

# Transfusion-Associated Chagas' Disease in the United States

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## Abstract

Chagas' disease (American trypanosomiasis) is a zoonosis caused by *Trypanosoma cruzi*, a protozoan parasite that is endemic in Latin America and transmitted to humans most often by the bite of one of several species of reduvid (kissing) bugs. While less frequent than natural transmission, congenital infection and transmission by contaminated blood and/or organs also occurs.<sup>1</sup> The majority of infected individuals remain asymptomatic; however, chronic Chagas' disease is a leading cause of heart failure in South and Central America, afflicting 16 to 18 million patients and causing nearly 50,000 deaths annually.<sup>2</sup> There is no curative treatment for the chronic form. It is rare in North America but infected species of the vector, reservoir animals and seropositive individuals have been identified within the U.S.<sup>3,4,5,6</sup>

The prospect of *T. cruzi* spreading by transfusion has garnered concern in the U.S. public health arena. Infection by transfusion is second only to vector transmission in endemic areas and is likely underdiagnosed.<sup>7</sup> There are incidental reports of transfusion-related infection in the U.S.<sup>3</sup> The possibility that an asymptomatic infected individual might become a blood donor is real. Milei et al.<sup>8</sup> estimated that up to 370,000 chagasic patients reside in the U.S. Other studies estimate that seropositive individuals in the U.S. number over 350,000, with approximately 100,000 actually suffering from manifestations of chronic Chagas' disease.<sup>8,9</sup> Leiby et al.<sup>6</sup> reviewed multiple studies that investigated the prevalence of *T. cruzi* antibodies among blood donors in various regions of the U.S. Several studies have correlated the incidence of seropositivity with regard to birthplace and travel history. In one study, all seven individuals who tested positive serologically originated from endemic areas, while in a separate study, of 34 seropositive individuals, all but one was born in an endemic region.<sup>10</sup>

There is currently no routine testing of donated blood units for *T. cruzi* by U.S. blood banks. Screening for infection remains a debated issue as the cost-effectiveness is difficult to assess within the U.S. Current opinions differ regarding the value of identifying at-risk would-be blood donors by history of possible prior exposure. The foremost risk factor for occult infection has been recognized as "birth place in an endemic region." Questionnaires that seek this information could be used to screen at-risk populations prior to blood donation but the benefit of excluding at-risk donors has not been established. Further discussion regarding current blood bank testing and cost-effectiveness is warranted as evidenced by the recent occurrence of three cases of Chagas' disease in the U.S. from an organ donor.<sup>1</sup>

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