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Evaluation of tuberculosis control strategies in Brazil

TUBERCULOSIS: A PUBLIC HEALTH PRIORITY

Although tuberculosis is one of the oldest known infectious diseases and has been treatable with drugs for more than half a century, it remains one of the most important health problems that need to be faced worldwide. Social inequalities, insufficient research aimed at developing new treatments and vaccines, human migratory flows, deficiencies in health systems, high prevalence of multidrug-resistant tuberculosis cases and cases associated with HIV infection contribute towards this problem.⁶

Tuberculosis was mistakenly considered to have been brought under control in the 1980s, especially in developed countries. Today, it affects around one third of humanity and it has been estimated that, in the year 2005 alone, 8.8 million new cases occurred. The vast majority of cases (95%) occurred in medium and low-income countries. Every year, at least 1.6 million people die because of tuberculosis, and 12% of these deaths are associated with the AIDS epidemic.⁸

Faced with this challenge, important actions at international level have attempted over recent decades to push governments and civil society towards expanding their disease control actions. Among these actions, four of the more recent initiatives deserve to be highlighted. In 1993, the World Health Organization (WHO) declared a state of emergency regarding tuberculosis and called on governments, the scientific community and civil society to redouble their efforts towards controlling the disease.

In 2000, at the Millenium Assembly, all the 189 member states of the United Nations adopted the targets of combating HIV/AIDS, malaria and other diseases, for the "Development of the Millenium",⁵ including the commitment to bring the prevalence of tuberculosis and tuberculosis-related mortality under control by 2015.¹³

In that same year, WHO held the Ministerial Conference on Tuberculosis and Sustainable Development,⁹ at which, among other matters, the following commitments were established: expansion of the population coverage of early diagnostic actions so as to reach a minimum level of detecting 70% of tuberculosis cases; assured availability of the human and financial resources needed for effective tuberculosis control; implementation, monitoring and evaluation of national programs for tuberculosis control; and improvement of drug provision systems, with a view to promoting timely access to treatment.

Within this context, the "Stop TB" initiative was promoted by WHO and supported by a group of international institutions, including the World Bank and the Centers for Disease Control, Atlanta, USA. This initiative established the objective of halving the tuberculosis prevalence and mortality rates by 2015, in relation to the levels in the year 1990.⁸

In 2002, following initiatives from the G8 (the group of the seven most economically developed countries in the world plus Russia) and from the United Nations, the Global Fund to Fight AIDS, Tuberculosis and Malaria was created, with the aim of mobilizing international resources for supporting different

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countries' disease control responses. An assessment five years after the initiative¹¹ showed that more than US\$ 5 billion had been allocated for carrying out 410 projects in 132 countries. Of these resources, 17% were destined for tuberculosis, covering two million people under supervised treatment.

Within the national context, Brazil is the only country in Latin America that is included among the 22 nations that are responsible for 80% of all tuberculosis cases in the world.¹⁶ It has been estimated that one in every four Brazilians is infected with Koch's bacillus, and around 90,000 new cases of the disease are notified to the Ministry of Health every year. Just over half of them (53%) are related to the pulmonary bacillary form. The northern, northeastern and southeastern regions are where the highest tuberculosis incidence rates are found.^{1,14,15}

Death due to tuberculosis has been presenting a decreasing trend. Nonetheless, 5,500 deaths are seen every year,³ and tuberculosis is the main cause of death among people living with AIDS. These epidemiological trends are strongly associated with social inequalities: for example, blacks present a risk of death 2.5 times greater than the risk for whites.^{1,4}

In 2005, an assessment by WHO¹⁷ covering the 22 countries with the greatest concentration of tuberculosis cases in the world indicated that the cure rate in Brazil (81%) was the ninth worst among all the countries analyzed. The population coverage of the health services that applied the supervised treatment (68%) was the second worst, and only better than in Nigeria (65%). Although this index has been presenting improvements over the last few years, Brazil had not at that time reached the international targets set for tuberculosis control.

