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Brazilian response to tuberculosis control

ABSTRACT

Tuberculosis remains a public health problem in Brazil. In 2003, controlling tuberculosis was highlighted as a priority among health public policies. The article reports the Brazilian response to this challenge, describing the main strategies of the National Control Plan for 2003 to 2006. Among its main results are: expansion of strategic coverage of the supervised treatment, increase in the percentage of cure, decrease in the number of patients' treatment default, and of the incidence rate.

KEY WORDS: Tuberculosis, epidemiology. Tuberculosis, prevention & control. Tuberculosis, therapy. Health priorities. Health programs and plans. Brazil.

INTRODUCTION

In 1996, *Coordenação Nacional de Pneumologia Sanitária* (National Coordination for Sanitary Pneumology – CNPS) launched the Emergency Plan for Tuberculosis Control, aiming especially at increasing the coverage of the *Programa Nacional de Controle da TB* (National Tuberculosis Control Program – PNCT) in 230 municipalities, with emphasis on diagnoses and treatment of the disease. These priority municipalities were considered as this due to the high burden of the disease.

Two years later, CNPS launched the National Plan for Tuberculosis,¹ to widen the actions in all national territory, its goals were to diagnose at least 92% of expected cases, and successfully treat at least 85% of diagnosed cases, up to 2001.

In 1999, the Ministry of Health recommended that the Directly Observed Treatment Strategy (DOTS) be implemented, called in Brazil TS-DOTS.² However, because of the structure and changes in the health sector taking place in that period, there were difficulties in its introduction.

Signed in March 2000³ during the Ministerial Conference on Tuberculosis, the Amsterdam Statement presented as a main agenda the search for solutions to control tuberculosis (TB) in developing countries. Once the main factors associated with the disease are identified, line of actions to control it were defined, considering the importance of the social mobilization, the use of efficient and accessible technology for the TB diagnoses, and incorporating primary health services in the care of patients with TB.⁴

In 2003, TB was considered priority by the public policies in Brazil. The Ministry of Health linked the strengthening of the TS-DOTS strategy with the other managerial levels as the main instrument to meet the international goals:

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detecting 70% of the smear positive cases and curing, at least, 85% of the cases treated.^{2,*}

The current Action Plan of the National Tuberculosis Control Program (PNCT), approved in 2004, is based on decentralizing surveillance, prevention and TB control actions and makes them horizontal. The TS-DOTS strategy is based on the strength of human resources in the *Programa de Saúde da Família* (Primary Care Unities, Family Health Program – PSF) and the *Programa de Agentes Comunitários de Saúde* (Community Outreach Program – PACS). PNCT is integrated with the *Sistema Único de Saúde* (National Health System – SUS) and develops the following actions in the basic structure: epidemiological surveillance, integration with primary care, integrated actions in health education, social communication and mobilization, capacity building and training together with permanent education centers, social and political support, and assessment, follow-up and monitoring of cases. This structure has its attributions defined for the federal, state and local levels.

The Brazilian government has regulatory attributions, to provide financial resources, technical support, and training of the human resources to the states, it also has to assess, monitor, and make information about the country available, provide technological development, and make a policy to purchase, distribute and control medications, and immunobiologicals. The states play the role of technical support and training of the human resources for the municipality; they assess and monitor the actions and disclose information about the state. The municipalities plan and take TB surveillance, prevention, and control actions in their territories.

ACTIONS PERFORMED IN THE NATIONAL TUBERCULOSIS CONTROL PROGRAM FROM 2003 TO 2006

PNCT is structured in different components to articulate TB surveillance, prevention, and control actions with states and municipalities. These components must be supported by, political and social in order to engage political sectors favoring and ensuring the fight against TB. Financial support and integration among sectors will ensure performing TB surveillance and control actions, enabling actions to be socially controlled and making the importance of the society engagement for TB control clear.

Introducing TB Control Programs (Programas de Controle da TB - PCT), a kind of local programs, in routine activities in primary care depended on managers making TB control actions a priority, in any of the

three levels of government, demonstrating the will to reach the established goals. In this sense, a strategy was adopted to mobilize managers in regional workshops aiming at making them aware, accountable, and to inform on means and financial resources available to this activity inside the SUS. Since 2004, workshops have been performed aiming at permanent political mobilization.

The main actions of PCTs are based on epidemiological surveillance, prevention and case control. Surveillance aims at detecting TB cases early. This cannot be passively reached, and it is essential to encourage active search of symptomatic respiratory patients, either in the community or in the health facility, including outpatient facilities, emergencies or hospitals in great urban centers and in high-risk groups such as indigenous people, people living in shelters, homeless, prisoners, and people living with HIV/AIDS.

