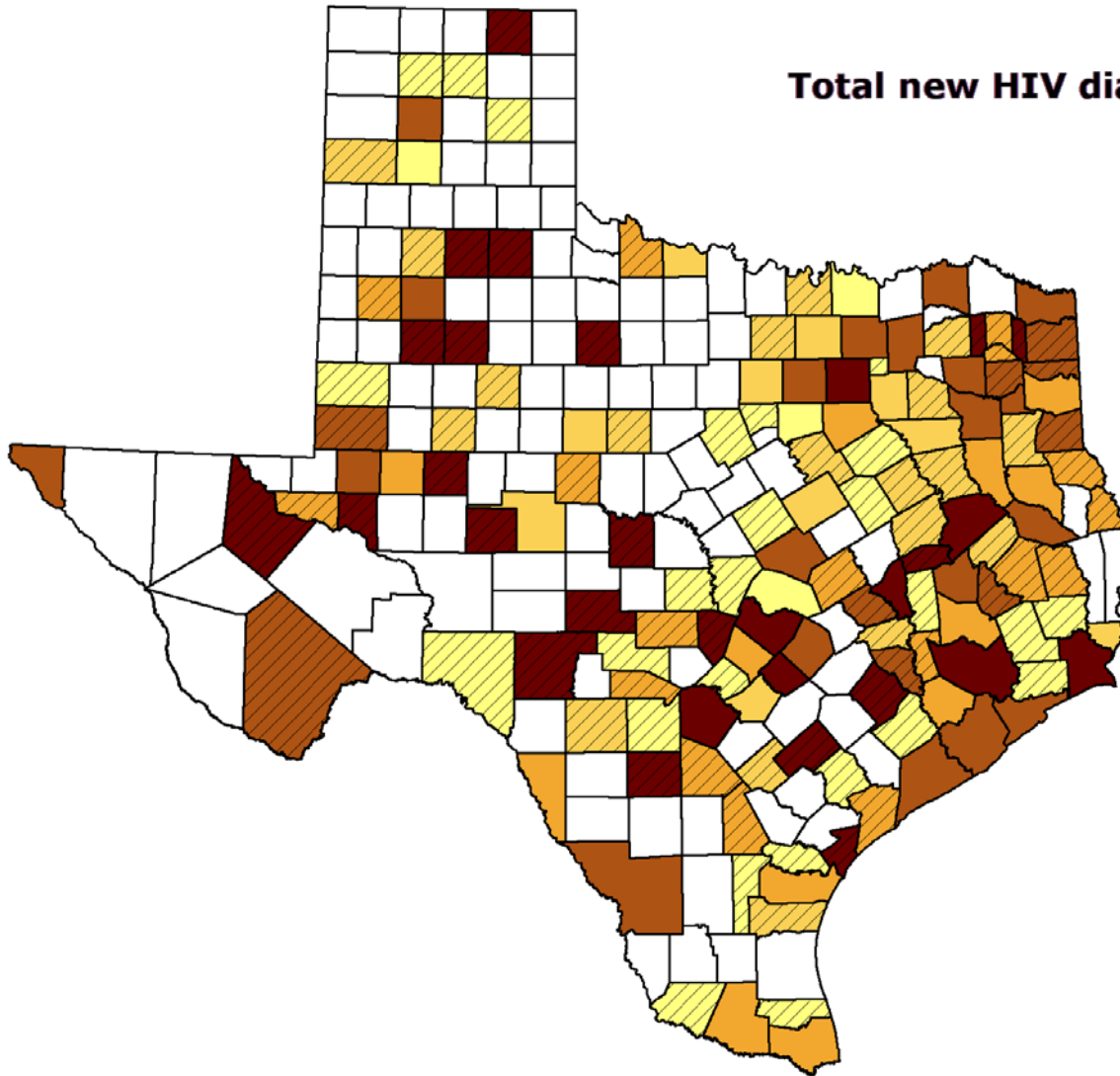*There is a reporting delay for death data
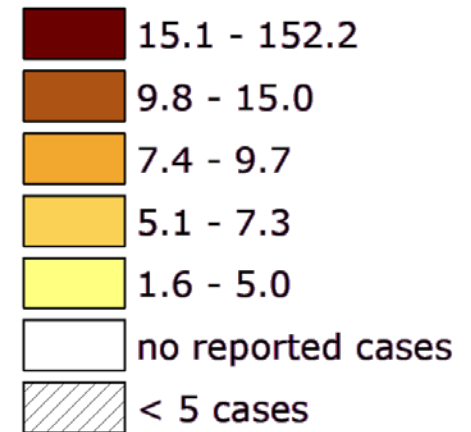
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Texas New HIV Diagnoses Rate, 2016

Total new HIV diagnoses: 4,493

Rate per 100,000
(Quantiles)

