

Chagas Disease

What is Chagas disease?

Chagas disease is caused by a single-celled parasite, *Trypanosoma cruzi*, which is endemic only to the Americas. Because of this, the disease is also often referred to as “American trypanosomiasis.” *T. cruzi* is transmitted to animals and humans by blood feeding insects commonly called triatomine bugs or “kissing bugs.”

How do people get Chagas disease?

People become infected with *T. cruzi* in various ways. In Chagas disease-endemic areas, the primary mode of infection is through vector-borne transmission. The triatomine bug vectors usually become infected after feeding on an infected animal or, more rarely, a person. After the organism reproduces in the bug, it can spread to people when the infected bug deposits feces on their skin, usually while the person is sleeping at night, and the person accidentally rubs the feces into the bite wound, an open cut, or a mucous membrane.

People also can become infected through:

- congenital transmission (from a pregnant woman to her baby);
- blood transfusion;
- organ transplantation;
- consumption of beverages or uncooked food contaminated with feces from infected bugs; and
- accidental laboratory exposure.

Chagas disease is not transmitted from person to person like a cold or the flu or through casual contact with infected people or animals.

Where is Chagas found in the world?

Chagas disease is transmitted naturally in North, Central, and South America. In parts of Mexico and Central and South America, where Chagas disease is considered highly endemic, it is estimated that approximately 8 million people are infected. Many of those with the disease are unaware of their infection, so they go untreated. Without treatment, infection can be life-long and lead to major complications.

Animal and human cases of Chagas disease have been reported in the United States (U.S.). Immigrants from highly endemic areas of Mexico and Central and South America are the most likely to be infected, with estimates of at least 300,000 infected persons residing in the U.S. Triatomine bugs have been documented throughout the southern U.S. and vector-borne transmission to animals and humans has been reported (http://www.cdc.gov/parasites/chagas/gen_info/vectors/index.html).

Is Chagas disease found in Texas?

In Texas, approximately 45% of the collected triatomine bugs have tested positive for *T. cruzi*, and Chagas is considered an endemic disease in dogs. From 2013 to 2014, 351 cases of Chagas disease in animals, primarily dogs, were reported from approximately 20% of Texas counties, representing all geographic regions of the state. Locally-acquired human cases are uncommon, but some have been reported. From 2013 to 2014, 39 human cases of Chagas disease were reported: 24 were acquired in another country, 12 were locally-acquired, and the location of acquisition was unknown for 3.

What are the symptoms and clinical signs of Chagas disease?

There are two phases of Chagas disease: the acute phase and the chronic phase. Both phases can be symptom-free or life-threatening.

The acute phase occurs in the first 8 weeks of infection. This phase may go unnoticed because it is often symptom-free or characterized by mild symptoms and signs that are not unique to Chagas disease, such as fever, malaise, body aches, rash, headache, loss of appetite, vomiting and/or diarrhea. Medical examination can reveal mild enlargement of the liver or spleen, swollen lymph nodes, and local swelling (a chagoma) where the parasite entered the body. The most recognized marker of acute Chagas disease is called Romaña's sign, which includes swelling of the eyelids on the side of the face near the bite wound or where the bug feces were deposited or accidentally rubbed into the eye. Symptoms can last weeks to months and then abate, even without treatment. Symptoms during the acute phase can be more pronounced in people with weakened immune systems.

The chronic phase includes an asymptomatic form ("indeterminate" or "latent") and a symptomatic form. The majority of people in this phase will remain asymptomatic for life, but 20-30% of individuals will go on to develop illness including:

- cardiac complications, which can include an enlarged heart (cardiomyopathy), heart failure, altered heart rate or rhythm, and cardiac arrest (sudden death);
- intestinal complications, which can include an enlarged esophagus (megaesophagus) or colon (megacolon) and can lead to difficulties with eating or with passing stool.

What should I do if I think I have Chagas disease?

You should schedule an appointment with your healthcare provider, who will examine you and ask you questions about your health and travel history. Chagas disease is diagnosed by blood tests. Additional information on the evaluation and treatment of Chagas disease is available here:

<http://jama.jamanetwork.com/article.aspx?articleid=209410>.