To make this search effective, PNCT has the goal to provide all materials needed to perform sputum smear for Acid Fast Bacilli (AFB) in all symptomatic patients, and sputum culture in all TB suspected cases with negative smear. Sputum culture is essential in HIV patients and those with multi-resistant TB (MRTB). Offering voluntary counseling and HIV test is mandatory for all patients with confirmed TB diagnoses. Just as active search is a basic action for case detection among respiratory symptomatic patients it will also be for those in contact with them. It is reinforced that these actions must welcome the patients and all the team must have this attitude.

The *Sistema de Informação de Agravos de Notificação* (Information System for Reportable Diseases – SINAN) is the national system adopted to record and process TB notification and follow-up data. SINAN is the most important base for planning, monitoring, and assessing actions to control the disease. The quality of the information system is directly connected with the quality of filling data up. Therefore, several actions were taken to achieve this goal, such as training health services professionals on information systems, fostering autonomy of states and municipal coordination of PCT to manage the program information; fostering SINAN as the standard information system to record information on reporting and follow-up of TB cases, typing and transferring vertical data in the deadlines established by the guidelines and system routines; recording and assessing periodically TB cases through a Report Book on Control of Tuberculosis Cases Treatment in health services; using the instruments of Reporting and Follow-up of cases (TB reporting/investigation form, and follow-up report); recording and following-up people undergoing

* Ministério da Saúde. Diretrizes do Programa Nacional de Controle da Tuberculose. Brasília. Disponível em http://portal.saude.gov.br/portal/saude/visualizar_texto.cfm?idtxt=21446 [Acesso 20 abr 2007].

treatment of latent infection; recording respiratory symptomatic patients in the laboratory network of the *Sistema de Informação Laboratorial de Tuberculose* (Brazilian Laboratory Information System – SILTB) and contacts examined at SINAN; making reporting of smear positive results and for culture of Koch's bacillus to municipal health secretariat mandatory, for public and private laboratories.

Regarding treatment and patients follow-up, PNCT aims at treating correctly 100% of the diagnosed TB cases and cure at least 85% of them. The strategies must, preferentially, be developed by a team of multi professionals and aim at including the patient socially, highlighting the importance of organizing the service following TS-DOTS. To that end, it was necessary to create, validate, standardize, and update the technical and educational material, together with the permanent education programs (PEP), health professionals, services and users; to organize and disclose the care network, identifying reference health facilities and the patient flow there; to organize and disclose reference laboratories and establish a flow of examinations; to provide standardized treatment for all TB cases; to implement and keep quality control of all TB medications (pharmaceutical similarity and pharmaco-surveillance); to monitor and disclose compliance with the national guidelines for TB treatment at states and municipalities levels; to periodically conduct and disclose epidemiological and operational assessments; to follow, assess and disclose information on TB/HIV co-infection; to train health professionals on the TS-DOTS strategy, considering the participation of PEP.

Actions developed by diagnoses laboratories, follow-up, and performance of sensitivity tests to the drugs used in TB treatment are essential for PNCT. Thus, some actions have been programmed to improve and adequate diagnoses of TB cases. They are: decentralization, under the Coordination of the Public Health Laboratories (Coordenação Geral de Laboratórios de Saúde Pública - CGLAB), of the laboratory TB diagnoses for public and private laboratories of the capital cities and priority municipalities and in the health services which have introduced PCT and that do not develop these activities; expanding sputum smears for AFB for health services in priority municipalities; implementing sputum culture to identify Koch's bacillus and sensitivity test in all LACEN; introducing the Brazilian Laboratory System for Tuberculosis (SILTB) at LACEN and laboratory unities of priority municipalities; introducing a program to assure the quality of bacteria examinations in laboratories; make outcome of sputum smears for AFB available up to four hours in emergency, and up to 24 hours in outpatient facilities.

OUTCOMES OF THE NATIONAL TUBERCULOSIS CONTROL PROGRAM

To improve the actions and reach the goals, 315 municipalities were prioritized according to essentially epidemiological and demographic criteria. These municipalities have about 80% of all TB cases in Brazil.

Regarding political and social sustainability, PNCT encouraged to politically mobilize, and make state and municipality managers aware, highlighting the importance of reinforcing TB control actions and implementing TS-DOTS strategies in the priority municipalities.

