

Chagas Disease-Awareness Program for CHWs

Belinda Flores, R.N., B.S.

South Coastal AHEC Director

Paula Granados, Ph.D.

Assistant Professor, Texas State University



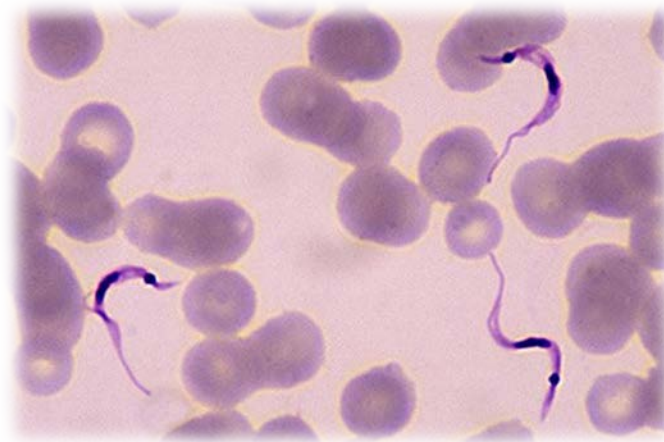
Session 1: What is Chagas Disease?

History of Chagas Disease

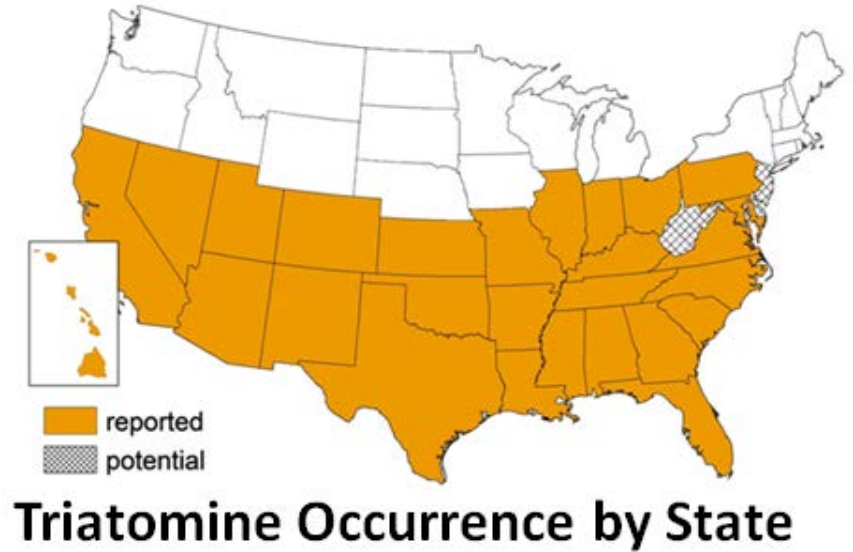


Overview:

