

# The hidden Chagas disease burden in Europe

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Chagas disease in non-endemic countries - that is, in countries outside Latin America with exceptional or no vectorial transmission such as in Europe - has come to light since the beginning of 2000. The emergence of the disease in those countries was mainly linked to population mobility, notably migration. During the last century, Chagas disease cases were detected in non-endemic countries in North America (Canada and the United States) and the Western Pacific Region (mainly Australia and Japan), and only more recently in Europe [1,2].

The history of Chagas disease in Europe can be divided in three significant periods. The initial period, started at the beginning of the 1980s, when the first Chagas disease case in Europe was published [3], 72 years after Carlos Ribeiro Justiniano Chagas discovered the disease in Brazil [4]. Since then, successive sporadic publications have started to draw attention to the existence of Chagas disease cases in different European countries and the existence of the responsible parasite *Trypanosoma cruzi*. These publications describe infection transmission in Europe through different non-vectorial routes such as transfusional, congenital and laboratory-accident transmission, as well as sporadically through the arrival of infected travellers such as tourists, people visiting friends and relatives and adopted children [5].

The year 2000 marked the beginning of a second period, characterised by an increase in the number of cases reported in the scientific literature in many European countries [6]. According to the International Organization for Migration an important increase of migration between Europe and Latin America, predominantly to southern European countries, and mainly to Spain, was documented. Major causes contributing to this migration phenomenon were the economic hardship caused by the recession and high poverty levels in Latin America and tightening of visa regimes in the United States after 2001. The close cultural and historic ties of Latin American countries to Europe and the possibility for many Latin Americans to appeal to dual nationality because they frequently have European ancestors, have also facilitated population mobility in that direction. Demographically, the migrant population

was young, with high rates of labour force participation and relatively high rates of educational attainment, with great capacity to integrate into European societies. Additionally, they represented a prime example of the current worldwide trend towards the feminisation of migration, which is relevant in the context of Chagas disease because of the possibility of congenital transmission from infected mothers. Finally, there was also a significant number of undocumented migrants, and that irregular migration posed a significant challenge to governments [7].

The year 2007 marked the beginning of a third period in the history of Chagas disease in Europe, characterised by various initiatives launched at different levels. In July 2007, the World Health Organization (WHO) and the Pan American Health Organization (PAHO) convened a meeting entitled *Revisiting Chagas disease: from a Latin American health perspective to a global health perspective*, with participants of 28 Latin American and non-Latin American countries where the disease was present. A major outcome of the meeting was to highlight the presence of *T. cruzi* infection outside Latin America in the so-called non-endemic countries and an initiative to deal with Chagas disease in non-endemic countries, supplementing the existing intergovernmental initiatives for the control of Chagas disease in Latin America [8].

With the main objectives of assessing the burden of Chagas disease as a public health problem in non-endemic countries and formulating an appropriate response, the WHO organised a series of meetings in 2008 and 2009 that culminated in the Informal Consultation on the Control and Prevention of Chagas disease in Europe, in the first profiles of European countries with Chagas disease cases and the first statement acknowledging that the disease has emerged as an important public health challenge [5,9].

In May 2010 the 63rd World Health Assembly approved the new resolution WHA63.20 which recognises the increased number of cases of Chagas disease in countries where the disease is not endemic and states that all transmission routes have to be tackled. It further promotes the integration of patients with acute and

chronic clinical forms of Chagas disease into primary health services and calls for a mobilisation of national and international, public and private financial and human resources, for the promotion of intersectorial efforts and collaboration, and for the facilitation of networking between organisations and partners [10]. The 63rd World Health Assembly also called for the establishment of an initiative of non-endemic countries aiming at interconnecting all those regions and countries that have patients. Finally, in October 2010, the first WHO report on neglected tropical diseases included Chagas disease as one of the 17 listed diseases [2].

