



Media centre

Chagas disease (American trypanosomiasis)

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Key facts

- An estimated 10 million people are infected with *Trypanosoma cruzi* (the parasite that causes Chagas disease) worldwide, mostly in Latin America.
- Chagas disease was once entirely confined to the Region of the Americas – principally Latin America – but it has now spread to other continents.
- Chagas disease is curable if treatment is initiated soon after infection.
- Up to 30% of chronically infected people develop cardiac alterations and up to 10% develop digestive, neurological or mixed alterations, for which specific treatment may become necessary.
- Vector control is the most useful method to prevent Chagas disease in Latin America.
- Blood screening is vital to prevent infection through transfusion and organ transplantation.

Chagas disease, also known as American trypanosomiasis, is a potentially life-threatening illness caused by the protozoan parasite, *Trypanosoma cruzi* (*T. cruzi*). It is found mainly in Latin America, where it is mostly transmitted to humans by the faeces of triatomine bugs, known as 'kissing bugs', among other names, depending on the geographical area.

An estimated 10 million people are infected worldwide, mostly in Latin America where Chagas disease is endemic. More than 25 million people are at risk of the disease. It is estimated that in 2008 Chagas disease killed more than 10 000 people.

Chagas disease is named after Carlos Ribeiro Justiniano Chagas, a Brazilian doctor who first discovered the disease in 1909.

Distribution

Chagas disease occurs mainly in Latin America. However, in the past decades it has been increasingly detected in the United States of America, Canada, many European and some Western Pacific countries. This is due

Related links

[More on Chagas disease](#)[Chagas disease \(Special Programme for Research and Training in Tropical Diseases, TDR\)](#)

mainly to population mobility between Latin America and the rest of the world. Less frequently, it is due to infection through blood transfusion, vertical transmission (from infected mother to child) or organ donation.

Signs and symptoms

Chagas disease presents itself in two phases. The initial, acute phase lasts for about two months after infection. During the acute phase, a high number of parasites circulate in the blood. In most cases, symptoms are absent or mild, but can include fever, headache, enlarged lymph glands, pallor, muscle pain, difficulty in breathing, swelling and abdominal or chest pain. In less than 50% of people bitten by a triatomine bug, characteristic first visible signs can be a skin lesion or a purplish swelling of the lids of one eye.

During the chronic phase, the parasites are hidden mainly in the heart and digestive muscle. Up to 30% of patients suffer from cardiac disorders and up to 10% suffer from digestive (typically enlargement of the oesophagus or colon), neurological or mixed alterations. In later years the infection can lead to sudden death or heart failure caused by progressive destruction of the heart muscle.

Transmission

In Latin America, *T. cruzi* parasites are mainly transmitted by the infected faeces of blood-sucking triatomine bugs. These bugs typically live in the cracks of poorly-constructed homes in rural or suburban areas. Normally they hide during the day and become active at night when they feed on human blood. They usually bite an exposed area of skin such as the face, and the bug defecates close to the bite. The parasites enter the body when the person instinctively smears the bug faeces into the bite, the eyes, the mouth, or into any skin break.

T. cruzi can also be transmitted by:

- food contaminated with *T. cruzi* through for example the contact with triatomine bug faeces
- blood transfusions using blood from infected donors
- passage from an infected mother to her newborn during pregnancy or childbirth
- organ transplants using organs from infected donors
- laboratory accidents.

Treatment

To kill the parasite Chagas disease can be treated with either benznidazole or nifurtimox. Both medicines are almost 100% effective in curing the disease if given soon after infection at the onset of the acute phase. However, the efficacy of both diminishes the longer a person has been infected. Treatment is also indicated for those in whom the infection has been reactivated (for example due to immunosuppression), for infants with congenital infection and for patients during the early chronic phase.

Infected adults, especially those with no symptoms, should be offered treatment. The potential benefits of medication in preventing or delaying the development of Chagas disease should be weighed against the long duration of treatment (up to 2 months) and possible adverse reactions (occurring in up to 40% of treated patients).

Benznidazole and nifurtimox should not be taken by pregnant women or by people with kidney or liver failure. Nifurtimox is also contraindicated for people with a background of neurological or psychiatric disorders.

Additionally, specific treatment for cardiac or digestive manifestations may be required.

Control and prevention

There is no vaccine for Chagas disease. Vector control is the most effective method of preventing Chagas disease in Latin America. Blood screening is necessary to prevent infection through transfusion and organ transplantation.

Originally (>9000 years ago), *T. cruzi* only affected wild animals. It later spread to domestic animals and people. The large reservoir of *T. cruzi* parasites in wild animals of the Americas means that the parasite cannot be eradicated. Instead, the control targets are elimination of the transmission and health care access for the infected and ill population.

T. cruzi can infect several species of the triatomine bug, the majority of which are found in the Americas. Depending on the geographical area, WHO recommends the following approaches to prevention and control:

- insecticide spraying of houses and surrounding areas;
- house improvements to prevent vector infestation;
- personal preventive measures such as bednets;
- good hygiene practices in food preparation, transportation, storage and consumption;
- screening of blood donors;
- testing of organ, tissue or cell donors and receivers; and
- screening of newborns from infected mothers, and siblings of infected children to provide early diagnosis and treatment.

WHO response

Since the 1990s there have been important successes in parasite and vector control in Latin America, in the territories of the Southern Cone, Central American, Andean Pact and Amazonian Intergovernmental Initiatives with the Pan American Health Organization. These multinational initiatives led to substantial reductions in transmission by domestic vectors. In addition, the risk of transmission by blood transfusion has been substantially reduced throughout Latin America. These advances have been possible because of the strong commitment of the endemic Member States, and the strength of their research and control organizations,

together with support from many international partners.

At the same time a series of additional challenges have to be faced:

- sustainability, maintaining and consolidating the control advances;
- emergence of Chagas disease in regions previously considered to be free of the disease – such as the Amazon basin;
- re-emergence of the disease in regions where control had been in progress – such as the Chaco region of Argentina and Bolivia;
- dissemination, mainly due to increasing population mobility between Latin America and the rest of the world;
- diagnosis and treatment access of millions of infected people.

To attain the goal of the elimination of Chagas disease transmission and provide health care for infected/ill patients, both in endemic and non-endemic countries, WHO aims to increase networking at the global level and reinforce regional and national capacities, focusing on:

- strengthening world epidemiological surveillance and information systems;
- preventing transmission by blood transfusion and organ transplantation in endemic and non-endemic countries;
- promoting the identification of diagnostic tests for screening and diagnosis of infections;
- expanding secondary prevention of congenital transmission and case management of congenital and non-congenital infections; and
- promoting consensus on adequate case management.

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