

**CHAGAS DISEASE IN THE UNITED STATES: THE EMERGING THREAT  
AND THE ROLE CLIMATE AND AWARENESS PLAY IN ITS SPREAD**

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## Abstract

This study evaluates the roles of temperature variability and disease awareness in the emergence of Chagas disease (American trypanosomiasis). Chagas disease is endemic in Latin America and primarily spreads to humans directly via the triatomine vector. Hosts for most triatomine species are mainly rodents and occasionally dogs. The disease itself is caused by a parasitic protozoan, *Trypanosoma cruzi* (*T. cruzi*) which is found in the triatomine's feces and is often spread while the triatomine is consuming a blood meal. *T. cruzi* from feces enters the body via an abrasion on the skin, the mucous membranes, conjunctivae, or through consumption.

To determine the risk of Chagas disease transmission one must define qualities that make the triatomine an effective disease vector as well as investigate the level of disease awareness among physicians and the population within the vector's range. This thesis maps triatomine species within the U.S. that harbor *T. cruzi* naturally and that exhibit qualities of domesticity. These qualities are defined by whether the species bites humans and dogs as well as reports that the species has been found in the domestic setting. Ranges illustrating temperature thresholds for increased triatomine activity for 2000 and 2030 are also depicted. Additionally, outcomes of a physician survey are presented to gauge the status of Chagas disease awareness in areas at higher risk for disease transmission. Results reveal limited consideration of Chagas disease in physician diagnosis despite the higher risk range which extends through the southern U.S. and is predicted to expand significantly by 2030.

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