Arbovirus Update

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Discussion Topics

- Arbovirus Overview
- Dengue Virus
- Chikungunya Virus
- West Nile Virus
- DSHS Arboviral Activities
- Arboviral Disease Prevention

TEXAS Health and Human Services

Texas Department of State Health Services

DISCLAIMER

The information presented today is based current preliminary data and on CDC's recent guidance. Information is subject to change.

October 9, 2025

Arbovirus Overview

Arbovirus Definition

Arthropod-borne viruses, known as arboviruses, are transmitted by arthropods including mosquitoes, ticks, and other biting insects.

The primary mosquito vector for:

- **Dengue virus**
- **Chikungunya virus**
- **Zika virus**

The primary mosquito vector for:

- **West Nile virus**
- **St. Louis Encephalitis virus**

Images available at: CDC's Most (un)Wanted Mosquitoes | Dengue | CDC and Details - Public Health Image Library(PHIL), accessed on 10/7/2025

Clinical Outcomes of Arboviral Infections

- Clinical manifestations of arboviral infections can include:
  - Mild febrile illness, possibly with rash, headache, body aches, and nausea/vomiting
  - Severe neurological disease which can be debilitating long-term and lead to death.
    - May include encephalitis, meningitis, Guillain-Barre Syndrome, or other neurological issues
  - Severe liver and other organ dysfunction which can lead to death, most often seen with severe dengue infections.
  - Abnormal birth outcomes, including congenital infections and birth defects, as seen with Zika infections.

Available at: https://www.cdc.gov/mosquitoes/php/arbonet/index.html, accessed 10/7/25