If I have Chagas disease, should my family be tested?

You should consult with your healthcare provider if your family could have become infected the same way that you did; for example, by vector-borne transmission in Latin America, if someone received blood or organs that you donated after you already were infected, if your children could have been infected by you during your pregnancy, or if there are other reasons to think that they might have Chagas disease (i.e. symptoms or signs).

Can pets get Chagas disease?

Some domesticated animals may become infected with *T. cruzi* and may also serve as a food source for the triatomine bugs, thereby increasing the risk of transmission to humans. Although the reported number of infected dogs in Texas is low, it is likely an underestimate because not all infected dogs are examined and tested by a veterinarian or reported to a public health agency. Outdoor dogs are at much higher risk due to their outdoor exposure, the likelihood of infestation of outdoor kennel areas, and dogs' tendency (for at least some dogs) to eat these bugs.

There are no published reports of infections in cats in the U.S., although infections in cats have been reported in South America.

While poultry can't become infected with *T. cruzi*, they do provide a significant food source for the bugs and can thus increase the number of bugs available to feed on household members and pets.

What is the treatment for Chagas disease?

For people, treatment with anti-parasitic drugs is recommended for all acute and congenital infections, chronic infections in children 18 years or younger, and reactivation of latent infections in persons who are immunosuppressed. Anti-parasitic treatment is most effective early in the course of infection. In the U.S., the anti-parasitic drugs are only available through the Centers for Disease Control and Prevention (CDC). Your health care provider can talk with CDC staff about whether and how you should be treated.

In addition, symptomatic treatment may help people who have cardiac or intestinal problems from Chagas disease. For example, pacemakers and medications for irregular heartbeats may be life-saving for some patients with chronic cardiac disease.

Currently, there are no anti-parasitic drugs available in the U.S. for animals infected with *T. cruzi*. Clinical signs may be managed through supportive therapy depending on the severity of the disease.

Who is at risk for Chagas disease?

People in Mexico and Central and South America who sleep in poorly constructed houses, including those built with mud, adobe, or thatch, are at greatest risk of infection from infected triatomine bugs, which live in the cracks and crevices of the dwellings and are most active at night. Travelers to highly endemic countries who plan to sleep in well-constructed facilities (for example, air-conditioned or screened hotel rooms) are at low risk for exposure.

The risk of contracting Chagas disease in the southern U.S. is considered low due to improved housing conditions, availability of air conditioning, and screened windows.

How can I prevent Chagas disease?

Currently, there are no drugs or vaccines available for preventing infection.

Preventive measures while traveling to endemic areas include using bed nets treated with long-lasting insecticides, wearing protective clothing, and applying insect repellent to exposed skin. In addition, travelers should be aware of other possible routes of transmission, including blood-borne (i.e. blood

transfusion) and food-borne (ingestion of food and/or drink contaminated with infected bug feces) transmission.

Recommendations for reducing the risk of transmission to animals and humans in the U.S. include:

- Keep yard and kennel areas clean to eliminate habitat for the bugs; remove brush piles, rock piles, excessive buildup of leaf litter, etc.
- Control rodents to remove a potential food source that may sustain populations of bugs in the yard
- Turn off outdoor lights at night so that bugs aren't attracted to the house and yard
- Identify and seal entry points for the bugs into the home and consider the appropriate use of a long-lasting insecticide
- Keep pet food and water bowls inside to prevent contamination with feces from the infected bugs
- Keep dog houses and poultry coops clean, fill in crevices where the bugs might hide, and consider the appropriate use of long-lasting pesticides in and around these structures

Resources

DSHS website: <http://www.dshs.state.tx.us/idcu/disease/chagas/>

Texas A&M University website: <http://kissingbug.tamu.edu/>

CDC website: <http://www.cdc.gov/parasites/chagas/>

Blood Donor Screening: http://www.cdc.gov/parasites/chagas/gen_info/screening.html

Triatomine Bug Information: http://www.cdc.gov/parasites/chagas/gen_info/vectors/index.html