- 15.1 - 152.2
- 9.8 - 15.0
- 7.4 - 9.7
- 5.1 - 7.3
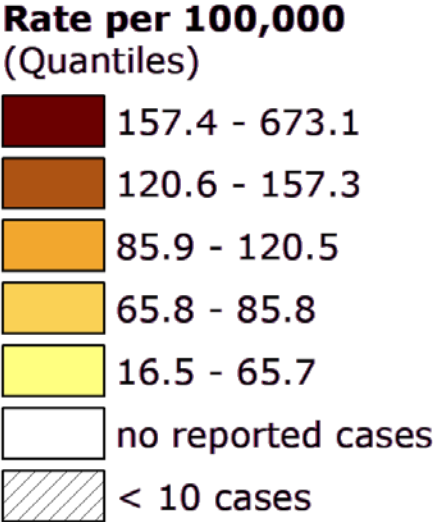- 1.6 - 5.0
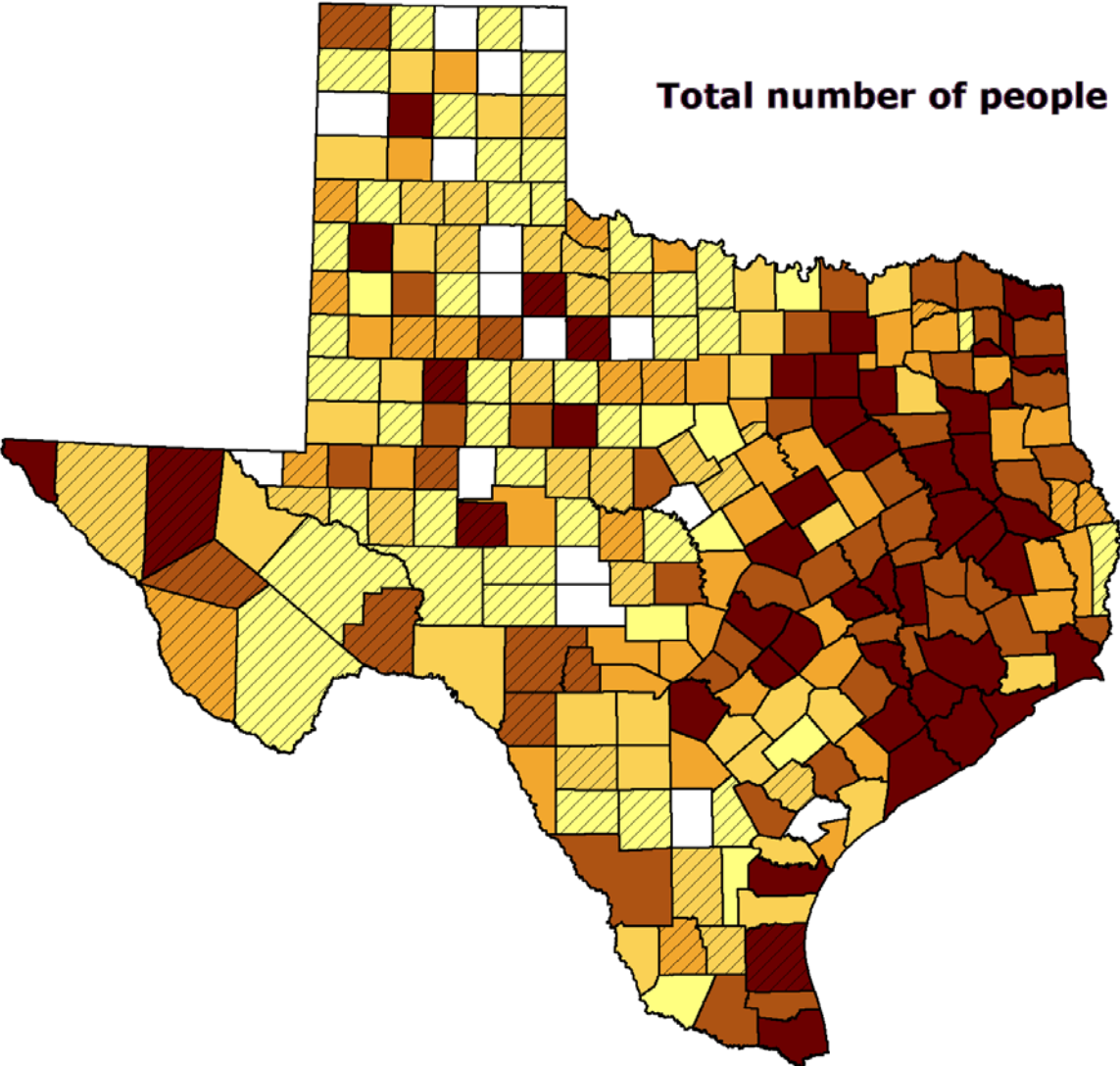- no reported cases
- < 5 cases

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Rate of PLWH in Texas, 2016

Total number of people living with HIV: 86,669

Rate per 100,000
(Quantiles)

- 157.4 - 673.1
- 120.6 - 157.3
- 85.9 - 120.5
- 65.8 - 85.8
- 16.5 - 65.7
- no reported cases
- < 10 cases

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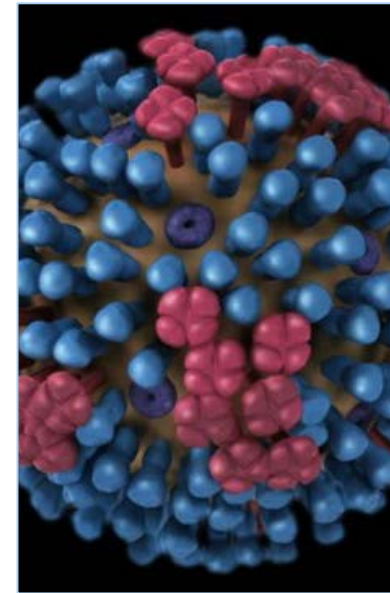Texas Department of State Health Services

HIV Community Impact

- In 2017, 25 Texas HIV clusters exhibiting rapid person-to-person transmission, with evidence of ongoing growth, were identified through genotyping

- 6 clusters are focused in San Antonio\Bexar County

- DSHS is working with local and regional health departments, to:
  - Identify and prioritize PLWH who are linked to these clusters and have no evidence of HIV care
  - Offer re-testing and pre-exposure prophylaxis as appropriate to persons linked to a cluster who were last known to be HIV negative

