World Health Organization

SIXTY-THIRD WORLD HEALTH ASSEMBLY **A63/17**
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Chagas disease: control and elimination

Report by the Secretariat

1. Chagas disease, also called American trypanosomiasis and first discovered a century ago by Dr Carlos Chagas in 1909, results from infection of humans by the parasite *Trypanosoma cruzi*. Latest available estimates indicate that around eight million people are infected by the parasite worldwide, with, in 2008, about 11 000 deaths. Chagas disease is endemic in Latin America and locally transmitted through an insect vector in countries or areas of countries such as Argentina, Belize, Bolivia (Plurinational State of), Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, the French overseas department of French Guiana, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Uruguay and Venezuela (Bolivarian Republic of). In the past decades, mainly because of increased population movements, the number of diagnosed cases has increased also in non-endemic countries in the Region of the Americas (Canada and United States of America), and the European Region (principally in Belgium, France, Italy, Spain, Switzerland and United Kingdom of Great Britain and Northern Ireland, but also in Austria, Croatia, Denmark, Germany, Luxembourg, Netherlands, Norway, Portugal, Romania and Sweden) and the Western Pacific regions (Australia and Japan). This increase presents additional risks of transmission of the parasite through blood transfusion, congenital infection and organ transplantation.

2. Triatomine bugs (the insect vector of Chagas disease) live in substandard housing from southern Argentina to southern United States of America; they find a favourable habitat in crevices in the walls and roofs of housing in rural and peripheral urban areas. The bugs become infected after biting an animal or person already infected with the parasite. People can become infected with *T. cruzi* when the faeces of infected triatomine bugs (excreted after the insect bites or feeds on blood) contaminate breaks in the skin, healthy mucous tissues (the conjunctiva, lips or mouth), or food that is subsequently eaten uncooked; mothers can transmit *T. cruzi* to their infants during pregnancy or at birth; and the parasite can be transmitted through the transfused blood or organs of infected donors.

3. The risk of infection with *T. cruzi* is directly related to poverty. The urban migration from rural areas that occurred in Latin America in the 1970s and 1980s changed the traditional epidemiological pattern of Chagas disease into an urban infection that can be now mainly transmitted by blood transfusion. Contamination rates in blood banks in some cities of the American continent vary from 3% to up to as much as 53%, indicating that the prevalence of *T. cruzi*-contaminated blood may exceed the prevalence of HIV and hepatitis B and C viruses in blood stocks.

4. There are two phases of the human disease: the acute phase, usually lasting around two months and normally asymptomatic or misdiagnosed, but in which symptoms may appear shortly after the infection; and the chronic phase, lifelong unless treated, in which symptoms may appear after a silent period that may last several years. During the chronic phase, lesions affect internal organs in up to 40% of infected persons, namely the heart, oesophagus and colon and the autonomic nervous system. After several years of asymptomatic infection, 20% to 30% of those infected develop cardiac damage

(which may lead to sudden death), 5% to 10% develop digestive damage (mainly megaviscera), and immunocompromised patients will present central nervous involvement.

5. The treatment of the disease in the acute and early chronic phase is based on two medicines: nifurtimox and benznidazole. In addition to close medical follow-up and pharmacovigilance activities, treatment could be improved with safer and more efficacious medicines or formulations (e.g. paediatric formulations). Increasing evidence shows that treating patients during the acute and early chronic phase could avoid mortality and reduce the severity of symptoms.

ACHIEVEMENTS

6. Intergovernmental initiatives to improve prevention, control and treatment of Chagas disease in Latin America, based on vector and transfusional control, diagnosis and case management, include: the Southern Cone Initiative, begun in 1991 (Argentina, Bolivia (Plurinational State of), Brazil, Chile, Paraguay and Uruguay); the Initiative of the Andean Countries, initiated in 1997 (Colombia, Ecuador, Peru and Venezuela (Bolivarian Republic of)), the Initiative of the Countries of Central America, created in 1997 (Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama); and the Initiative of the Amazon Countries for Surveillance and Control of Chagas Disease begun in 2004 (Bolivia (Plurinational State of), Brazil, Colombia, Ecuador, the French overseas department of French Guiana, Guyana, Peru, Suriname, and Venezuela (Bolivarian Republic of)). A national initiative was launched in Mexico in 2003.

7. Important achievements have been recorded in recent decades, but the situation differs greatly from one area to another. The transmission of *T. cruzi* by the main vector species of triatomine bug has been interrupted in countries such as Brazil, Chile, Guatemala and Uruguay, and, except in some regions, in Argentina, El Salvador, Honduras, Paraguay, Peru and Mexico. In all the endemic areas significant reductions have been seen in the number of acute cases and the populations of intra-domiciliary triatomine bugs. Estimated annual deaths globally decreased from 45 000 in 1990 to around 11 000 in 2008. Estimated number of infections decreased from 30 million in 1990 to 8 million in 2006. Annual incidence during this 16-year period fell from 700 000 to 56 000. The burden of Chagas disease has been reduced from 2.8 million disability-adjusted life years to less than 500 000.

