

American Trypanosomiasis (Chagas Disease)

Information for Dog Owners



Key Facts

Signs of disease in dogs can be:

- Severe and rapid, particularly in young dogs (< 6 months). These can include weakness, not eating and sudden death due to heart disease.
- Slowly progressive (chronic) in adult dogs. Dogs frequently have no obvious disease signs, and then may develop heart disease that progresses to heart failure or sudden death.

At present, there is no cure for infected dogs.

Blood feeding insects (kissing bugs) transmit the parasite (*Trypanosoma cruzi*) that causes disease. Dogs can also be infected by blood transfusion or dam-to-puppy blood contact (e.g. placental).

The *T. cruzi* parasite is found in South and Central America, Mexico and in the southern United States (e.g. Texas).

People can be infected by *T. cruzi*, causing heart disease. Due to a high frequency of infection in some regions in South/Central America, severity of disease and often poor response to treatment, human disease is a major concern.

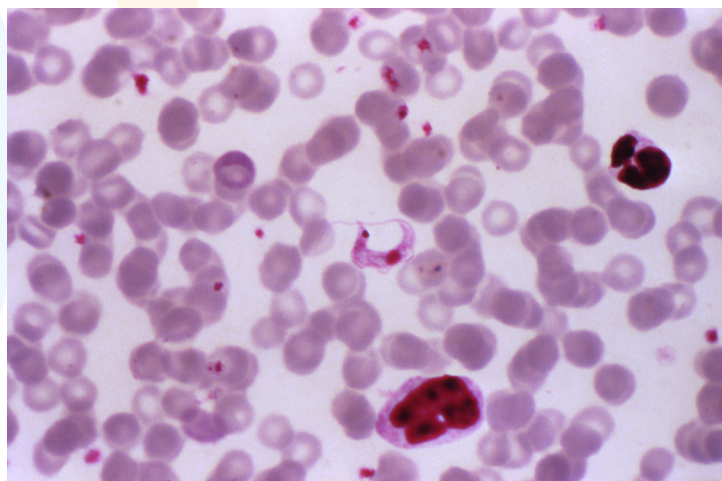
What is it?

American trypanosomiasis (Chagas disease) is due to infection with the *Trypanosoma cruzi* parasite (protozoa). This parasite is transmitted by reduviid (triatomine) insects, which are commonly referred to as 'kissing' or 'assassin' bugs (see Resources section for links to pictures and additional information).

Once within the dog, the parasite circulates in the blood, moving to and multiplying in various body organs. Eventually, the parasite may enter and cause damage to the infected dog's heart.

Signs of disease can occur shortly after infection or may not develop until a longer period of time has passed. Many dogs do not show signs of disease during the acute (early) phase of infection. Dogs that do show signs of acute disease are often young dogs that show signs of heart disease (occurring 14 to 30 days after being infected). Following this acute phase, some of these infected

dogs will continue to live without developing clinical disease, while other dogs may progress to chronic infection and develop heart disease later in life.



Trypanosoma cruzi parasites in a blood smear (magnification of 1000X; public domain, Centers for Disease Control and Prevention)

Who gets it?

Dogs and humans may experience clinical disease once infected. A variety of domestic and wild animals (e.g. cats, guinea pigs, rats, skunks, raccoons, opossums, armadillos) can be infected with the parasite without becoming sick. These animals can serve as a source of infection for kissing bugs which may then infect other animals or humans.

Can people get sick with it?

Yes. Chagas disease is a major concern for humans, particularly those who live in (or travel to) areas where the kissing bug and *T. cruzi* are common. These areas include South and Central America, Mexico, and some states in the southern US.

How is it spread?

(Transmission & Infection risk)

In N. America, dogs acquire American trypanosomiasis after eating (or having contact with) feces from an infected kissing bug. The bug is infected by feeding on the blood of an infected animal or person. Dogs may also be infected through blood from another dog (e.g. transfusion or puppies from an infected dam through placental spread) or potentially eating tissues of infected animals (e.g. wildlife).



“Kissing bugs”, three *Triatoma* species common in the southern United States (Photo: Gabriel L. Hamer)

Clinical disease in dogs is uncommon in the United States. However, American trypanosomiasis is considered an emerging disease and infection is being increasingly recognized in certain regions

(e.g. southern US), particularly in stray dogs and in some kennels. Climate (warm temperatures needed for insect development and feeding) and presence of kissing bug species able to efficiently transmit disease are largely responsible for determining geographic areas of disease risk. Disease clusters (i.e. multiple sick dogs) can occur within local areas, households or kennels.

Infection risk is highest for dogs with an outdoor lifestyle (e.g. hunting dogs), that live in rural areas, or that live in (or travel to) an area where American trypanosomiasis is common and that lacks insect control programs.