Influenza Disease Information and Data

- Contagious respiratory illness caused by influenza viruses
- Some people are at high risk of serious complications:
  - Older people
  - Young children
  - People with certain health conditions
- Influenza-like Illness (ILI)/influenza-associated outbreaks 2017: **194**[*]
- Reported ILI/influenza-associated outbreaks for previous years:
  - 2016: 29
  - 2015: 35
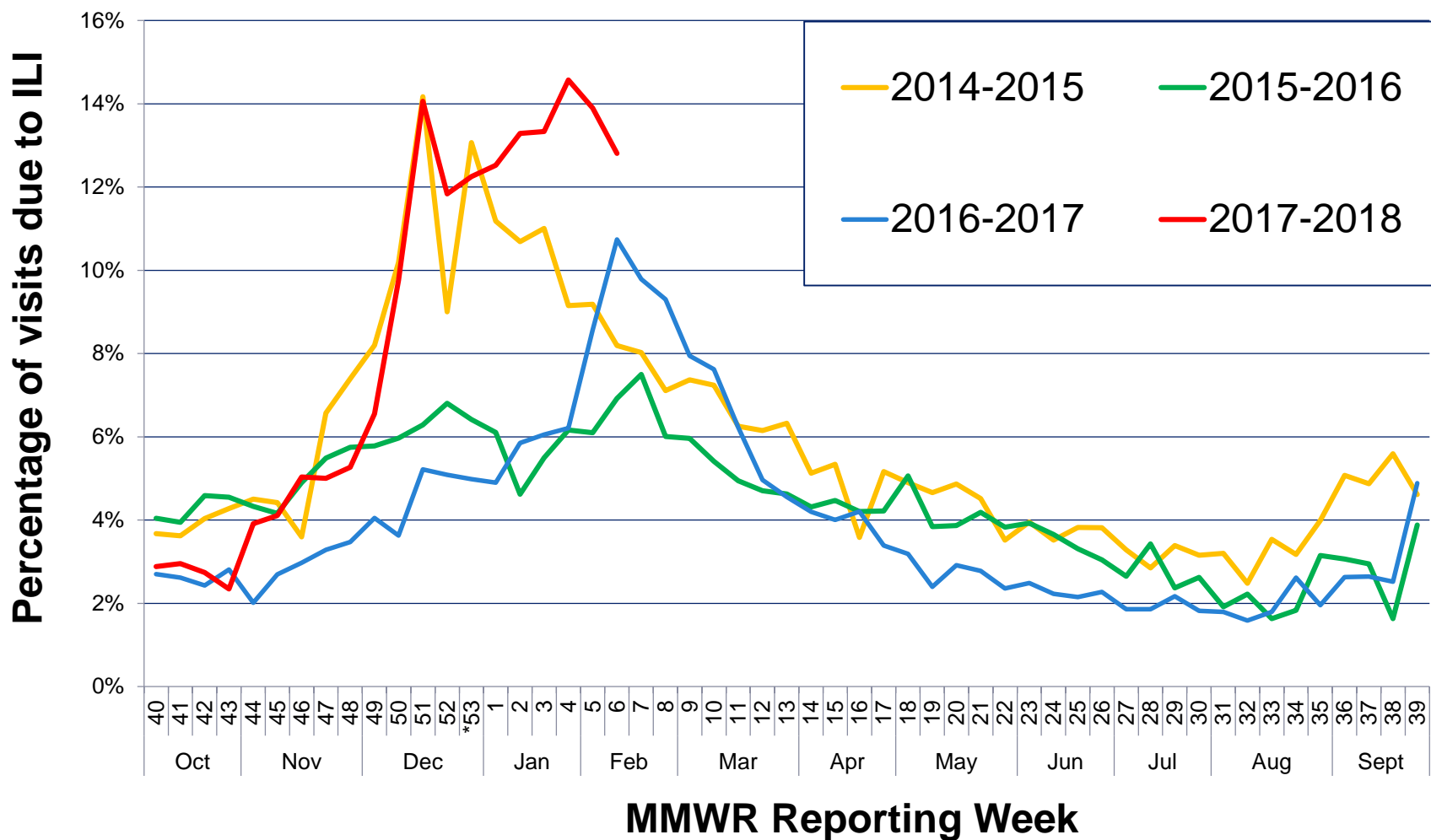 - 2014: 26

[*]As of 2/22/18. Image Credit: CDC

Influenza Reporting

- Individual cases of influenza are not required to be reported in Texas
  - There are three reportable influenza-related conditions:
    1. Novel influenza A cases in humans
    2. Influenza-associated pediatric mortality
    3. Outbreaks due to any cause
- The U.S. Outpatient ILI Network is an online reporting system maintained by the CDC
  - Voluntary reporting
  - Healthcare providers report the total number of patients seen with ILI by age group and the total number of patients seen for any reason each week

Percentage of Visits Due to ILI by Texas ILINet Participants, 2014-2018 Seasons
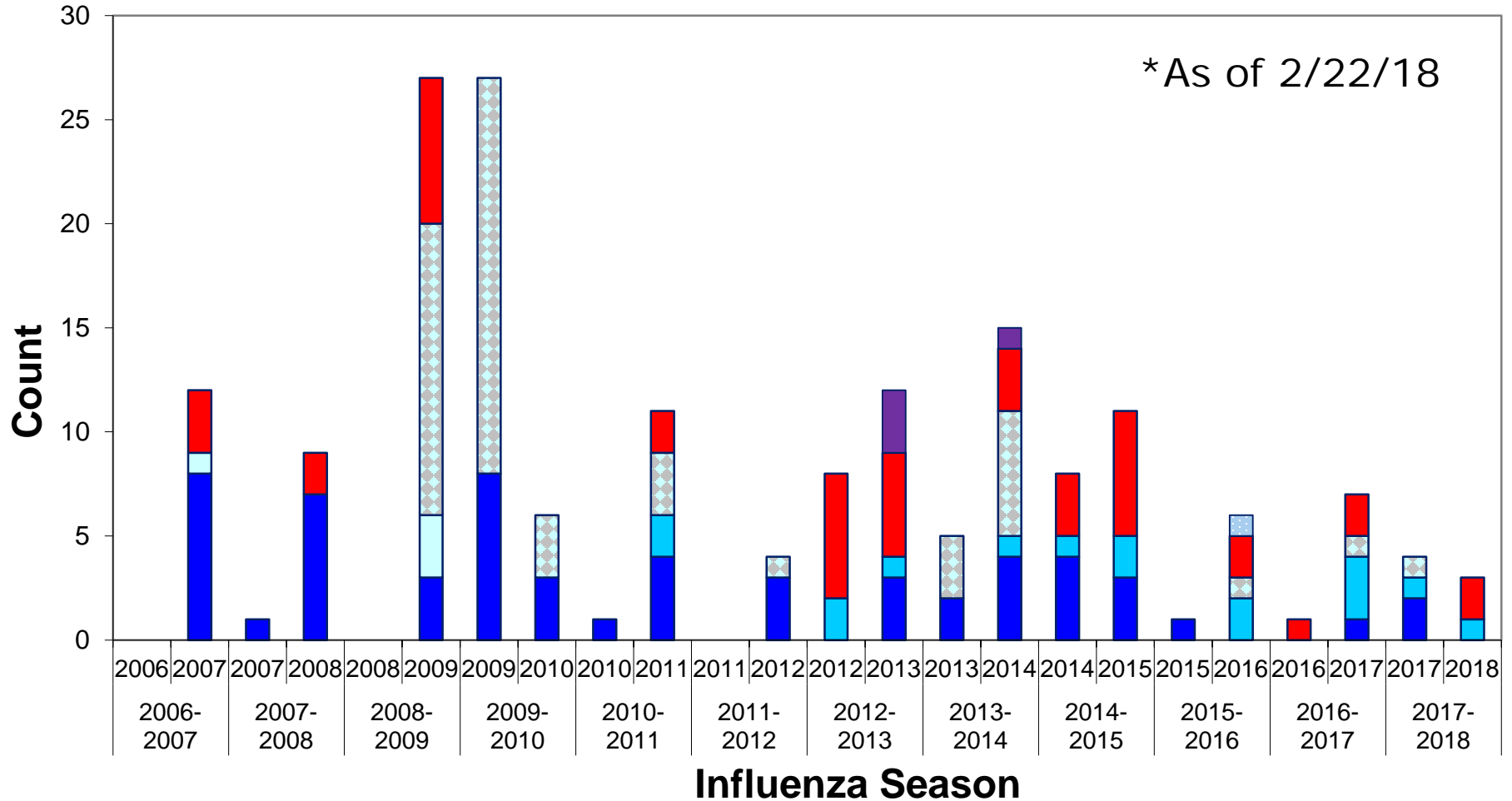
Influenza-Associated Pediatric Mortality, 2007 – 2017*