From the point of view of the legal framework, the first official reference to Chagas disease at the European Union level was made in the European Commission's Directive 2004/23/CE [11] amending Directive 2002/98/CE [12] of the European Parliament and Council (2003) on quality and safety of blood, which concerns technical criteria relating to blood and blood donations. Annex III of the directive defines the admission criteria for blood donors or blood types and the minimal exclusion criteria for donations from donors who have or had parasitological diseases; the exclusion of Chagas disease carriers is specified. Other European directives, including 2005/62/CE, establish norms to be followed by institutions when carrying out blood transfusions with blood imported from other countries. In February 2006, the European Parliament published a new directive 2006/17/CE [13] on the donation and control of human tissues and cells, which referred to Chagas disease. The directive relates to the screening of donors based on their epidemiological history and travel to endemic areas. Aligned with European Union directives, France, Spain and the United Kingdom implemented national measures to control transfusional transmission of Chagas disease [14,15].

The present timely special edition of *Eurosurveillance*, published in two parts, is a useful instrument to review and update diverse aspects of Chagas disease in Europe related to topics such as the current epidemiological situation, primary and secondary prevention of *T. cruzi* infection, including congenital cases, control of transmission by transfusion and organ transplantation, care of patients, information, education and communication instruments, and the information and surveillance systems in place in countries within and outside of the European Union.

Basile et al. [16] review the epidemiological situation of the nine European countries with the highest estimated prevalence of *T. cruzi* infection, and the difficulties of dealing with a frequently silent and under- or misdiagnosed disease for which neither acute nor chronic cases are captured by compulsory notification. They point out the need for and challenge of an information and surveillance system in Europe that considers also the number of undocumented migrants. The lack or inconsistency of accurate epidemiological numbers of people with *T. cruzi* infection or Chagas disease can

perpetuate the vicious circle of a silent and, in a way, silenced disease.

Along the same lines, the characteristics of patients attended and documented in the EuroTravNet provide precious information on the epidemiological and clinical profile of most of patients, together with the urgent necessity of implementing active measures to increase detection and access to diagnosis and treatment [17]. Other very interesting examples describing possible mechanisms to increase detection and care, and to make the disease more visible, are offered in articles from Italy and Switzerland [18,19]. These are countries with high absolute and relative numbers of *T. cruzi*-infected people, especially in certain regions or cantons. They have even seen reported acute cases of congenital transmission or oral transmission in a tourist coming back from a short trip to an endemic country. The need of an interdisciplinary approach, from the medical to the sociological sciences, taking into account all involved actors, including the patients themselves, is appointed as the unique solution to break the disease silence [20].

In terms of the possibility of implementing secondary prevention of congenital transmission linked to an information system in Europe, two pioneer experiences from Spain illustrate faced challenges and successful strategic measures to enhance the number of screened mothers and limit the number of lost patients in the after birth follow-up [21,22]. Nevertheless, as described by Navarro et al., implementing a protocol for the screening of pregnant women and the early diagnosis of infected newborns and their siblings requires also an essential component of information, education and communication (IEC), adapted to the emotional meaning Chagas disease for the affected population and their knowledge about it [23]. Moreover, any IEC component should include all involved actors, from health personnel to patients, including local non-governmental associations. Also from Spain comes a significant study by Valerio et al. reviewing the epidemiological data of *T. cruzi* infection and Chagas disease clinical chronic manifestations, especially in groups at risk of being infected. These studies evidence that it is essential to know the characteristics of the migrated population in terms of age, country of origin and exposition to infection, in order to propose adequate cost-effective protocols for laboratory and clinical screening and diagnosis, patient care and preventive and control measures [23,24].

It is necessary to move ahead with the description of Chagas disease in Europe. At-risk groups of migrants who lived in endemic areas before Chagas disease control measures were implemented in Latin America can have a high prevalence of infection and disease. But it is also logical to think that Chagas disease in non-endemic countries, with a reduced possibility of reinfection or co-infections with other parasitic diseases, with high standards of hygiene and nutritional status,

could be characterised by a lower morbidity and mortality. We are convinced that this special issue will stimulate further lively discussions around this disease, but also the implementation of the necessary measures to make it visible, stop transmission and provide care to patients in Europe.

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