- Named after Brazilian physician Carlos Chagas in 1909



Causative Agent:
Trypanosoma cruzi,
a hemoflagellate
protozoan parasite



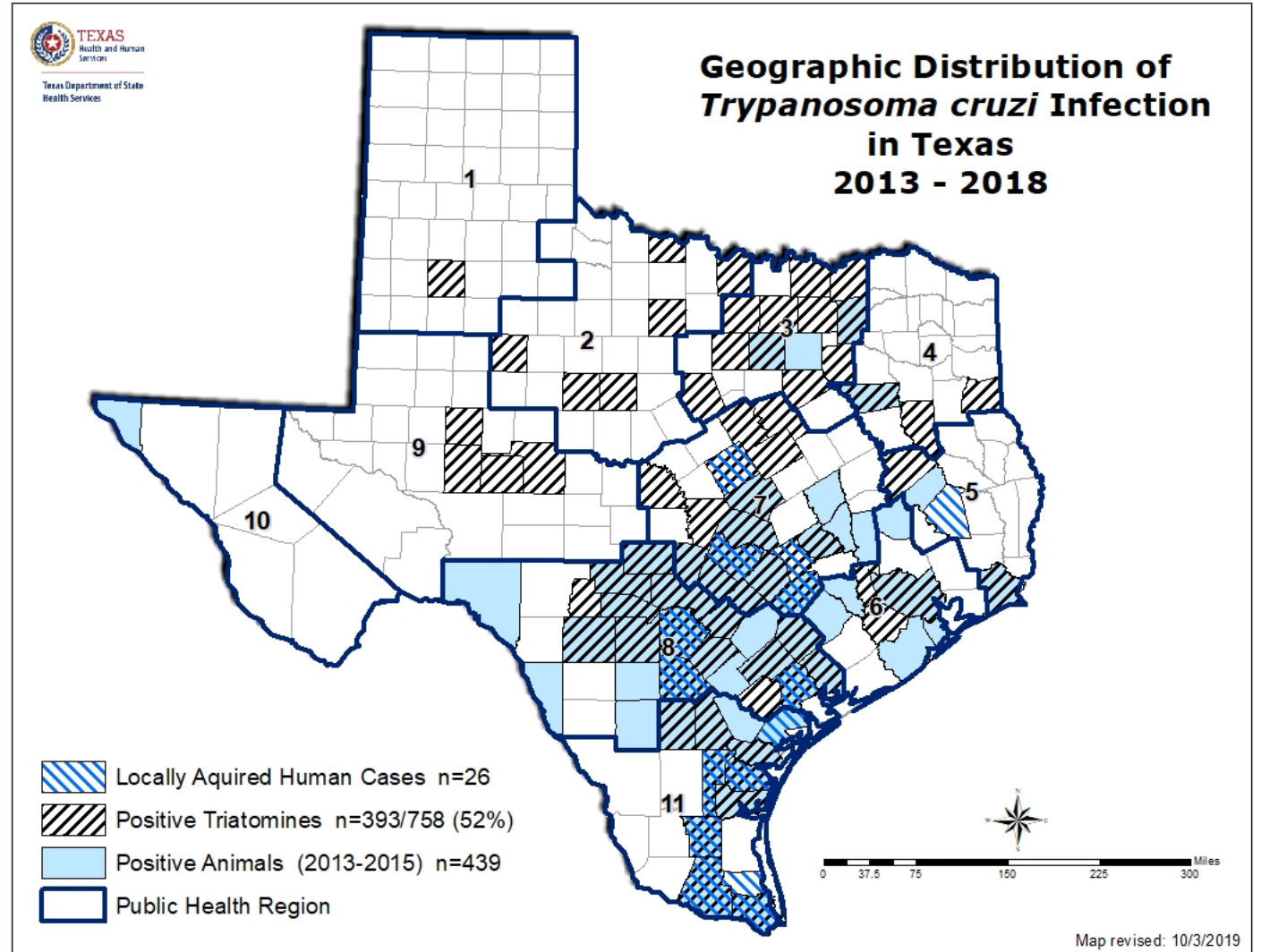
Distribution:

- Endemic in the Americas
- Cases outside of the Americas are from migration/relocation
- CDC estimates 300,000 infected individuals living in U.S. and 8-11 million infected individuals living in Latin America
- **28,000 new cases** yearly in 21 countries of the Americas
 - **8,000** of those cases are newborns

Chagas Disease in Texas

Statistics:

- **156 diagnosed cases in Texas from 2013-2018**
 - 26 cases locally acquired
 - 92 cases imported
 - 38 cases unknown etiology
- Most imported cases found in Harris County
- Most locally acquired cases found in Bexar County