Number of Reported ILI/Influenza-Associated Outbreaks in Texas by Facility Type, 2017*
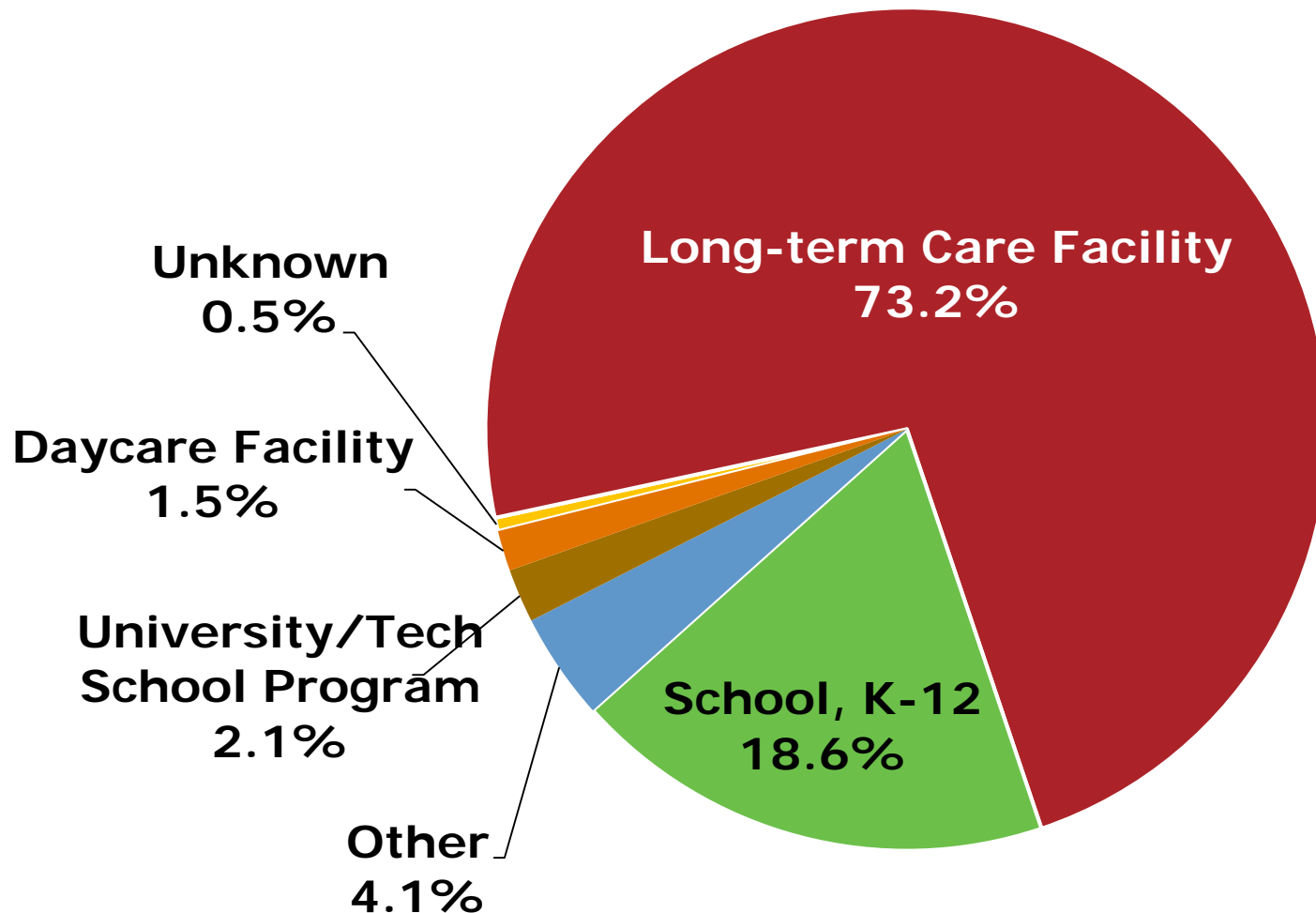
Long-term Care Facility
73.2%

School, K-12
18.6%

Unknown
0.5%

Daycare Facility
1.5%

University/Tech
School Program
2.1%

Other
4.1%

*As of 2/22/18

U.S. Influenza Vaccine Effectiveness

- Determined by the U.S. Flu Vaccine Effectiveness Network

- 2016-17 Season:
  - Overall vaccine effectiveness (VE): 39%
  - VE against flu A (H3N2): 34%
  - VE against flu B: 56%

- 2017-18 Season:
  - Overall Interim VE: 36%
  - Interim VE against flu A (H3N2): 25%
  - Interim VE against flu A (H1N1): 67%
  - Interim VE against flu B: 42%

Influenza Community Impact

- One human infection of novel influenza A reported in April 2017
  - First case identified in U.S. in 2017

- Detected through routine Department of Defense Global, Laboratory-based Influenza Surveillance Program
  - Child <5 exposed to swine at agricultural event

- Conducted enhanced surveillance by asking providers to submit additional specimens for patients with ILI to the Laboratory Response Network Laboratory

Mumps Disease Information and Data

- A vaccine-preventable disease best known for the puffy cheeks and swollen jaw it causes

- Transmission: coughing, talking, sneezing, sharing items with others, or touching surfaces

- Risk Factors:
  - close-contact settings or crowded environments

- 2017 Case Count: **431***
  - Highest number of cases in over 25 years
  - 41% of cases were not associated with an outbreak