8. In 2005, Chagas disease was incorporated into WHO's classification of neglected tropical diseases in order to promote synergistic advocacy and control efforts with other similarly neglected diseases.

9. In 2009, the 49th Directing Council of PAHO adopted resolution CD49.R19, which urges the Member States of the Region of the Americas to commit themselves to eliminate or reduce neglected diseases and other infections related to poverty, including Chagas disease, to levels so that these diseases are no longer considered public health problems by 2015. Given the current epidemiology of Chagas disease and the level of experience of prevention and control acquired by countries with assistance from PAHO, this goal is considered feasible.

10. Faced with the epidemiological reality and spread of the disease, WHO and PAHO organized a joint meeting (Geneva, 4–7 July 2007) to place Chagas disease in a comprehensive health perspective in order to move towards the goal of providing more support and to reinforce national and regional capacities for achieving the objective of interrupting transmission of *T. cruzi* and providing health care to infected patients. During this meeting, participants from 28 countries proposed to establish a Non-Endemic Countries Initiative and to increase networking for prevention, control and treatment of

Chagas disease, as part of WHO's renewed commitment to tackle neglected tropical diseases and to build on the successes in Latin America.

11. In 2007, WHO received a donation of 2.5 million tablets of nifurtimox to cover a five-year period, which will help to alleviate the limited availability and accessibility of this medicine.

NEW CHALLENGES

12. **Dissemination.** The past decade has seen the expansion of Chagas disease into areas previously considered non-endemic for the disease – such as Canada, the United States of America, many European and some Western Pacific countries – owing to the increasing movement of people between Latin America and the rest of the world. As a result, cases of Chagas disease may occur in countries where knowledge or experience of the disease is limited and measures for prevention, control, diagnosis, management and treatment are insufficient, especially in blood banks and organ transplantation, obstetric, perinatal and paediatric services.

13. **Sustainability.** All concerned parties must strive to avoid reduction of political interest and resources in order to ensure that the achievements in Chagas disease control are maintained and consolidated, including in areas of low endemicity. Expanded surveillance and control activities are required to face the new epidemiological challenges.

14. **Emergence.** Chagas disease has emerged in regions previously considered to be relatively free of the disease, such as the Amazon basin, where mainly sylvatic rather than domestic vectors transmit the parasite and local micro-epidemics of orally-transmitted disease have been observed.

15. **Re-emergence.** Chagas disease has re-emerged where control had once been successful, in regions such as the Chaco region of Argentina and Bolivia (Plurinational State of). In addition to a decrease in control activities in these areas, efforts to contain the disease are further complicated by the existence of extensive extradomestic populations of the main vectors and the emergence of some resistance to insecticides.

16. **Diagnosis and treatment.** Even with a substantial reduction in transmission, millions of people remain infected, indicating a need for increased access to adequate diagnosis and health care. This requirement will continue in disease-endemic and non-endemic areas because of expected future levels of active or accidental transmission, particularly given the high burden of chronic medical manifestations.

PROSPECTS FOR ELIMINATION OF CHAGAS DISEASE

17. The commitment to elimination of Chagas disease has to be taken not only by countries where it is endemic but also by those where it is not, always prioritizing the endemic areas. A major challenge is to provide more support and reinforce national and regional capacities to reach the goal of eliminating Chagas disease as a public health problem.

18. In this context, countries in which the disease is endemic urgently need coordinated support from PAHO for their subregional initiatives for prevention and control, and non-endemic areas also need support for their national and regional programmes, focusing on:

- epidemiological surveillance and health-information systems that cover entomological aspects, incidence, prevalence and other factors relevant to transmission, at community level;
- strengthening implementation of vector-control activities in order to achieve interruption of transmission and to promote operational research to improve or develop new prevention strategies;
- prevention of transmission of *T. cruzi* resulting from consumption of food contaminated by this parasite in endemic areas;
- promoting the development and use of diagnostic tests for screening and diagnosis of *T. cruzi* infection and new medicines to improve treatment;
- prevention and control of congenital transmission, and case management of congenital and noncongenital infections, including strategies for case-finding, diagnosis and treatment at different health-care levels (for instance, through primary health care integration, communities and other appropriate mechanisms), that can be applied in endemic and non-endemic countries;
- research on prevention, control and medical treatment of Chagas disease.

19. An earlier version of this report was considered by the Executive Board at its 124th session,[1] and the Board adopted resolution EB124.R7. In May 2009, the Sixty-second World Health Assembly decided to postpone further consideration of the subject to the present Health Assembly.[2]

ACTION BY THE HEALTH ASSEMBLY

20. The Health Assembly is invited to adopt the resolution recommended by the Executive Board in resolution EB124.R7.

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[1] See document EB124/2009/REC/2, summary record of the tenth meeting.

[2] See documents WHA62/2009/REC/3, summary record of the first meeting of the General Committee, section 1, and WHA62/2009/REC/2, verbatim record of the second meeting.