

Round Table Discussion

Public–private mix DOTS in India

LS Chauhan^a

The base paper highlights the challenge of maintaining the quality of TB services while working with multiple sectors, and this discussion is very relevant to the Indian setting. Despite having a large network of state government-owned public health facilities, a significant proportion of Indian patients seek health care from the private sector.¹ Numerous nongovernmental organizations (NGOs) provide TB services. Moreover, many large and small state and national public-sector providers – including railways, social insurance, ports, mines and the armed forces – also manage large numbers of TB patients but are not under the direct purview of the Revised National TB Control Programme (RNTCP).

To address this, the RNTCP piloted and documented innovative public–private mix DOTS (PPM DOTS) models during the early phase of expansion. Evaluation of these models provided evidence for additional TB case detection with good treatment success rates.² Subsequently, the RNTCP recognized PPM DOTS as a strategy to manage TB patients reporting to multiple sectors and different types of health-care providers. From as early as 2002, RNTCP had expanded PPM DOTS activities country-wide using the programme guidelines for involvement of NGOs and private practitioners.^{3,4} The strategy is built around developing a DOTS task mix for each provider type, with the RNTCP offering support for tasks that the relevant provider is unable to perform, such as defaulter retrieval or laboratory quality assurance. For medical college involvement, state-level and national task forces were created.

In 2003, the RNTCP launched intensified PPM DOTS activities in 14 urban districts. WHO-PPM medical consultants and peripheral field supervisors were recruited and posted to these districts. An expanded version of the existing routine RNTCP surveillance system collected disaggregated data from the different health-care providers. Providers were involved through a systematic process of situational analysis and listing of health-care facilities, sensitization and training of practitioners on RNTCP, training of RNTCP staff on PPM-DOTS, identification of facilities for RNTCP service delivery, memoranda of understanding and RNTCP service delivery.

The data from the intensified PPM sites have shown an overall increase in the number of TB cases notified under RNTCP. The state government public health departments remain the largest contributors to case detection, followed by medical colleges and the NGO sector. The yield of cases from the private sector to RNTCP has not been proportionate to the numbers involved. This is because there are numerous private clinics and hospitals in urban areas which usually have very low TB patient loads. NGOs and private practitioners contribute more to treatment observation than to case detection. These findings have highlighted and reinforced the importance of initially prioritizing and targeting PPM-DOTS activities for

those facilities used by the largest numbers of patients. The intensified PPM-DOTS activities strengthened the wider government health sector's involvement in the programme, leading to increased case detection from this sector.

Economic evaluations in Hyderabad, New Delhi and Bangalore show that PPM-DOTS is affordable and cost-effective, and that it reduces the financial burden on patients and society.^{5,6} Another evaluation in Bangalore shows that the intensified PPM initiative has predominantly reached people from lower socio-economic groups.⁷ Thus, although demanding in terms of efforts required, PPM DOTS is essential in the long-term interests of patients, providers and programmes.

Currently more than 12 000 private practitioners, over 2000 NGOs, over 230 medical colleges and 110 corporate-sector health facilities are involved in RNTCP activities. The Indian Medical Association is an important partner of RNTCP at national and state levels, and has adopted the International Standards for TB Care. As the base paper's authors point out, RNTCP is aware that adopting standards alone may not lead to improved management practices. This will require continuous engagement and working in partnership with the diverse providers. Building on their achievements, the RNTCP and the Indian Medical Association are working together to implement the PPM component of a project recently approved by the Global Fund to Fight AIDS, Tuberculosis and Malaria. ■