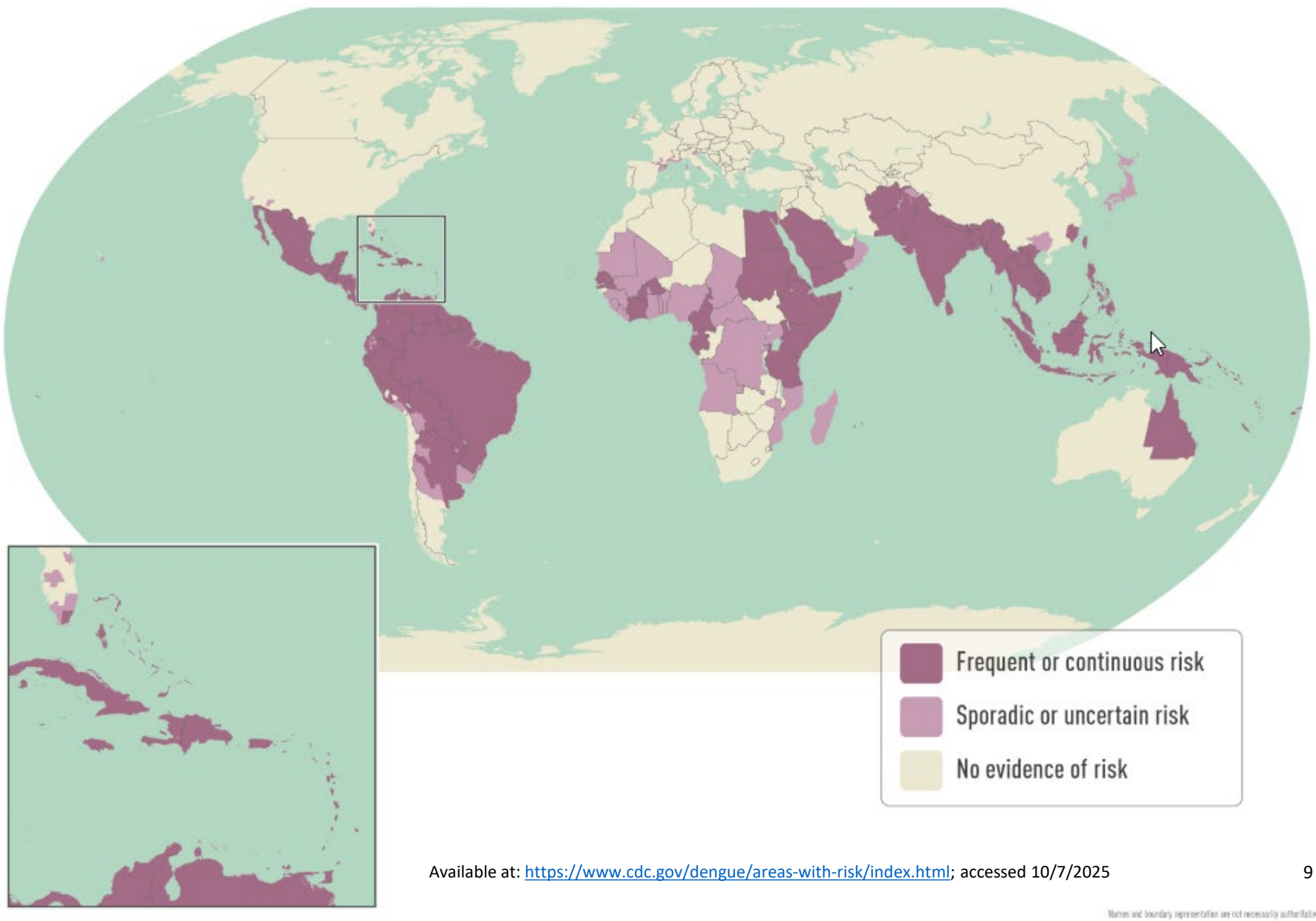
Dengue Virus

Global Dengue Virus Activity

- Dengue is a common mosquito-borne disease worldwide.
- About half of the world's population live in areas with a risk of dengue.
- It is often a leading cause of febrile illness in areas with risk.
- Dengue outbreaks are reported frequently in these regions:
  - Caribbean
  - Central America
  - South America
  - Southeast Asia
  - Pacific Islands
- Very high global activity in 2024 and continuing into 2025
  - Globally high levels of dengue transmission led to higher travel-associated cases in the U.S.

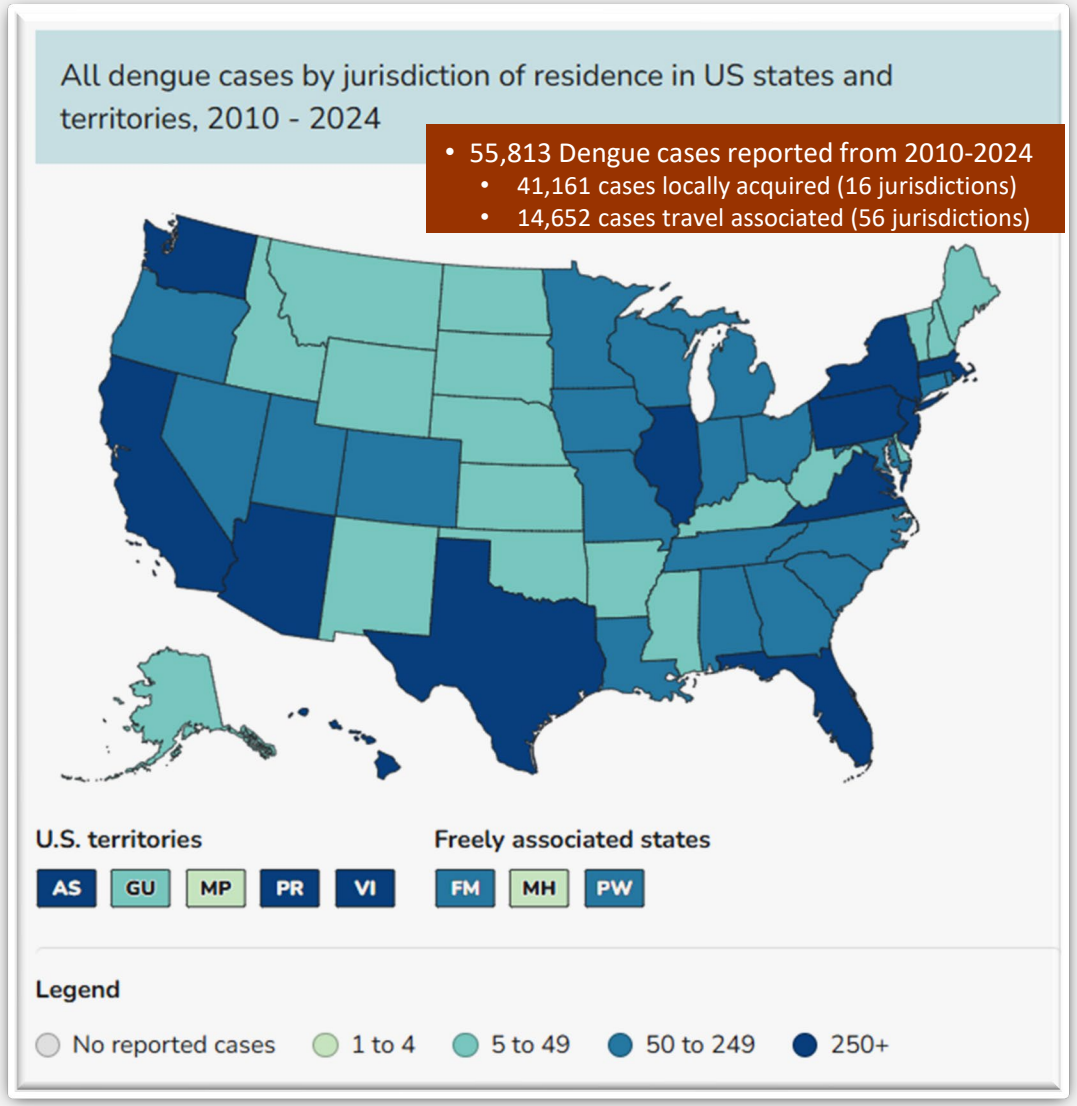
Available at: Areas with Risk of Dengue | Dengue | CDC, accessed 10/7/2025