Transmission Cycle and Vectors



Modes of Transmission

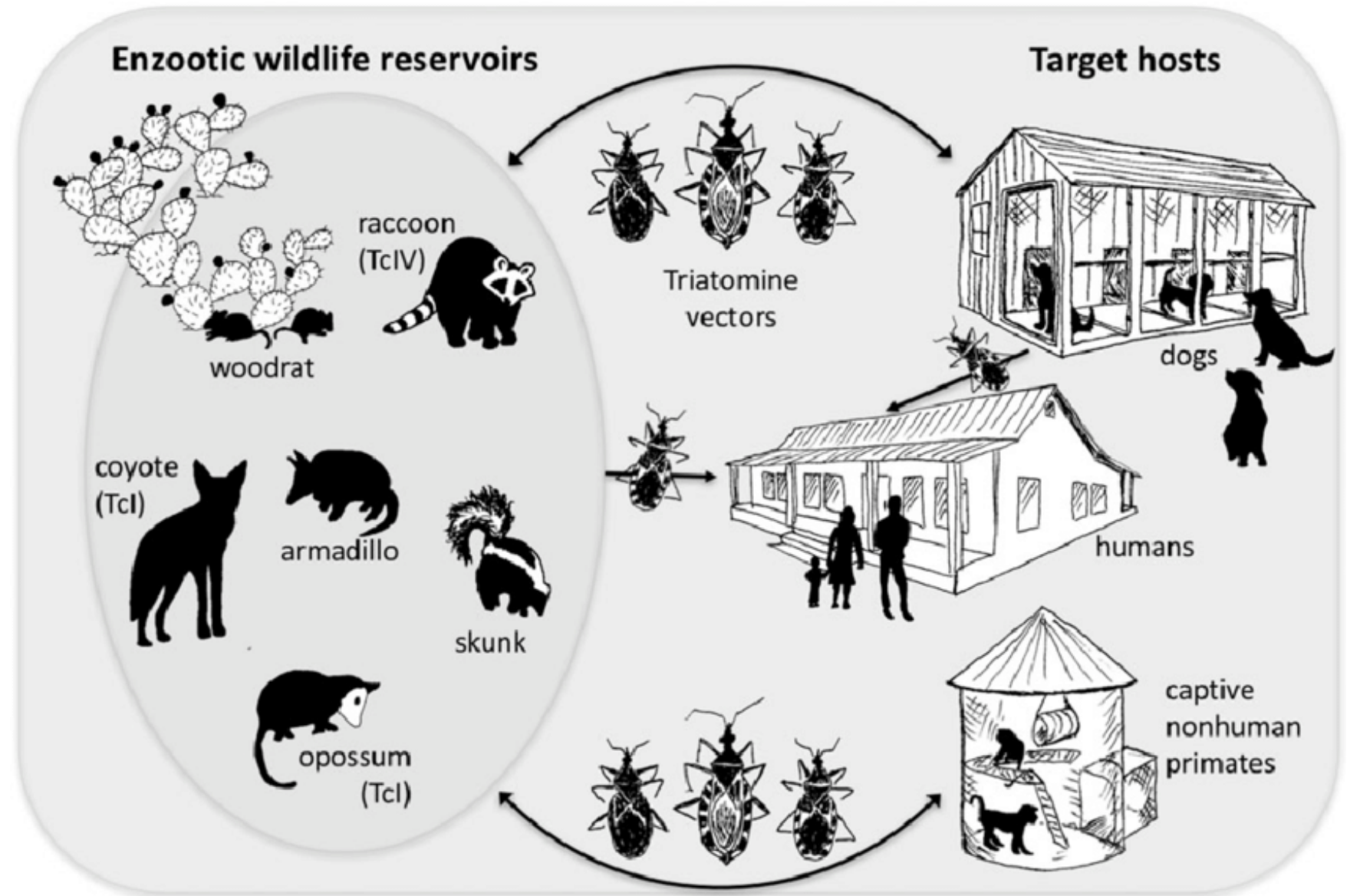
- **Most common mode of infection:**
Kissing bug bites and defecates near the bite site allowing *T. Cruzi* contained in the feces to enter the host's blood stream