*2017 data provisional as of 1/3/2018. Image credit: CDC

Texas Total Mumps Cases and Incidence for 2017*

*2017 data provisional as of 1/3/2018
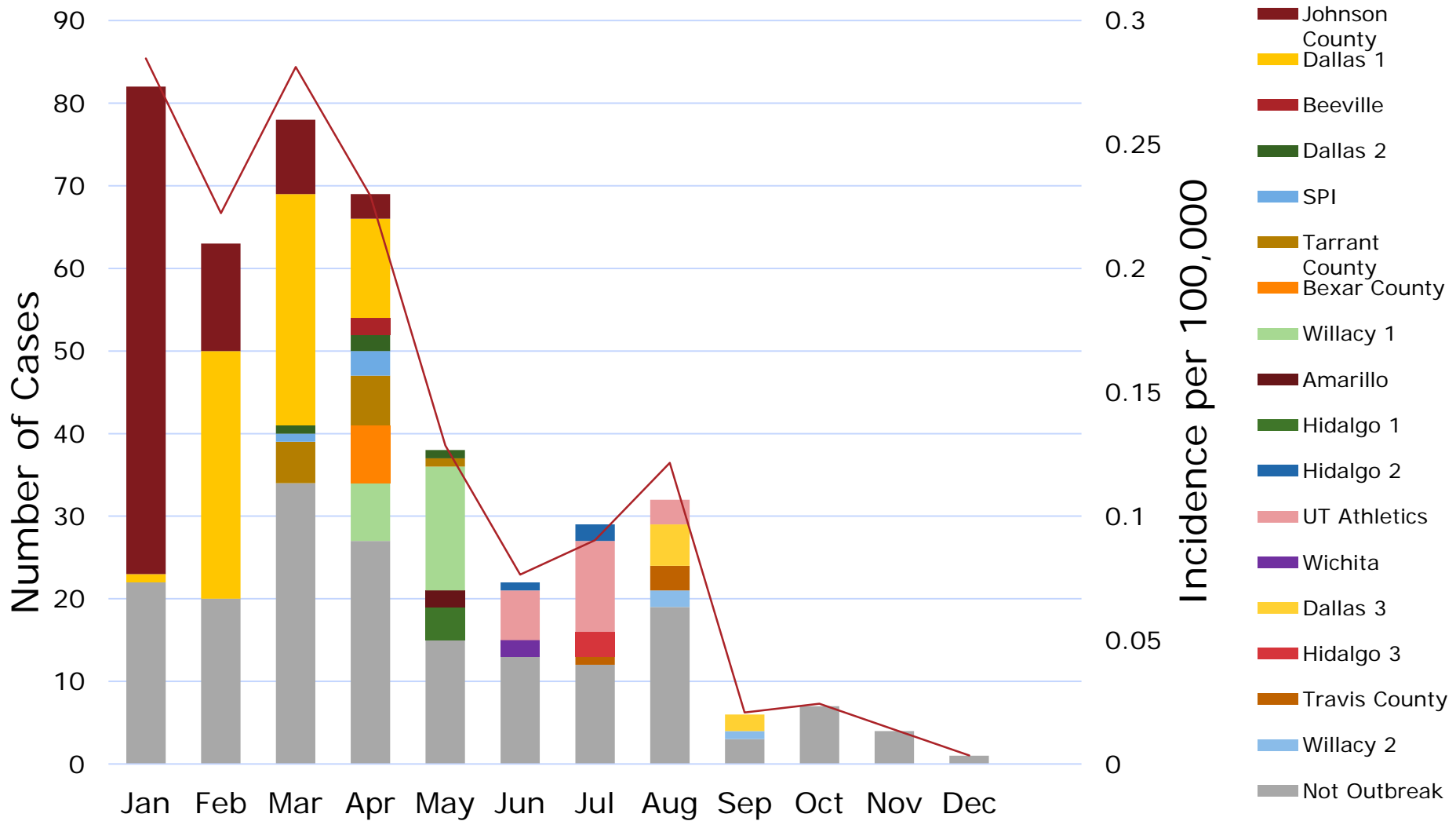
SPI = South Padre Island

Mumps Community Impact

- 17 outbreaks in 2017

- Largest outbreak spanned 2016 and 2017 in Johnson County with 191 cases
  - DSHS sent out health advisories, held third dose vaccination clinics, and applied appropriate isolation
  - School districts excluded immunocompromised and unvaccinated children from school for several weeks

- Smallest had 2 cases each in Beeville, Amarillo, and Wichita County

Rubella Disease Information and Data

- A vaccine-preventable disease spread when an infected person coughs or sneezes
- Pregnant women can spread it to their developing babies – congenital rubella syndrome (CRS)
- Eliminated from the U.S. in 2004
- 2017 Cases:
  - 1 travel-related, not indigenous case
  - 2 CRS cases
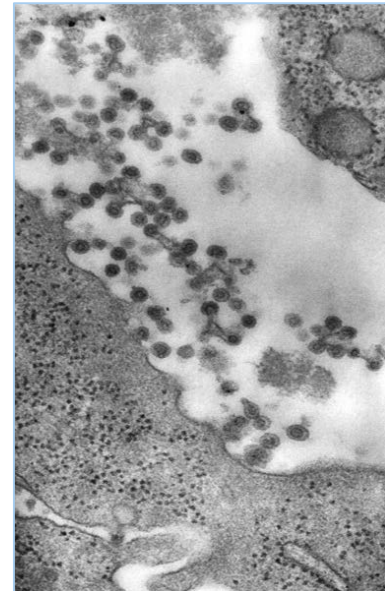   - Both mothers were infected with rubella virus outside of the U.S.

Image Credit: CDC

Tuberculosis Disease Information and Data

- Caused by bacterium *Mycobacterium tuberculosis*
- Usually bacteria attack the lungs, but can attack any part of the body (kidney, spine, brain, etc.)
- Can be a latent infection or an active disease
- Transmission: inhalation of droplets released when someone with active TB disease coughs, speaks, or sings
- Risk Factors:
  - Close contact with someone with TB disease, immigrants from areas with high TB rates, homeless persons, injection drug users, PLWH, people with weakened immune systems, people working or residing in congregate settings
- 2016 Active TB Case Count: **1,250**
  - Texas' TB incidence (4.5/100,000) is much higher than the national level