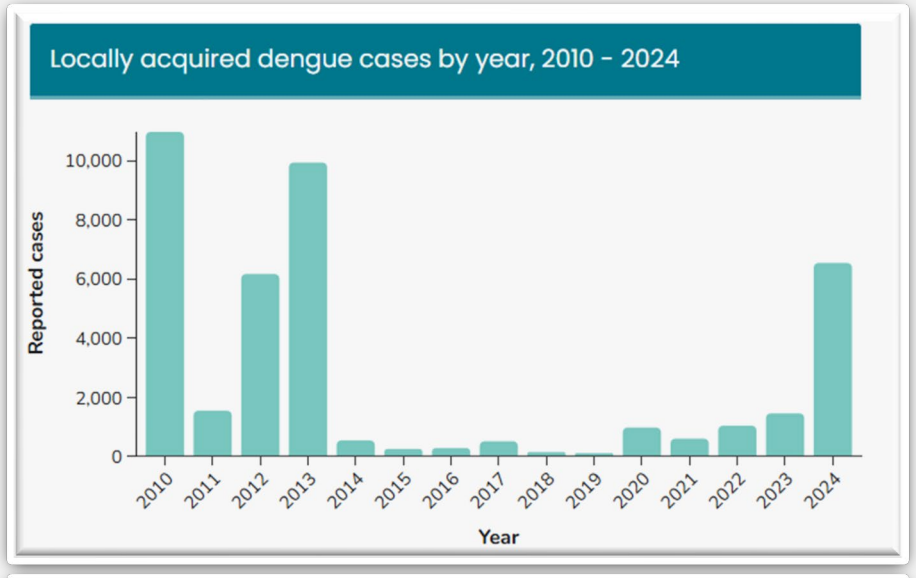
Areas of Dengue Risk Globally

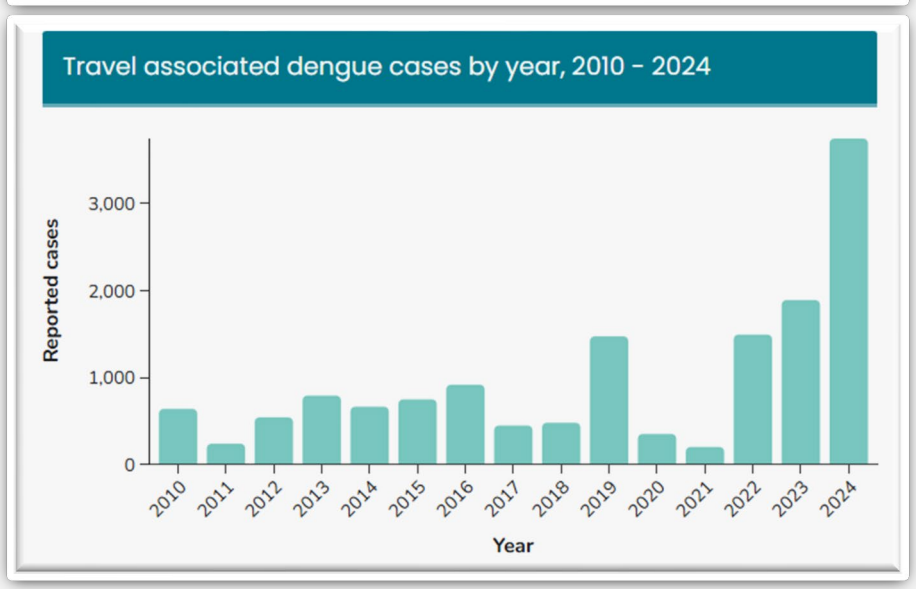


Available at: https://www.cdc.gov/dengue/areas-with-risk/index.html; accessed 10/7/2025

Dengue Cases in U.S. States and Territories (2010-2024)