Paradoxically, over the past decade, the Ministry of Health has defined responding to tuberculosis and controlling the endemic disease as one of its top priorities. The 1990s and the beginning of the 2000s were marked by preparations of strategic and emergency plans for expanding the government's response at national, state and municipal levels, and for mobilizing civil society to participate in and control health policies.¹⁴ Recently, within the context of strengthening the response capacity of the Brazilian national health system (SUS) in relation to emerging and endemic diseases, as provided for in the "Pact for Life", health administrators have defined a commitment towards complying with the international targets established by WHO and agreed by the Brazilian government, i.e. to detect 70% of the estimated number of tuberculosis cases and cure at least 85% of the new cases of bacillary tuberculosis.²

In this respect, the National Tuberculosis Control Program has been structured so as to develop strate-

gies relating to decentralization and horizontalization of the prevention, surveillance and control actions. This is especially taking place within the spheres of primary healthcare; establishment of public-public and public-private sector partnerships; attendance for the populations that are most vulnerable to tuberculosis (indigenous peoples, street populations and people in prisons, among others) with emphasis on combating tuberculosis-HIV coinfection; reinforcement of clinical and laboratory diagnostic actions; and, as a recent challenge, enablement of effective participation by civil society in social control and support for government actions, so as to successfully reach the targets that are needed for reducing the mortality and morbidity in this country.

From the foregoing, and considering that combating tuberculosis has been chosen as a priority for Brazilian public health, it is timely and necessary to carry out a process of assessing the strategies for controlling tuberculosis in Brazil.

ASSESSMENT OF THE NATIONAL RESPONSE TO TUBERCULOSIS

Because of this health situation, the *Instituto de Saúde* (Health Institute) of São Paulo, with support from the National Tuberculosis Control Program of the Ministry of Health, has developed an assessment of the strategies for controlling this disease that have been implemented in Brazil over the past decade.

For this, seven strategic themes that were to be the subject of specific analyses and evaluations were established. Their reference point was the international and national guidelines and recommendations for structuring health policies for controlling this endemic disease. The references adopted came from WHO and the Brazilian Ministry of Health.¹⁸

The strategic themes were: (a) analysis of the tuberculosis mortality and morbidity trends; (b) the quality of the information systems for epidemiological surveillance; (c) the social repercussions from the disease; (d) Brazilian scientific production, in consonance with the challenges that exist in relation to controlling the disease in this country; (e) the actions within government programs, with emphasis on the diagnosis and treatment policies for people living with tuberculosis within the sphere of the Brazilian national health system (SUS); (f) mobilization of and participation by social movements and people with the disease; and (g) the association between tuberculosis and HIV and the increasing numbers of multidrug-resistant cases.

To evaluate these themes, researchers, administrators and members of social movements were invited to produce analyses within their fields of activities. The

results were presented and discussed at a seminar held on September 21 and 22, 2006, in the city of São Paulo. For each theme selected, one specialist in that field was invited to participate and had the mission of making a critical review of the evaluations and analyses.

As a result from this process, 13 articles were prepared. Among these, there were research articles, reviews, trials and reports on experiences, which discussed the findings, analyses and reflections of 34 key researchers and actors within the response to the tuberculosis epidemic in Brazil.

In summary, the analyses presented in this supplement show that the impact of this disease on the Brazilian population may be even greater than the existing estimates, especially in relation to morbidity and mortality due to tuberculosis and coinfection with HIV. Furthermore, although there have been improvements in specific indicators, there are still huge challenges in achieving effective control over the endemic disease. The commitments taken on by the Brazilian government, towards significantly reducing the incidence of tuberculosis and promoting early diagnosis and adequate treatment for people living with tuberculosis, continue to be targets to be reached.

This supplement begins with an analysis of the scientific production over the last 20 years, by Kritski et al, from investigations in the databases of indexed scientific articles (Medline and SciELO) and the databases of master's dissertations and doctoral theses (CAPES thesis database). More than 980 studies were analyzed according to the type of publication and study methodology. This analysis correlates the growth trend in the numbers of publications nationally and internationally with the science and technology policies for encouraging network formation and developing research.

Following this, there is a series of articles portraying the epidemiological situation regarding tuberculosis in Brazil. This theme is covered in three articles: two produced by Bierrenbach et al and one by Dalcom et al. In the first study by Bierrenbach et al, the evolution of mortality due to tuberculosis between 1980 and 2004 was analyzed by using data from the Mortality Information System. This study also analyzes the geographic and demographic distribution of the deaths, the proportions of deaths according to clinical forms and the mortality rate, by bringing together the records in which tuberculosis was declared as the underlying cause, an associated cause or a sequela. The study reveals the change in the trend of reducing mortality due to tuberculosis from 1985 onwards, and puts forward the hypothesis that this may be associated with HIV infection.

The second article by Bierrenbach et al analyzes the incidence rate and outcomes from notified tuberculosis cases over the period from 2000 to 2004, in relation to

groups of new patients, patients with HIV infection, cases of recurrence and returning cases. From the findings, the study discusses the needs for improving the national response in order to diminish the impact of such morbidity on the country and on its administrative regions.