Texas Counties with the Highest TB Rate, 2016
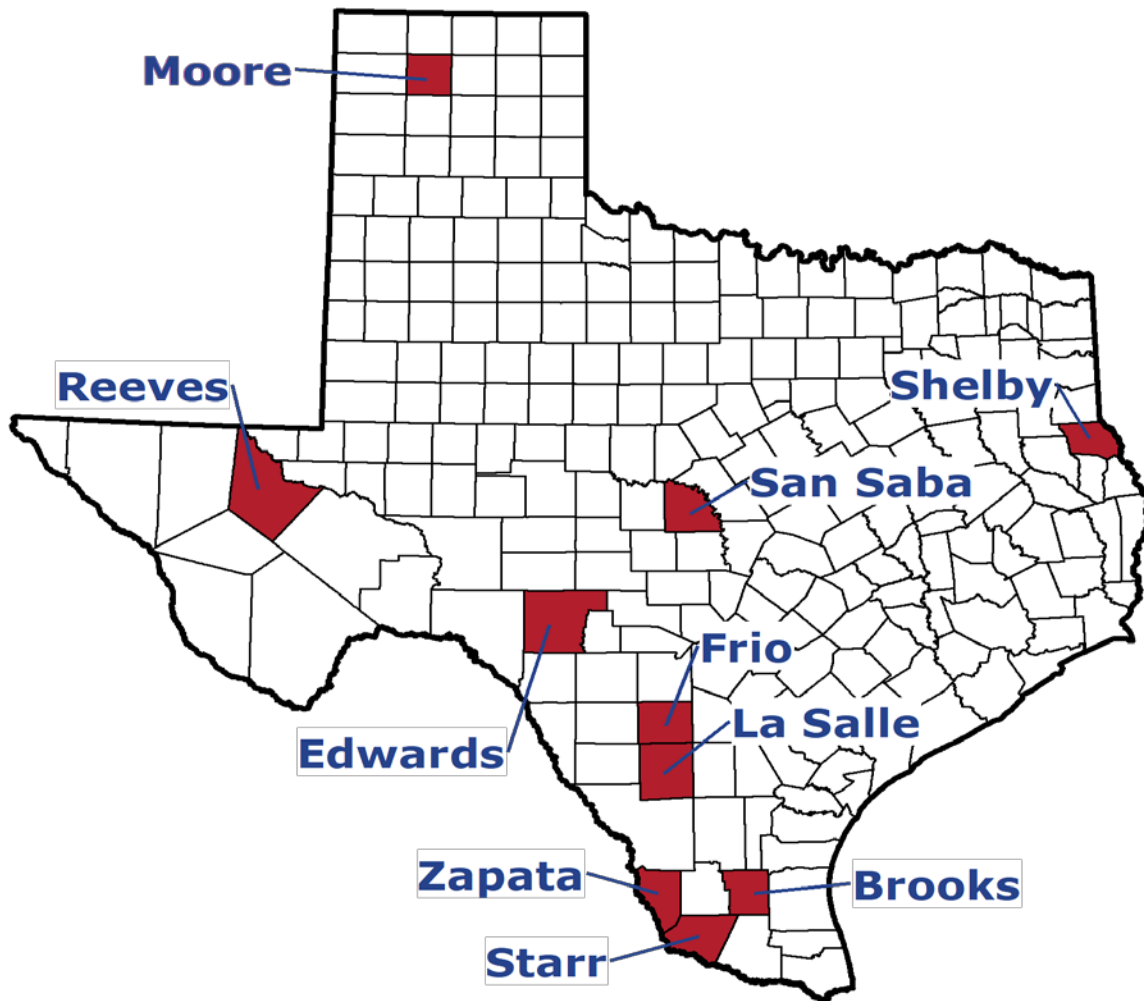
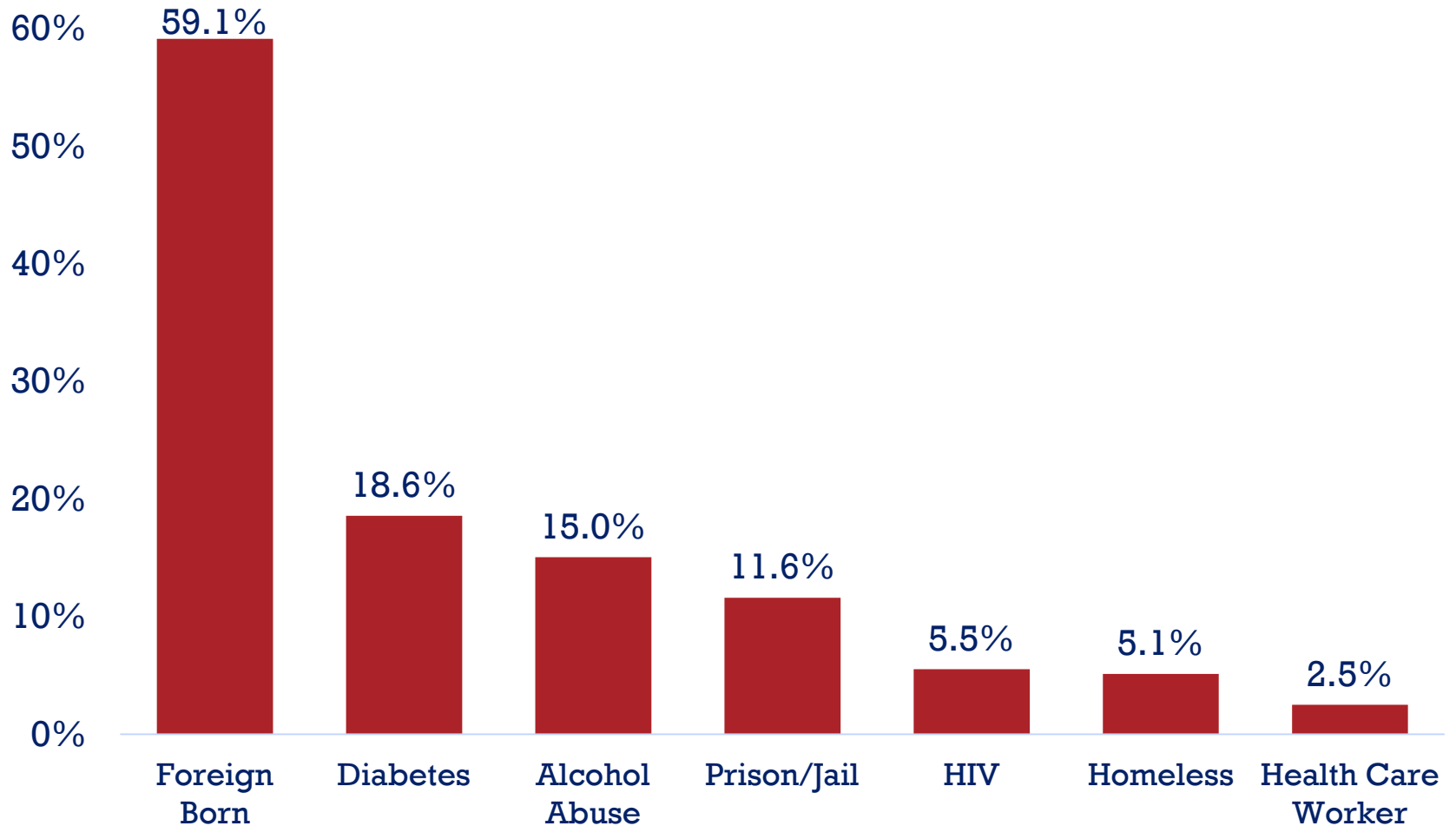| County	Rate per 100,000
Frio	95.0
Edwards*	52.3
La Salle*	39.4
Moore	31.6
Zapata*	27.9
Brooks*	27.7
Starr	20.3
Reeves*	20.1
Shelby	19.5
San Saba*	16.8

