



# CHAGAS DISEASE

1. **Agent:** *Trypanosoma cruzi*, a bloodborne protozoan, that occurs in humans as a hemoflagellate (trypomastigote) and as an intracellular parasite (amastogote).
2. **Identification:**
  - a. **Symptoms:**

**Acute Disease:** is usually an illness of children, but can occur at any age. Only a small proportion of infections are recognized because of the mild and nonspecific nature of most symptoms and because of lack of access to medical care in endemic countries. The first signs occur one week after infection and most commonly present with fever, lymphadenopathy, malaise, and occasional hepatosplenomegaly. In most cases, infection is asymptomatic. A chagoma is an inflammatory reaction at the site of inoculation of the protozoa; this inflammatory reaction can last up to 8 weeks. Overt central nervous system signs manifesting as acute encephalitis are rarely seen with the exception of those with profound immunocompromise (transplant recipients and AIDS patients).

**Chronic Disease:** Chronic irreversible sequelae, cardiac and gastrointestinal, are estimated to occur in up to 30% of infected persons years to decades after initial infection. The most frequent cardiac abnormalities include nonspecific electrocardiographic changes, life-threatening arrhythmias, and cardiomyopathy resulting in congestive heart failure; classically, intestinal tract involvement leads to megaesophagus and/or megacolon.

- b. **Diagnosis:** During the acute phase of infection diagnosis can be made through stained blood smear, hemoculture, or xenodiagnosis. Serological testing is utilized most for blood donor screening and clinical diagnostics. An enzyme-linked immunosorbent assay (ELISA) assay for detection of antibodies to *T. cruzi* in serum and plasma approved by the FDA is being utilized in blood donor screening.

Confirmatory radioimmunoprecipitation assay (RIPA) testing is carried out with each positive ELISA from blood donor screening programs, however, the RIPA is not FDA approved for serological diagnosis. Polymerase chain reaction (PCR) testing is a promising investigation technique for detecting low-level parasitemia.

3. **Incubation:** 5-14 days after the bite of the vector; 30-40 days after blood transfusion.
    4. **Reservoir:** Humans and over 150 domestic and wild mammals species, including dogs, cats, rats, mice, marsupials, rodents, carnivores, primates and other.
    5. **Source:** Infected species of Reduviidae (cone-nosed bugs or kissing bugs) especially various species from the genera *Triatoma*, *Rhodnius*, and *Panstrongylus*.
    6. **Transmission:**

**Infected Vectors:** Infected species of *Reduviidae* have infective trypanosome in their feces which are deposited during feeding and contaminate conjunctiva, mucous membranes, abrasions, or skin wounds. The bugs become infected when they feed on a parasitemic human or other mammal.

**Blood Transfusion:** Infected blood units to recipients (especially immunocompromised). Blood is routinely screened for *T. cruzi* in many parts of South and Central America. In 2007, American Red Cross and Blood System, Inc. began routinely screening all donated units of blood in the US by ELISA (Ortho-Clinical Diagnostics, Raritan, NJ).

**Perinatal Transmission:** Organisms may cross the placenta to cause congenital infection in 2% to 8% of pregnancies for those infected.

7. **Communicability:** The “kissing bug” becomes infective 10-30 days after biting an infected host with gut infection in the bug persisting for life (up to 2 years). The trypanosome is present in the blood of infected individuals or



mammals during the acute phase of infection and may persist at low levels in symptomatic and asymptomatic hosts.

8. **Specific Treatment:** Treatment options are limited and are most effective during the acute stage of infection. However, treatment is also a consideration for chronic stages. Two parasitic drugs, benznidazole and nifurtimox, are available only through consultation with the Centers for Disease Control and Prevention (CDC) under an investigational new drug protocol. Requests for specific parasitic drugs can be obtained by calling the CDC at 770-488-7774. Additional information regarding Chagas Disease treatment and diagnostics is available at the CDC Chagas disease web page.

they can no longer donate blood to others but they may be able to donate blood to themselves (autologous donation) if the need arises.

2. ACDC will assist with referrals for clinical evaluation of Chagas disease, especially for those without health insurance. ACDC will refer individuals without insurance to the Chagas Center of Excellence for medical evaluation and possible treatment at Olive View Medical Center in Sylmar, California.

## REPORTING PROCEDURES

1. Chagas disease is not reportable at the county or state level by either clinicians or laboratories. However, blood banks have been requested to report to positive donors to their local public health department.

ACDC will investigate all cases related to blood transfusion and those occurring in transplant recipients. ACDC will notify the State Division of Communicable Disease Control immediately upon receiving notice of a case of suspected transplant or transfusion associated Chagas disease, and will supervise the investigation and control measures.

2. **Report Form:** Not applicable
3. **Epidemiologic Data:**
  - a. History of travel to or residing in endemic areas within the incubation period.
  - b. Transplant and blood transfusion history

## CONTROL OF CASE, CONTACTS & CARRIERS

ACDC will supervise investigation and control measures.

## PREVENTION-EDUCATION

1. **Infected Blood Donors** are notified by blood banks of the serological positive diagnosis with regards to Chagas disease and the need for medical evaluation. They are informed that