What should I look for? (Signs of disease)

Heart disease is the most common sign of infection, but brain and nervous system signs can occur. Some infected dogs never develop disease.

In young (< 6 months) infected dogs, signs of disease can include not eating, weakness, pale gums, diarrhea and sometimes sudden death.

Older dogs that are infected may show no obvious signs of disease for long periods of time (e.g. years), and then can develop heart disease (arrhythmias, heart murmur) and weakness. This can progress to congestive heart failure (cough, difficulty breathing, fluid in lungs) or sudden death.

How is it diagnosed?

Your veterinarian will diagnose trypanosomiasis based on clinical signs, examination (e.g. heart disease with cough, change in breathing, heart murmur) and history of living in or travelling to an area with a known risk for American trypanosomiasis.

Specific tests for heart disease (e.g. electrocardiography (ECG), heart ultrasound) and blood or tissue sample tests (e.g. blood smear to look for parasites, serology, PCR) can be performed to help confirm infection. Some tests are most accurate during the early (acute) stage of disease (e.g. blood smear, PCR) or need to be repeated over a period of time. As such, your veterinarian may need to repeat tests or use multiple types of tests to determine if your dog is infected.

What is the treatment? Will my dog recover?

There is currently no available effective treatment (parasiticide). Once dogs are infected they are usually infected for life. Therapy is only supportive, used to reduce the signs of heart disease and slow progression to heart failure (e.g. medications to improve heart function and relieve signs of heart failure).

Unfortunately, many dogs will worsen over time. Older dogs (> 9 years) with infection usually survive longer than younger dogs.

How can I stop this from happening to my dog and other dogs?

Be informed. Know the risk for disease in areas you live (or travel), so that you and your dog can reduce risk of infection. See the Resources section for further information.

Prevent infection and disease by decreasing your dog's contact with or ingestion of the feces of kissing bugs and avoid eating animals that carry infection (e.g. skunks, raccoons, opossums).

In areas with known or likely increased risks based on presence of the kissing bug and parasite, the use of effective insecticides in kennels and dog housing areas, removing insect nests, and use of screens or netting over windows and doors will reduce insect vectors.

Wearable dog collars treated with deltamethrin may deter or kill kissing bugs. This type of prevention helps to limit contact with the infected bugs' feces and thus reduce infection in dogs.

Important note: Ensure breeding bitches are screened for infection if living in (or coming from) geographic areas of known infection because infection may be passed through the placenta to puppies. Dogs used for blood donation should also be screened.

Outbreak management:

When multiple dogs are believed to have been infected with *T. cruzi* in a single location (e.g. kennel, canine event), it is strongly recommended to contact someone with experience in veterinary infectious disease risk assessment and outbreak management. Outbreaks are most likely to occur when numerous dogs are housed together and have exposure to infected kissing bugs (e.g.

boarding facility or kennel in an area where the infected bug is common). In such cases, efforts should be aimed at the identified source of infection.

Zoonotic (Human Infection) Alert:



Chagas disease is a major human disease concern. This is particularly important for people who live in (or travel to) rural areas with low standards of hygiene, high farm animal presence (e.g. chickens, goats, pigs) close to human housing, and a lack of insect control programs. In these areas, dogs and cats can serve as a reservoir (i.e. where kissing bugs can acquire the parasite) for human infection, although wildlife are likely the greatest source for infecting insects.

Precautions should be taken when handling any dog that is suspected of having the infection, as its blood can be infectious for people and other dogs. Care is particularly important when handling needles or other sharp objects that may be contaminated with blood from an infected dog. Any potential exposure (e.g. needle stick, bite) to a person from a dog suspected to be infected with American trypanosomiasis should be immediately discussed with an infectious disease physician.



Additional Resources

Centers for Disease Control and Prevention. American Trypanosomiasis (also known as Chagas Disease). Available at: <https://www.cdc.gov/parasites/chagas/index.html>

Centers for Disease Control and Prevention. Triatomine Bug FAQs. Available at: https://www.cdc.gov/parasites/chagas/gen_info/vectors/index.html

Contact your local public health agency to find out about the risk for American trypanosomiasis in your area.

Stull, JW, et al. (2016), Disease prevention at canine group settings. Available at: <http://vet.osu.edu/preventive-medicine/vpm-research/disease-prevention-canine-group-settings>

Texas A & M University. Kissing Bugs and Chagas Disease in the United States. Available at: kissingbug.tamu.edu

Wardrop, KJ, et al. (2016), Update on canine and feline blood donor screening for blood-borne pathogens. *J Vet Intern Med* 30.1: 15-35. Available at: [http://onlinelibrary.wiley.com/journal/10.1111/\(ISSN\)1939-1676/homepage/free_reviews_and_consensus_statements.htm](http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1939-1676/homepage/free_reviews_and_consensus_statements.htm)

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