

INTRODUCTION

According to the World Health Organization (WHO), an estimated 8 million people are infected with *Trypanosoma cruzi* worldwide and there are 65 million people at risk for Chagas Disease (CD). It's endemic in 21 countries of the American region. The geographical limits of CD are currently extended due to migratory processes, expanding this disease to all the continents, with a concentration in countries that receive migrants from endemic areas. For example, it is assumed that there are around half a million people infected with *Trypanosoma cruzi* living in the United States. CD has an annual incidence of 28 million cases and causes around 12 million deaths worldwide, producing moderate to serious cardiovascular and/or digestive complications in one third of those infected.

Around 99% of those infected do not receive treatment. This is mostly due to diverse access barriers: geographical, informative, and those related to the health system structure, among others.

One of the priorities of Mundo Sano Foundation (MS) is to develop a strategy to provide access to diagnosis and the etiological treatment (D&T) of CD in those infected, intervening specifically in health system barriers: offering service in the first level of health, training human resources and easing access to medical supplies and technology.

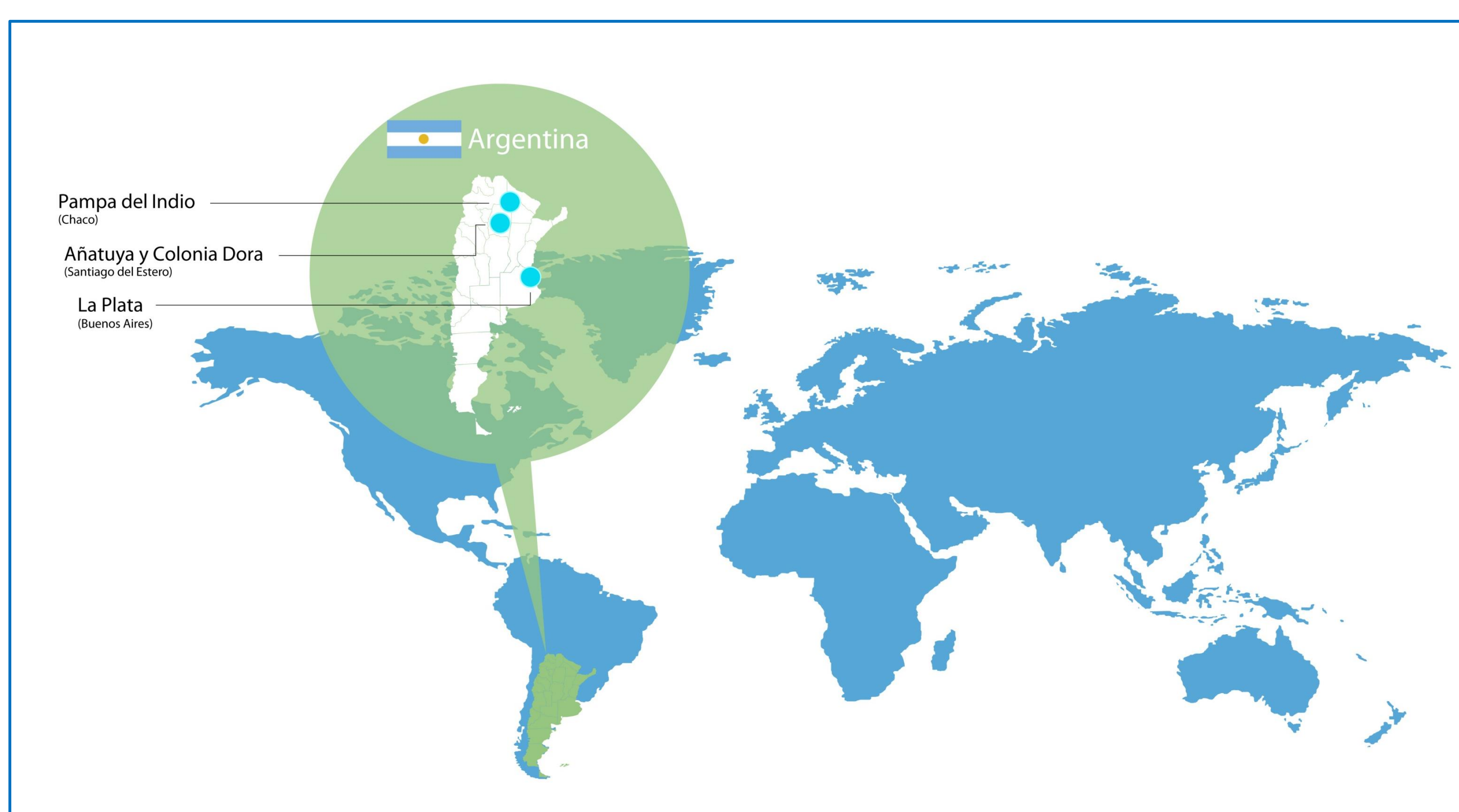
These strategies, with its respective variations, have been implemented in different epidemiological scenarios: endemic and non-endemic areas of Argentina.

