



## Transmission of Chagas Disease

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### DESCRIPTION

The parasite *Trypanosoma cruzi* is the cause of the potentially fatal zoonotic disease known as American Trypanosomiasis, generally referred to as Chagas disease. The southern United States, Trinidad, and Central and South America are where the disease is most frequently found. However, it is less frequent outside of rural areas where agrarian dwelling is a popular habitat for vectors [1,2].

Chagas disease is a vector-borne disease usually spread through contact with contaminated feces or urine of the reduviid bug, also known as the kissing bug or triatomine bug. Consuming tainted food or drink, getting blood products transfused, or having an infected organ transplanted are among more ways that the disease is spread [3]. The disease's main side effects are cardiomegaly, gastrointestinal disorders, and occasionally peripheral neuropathy. It is this insect which in turn transmits the causative agent, the parasite *Trypanosoma cruzi*. At present, there are 11 types of species of the triatomine bug. *Triatoma sanguisuga* and *Triatoma gerstaeckeri* are the most common species in the southern United States.

*Rhodnius prolixus* and *Triatoma dimidiata* are the primary vectors in Mexico, Central America, and South America. Reduviid bugs eat their blood at night, but female bugs need to eat blood to lay their eggs [4]. They defecate and expel parasites in the faeces or urine near mucosal membranes, usually the mouth or eyes, during or even after the meal. The parasite then enters through a bite wound or the mucosal membrane. The most infectious trypomastigote forms are seen in high concentrations in the faeces of infected reduviid bugs.

Other mode transmissions include:

- Vertical transmission from mother to fetus leading to congenital Chagas disease
- Organ transplantation
- Transfusion of blood and blood products

From the southern United States to Chile's and Argentina's northern regions, Chagas disease is endemic throughout the

region. The movement of people away from the nations where the disease is endemic, however, is altering the disease's distribution. Both domestic and wild mammals, serve as a frequent host for this parasite. Infected reduviid bugs, which can be found in cracks indoors or on the roofs of subpar homes built of mud, straw, or palm thatch, are the main means of transmission. Blood transfusion, vertical transmission from mother to child, laboratory transmission, and organ transplant from infected individuals are other mechanisms of infection. The most frequently impacted group is children, followed by women and then males [5].

### CONCLUSION

Due to the high parasitemia during the acute phase, the diagnosis is obtained by identifying the parasite microscopically from a fresh preparation of anticoagulated blood or buffy coat. However, as the test's sensitivity declines and the disease transforms from acute to chronic, levels may drop within 90 days of infection and become undetected by microscopy. Another diagnostic method is Polymerase Chain Reaction (PCR), which can be used in the acute phase, to check for acute infections in organ transplant patients, or after unintentional exposures. Days or weeks before a peripheral blood smear picks up circulating trypomastigotes, PCR testing can show positive results. Chronic infections can be proven by finding IgG antibodies against *T. cruzi*.

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