References

1. Uplekar M, Juvekar S, Morankar S, Rangan S, Nunn P. Tuberculosis patients and practitioners in private clinics in India. *Int J Tuberc Lung Dis* 1998; 2:324-9.
2. Dewan PK, Lal SS, Lonroth K, Wares F, Uplekar M, Sahu S, et al. Improving tuberculosis control through public-private collaboration in India: literature review. *BMJ* 2006;332:574-8.
3. *Involvement of non-governmental organizations in the revised national tuberculosis control programme*. Delhi: Central TB Division, Directorate General of Health Services, Ministry of Health and Family Welfare, Government of India; 2001.
4. *Involvement of private practitioners in the revised national tuberculosis control programme*. Delhi: Central TB Division, Directorate General of Health Services, Ministry of Health and Family Welfare, Government of India; 2002.
5. *Cost and cost-effectiveness of public-private mix DOTS*. Geneva: WHO; 2004 (WHO/HTM/TB/2004.337).
6. Pantoja A, Lal SS, Lonroth K, Chauhan LS, Uplekar M, Padma MR, et al. Cost and cost-effectiveness of scaled-up and intensive PPM DOTS in Bangalore. *Int J Tuberc Lung Dis* 2006;10:S281.
7. Unnikrishnan KP, Lal SS, Pantoja A, Lonroth K, Chauhan LS, Jitendra R, et al. Economic analysis of health care seeking behaviour by tuberculosis patients in Bangalore, India. *Int J Tuberc Lung Dis* 2006;10:S281.

TB-DOTS in the Philippines: impact of decentralization and health sector reform

Alberto G Romualdez^b

The base paper by Enarson & Billo includes a thoughtful account of the DOTS programme's development, from its inception following the Declaration of Amsterdam, the World Health Assembly resolution, and the workshop of National TB Programme Managers of 22 high-burden countries.

^a Central TB Division, Directorate General of Health Services, Nirman Bhavan, New Delhi 110 001 India. Correspondence to LS Chauhan (e-mail: dddgtb@tbcindia.org).

^b M-Tech Medical Hospital, 379 Sen. Gil Puyat Ave., Bel-Air Village, Makati City 1209 Metro Manila, Philippines. Correspondence to Alberto G Romualdez (e-mail: quasir@mozcom.com).

As a high-burden country, the Philippines participated in all three milestone events. The story of DOTS implementation in the country had begun five years before, when the WHO Regional Director for the Western Pacific Region and the newly appointed Philippine Secretary of Health agreed in mid-1995 to give priority attention to tuberculosis by allocating at least half of the country's WHO funds (roughly US\$ 2 million per biennium) to initiate a major TB control effort. By mid-1996, 16 out of the country's 77 provinces were selected as pilot sites.

From the start, the NTP had to deal with the administrative difficulties introduced by a 1992 law transferring responsibility for health services to local governments. By 1995 the Department of Health had devolved control of health service units to 77 provinces and over 1600 cities and municipalities. Nevertheless, the NTP's well-motivated, technically competent and well-managed staff was able to start up the DOTS strategy in all 16 selected sites in less than two years. Learning from the experience of other national programmes, like immunization and family planning, NTP developed mechanisms to work with local government units to implement its activities.

Results of the National TB Survey of 1997 confirmed that the Philippines, with an estimated prevalence of almost half a million cases, still had a major TB problem. This provided the impetus for nationwide implementation of the DOTS strategy, which was expanded starting in 1999. By the end of 2000, the Philippines reported 100% DOTS coverage.

Meanwhile, analysis of national health expenditures led to a health sector reform agenda that significantly streamlined DOH operations, beginning with the central office. In the ensuing central office staff reductions, NTP positions were reduced from 22 to 2 in 2001. However, a subsequent staffing review enabled the restoration of 7 posts. Additionally, NTP trained regional health office staff, who work closely with local governments.

NTP's 2000 data showed that DOTS was implemented throughout the country, that its treatment success rate was 88% and its case detection rate was 48%. To improve case detection, NTP strengthened its links with the Philippines Coalition Against Tuberculosis (an NGO of private individuals and institutions) by developing the public-private mix (PPM) DOTS approach. The National Health Insurance Programme also included implementation of DOTS strategy in its benefits package.