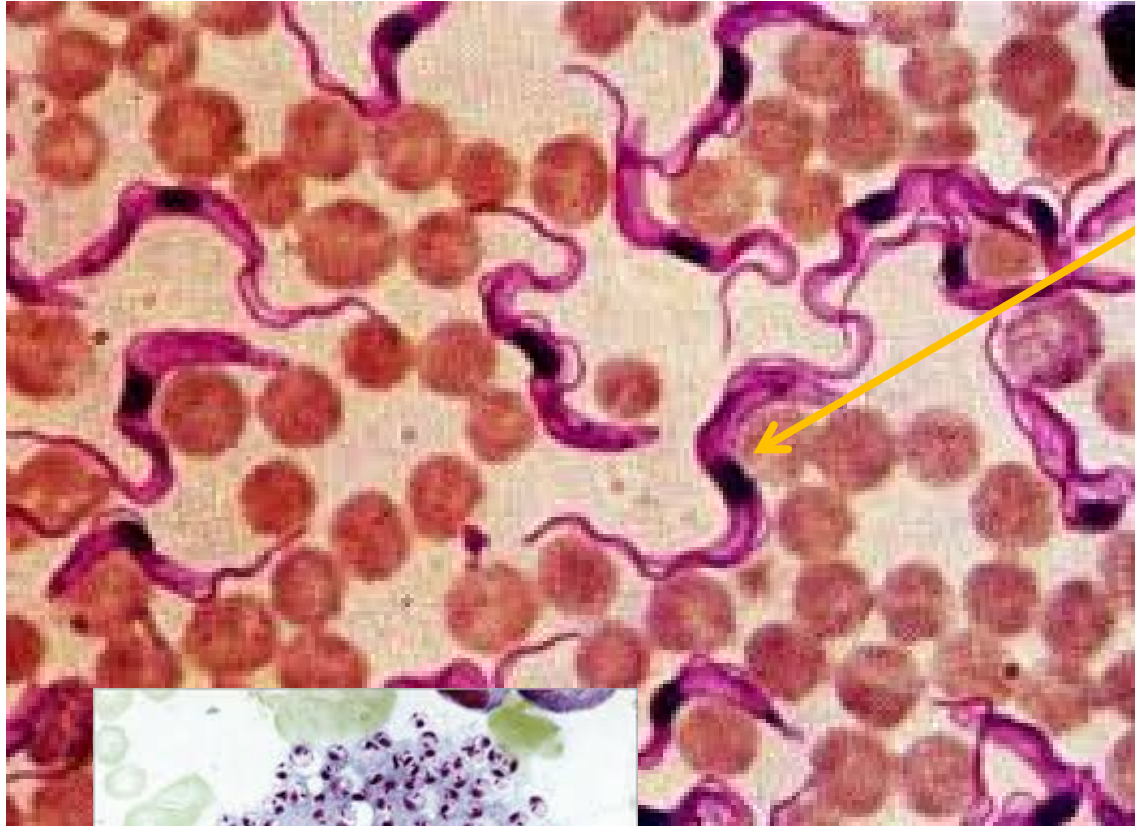
- **Other possible modes of infection**
 - Congenital
 - Blood products
 - Solid organ transplantation
 - Laboratory accident
 - Contaminated food or drink