Adopting the strategy of organizing workshops with managers, expressive outcomes have been reached in monitoring the evolvement of PNCT actions in the states and municipalities, ensuring the expansion of TS-DOTS. Thirty-four regional meetings were performed to discuss, monitor and assess the National TB Plan, including the strategies for TS-DOTS expansion specifically to each municipality; coordinators of 27 states and of the 315 priority municipalities took part.

In February 2006, the commitment of the "Agreement on Life" was signed by managers on the three levels of SUS. Among the 6 priorities agreed, one of them is the strengthening of the ability to respond to emerging and endemic diseases, including TB.

From 2004 to 2007, the Brazilian government allocated R\$120 millions for the PNCT actions. These resources are a significant increase, almost twice as much as the amount invested in the last decade. In addition to the money invested by the Brazilian government, the states and the municipalities also financed actions. Following this trend, there may be a greater investment with actions planed by PNCT to control TB.

Concerning priority actions, courses were given in the states, priority municipalities and the Federal District on the operation of Sinan-TB. The states and municipalities with greater information problem were prioritized aiming at improving the quality of the information system on TS-DOTS. To improve the access to the information system, 600 computers and information technology equipment were delivered to health services in states, priority municipalities and the Federal District. As a strategy to acknowledge and value mutual effort to improve TB control in the country, over R\$ 2 million were given as extra ceiling resources, awarding 229 priority municipalities that provided over 90% information on case completion in the 2004 cohorts, and for the states that reached 75% of this goal in 2006.

The Ministry of Health, state and municipality secretariats provided 313 updating courses to 18,065 high

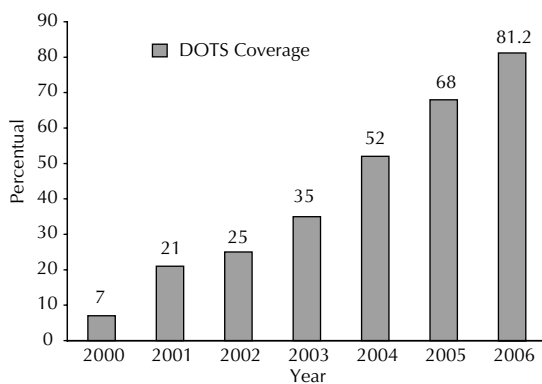
education professionals, 39,168 high-school level professionals, and 988 elementary level professionals, totaling 58,221 professionals at SUS, in the period from 2003 to 2006.

For the goal of reinforcing TB diagnoses, 27 courses to form LACEN managers of the federal facilities were conducted, along with course to form multipliers in sputum examination and at SILTB, they were replicable in all states, and training was provided for 800 laboratory technicians. LACEN also received new laboratory and information technology equipment.

PNCT hired 30 professionals (consultants), acknowledging the importance of strengthening actions in the states and municipalities, with special regards to planning, monitoring and assessment, they were called Task Force. The role of these consultants is to help states and municipalities to implement or reinforce TB control actions. Resources were passed on to encourage and expand the coverage of PNCT and TS-DOTS strategy on the 315 priority municipalities. The proportion of health services that introduced the TS-DOTS went from 7% in 2000 to 81% in 2006, according to data presented in Figure 1.

Currently, with the expansion of the services coverage using TS-DOTS strategy, Brazil is now part of the countries with 50% to 90% of services with the strategy already implemented.

In 2005, Brazil reached the intermediate goals of 73.5% detection of estimated cases. Regarding the cure, the country achieved the 69.3% rate, if all the cohort cases were included, and of 75.4% if only cases with known completion were considered. This difference is due to the delay in information for completion of cases. For smear positive TB cases, cure was 71.3% for all cases of the cohort, and 76.7% for those with completion information. In the period from 1999 to 2005, there



Source: states health secretariats

Figure 1. Proportion of health services that have adopted Directly Observed Treatment Strategy (DOTS). Brazil, 2000-2006.

was a reduction in the coefficient of TB cases, both those referring to all forms of clinical TB presentation (5.7%), and to pulmonary form (4.4%), as observed in Figure 2. If this tendency prevails, endemic of TB may be suitably controlled in these places.

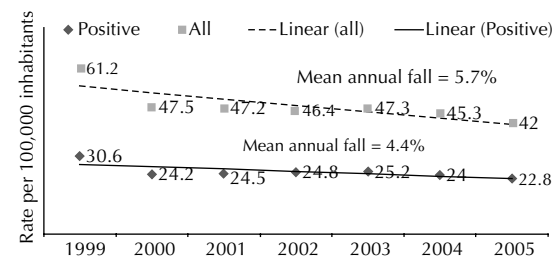
The creation of the Brazilian Partnership against Tuberculosis (Stop TB-Brazil), in 2004, was a milestone of civil society taking part in the struggle against TB. Other relevant actions were the interaction with the National Service of Industrial Training of The National Confederation of Industries (SESI/CNI) for the Tuberculosis Control and the performance of the Integration Course of PNCT with the Third Sector Network and other partners.

