

the shorter term while also targeting long-term changes. By working closely with women's community health groups that provide integrated health care, ways to prevent STD and HIV among women can be tested in order to identify successful approaches that then can be applied on a wider scale.

The HIV/AIDS pandemic—with all its complexities of home and community care, social attitudes, and economic and human rights issues—presents innumerable difficulties which can only be solved by people from diverse organizations working together and learning from one another.



Progress toward Elimination of Chagas' Disease Transmission in Argentina

BACKGROUND

Chagas' disease exists only in the Americas. It is caused by a flagellate protozoan parasite, *Trypanosoma cruzi*, transmitted to humans by triatomine insects known in different countries by various popular names—for example, kissing bug, vinchuca, barbeiro, and chipo, among others.

Conditions permitting transmission are present from latitude 42° N to latitude 40° S. The geographical distribution of human *T. cruzi* infection extends from the southern United States of America to southern Argentina and Chile. The disease affects 16–18 million people, and some 90 million—about 25% of the population of Latin America—are at risk of acquiring Chagas' disease.

After an asymptomatic period of several years, 27% of those infected develop

cardiac symptoms that may lead to sudden death; 6% develop digestive system damage, mainly megavisceras; and 3% present peripheral nervous involvement. The remaining 64% do not develop noticeable symptoms.

The rural-to-urban migration that occurred in Latin America in the 1970s and 1980s changed the traditional epidemiologic pattern of Chagas' disease, transforming it from a rural infection to one that could be transmitted in urban areas via blood transfusion.

The areas of transmission in Argentina cover about 60% of the national territory. The main vector is *Triatoma infestans*, a domestic species.

CONTROL PROGRAM IN ARGENTINA

Chagas' disease control activities started in Argentina in the early 1950s with isolated efforts in Chaco, La Rioja, and Catamarca provinces. However, it was not until 1962 that a national program was organized through the creation of two institutions: the National Vector Control

Source: World Health Organization. Chagas disease; progress towards elimination of transmission. *Wkly Epidemiol Rec* 1996;71(2):12–15. Based on *Boletín Epidemiológico Nacional* 1994;2:3–16; Ministerio de Salud y Acción Social, Dirección de Epidemiología, Buenos Aires.

Service and the Dr. Mario Fatała Chabén National Institute for Research and Diagnosis of Chagas' Disease (INDIECH). Program activities were carried out in nine provinces in 1962, and by 1979 control measures were under way in all endemic provinces.

INDIECH launched a program to improve laboratory facilities for diagnosis and staff training. As a result, there are over 800 laboratories, including blood banks, working in close collaboration as a network.

Until 1990 the Vector Control Service employed a methodology similar to that used by the malaria control program. It consisted of the application of insecticide to houses in endemic rural areas by trained personnel.

In 1985, under the leadership of INDIECH, a multisectoral research group, including the Vector Control Service and the University of Buenos Aires, started a project called "community-based surveillance of Chagas' disease transmission through appropriate technology." The project was carried out in Rio Hondo Department, Santiago del Estero Province, where the highest house infestation rates in the country were recorded. The objective of the project was to use appropriate technology for the control of Chagas' disease through the implementation of a primary health care/decentralization strategy, including the development of a sensor device to detect the vector (*T. infestans*) in houses. Fumigant canisters and portable pumps for use by primary health care workers were developed and tested.

As a result of the findings of the field research project, the control methodology was adjusted and the Vector Control Service decided to change its strategy. The role of specialized personnel was taken over by members of the community using appropriate technology. Although the research project ended in 1989, the team worked until 1991 in different areas to apply the new methodology and

prepare guidelines to be used by the Vector Control Service and the community.

During 1991, the national control strategy was reviewed, and at the end of the year a new program was launched. The Argentine Government purchased 1.6 million sensor boxes and more than 500 000 canisters for community-based surveillance and control activities in more than 400 000 houses during 1994. Community members became directly involved in the detection and control of the vector.

Between 1983 and 1991, the average number of houses sprayed per year was 80 000. Following the adoption of the new approach, this number rose to 110 000 houses in 1992 and to over 140 000 in 1994. More than 7 500 rural workers participated in the program throughout the country in 1994.

The cumulative number of houses sprayed between 1992 and 1995 reached the goal set in the work plan, thus completing the attack phase of the control strategy. In the next phase, surveillance activities will be consolidated. Certification of the interruption of transmission is foreseen for 1998–1999.

To prevent transmission of Chagas' disease through blood transfusion, the screening of blood for *T. cruzi* has been compulsory since 1983. Coverage of screening in the country's blood banks was 100% in 1994. A continued process of quality control and laboratory performance evaluation carried out by INDIECH in the provincial laboratories ensures the high sensitivity and specificity needed for the tests used in the screening system.

RESULTS OF THE CONTROL PROGRAM

Important reductions in the proportion of houses infested by the vector were observed in each province between 1982 and 1994. The reduction ranged from 30.9%

in Chaco to 94.4% in La Pampa, with an average reduction of 50.5% in the country as a whole. In 1982, 13 provinces had a house infestation rate of more than 10%, and 10 of those provinces had rates over 20%. In 1994, only 8 provinces had house infestation rates over 10%, and only 2 over 20%.

As the cumulative number of houses sprayed went up, the incidence of human infection decreased. Among 18-year-old males, the reduction was 76% between 1981 and 1993. Compared to the

number of cases that might have been expected in the absence of control activities, the decrease in cases of Chagas' disease is 81.0% in the age group under 18 years, 43.6% in the age group 18–35 years, and 24.3% in the age group 35–50 years.

Taking into account the direct and indirect costs of the control program and balancing those against the costs of human cases it prevented, the savings amount to US\$ 2 800 million—about one-twentieth of the total external debt of Argentina in 1993.



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