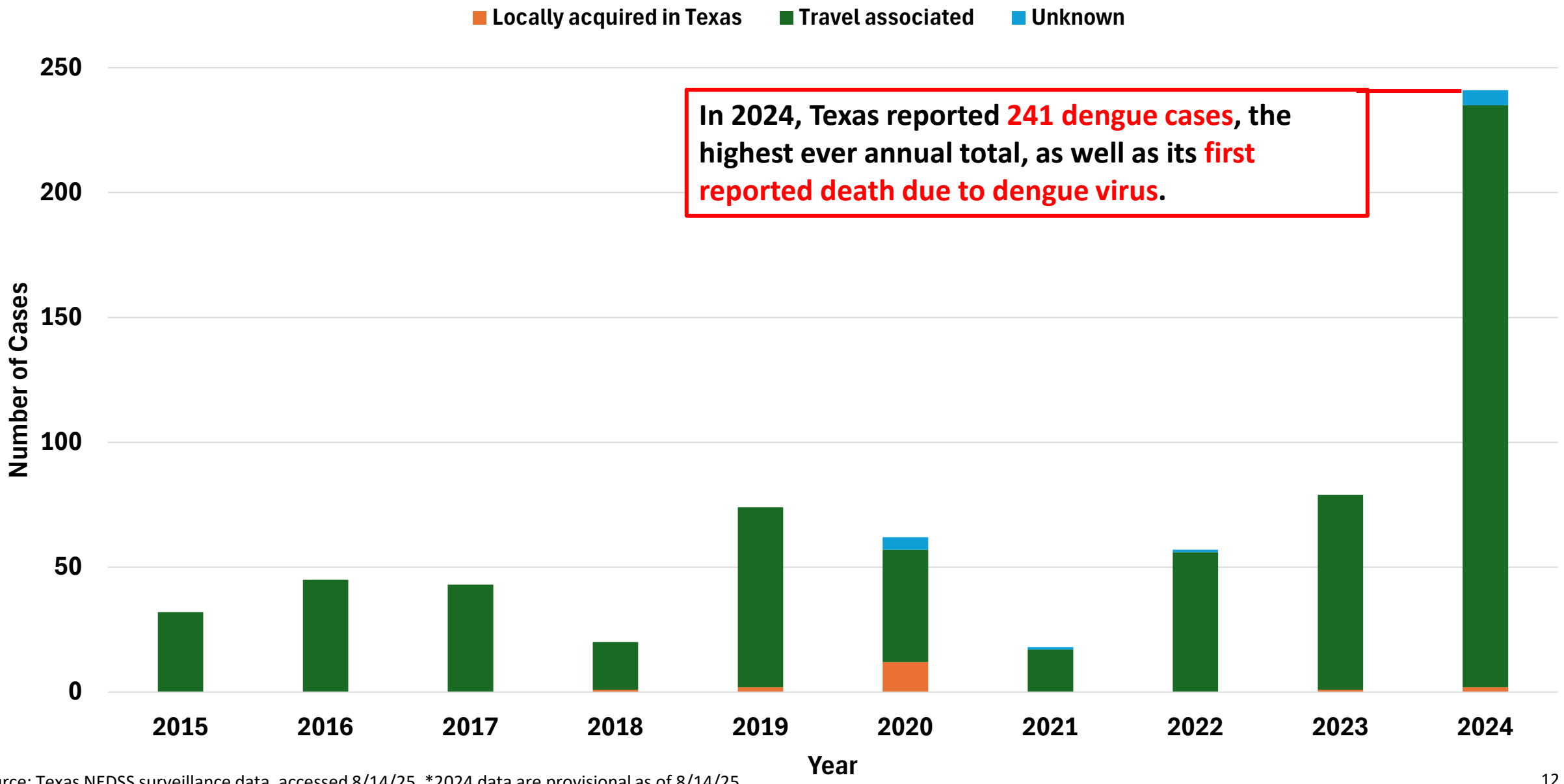
Available at: https://www.cdc.gov/dengue/data-research/facts-stats/historic-data.html, accessed 10/7/25

Dengue Virus Activity in the United States

- Most continental U.S. dengue cases are acquired by travel to an endemic region (tropical and sub-tropical regions)
  - Multiple U.S. continental states have detected recent outbreaks of **local dengue activity**, including **Texas**, Florida, Arizona, and California
- Most Texas dengue cases are due to travel from the Americas as well as Asia and Africa

Available at: https://www.cdc.gov/dengue/outbreaks/2024/index.html; accessed 10/7/25

Texas Dengue Cases Reported by Year and Where Acquired, 2015-2024*



Source: Texas NEDSS surveillance data, accessed 8/14/25. *2024 data are provisional as of 8/14/25

Chikungunya Virus

Global Chikungunya Risk

- Chikungunya risk globally overlaps much of the dengue risk area
- As of September 2025, CDC reports high activity in:
  - **South America**: Brazil, Colombia
  - **North America**: Mexico, Cuba
  - **Asia**: Bangladesh, Guangdong Province - China, Sri Lanka, Thailand, Philippines, India
  - **Africa**: Kenya, Madagascar, Mauritius, Mayotte, Réunion, Somalia, Nigeria

Available at: https://www.cdc.gov/chikungunya/data-maps/index.html, accessed 10/7/25

