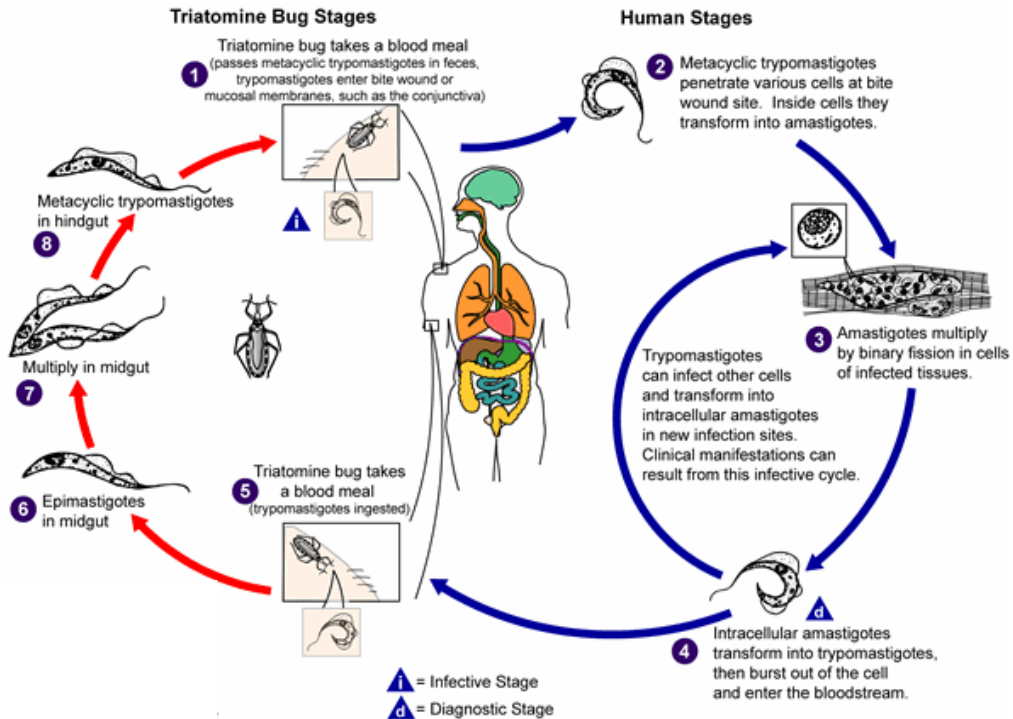


## Chagas disease - Pathology

Chagas disease is a chronic infection in which an acute phase with detectable circulating parasitaemia is followed by a lifelong chronic phase which can manifest as a variety of debilitating diseases.

Figure 1: Chagas Disease Cycle (source: Centres of Diseases Control, American Trypanosomiasis, Parasites & Health, <http://www.dpd.cdc.gov/dpdx>)



### Acute stage

*T. cruzi* is usually transmitted when an infected reduvid vector bites the host and defaecates adjacent to the bite. Scratching the bite abrades the skin and allows the metacyclic trypomastigotes to infect host cells. In the mammalian host, *T. cruzi* proliferates intracellularly as the amastigote form and is released into the blood as a non-dividing highly infective trypomastigote form that can then invade cells in other tissues. The acute stage manifests clinically from about 1 – 2 weeks after infection and lasts for 2 – 3 months. Most infections occur before the age of 15 years and generally pass unnoticed with symptoms of unspecific nature. However death can ensue in a small number of cases (2-8 %). During the acute stage, parasites can be easily detected in peripheral blood. This phase of the disease ends when the immunological balance between the host and the parasite greatly reduces the number of circulating trypomastigotes, rendering direct parasitological diagnosis difficult or impossible.

### Chronic stage

After the acute phase, patients become asymptomatic and about 70% of infected people continue in this state, known as the indeterminate form of chronic Chagas' disease, for the rest of their lives. However, approximately 30% of patients will present with cardiac, digestive, or nervous forms of chronic Chagas' disease 10-25 years after initial infection. This occurrence is more frequent in men 20-45 years of age. Chest pain, palpitations, dizziness, and peripheral oedema are usual. Arrhythmia, thromboembolism, heart failure, and sudden death are also frequent outcomes of chronic Chagasic cardiomyopathy (CCC). With pronounced geographic differences, Chagas' disease also manifests as CCC with concomitant megaviscera, mainly megaesophagus and megacolon. Megaesophagus, in its advanced form, presents as dysphagia whereas megacolon produces varying degrees of constipation.