The article by Dalcolmo et al presents the resistance profile and the initiatives for preventing new cases and minimizing the effects resulting from resistance, within the international and Brazilian contexts.

Stigma, prejudice, patient disability, association with poverty, impossibility of cure or continuation of sequelae are among the social representations of tuberculosis and individuals affected by this disease that persist even today. These are the subject of discussion in the article by Pôrto. This author brings out the social constructions that surrounded this disease and its patients during the nineteenth and twentieth centuries, and correlates them with the values and economic organization of each epoch.

The resources for controlling tuberculosis are analyzed in several articles. The first, by Hijjar et al, gives a historical review of the control measures for this disease in Brazil over the last 100 years. This study brings out the leading role of civil society in controlling tuberculosis between the nineteenth and twentieth centuries. It reconstructs the history of the public institutions for research, treatment and health policy administration and tells the story of the evolution of program guidelines and therapeutic treatments adopted over these 100 years.

The second of this series of articles presents a review of the scientific production over the last 50 years relating to the protective effects of the BCG vaccine for controlling tuberculosis in its different clinical forms, and was prepared by Pereira et al.

The third and fourth articles in this series deal with questions relating to the epidemiological surveillance system for tuberculosis. The quality of the surveillance is evaluated and discussed in an article by Bierrenbach et al, in which the impact of duplicated notifications of tuberculosis cases on the incidence rates is analyzed. For the years 2000 to 2004, both at national and at state level, the study shows that there is a reduction in the incidence rate for this disease when improperly repeated records are excluded. Concluding the assessment of the epidemiological surveillance, an article by Braga analyzes the quality of the information relating to case detection and follow-up, the quality of the information produced by the surveillance system and the morbidity burden per municipality.

In the final section of the supplement, four articles relating to the Brazilian response to tuberculosis control

are presented. In the first of these, Santos assesses the government actions implemented between 2004 and 2007, with the strategies adopted and the ensuing results from them. From the experience of the Ministry of Health's National Tuberculosis Control Program, the actions for expanding early detection, treating tuberculosis cases, improving the epidemiological surveillance, establishing partnerships with civil society and interfacing with primary healthcare and the STD and AIDS programs are analyzed. Among the results highlighted are the efforts towards worker training, the increased public investment in implementing programs at all three levels of government, increases in the coverage of supervised therapy within the public healthcare network; increases in the new case detection rate (which reached 73.5% in 2005); and a 5.7% reduction in the tuberculosis incidence rate over the last seven years.

Gonçalves & Penna propose methodology based on using secondary data to classify Brazilian municipalities according to their epidemiological situation regarding tuberculosis and coinfection with HIV, and their performance in the tuberculosis control program. Although the subject of this article did not form part of the assessment seminar, it was added to this supplement because of its pertinence to the theme.

The recommendations for prophylaxis, the treatment for coinfecting individuals and the recommendations for expanding the actions within the program for controlling tuberculosis/HIV coinfection are discussed by Jamal & Moherdai, on the basis of experience acquired from the AIDS control program.

Community action and action towards people affected by tuberculosis is discussed by Santos Filho & Gomes.

These authors write about the importance of the state and international cooperation organizations for inducing the organization of social movements, especially at this time of reorganization within civil society. Reflections on the composition of non-governmental organizations that act in relation to tuberculosis, and their actions and interfaces with the AIDS movement and other strategic partners are also presented.

In the fifth and last article of this series, Sant'Anna & Hijjar comment on the launching, at the end of 2006, of the Guidance for National Tuberculosis Programmes on the Management of Tuberculosis in Children – a WHO initiative that brings significantly contribution to tuberculosis control actions in childhood. As the article of Gonçalves & Penna, this one had not been a theme for discussion in the evaluation seminar, but due to the lack of the theme of tuberculosis in childhood, it has been added by the organizers.

Although tuberculosis has been present in Brazil since its colonization, recent studies analyzing the different dimensions of the Brazilian response to tuberculosis, its results and the challenges that exist are still scarce. Thus, the assessment process presented in this supplement of *Revista de Saúde Pública* had the aim of contributing towards improving the understanding of the reasons why tuberculosis persists as an important public health problem in this country. Within the present-day context of intense international mobilization, greater availability of financial resources, growing political commitment by governments and strengthening of social movements, it is expected that the knowledge, analyses and reflections produced here will be elements for moving the debate forward and characterizing actions for reducing the impact of tuberculosis in Brazil.

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