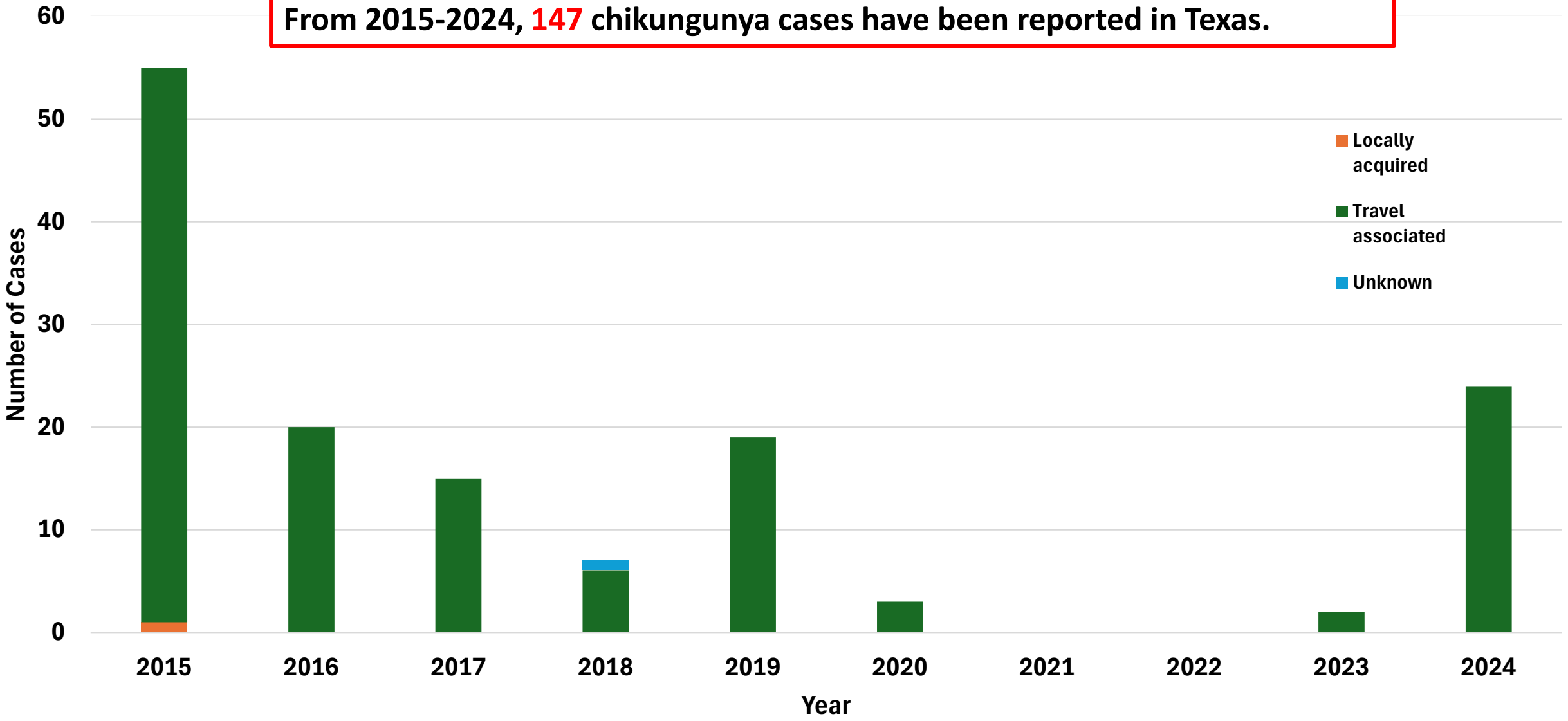
Chikungunya in the United States

- Before 2006, chikungunya was rarely identified in U.S. travelers.
- During 2006–2013, an average of 28 people per year in the United States tested positive for recent chikungunya virus infection. All were travelers visiting or returning to the United States from affected areas in Asia, Africa, or the Indian Ocean.
- In late 2013, the first local transmission of chikungunya virus in the Americas was identified in Caribbean countries and territories.
- Beginning in 2014, chikungunya was reported among U.S. travelers returning from affected areas in the Americas, and local transmission was identified in Florida, Texas, Puerto Rico, and the U.S. Virgin Islands.
- Chikungunya became a nationally notifiable condition in 2015.
- Locally acquired chikungunya cases have not been reported from U.S. states or territories since 2019.
- In 2024, 199 travel-associated cases were reported in the United States.

Available at: Chikungunya in the United States | Chikungunya Virus | CDC, accessed 10/7/25

Texas Chikungunya Cases Reported by Year and Where Acquired, 2015-2024*

From 2015-2024, 147 chikungunya cases have been reported in Texas.