DOTS thrives today, thanks to local and national political commitment, the support of WHO-WPRO, funding from the Global Fund to Fight AIDS, Tuberculosis and Malaria and the introduction of the Global Drug Facility for procurement of DOTS supplies. It has met the global targets with 75% case detection and 87% success rates. Nevertheless, some concerns persist, such as whether such levels of commitment and support can be maintained for another decade. Additional concerns include the possible emergence of uncontrolled multidrug-resistant strains of TB and increases in what is now a low and slow HIV/AIDS situation in the Philippines. A final concern is whether the National Health Insurance Programme, pivotal in health-care financing reform, can expand its coverage of the DOTS strategy fast enough to cover anticipated reductions in external support beyond 2010. ■

Lessons from the DOTS Expansion Plan in Indonesia: highlighting human resource development

Carmelia Basri,^a Petra Heitkamp^b & Firdosi Mehta^b

Indonesia ranks third among the TB high-burden countries. A decade of TB control using the DOTS strategy has facilitated progress towards reaching the 2005 international targets for TB control. Indonesia reported a case detection rate of 68% for 2005 and a success rate of 87% for the 2004 patients' cohort. The strong political commitment and leadership shown by the Indonesian government from 1999 onwards have led to the development of today's TB control strategy. This commentary highlights three key pillars towards the achievement of the 2005 targets.

First, a sound and well-budgeted five-year strategic plan,¹ following the Global DOTS Expansion Plan as explained in Enarson & Billo's paper, laid the foundation for implementation and attracted donor funding, including two grants from the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund).

Second, the NTP focused on human resources development and cascaded training through a bilateral donor grant. The cascaded training programme, which started in late 2000, allowed training of different categories of staff. During the biennium 2002–2003, over 5000 (34.7%) doctors and nurses at the health-centre level were trained out of the total pool of trainees estimated at 14 474. The health ministry reports that 98% of TB staff at health centre facilities and approximately 24% of TB staff at hospitals are trained in DOTS. A core of master trainers at the regional level initiated and supervised the planning and coordination of training activities. Training activities were gradually shifted to the districts after a central training group was established to act as catalyst and reference point in accordance with guidelines and curricula.² Through the Global Fund funding, as part of the overall human resource development plan, teams of mobile master trainers helped clear the training backlog at the health-centre level. In addition, training coordinators are in place at the NTP and in most provinces.

Third, management capacity has been strengthened at all levels, with a key initiative to establish provincial DOTS teams as well as to decentralize the Global Fund management to district level. The Global Fund has acted as a pull mechanism for improving surveillance and information flows.

Indonesia is moving forward in implementing the new 2006–2010 five-year plan for TB control³ in line with the new Stop TB Strategy. The 2004 prevalence survey⁴ shows a large geographical difference in TB burden, reflecting the need for area-specific planning, including adoption of the International Standards for TB Control (ISTCs) among all health-care providers. This also addresses the challenge of TB/HIV in affected provinces, and prevents multidrug-resistant TB by strengthening laboratory networks and surveillance. The involvement of all health-care providers in Java and Bali prioritizes linkages between hospitals and health-care centres. In eastern Indonesia and remote areas of Sumatra, the main focus is on strengthening the most peripheral health centres,

^a National TB Programme of Indonesia, Jakarta, Indonesia. Correspondence to Carmelia Basri (e-mail: c_basri@yahoo.com).

^b WHO Indonesia Office, Jakarta, Indonesia.

supported by community-based schemes and NGOs. Many inconsistencies remain in translating these TB policies into local plans and budgets; fostering local government commitment is a related challenge. The 2006–2010 strategic plan outlines strategies addressing these issues. The challenge is to sustain momentum and build on the foundations laid in the first strategic plan. ■

References

1. *National TB control program strategic plan 2002-2006*. Jakarta: Republic of Indonesia Ministry of Health; 2001.
2. *TB control curricula and modules*. Jakarta: Republic of Indonesia Ministry of Health; 2000.
3. *Framework for TB strategic plan in Indonesia: 2006-2010*. Jakarta: Republic of Indonesia Ministry of Health; 2006.
4. *Tuberculosis prevalence survey in Indonesia*. Jakarta: Directorate General of Communicable Disease Control and Environmental Health, Republic of Indonesia Ministry of Health; 2005.