Regarding disclosure in the media, the national media campaign: "Tuberculosis can be cured" was undertaken, providing information to the society on the disease and its control.

Access to medication has been granted with the purchase and distribution of the necessary amount (100 thousand patients/year, including MRTB cases). The process was assessed by a team of World Health Organization that attested the great progress obtained with the actions developed. At the same time, the System to Control the Quality of TB Medication in Brazil was implemented.

In 2004, PNCT, with the technical support of the Pan-American Health Organization (PAHO), started to write the proposal to the Global Fund to Fight Aids, Tuberculosis and Malaria. This fund made about US\$ 27 million available to Brazil in investments to the 11 metropolitan regions with greater number of cases. This project will last five years and will aim at expanding TS-DOTS, social mobilization and expanding laboratory diagnoses with quality control of TB and TB-HIV co-infection.

Among the operational researches, the 2nd National Research on Tuberculosis Resistance is current in the



Source: Information System for Notifiable Disease (Sinan)/Ministry of Health

Figure 2. Tuberculosis incidence rate in all clinical forms (all) and the pulmonary smear positive form (Positive). Brazil, 1999 to 2005.

field which, in addition to measure the resistance levels to medication used in the TB treatment in all capitals and big municipalities, will estimate the prevalence of HIV among TB patients.

CURRENT SITUATION

The Ministry of Health has restated the priority of actions against TB, engaging managers at SUS or passing additional resources to states and municipalities. The Ministry of Health has put into practice a national plan emphasizing the qualification of human resources, the social engage, the quality of laboratories and monitoring and assessment.

The greatest challenge faced by PNCT lies on expanding its actions coverage, using TS-DOTS strategy as a bases in all priority municipalities, together with the decrease in the number of cases at baseline, and the increase in cure. Other great challenge is to offer and perform anti-HIV test for all people over 15 with TB diagnoses; to improve the information system, aiming at better planning of surveillance and control actions; to search for early diagnoses of cases encouraging capture and examination in examined symptomatic patients. Facing these priorities will enable strengthening the actions to reduce the number of TB cases in the general population and vulnerable groups.

The great challenge faced by SUS is to increase its coverage, both in the number of facilities working, and in the number of patients under TS-DOTS in all municipalities.

Despite their potential, the 45,960 outpatient facilities at SUS for primary care still present low PCT coverage. It is important to highlight the importance of introducing TB control actions together between PCT and the sa-

nitary strategy for primary care with the teams of PSF and PACS, especially in the areas where the coverage of this strategy is more expressive, such as in Northeast and Midwest. In other regions of the country, traditional primary care facilities, with spontaneous demand, still present strategic importance and must be considered in the context to define the policies of PNCT.

CONCLUSIONS

Significant developments could be seen, such as an improvement of the information system, major advance in expanding TS-DOTS strategy, improvement in the cure indicators, and gradual decrease in default rates. Decentralizing TB control actions, a great strategy axis of PNCT, advanced in a slower pace demonstrating the need to continue the political and institutional steps for it to become fully effective.

In spite of the positive indicators, the disease is still a major public health problem because it affects more intensively the socially marginalized. Additionally, it is an important social marker of poor survival conditions in almost all greatest cities in the country.

This picture reflects the need for adding to the already used strategies, new strategies among the sectors, aiming at fostering health and improving the quality of life of parts of the population, essential pillars to definitively control TB in Brazil.

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REFERENCES

1. Coordenação Nacional de Pneumologia Sanitária. Manual de Administração/Programa Nacional de Controle da Tuberculose. *Bol Pneumol Sanit.* 1996;4(1):7-56.
2. Ruffino-Netto A. Programa de controle da tuberculose no Brasil: situação atual e novas perspectivas. *Inf Epidemiol SUS.* 2001; 10(3): 129-38.
3. World Health Organization. What is DOTS? A guide to understanding the WHO-recommended Tb control strategy known as DOTS. Geneva; 1999.
4. World Health Organization. Amsterdam Declaration to Stop Tb. In: The Ministerial Conference on Tuberculosis & Sustainable Development; 2000 Mar 24; Amsterdam, The Netherlands; 2000.