Source: Texas NEDSS surveillance data, collected 8/14/25. *2024 data are provisional as of 8/14/25

West Nile Virus

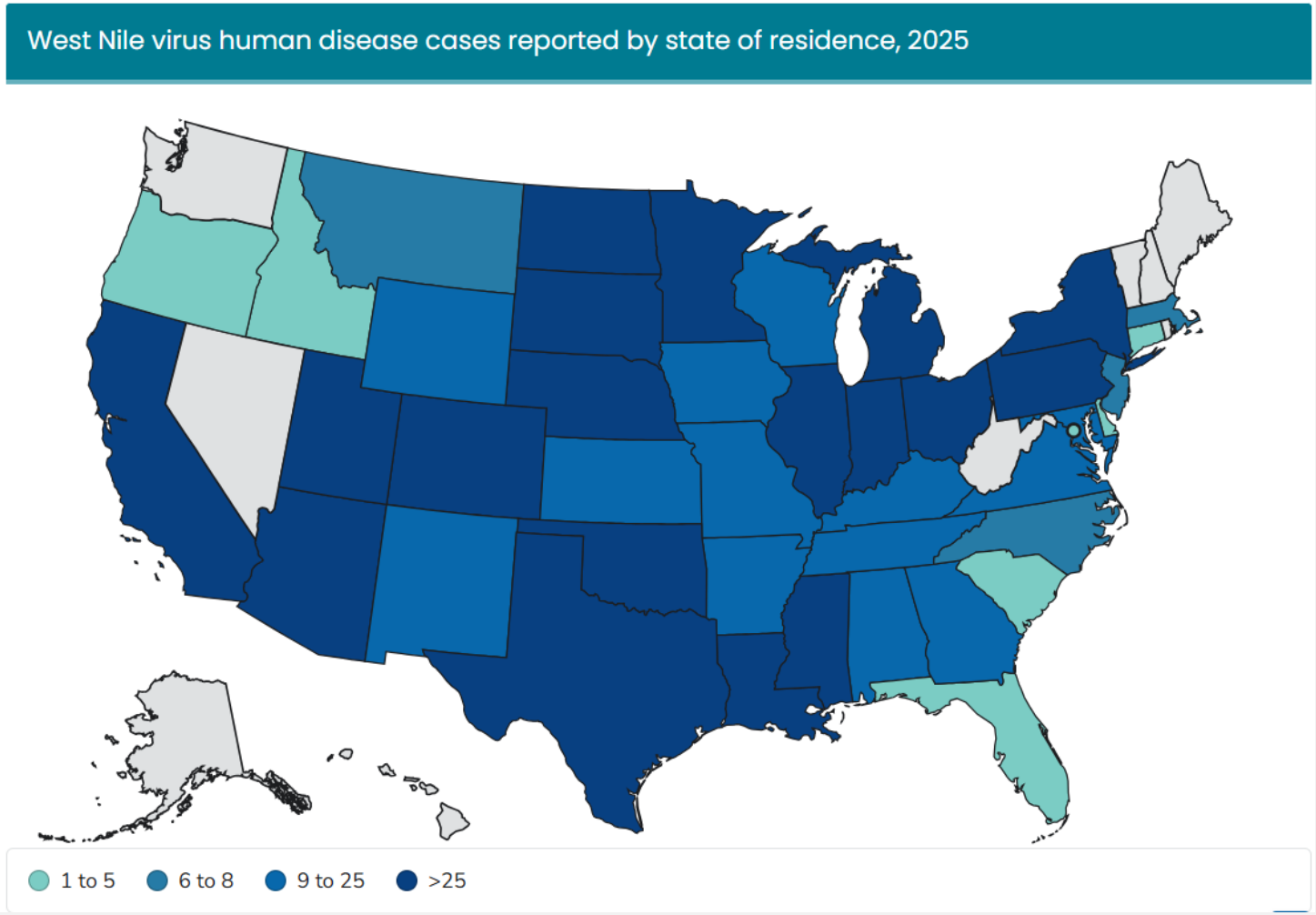
Global West Nile Virus Risk

- West Nile is present in many parts of the world, but has the highest activity in North America
- An estimated 80% of human West Nile Virus infections are asymptomatic
  - If symptomatic, most people develop an acute systemic febrile illness, referred to as **non-neuroinvasive disease** or West Nile fever.
    - Non-neuroinvasive disease often includes fever, fatigue, headache, myalgia, arthralgia, transient maculopapular rash, or gastrointestinal symptoms like vomiting or diarrhea.
  - Less than 1% of infected patients develop **neuroinvasive disease**, which typically manifests as meningitis, encephalitis, or acute flaccid myelitis.
    - Risk of neuroinvasive disease is higher among older individuals and those with immunocompromising conditions.

