
Chagas disease: control and elimination

Report of the Secretariat

1. The goal set by the Health Assembly in resolution WHA51.14 to eliminate transmission of Chagas disease by the year 2010 will not be achieved and the disease is spreading beyond the initial areas in which it was endemic. This report describes the current situation of Chagas disease, including its recent spread in non-endemic countries due to greatly increased mobility of populations.

THE DISEASE

2. Chagas disease, also called American trypanosomiasis and first discovered a century ago by Dr Carlos Chagas in 1909, results from infection by the parasite *Trypanosoma cruzi*. It is estimated that 16 to 18 million people are infected by the parasite worldwide; of those infected, 50 000 will die each year. Chagas disease is locally transmitted in Argentina, Belize, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, El Salvador, French Guyana, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname and Venezuela (Bolivarian Republic of). Owing to migration, the number of cases has been increasing in Europe and the United States of America, and this increase presents additional risks of transmission through blood transfusion and organ transplantation.

3. Triatomine bugs (“kissing” bugs) 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 poorly constructed housing in rural areas and in peripheral urban slums. The bugs become infected after biting an animal or person already infected with the parasite. People can become infected with *T. cruzi* in several ways: they can touch their eyes, mouth or open cuts after having been into contact with faeces of infected triatomine bugs; bugs can directly deposit infected faeces in peoples’ eyes; people can eat uncooked food contaminated with triatomine bug faeces; mothers can transmit *T. cruzi* to their infants during pregnancy or at birth; and the parasite can be transmitted through contaminated transfused blood or organ transplant.

4. 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 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.

5. There are two stages of the human disease: the acute stage, in which symptoms appear shortly after the infection, and the chronic stage, in which symptoms appear after a silent period that may last several years. During the chronic phase lesions irreversibly affect internal organs, namely the heart,

oesophagus and colon and the peripheral nervous system. After several years of asymptomatic infection, 27% of those infected develop cardiac symptoms (which may lead to sudden death), 6% develop digestive damage (mainly megaviscera), and 3% will present peripheral nervous involvement.

6. The treatment of the disease in the acute phase is based on two drugs: nifurtimox and benznidazole. Treatment could be improved with safer and more efficacious medicines or formulations (e.g. paediatric formulations). Increasing evidence shows that treating patients after the acute phase could avoid complications and reduce their severity.

ACHIEVEMENTS

7. Intergovernmental initiatives to improve Chagas disease control in Latin America, based both on vector control and case management, include: the Southern Cone Initiative to Control/Eliminate Chagas Disease, begun in Brasília in 1991 (Argentina, Bolivia, Brazil, Chile, Paraguay and Uruguay); the Initiative of the Andean Countries to Control Vectoral and Transfusional Transmission of Chagas Disease initiated in 1997 (Colombia, Ecuador, Peru and Venezuela, (Bolivarian Republic of)); the Initiative of the Countries of Central America for Control of Vector-Borne and Transfusional Transmission and Medical Care for Chagas Disease 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 2005 (Bolivia, Brazil, Colombia, Ecuador, French Guyana, Guyana, Peru, Suriname, and Venezuela (Bolivarian Republic of)).

8. Important achievements have been made in recent decades, but the situation differs greatly from one area to another. Significant reductions have been seen in the number of acute cases and the populations of intra-domiciliary triatomines in countries like Brazil. Estimated annual deaths globally decreased from 45 000 in 1990 to 12 500 in 2006 while the estimated number of infections decreased from 30 million to 15 million. Annual incidence during this 16-year period fell from 700 000 to 41 000. The burden of Chagas disease has been reduced from 2.8 million disability-adjusted life years to less than 500 000.

9. 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.

10. Faced with the spread and globalization of the disease, WHO established a Global Network for Chagas Disease Elimination in July 2007 in order to expand a mostly Latin American concern into a global perspective. One of the first initiatives to result from this Network was the Non-Endemic Countries Initiative, designed to complement the existing Latin American intergovernmental initiatives. In Europe, Belgium, France, Italy, Spain, Switzerland, the United Kingdom of Great Britain and Northern Ireland, are participating in this new initiative, plus Japan and the United States of America.

11. In 2007, WHO received a donation of 2.5 million tablets of nifurtimox over 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 the United States of America and several European and Western Pacific countries – owing to increasing population mobility 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 surveillance and control measures are insufficient, especially in blood banks and obstetric services.

13. **Sustainability.** All concerned parties must strive to avoid complacency and 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 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. 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 treatment. This requirement will continue in endemic and non-endemic areas because of expected future levels of active or accidental transmission, particularly given the high burden of medical complications.

PROSPECTS FOR ELIMINATION OF CHAGAS DISEASE

17. The commitment to elimination of Chagas disease is no longer a regional but a global issue. 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. WHO is in a position to provide coordinated and global support to controlling and eliminating Chagas disease. The Organization is expanding on framework concepts contained in the Millennium Development Goals and other internationally agreed goals for neglected diseases. It is also expanding the PAHO's programmes for sustainable control of communicable diseases.

19. There is a need for a common, harmonized and coordinated epidemiological system, in order to monitor the elimination of Chagas disease. In this context, endemic countries urgently need coordinated support for their subregional initiatives for prevention and control, and non-endemic areas need support for their national and regional programmes, focusing on:

- epidemiological surveillance of, and health-information systems that cover, vectors, case numbers, and other factors relevant to transmission, all at community level;

- prevention of transmission of *T. cruzi* through blood transfusion and organ transplantation in endemic and non-endemic areas;
- development of diagnostic tests for screening and diagnosis of *T. cruzi* infection and development of 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 Chagas disease control.

ACTION BY THE EXECUTIVE BOARD

20. The Executive Board is invited to take note of the report.

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