* Less than 5 cases

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Risk Factors Associated with TB Cases Reported in Texas, 2016

Tuberculosis Community Impact

- A total of 55 clusters were identified in 2017, taking place in:
  - Schools
  - Homeless shelters
  - Correctional facilities
- A genotype cluster is defined as two or more cases in a county having matching TB DNA fingerprint over a three year period
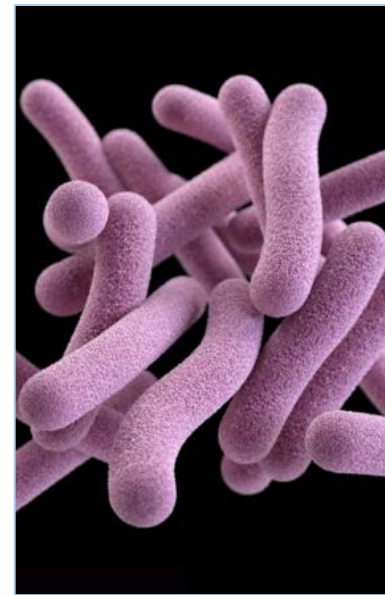
Image Credit: CDC

Murine Typhus Information and Disease

- Caused by bacteria *Rickettsia typhi*

- Transmission: spread to humans by fleas, primarily from wildlife reservoirs
  - >60% of reported cases are hospitalized
  - Since 2003, 8 deaths attributed to murine typhus in Texas

- 2017 Human Case Count: **>400***
  - Increasing case count and distribution trends led to issuance of a Health Alert on November 30, 2017
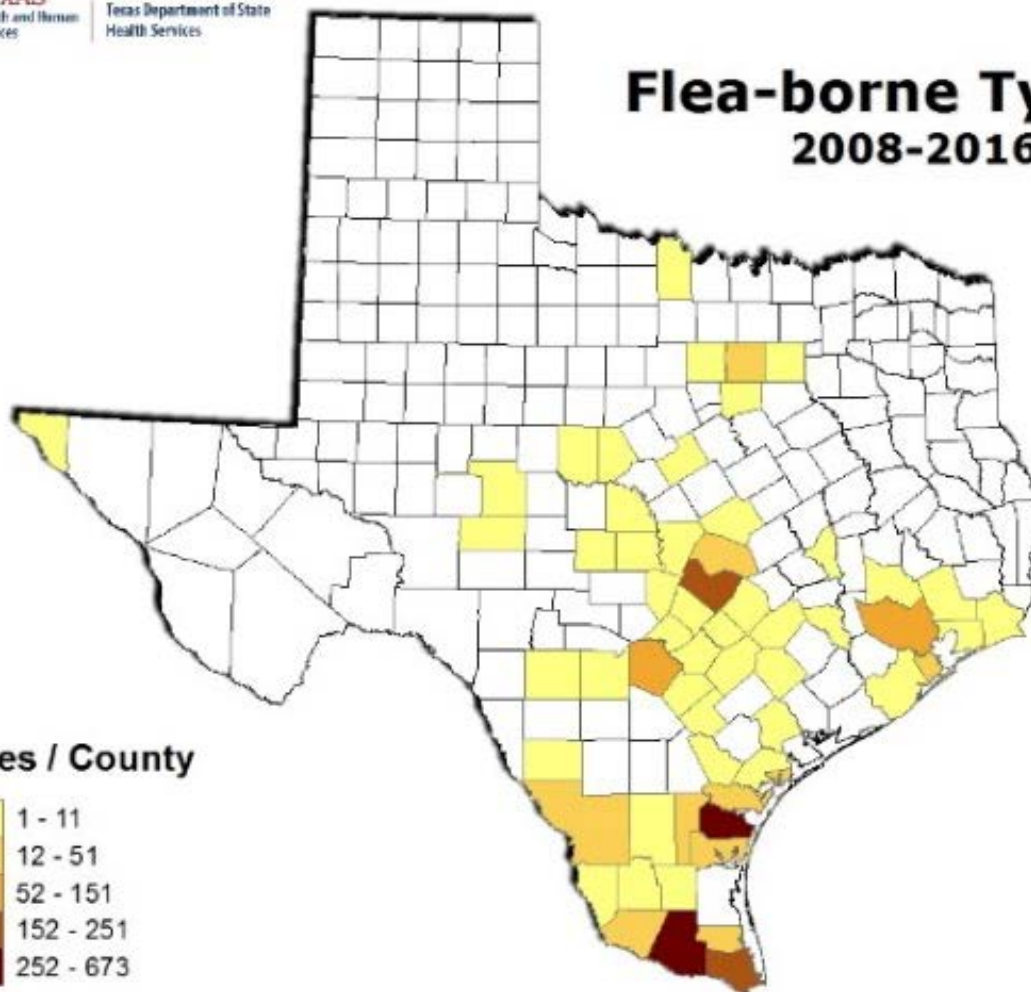
*Preliminary data

Murine Typhus

Zika

- Lower Rio Grande Valley continues to be at higher risk of sporadic local mosquito-borne transmission of Zika virus
  - Hidalgo and Cameron counties each reported one locally acquired case in 2017

- Globally, Zika transmission drastically decreased since 2016, but remains a risk for pregnant women with exposure

- Reported Cases in Texas
  - 2017: 48 (2 locally acquired by mosquitoes)
  - 2016: 315 (6 locally acquired by mosquitoes)
  - 2015: 8