Available at: Clinical Signs and Symptoms of West Nile Virus Disease | West Nile Virus | CDC; accessed 10/7/25

West Nile Cases Reported in the United States, 2025

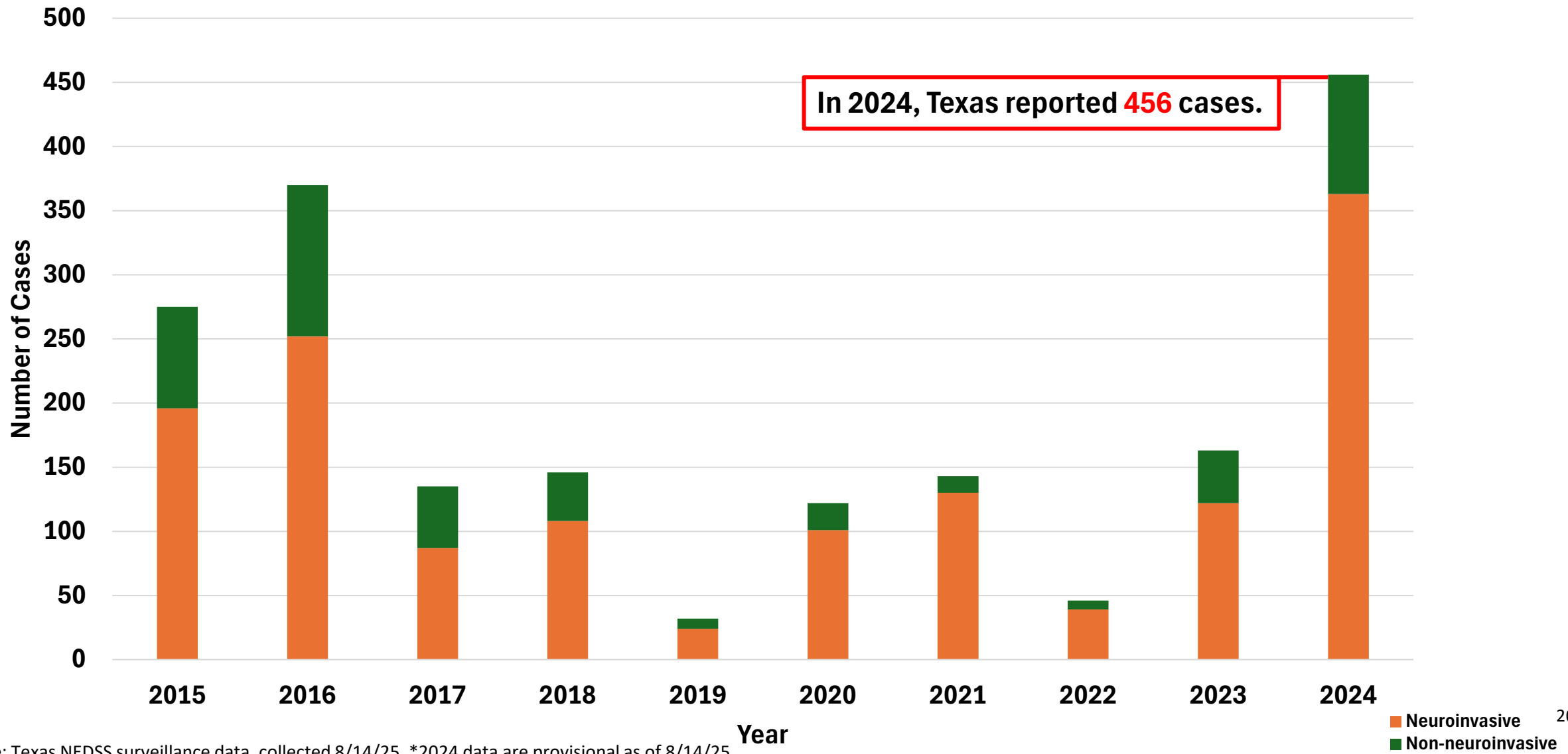
- As of September 30, 2025:
  - 1,324 total human cases*
    - 874 West Nile virus neuroinvasive disease cases
  - 42 states reporting West Nile virus disease cases