Chagas is a vector-borne disease with many animal reservoirs

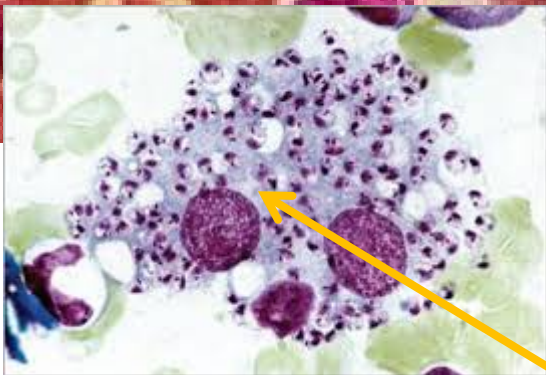


T. Cruzi trypomastigotes in Blood Stream



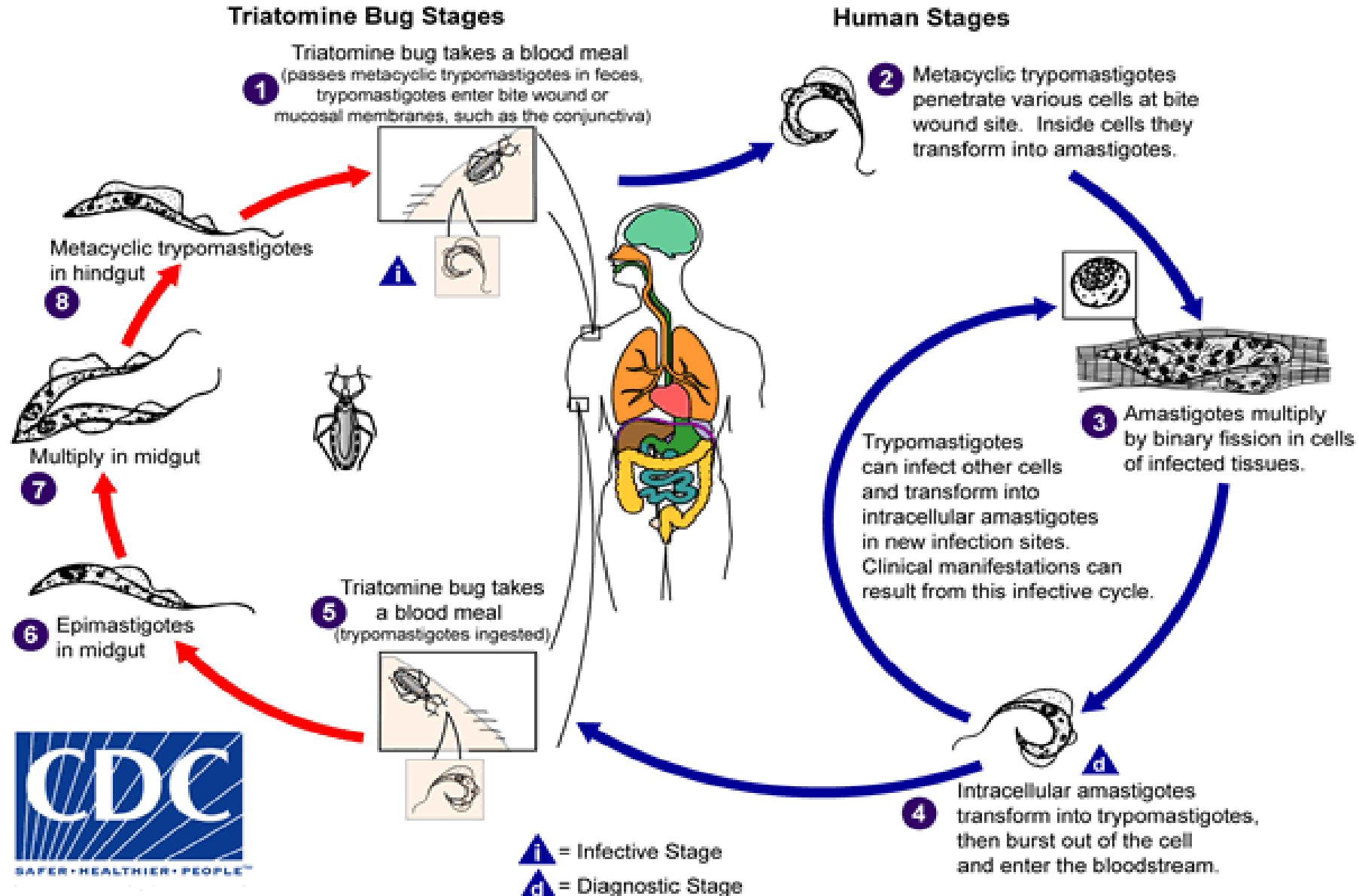
The parasite undergoes changes in the host.

- First entering as a **metacyclic trypomastigote** at the bite site
- Next invading cells in the body and changing to **amastigotes**, which begin to multiply within the cells
- **Amastigotes** multiply and break out and reenter the blood stream as **trypomastigotes** that invade other cells in different tissues of the body.