*As of 1/9/18

Zika Disease Cases Reported in Texas in 2017*
(Total =48)
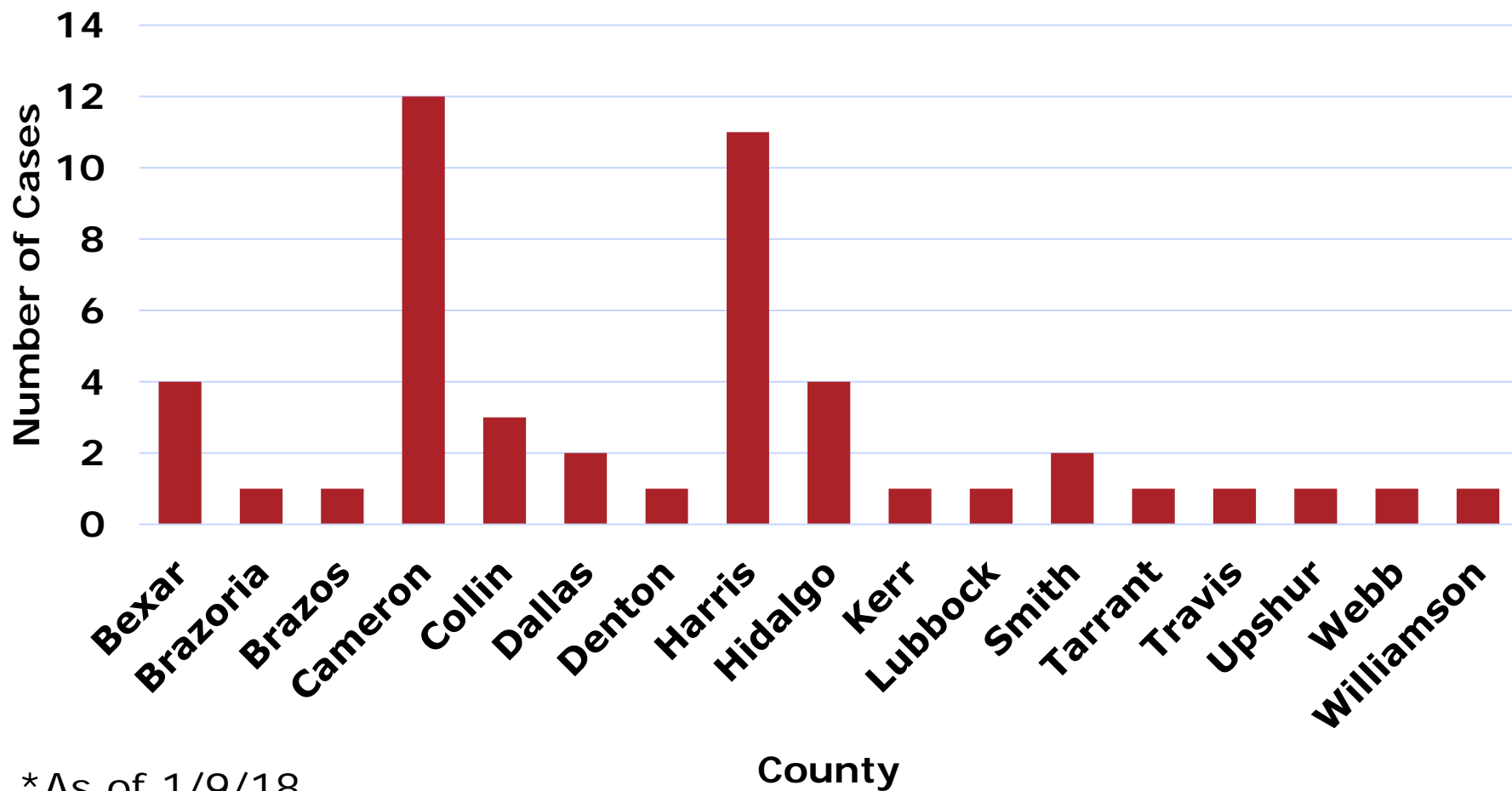
*As of 1/9/18

Other Diseases of Note

- Anthrax
- Botulism
- Hantavirus
- Measles
- Plague
- Salmonella in rattlesnake pills
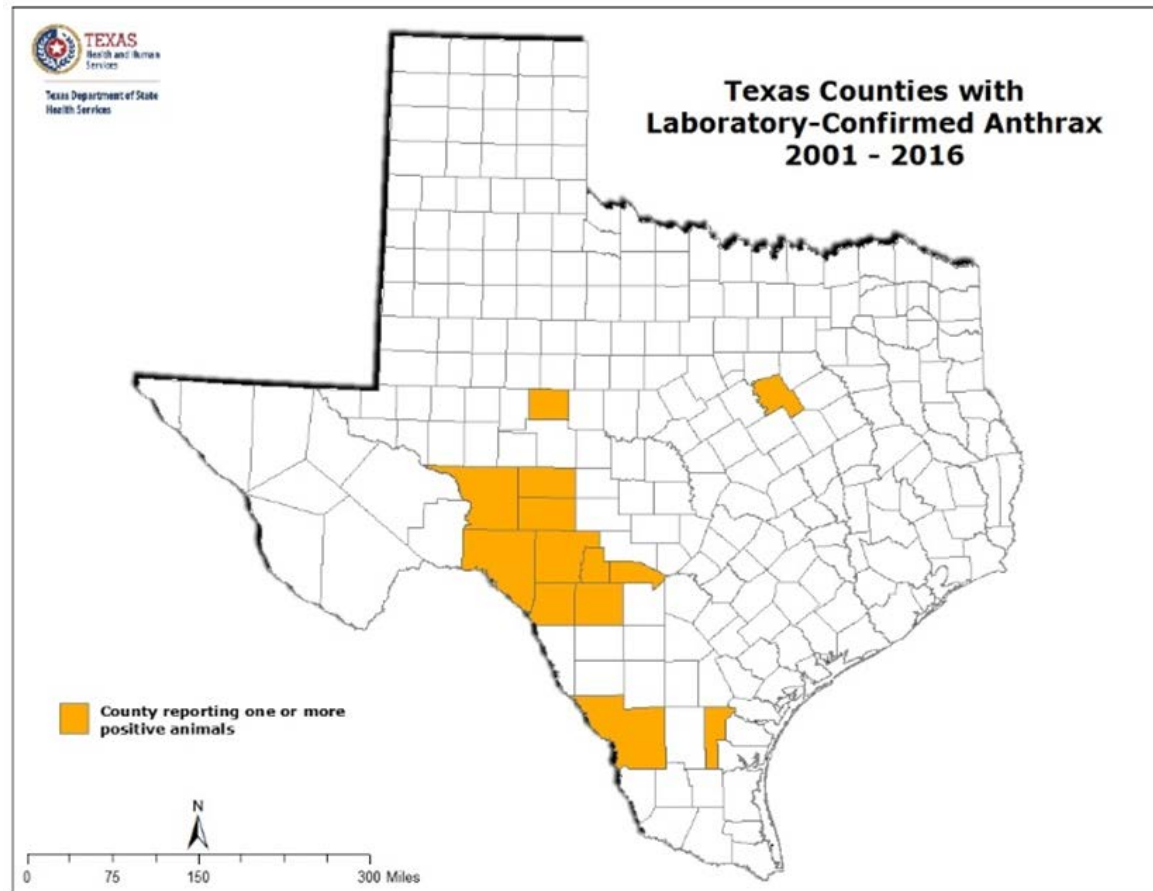
Texas Counties with Laboratory-Confirmed Anthrax 2001 - 2016

County reporting one or more positive animals

Thank you

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