**Total human disease cases includes neuroinvasive and non-neuroinvasive disease cases.*

Available at: Current Year Data (2025) | West Nile Virus | CDC, accessed 10/7/25

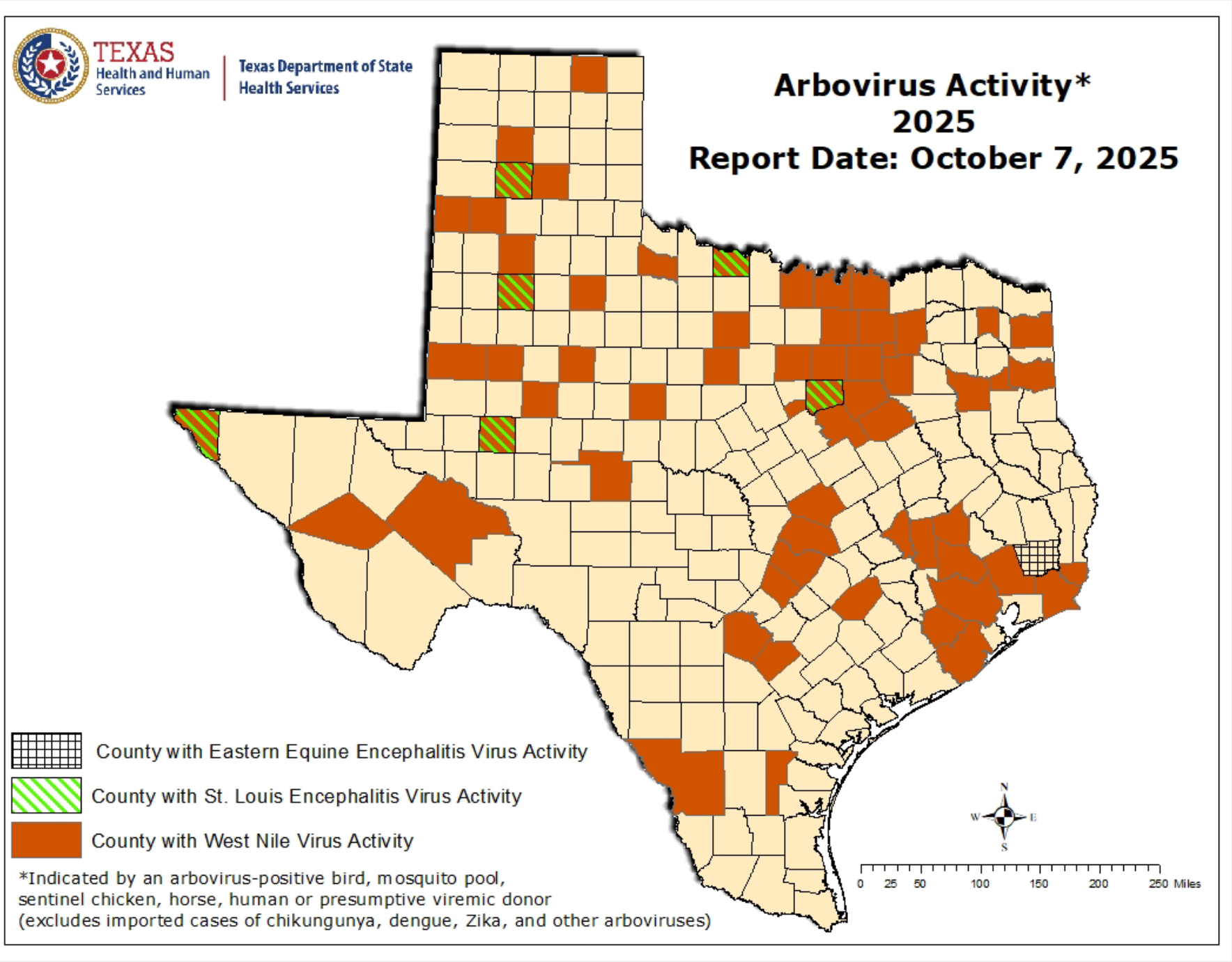
Texas West Nile Cases Reported by Year and Type, 2015-2024*



Source: Texas NEDSS surveillance data, collected 8/14/25. *2024 data are provisional as of 8/14/25

Texas counties Reporting Arbovirus Activity, October 7, 2025

Available at: Texas 2025 Arbovirus Weekly Activity Report; accessed 10/7/2025



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DSHS Arboviral Activities

DSHS Arboviral Activities

Laboratory Activities

Laboratorians test for the presence of arboviruses including West Nile and St. Louis Encephalitis viruses in:

- Mosquito samples collected from around Texas, and
- Specimens from clinically ill horses and other animals residing in Texas

Entomological Activities

Entomologists consult with and advise mosquito control districts across the state on:

- Best practices for mosquito and other vector collection and testing techniques
- Vector control methods

Epidemiological Activities

Epidemiologists:

- Review and investigate case reports of arboviral infections in Texas residents
- Respond to and investigate reports of donated blood and/or organs that may contain infectious West Nile virus or other arboviruses
- Analyze data to identify trends in arboviral data
- Publish online weekly and annual arbovirus data reports summarizing arboviral activity across Texas

Available at: https://www.dshs.texas.gov/laboratory-services/programs-laboratories/microbiology-unit/arbovirus-surveillance-program and https://www.dshs.texas.gov/mosquito-borne-diseases/dshs-arbovirus-weekly-activity-reports , accessed 10/7/25

Arboviral Disease Prevention

- Within Texas, there are serious diseases that are commonly transmitted by mosquito populations here, including West Nile.
- Travel outside Texas can pose a risk of mosquito and other vectorborne viral infections; travelers who return home infected may be able to spread their infection to local insect populations and this can potentially lead to local pockets of activity.
- **Prevention** is key as these viruses do not have specific treatments.
  - Use insect repellants (including DEET and other EPA-approved repellants)
  - Wear long sleeves and pants
  - Remove standing water to reduce mosquito habitat
  - Stay in effectively screened indoor areas and/or air-conditioned indoor areas

Available at: https://www.dshs.texas.gov/mosquito-borne-diseases , accessed 10/7/25

Thank you