METHODS

This study was performed in Añatuya – Colonia Dora (Santiago del Estero Province) (S1), in Pampa del Indio – Chaco Province (S1) where MS has local offices and in the city of La Plata (Buenos Aires Province) (S2) (Figure 1). In the endemic areas included, MS provided a Chagas Doctor's Office in collaboration with the local governments of each of the three localities (Añatuya, Colonia Dora and Pampa del Indio).

The criteria used for D&T correspond to the practices stipulated in the current norms of the National Ministry of Health. Although CD is a high prevalence disease in Argentina, D&T has only been traditionally implemented in few third level healthcare centers of large capital cities. Following the recommendations of the WHO, MS developed a D&T model for the first level of healthcare which includes the strengthening of aspects dealing with clinical management and the provision of the necessary human and technical resources, among others. The process for D&T was free of charge for the patients (clinical analysis, medical consultations and etiological treatment) and contemplated the inclusion of the family of a positive case, whereby expanding the reach of the program. Table 1 details the descriptive characteristics of the scenarios included in the study.

S1 refers to areas with a recent history of vector transmission (VT) currently controlled through continuous entomological surveillance and control. Entomological surveillance and control was performed through the system of man-hour and/or community reports, covering the localities included in the program. Health prevention and promotion activities related to CD were also performed with the communities. Patients were enrolled in the D&T program through three channels: a) serological surveys performed by MS in entomologically controlled communities, b) spontaneous demand and c) referral from provincial sanitary authorities. S2 refers to historically non-endemic areas. Primary healthcare centers of the City of La Plata (n = 46) are under the Municipal Chagas Program, created after having conducted a pilot study where the high prevalence of CD in the area became evident. The model chosen was one centered on the person, with a decisive capacity of the primary healthcare center and a minimal or lack of displacement of the person though the different health effectors with the goal to minimize the family's economic and social loss.



Map 1: Areas under study

Patients were enrolled mainly through pregnancy control consultations and screening activities in public primary schools.

Health prevention and promotion activities were performed in the public schools through conversations with the teachers and then with the children and their parents. Neighborhood fairs, mainly communal fairs with the presence of migrant population, were also used as a platform.

Patients with co-morbidities or advanced stages of CD were referred to third level healthcare institutions within the public health system that were previously engaged.

S1	S2
Surveillance & Control	Without vector
Prevention & promotion	Prevention & promotion
Diagnosis	Diagnosis
Treatment	Treatment

Table 1: Actions realized depending the epidemiological scenario

RESULTS

In Añatuya – Colonia Dora (S1), 466 people were evaluated since 2015, with 124 (26.6%) positive cases of which 43 were treated (Table 2A). The intradomiciliary infestation by *Triatoma infestans* in this area was less than 0.3%. In Pampa del Indio (S1), 73 people were evaluated since 2016, with 43 (58.9%) positive cases of which 9 were treated. The intradomiciliary infestation by *Triatoma infestans* in this area was less than 0.1%.

In La Plata (S2), 11,409 people were evaluated since 2012, with 931 positive cases (8.2%) of which 795 were treated (Table 2C).

The differences observed between diagnosed and treated people is due to pregnancy and patients that presented other counter-indications for treatment, such as being more than 50, cancer, serious mental disorders, alcoholism, among others. Only 5% of the patients had to be derived to a higher healthcare level facility. Table 2D presents a summary of all three scenarios included in the study.

A	tested	positives	treated
Colonia Dora + Añatuya	466	124	63
B	tested	positives	treated
Pampa del Indio	73	43	9
C	tested	positives	treated
La Plata	11.409	931	795
D	tested	positives	treated
Total	11.948	1.098	867

Table 2: Tested, positive and treated patientes in each epidemiological scenario

CONCLUSIONS

The characterization of the epidemiological scenario to be intervened is very important when organizing an approach strategy for CD. In areas with vector presence, it is fundamental to count with efficient entomological surveillance and control programs sustainable in time.

In Argentina (S1 and S2), the first level of healthcare showed its high efficiency and efficacy in the training, diagnostic and therapeutic processes. The percent of patients that had to be derived to higher level healthcare centers was minimal. In endemic countries where the number of infected individuals is high, relying on an adequate health service free of charge, constitutes a necessity and is the main strategy to demolish the access barriers of the health system. Moreover it is fundamental that the service counts with all the human and technical resources needed to provide adequate and quality attention.

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