Amastigotes multiplying within cells

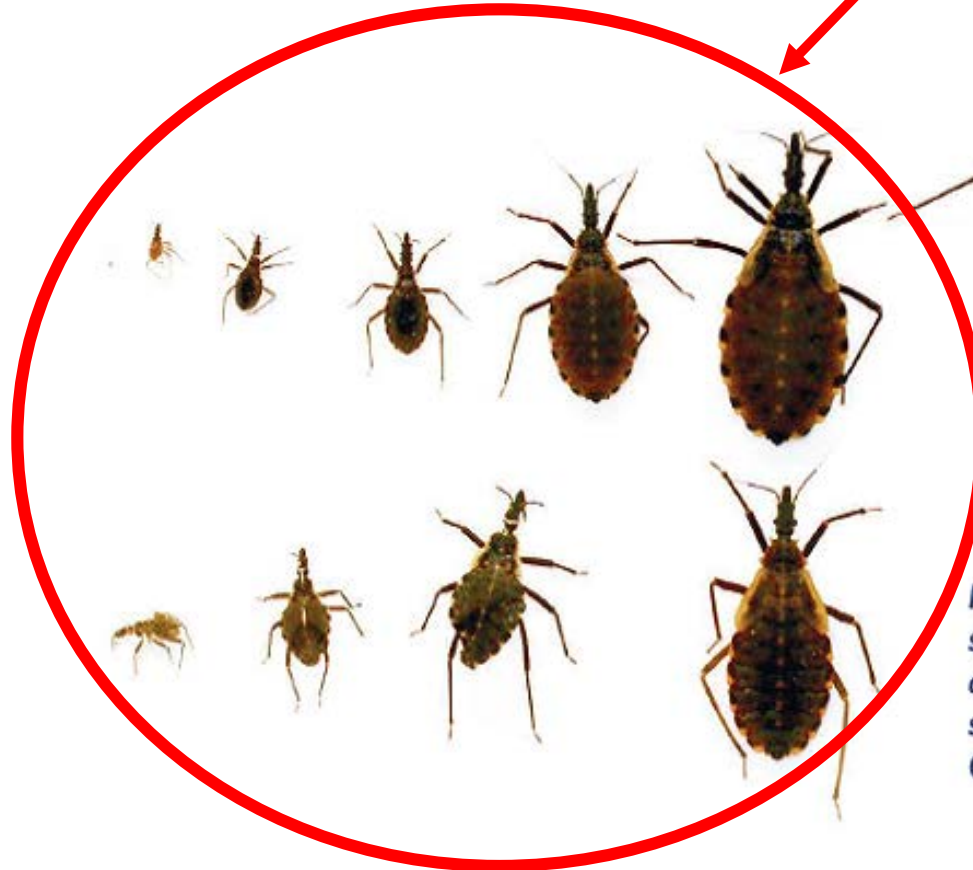
Human Transmission Cycle



Three species of Kissing bugs vectors commonly found in Texas.



3 most common species found in Texas



Nymphs (juveniles)



Kissing bugs develop through five stages of nymphs before becoming adults. Nymphs do not have wings, so they can walk, but they cannot fly. Only adult kissing bugs can fly.



Key features of non-Kissing bugs.



Squash Bug



Testing bugs

Research shows approximately 65% or more of triatomines in Texas have tested positive for the *T. cruzi* parasite that causes Chagas.

TX DSHS will test kissing bugs found inside of homes or associated with a human exposure.

Texas A&M will test bugs found outside the home and NOT associated with human bites.

Bugs submitted for testing will be tested for 1) the parasite and if found positive 2) a human blood meal

If positive for both parasite and human blood, the exposed person should have their blood tested for Chagas

Triatomine Testing

[Home](#) [Data](#) [Guidance](#) [Information](#) [Medical Providers](#) [Resources](#)



Submitting a Triatomine Bug
(Kissing Bug/Cone-Nose Bug/Vinchuca) for
Trypanosoma cruzi Testing

The Department of State Health Services, in conjunction with the U.S. Centers for Disease Control and Prevention (CDC), provides testing of Triatomine bugs for the parasite *Trypanosoma cruzi*. *T. cruzi* is the causative agent of Chagas disease in humans and potentially fatal infections in dogs and other animals. **Due to laboratory workload and budget constraints at CDC, only bugs implicated in a human exposure will be accepted for testing.** This free service is provided to Texas residents only.

1. Fill out the "Submitter," "Specimen," and "Comments" portions of the "[Texas Triatomine Bug Submission Form](#)" which can be downloaded [here](#). If you are submitting more than one bug, you should complete a separate form for each.
2. Place the bug, dead or alive, into a pill vial or other suitable container. Do not use alcohol or other preservatives. If you are submitting more than one bug, you should place each bug into a separate container and label each container and its accompanying submission form such that we will know which container goes with which form.
3. Place the container(s), sufficiently padded if breakable, and accompanying "**Texas Triatomine Bug Submission Form(s)**" into a mailing tube or padded envelope and mail to:

Department of State Health Services
Attn: Zoonosis Control Branch – MC1956
P.O. Box 149347
Austin, TX 78714-9347


If you have questions please contact:

Whitney Qualls at whitney.qualls@dshs.texas.gov (512-776-2790) or
Bonny Mayes at bonny.mayes@dshs.texas.gov (512-776-2888)


Regional DSHS Zoonosis Control personnel will communicate test results to the original submitter, usually within 2 – 5 weeks of receiving the specimen (laboratory workload at CDC dictates turnaround time).

<https://www.dshs.texas.gov/IDCU/health/zoonosis/Triatomine-Testing.aspx>

Links to Resources

 Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

SEARCH 

CDC A-Z INDEX 

Parasites - American Trypanosomiasis (also known as Chagas Disease)

Chagas Disease

General Information 

Epidemiology & Risk Factors

Biology

Disease

Diagnosis

Treatment

Prevention & Control

Resources for Health Professionals 

Publications

Printable Resources

Additional Resources



Language: English (US) 



Chagas disease is named after the Brazilian physician Carlos Chagas, who discovered the disease in 1909. It is caused by the parasite *Trypanosoma cruzi*, which is transmitted to animals and people by insect vectors and is found only in the Americas (mainly, in rural areas of Latin America where poverty is widespread). Chagas disease (*T. cruzi* infection) is also referred to as American trypanosomiasis.

In the United States, Chagas disease is considered one of the [neglected parasitic infections](#) (NPI), a group of five parasitic diseases that have been targeted by CDC for public health action.

