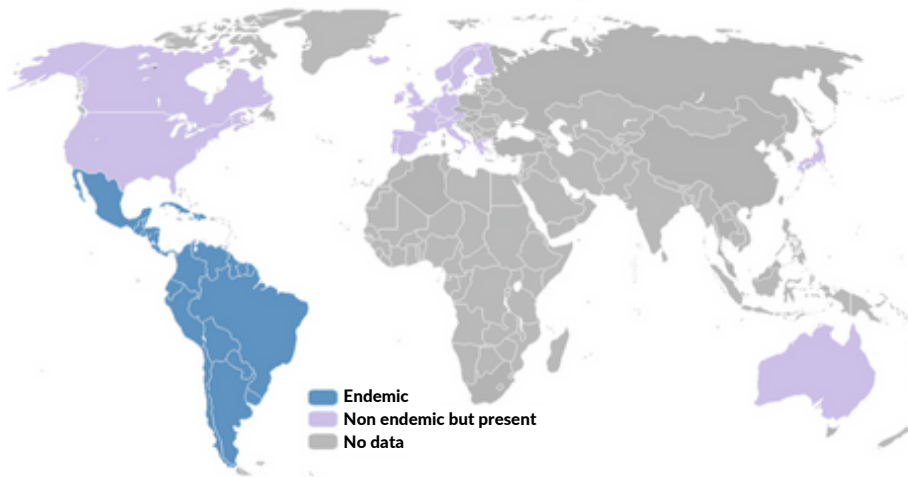


CHAGAS DISEASE

Chagas (also called American trypanosomiasis) is a potentially life-threatening disease resulting from an infection with *Trypanosoma cruzi* (*T. cruzi*) parasites that are predominately transmitted to humans by triatomine or “kissing” bugs.

Geographic Distribution of Chagas Disease



Source: Journal of Tropical Medicine and Infectious Disease

Chagas disease is endemic to the Latin American and Caribbean region (LAC), where it exerts the highest burden. While it has historically been considered a rural disease, it has recently increased prevalence in LAC urban areas, North America, and Europe. Because of its past associations with rural poverty in the LAC, there is a strong social stigma attached to the disease, which can lead to social rejection, job loss, and lack of pursuing medical treatment.

Transmission

Humans are infected when they are bitten by triatomine bugs that carry the parasite *T. cruzi*. Triatomine bugs tend to bite near the eyes and mouth (leading to their nicknames of “kissing bugs”) and are primarily active at night when they feed on blood from hosts. Transmission by triatomine bugs is most common, but infection can also occur through eating contaminated food, during pregnancy from birth parent to fetus, blood transfusions, and organ donation.

The Global Burden of Chagas Disease

More than 7 million people are infected, but less than 10% of infected individuals receive a diagnosis.

20-30% of infections result in severe and potentially life-threatening cardiac and gastrointestinal conditions.

Global annual economic losses are estimated to total \$7.2 billion USD.

CDC recommendations for preventing Chagas Disease



Vector control of triatomine bugs, including screens on doors and windows as well as using appropriate repellent.

Widespread testing of donated blood and screening of pregnant people.



Stages of Chagas Disease

Acute

- This lasts weeks to months after initial infection.
- Those infected will usually present with mild symptoms that are similar to those of other illnesses, such as swelling, purple skin discoloration near infection site, and flu-like symptoms.

Chronic

- 70% of chronically infected individuals have no symptoms.
- 20-30% develop severe cardiac conditions such as enlarged heart, heart arrhythmias, cardiac arrest, and heart failure.
- 10% of chronic infections can also result in severe digestive and/or neurological conditions.

Treatments

Antiparasitic treatment for Chagas includes the drugs benznidazole and nifurtimox. Both medications require months-long course of treatment. Adverse reactions to the medications are common, and many who need them lack access. Both also have limited efficacy during the chronic phase, further complicating treatment.

Efforts to Combat Chagas Disease

As one of the most under-funded Neglected Tropical Diseases, more research & development is urgently needed to improve outdated diagnostics and treatments, and potentially develop a vaccine. Examples of recent advances against Chagas are:

A promising new drug for treatment was discovered by researchers at the University of Georgia.



Research at Tulane University has uncovered connections between different strains of *T. cruzi* parasites and overall disease progression and severity, aiding the development of more effective treatments and vaccines.



A program at the University of Florida monitors and studies Chagas disease among at-risk populations across the state, improving surveillance and diagnostics methods.

Chagas Disease in the United States

At least 300,000 people living in the U.S. are infected with *T. cruzi*, but this is likely a vast underestimate as Chagas disease is not reportable in most states.

At present, most Chagas cases in the U.S. occur in immigrants from Latin America who acquired the disease in their country of origin.

However, the U.S. Centers for Disease Control and Prevention (CDC) has documented triatomine bugs capable of transmitting *T. cruzi* in more than 30 states (as shown below in purple). **Surveillance efforts are needed to better understand the prevalence and risk of Chagas disease in the U.S.**

