

Chagas (pronounced SHA-gus) disease, also known as American Trypanosomiasis, is a parasitic disease affecting roughly 8 million people in Mexico and Central and South America. It is a rare disease in the southern United States but has been detected in Texas, Louisiana, and Oklahoma. The disease is caused by the flagellate protozoan parasite *Trypanosoma cruzi* (*T. cruzi*). This parasite causes both acute (short-term) and chronic (long-term) symptoms, which can become life-threatening. The parasite is transmitted (vectored) to humans, dogs, and other mammals by a triatomine—an insect also known as the “kissing bug” because it commonly bites victims on or near the face. These insects are known by numerous common names, varying by country, to include “kissing bug,” “cone nose bug,” “benchuca,” “vinchuca,” “chipo,” and “barbeiro.”

## Who is at risk of getting Chagas disease?

Chagas disease is a problem in the Americas and Mexico where a significant percentage of people live in poor housing conditions in rural areas. Humans and kissing bugs live together in the same spaces in these locations. Military personnel traveling to or deployed in areas where Chagas disease is endemic are at risk and should take measures to protect themselves from kissing bugs.

## How do you get Chagas disease?

People usually contract Chagas disease through the kissing bug’s parasite-infected feces. Infections occur when infected feces are rubbed into bite wounds or into the eyes or mouth. Humans can also acquire the parasites by eating uncooked food or drinking beverages contaminated with infected feces from kissing bugs. The *T. cruzi* parasite can also be transmitted through blood transfusions, organ transplants, and trans-placentally (from mother to unborn child). The disease is not spread through person-to-person contact.

## How do kissing bugs become infected with *T. cruzi*?

These insects become infected by biting an infected animal or person. Over 150 wild and domestic animal species, including humans, dogs, cats, rats, mice, opossums, armadillos, and bats, are known reservoirs. Infected kissing bugs and reservoir hosts have been found from Texas to Florida and as far north as Oklahoma and Maryland in the United States.

## How do kissing bugs transmit *T. cruzi*?

The parasite, *T. cruzi*, lives in infected kissing bug’s stomachs and mixes with their feces when they feed on blood. If a victim scratches or rubs the feces into the bite wound, broken skin, or their eyes or mouth, they can become infected with parasites. Kissing bugs usually feed while people are asleep and prefer to feed on areas where the skin is thin and easy to puncture like the mouth and eyes. Their sharp mouthparts are shaped like straws and they use them to pierce the skin and suck blood. The bite from a kissing bug is initially painless and most people do not realize that they have been bitten. The bite site soon becomes an itchy welt that leads to scratching and disease transmission. Kissing bugs adapted to living in human dwellings are called “domesticated.” These insects hide in cracks and crevices in floors and walls, thatched roofs, house plants, furniture, and around ceiling rafters during the daylight hours. Kissing bugs emerge at night in search of a blood meal.

## What are the symptoms of Chagas disease and how are they treated?

Chagas disease has both acute and chronic effects. Acute symptoms are usually experienced within the first month after infection. One sign unique to the acute phase of Chagas disease is known as Romaña's sign, which is the swelling of the eyelid



Kissing bug (*Triatoma sanguisuga*)  
Photo: G. Snodgrass, VID, APHC

caused by the entry of the parasite through the conjunctiva of the eye. While some people may have no symptoms in the acute stage, it is common for infected people to experience swelling or inflammation where the parasites enter their body. Acute heart failure and inflammation of the brain or spinal cord (meningoencephalitis) leads to death in less than 5% of cases. Heart failure and brain or spinal cord inflammation usually occurs in children under 2 years old. Medication must be taken during the acute stage of Chagas disease to be effective.



Romaña's sign, Image: CDC

Chronic symptoms may not appear until years or even decades after the initial infection. Symptoms include enlargement of the heart muscle, nervous system disorders, and dementia. The colon and esophagus can also be affected and can lead to severe constipation and difficulty swallowing. Medication is not effective once Chagas disease has reached the chronic stage of infection. Standard treatment methods only help manage symptoms, and no vaccine is currently available.

**What should you do if you are bitten by a kissing bug and/or may have contracted Chagas disease?**

Contact a healthcare professional. Make sure you mention your exposure to a kissing bug and/or that you have been in a Chagas disease-endemic area. Chagas disease can be diagnosed through laboratory blood tests. Save the insect in a plastic bag or a vial for identification if possible.

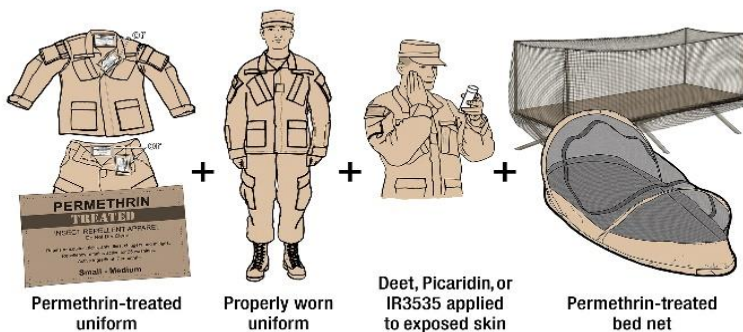
**What can I do to protect myself from getting Chagas disease?**

Chagas disease was once a rural problem that has expanded into urban areas. Soldiers should utilize the Department of Defense (DoD) Insect Repellent System to protect themselves from kissing bugs in the endemic areas of Mexico and Central and South America. Preventive measures may also include spraying infested dwellings with residual insecticides. In endemic areas, sleep indoors in well-constructed facilities (air-conditioned or screened hotel rooms) or under a permethrin-treated bed net. Remember that poorly constructed housing and structures utilizing mud, adobe, or palm thatch construction are prime habitats for kissing bugs. Soldiers and travelers should also be aware of food-borne transmission (drinks and uncooked food contaminated with kissing bug feces). Clean and disinfect any surfaces that kissing bugs may contact. Good vector control programs have successfully stopped the spread of Chagas disease in some Latin American countries.



0.5% Permethrin spray can be used to treat bed nets and civilian clothing. Always read and follow label directions. Photo: VID, APHC

**DOD INSECT REPELLENT SYSTEM**



**Use ALL elements for maximum protection**

**Personal Protective Measures for Soldiers:** Wearing permethrin-treated clothing, using a DEET-based insect repellent on the skin, and sleeping under a permethrin-treated bed net provides maximum protection from kissing bug bites. Standard bed nets available to protect Soldiers while sleeping include the Lightweight, Self-Supporting, Pop-Up Bed Net, factory-treated with permethrin, available in Coyote Brown (NSN 3740-01-518-7310) or OD Green (NSN 8415-01-516-4415). Untreated Bed Nets (NSN 7210-00-266-9736) should be treated with 0.5% permethrin aerosol (NSN 6840-01-278-1336) before assembling to prevent kissing bugs from biting through the net.

**Where can I find additional information on Chagas disease?**

- Centers for Disease Control and Prevention: <http://www.cdc.gov/parasites/chagas/>
- World Health Organization: <http://www.who.int/mediacentre/factsheets/fs340/en/>
- University of Florida, Entomology and Nematology: [http://entnemdept.ufl.edu/Creatures/URBAN/Triatoma\\_sanguisuga.htm](http://entnemdept.ufl.edu/Creatures/URBAN/Triatoma_sanguisuga.htm)

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