Image: L&R: Various species of Triatomine bugs, which if infected can transmit *T. cruzi*. Center: *T. cruzi* trypomastigote in a thin blood smear stained with Giemsa. Credit: [DPDx](#)

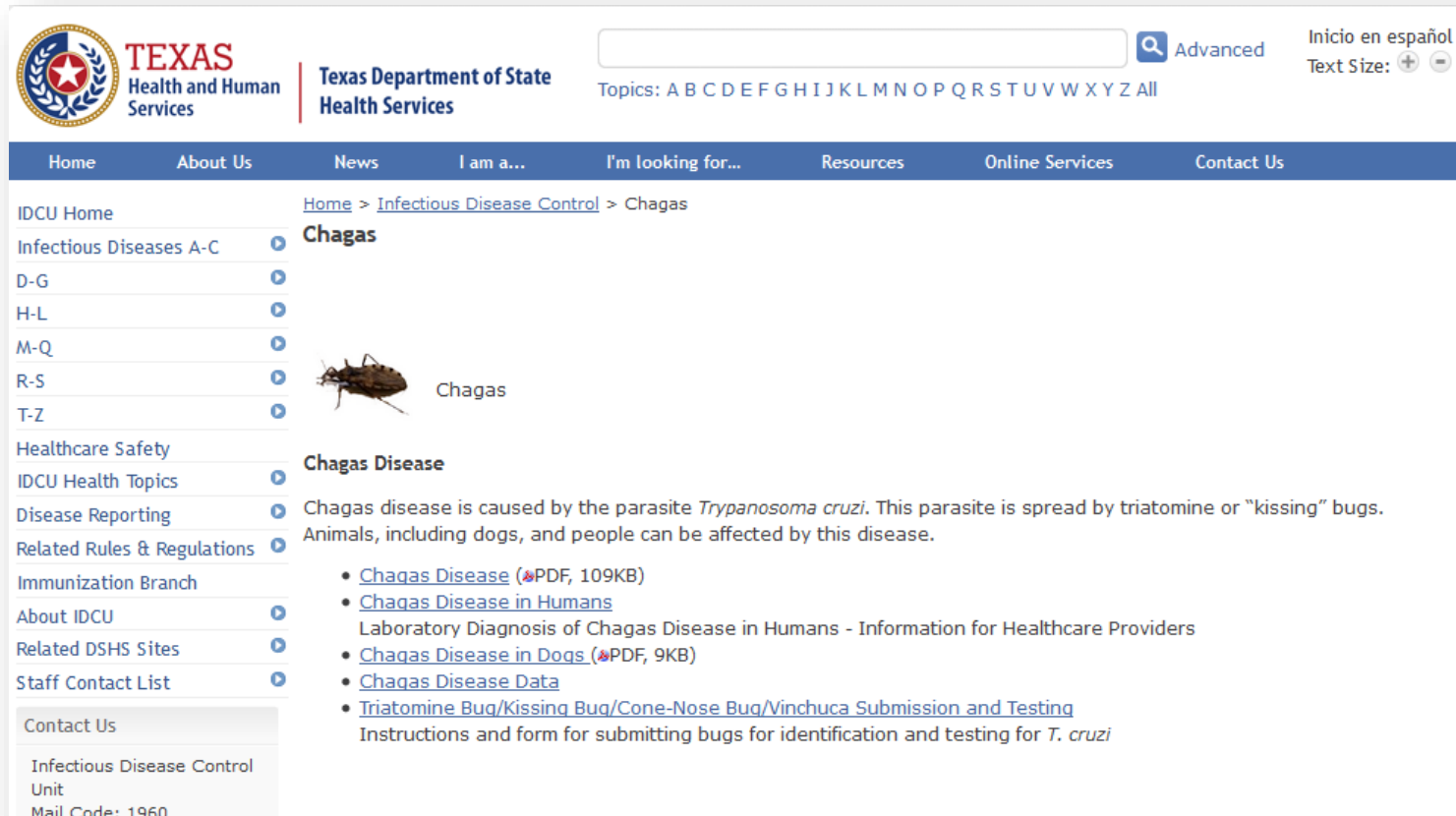
 GENERAL INFORMATION

 DIAGNOSIS

Provides access to national databases with emphasis on trends, treatments, and resources/publications.

CDC Website: www.cdc.gov/parasites/chagas

Links to resources



The screenshot shows the Texas Department of State Health Services website. The header includes the Texas Health and Human Services logo, a search bar with an "Advanced" button, and a language toggle for "Inicio en español". A navigation menu at the top lists: Home, About Us, News, I am a..., I'm looking for..., Resources, Online Services, and Contact Us. The main content area is titled "Chagas" and features a breadcrumb trail: Home > Infectious Disease Control > Chagas. Below the title is an image of a triatomine bug. The text explains that Chagas disease is caused by the parasite *Trypanosoma cruzi* and is spread by triatomine or "kissing" bugs. A list of links is provided: Chagas Disease (PDF, 109KB), Chagas Disease in Humans, Chagas Disease in Dogs (PDF, 9KB), Chagas Disease Data, and Triatomine Bug/Kissing Bug/Cone-Nose Bug/Vinchuca Submission and Testing. The footer includes contact information for the Infectious Disease Control Unit, with a mail code of 1960.

TEXAS Health and Human Services | Texas Department of State Health Services

Search: [] Advanced | Inicio en español | Text Size: + -


Topics: A B C D E F G H I J K L M N O P Q R S T U V W X Y Z All

Home | About Us | News | I am a... | I'm looking for... | Resources | Online Services | Contact Us

IDCU Home | Infectious Diseases A-C | D-G | H-L | M-Q | R-S | T-Z | Healthcare Safety | IDCU Health Topics | Disease Reporting | Related Rules & Regulations | Immunization Branch | About IDCU | Related DSHS Sites | Staff Contact List | Contact Us | Infectious Disease Control Unit | Mail Code: 1960

Home > Infectious Disease Control > Chagas

Chagas



Chagas

Chagas Disease

Chagas disease is caused by the parasite *Trypanosoma cruzi*. This parasite is spread by triatomine or "kissing" bugs. Animals, including dogs, and people can be affected by this disease.

- [Chagas Disease](#) (PDF, 109KB)
- [Chagas Disease in Humans](#)
- [Laboratory Diagnosis of Chagas Disease in Humans - Information for Healthcare Providers](#)
- [Chagas Disease in Dogs](#) (PDF, 9KB)
- [Chagas Disease Data](#)
- [Triatomine Bug/Kissing Bug/Cone-Nose Bug/Vinchuca Submission and Testing](#)

Instructions and form for submitting bugs for identification and testing for *T. cruzi*

Provides state specific data and resources to use for education.

DSHS Website: www.dshs.state.tx.us/idcu/disease/chagas

Links to Resources



Helps provide illustrations of triatomine bugs for easier identification and elimination of similar looking insects. Also accepts bugs for testing

TAMU website: <https://kissingbug.tamu.edu>

Case Study Session 1

- Mother finds kissing bug in child's bed
- "What usually happens" vs "Correct next steps"

Summary



	States	Cases	Population (in millions)
1	California	71,000	38.4
2	Texas	37,200	26.5
3	Florida	18,200	19.6
4	New York	17,500	19.7
5	Illinois	9,200	12.9

SOURCE Estimated cases based on data from 2007–2013 from Jennifer Manne-Goehler, et al. "Access to care for Chagas." Population data from US Census Bureau.

- Chagas disease is caused by a parasite called *T.cruzi* that lives in the gut of a triatomine bug (also called a “kissing bug” or “chinche beuscona”)
- Chagas disease is primarily spread through contact with the contaminated feces of the Kissing Bug
 - Congenital transmission (mother-to-child) is also of concern
- Chagas is endemic in Latin America and the vector is also found in the Southern U.S.
- Humans and animals can both be infected with the parasite



Summary



Photo from: <https://web.diarioelunodetehuacan.com/nacional/la-enfermedad-de-chagas/>

- A single bite from a Kissing Bug does not mean the person is infected
 - The kissing bug must be positive for *T. cruzi* and the feces must enter the wound
- Local transmission (in the U.S.) is a possibility, but not common
- TxDSHS can test kissing bugs for *T. cruzi* if associated with a human exposure
 - If the kissing bug is positive for *T. cruzi*, a blood meal analysis will be completed to test for human blood
- Testing the exposed person for Chagas may be recommended, but waiting to be tested may be necessary

NEXT SESSION: Chagas disease and its symptoms/treatment

Thank you!

Next sessions –

- Session 2: Chagas disease and its symptoms/treatment
 - October 30th 11am
- Session 3: Chagas disease health threat to pregnant and reproductive age women
 - November 6th 11am
- Session 4: Talking about Chagas disease and prevention
 - November 13th 11am