A new disease reporting system increases TB case detection in China

Liya Wan,^a Shiming Cheng^b & Daniel P Chin^c

In the base paper, Enarson & Billo provide a critical evaluation of the Global DOTS Expansion Plan and addressed many of the challenges confronting global tuberculosis control. They did not, however, elaborate on one of the key challenges – the low percentage of infectious tuberculosis (TB) patients identified and treated in DOTS programmes. In this report, we describe a key intervention taken by China to address this important problem.

In 1992, China began wide-scale implementation of what eventually became known as the DOTS strategy. In the half of China that implemented this strategy, the TB treatment success rate rapidly exceeded 85%.¹ However, during the 1990s, the TB case-detection rate only reached 30% nationwide.² The reason for the low case-detection rate was well known within China. Over 90% of patients confirmed to have TB initially access care in China's vast hospital system, but less than 30% of these patients eventually end up in the Center for Disease Control and Prevention (CDC) system where DOTS was implemented.³ Because most hospitals diagnose TB using only chest X-rays, it can only be confirmed after evaluation by the CDC, where sputum examination is also used. In 1996, the Ministry of Health (MOH) set up a regulation requiring all hospitals to report and refer suspected TB patients and cases identified in these institutions to the CDC system for further follow-up. But this regulation proved difficult to enforce, because it was difficult to monitor whether hospitals were in fact reporting and referring all their TB cases and suspected cases.

In 2003, the SARS epidemic broke out in China. The epidemic brought to light weaknesses in the public health system, especially the problem of incomplete and delayed reporting of SARS and other communicable diseases. Following SARS, the government worked to improve the reporting of communicable diseases, revising the Law on Controlling Infec-

tious Diseases and making it a legal requirement to report all cases of 37 communicable diseases.⁴ In January 2004, the MOH launched the nationwide internet-based communicable disease reporting system.⁵ By the end of 2005, 93.3% of 19 716 health facilities at and above the county level and 66.1% of 38 518 township-level health facilities were using this system to report the country's 37 notifiable diseases. The average length of time to report from a county-level health facility to the central level has been reduced from 29 days to 1 day. The MOH has instructed all local CDCs to regularly visit hospitals at and above the county level and to monitor the reporting and referral of suspected and confirmed TB cases. As a result, the number of these cases and suspected cases reported by hospitals has increased.

Hospitals are required to refer all patients suspected of having TB or diagnosed with it to the local CDC for further evaluation and treatment. Some referred patients report to the local CDC and some do not. Although the absolute number of referred patients coming to the local CDC has increased over time, the percentage of patients arriving on their own has not. Every working day, CDC staff members across the country access the central database to collect information on recently reported confirmed or suspected TB cases in their area. These staff members seek to contact patients who fail to come to the local CDC within three days of being reported. In 2005, 686 742 confirmed or suspected TB cases were reported from the hospital system. Among them, 301 938 (44%) came to the CDC system by themselves for further evaluation. Of the remaining 384 804 patients, the CDC attempted to contact 282 706 (73.5%) of them, and successfully found and evaluated 134 023 patients (or 47.4% of those sought for follow-up). Overall, 435 961 (63.5%) of all patients reported by the hospital system were eventually evaluated by the CDC system.

In 2005, China achieved the global tuberculosis control target of 70% case-detection and 85% treatment success. Of the 562 788 smear-positive tuberculosis cases reported in 2005, 127 467 (22.6%) were initially reported by hospitals through the Internet. Thus implementation of the system and policies mentioned above has played an important role in tuberculosis case detection. Nevertheless, to ensure that even more patients benefit from DOTS services, more work is needed to ensure that a higher percentage of referred cases get to the CDC before they are followed up, a higher percentage of patients are followed up, and a higher percentage of those who are followed up actually arrive at the CDC system. ■

References

1. Chen X, Zhao F, Duanmu H, Wan L, Wang L, Du X, Chin DP. The DOTS strategy in China: results and lessons after 10 years. *Bull World Health Organ* 2002;80:430-6.
2. *Global tuberculosis control: surveillance, planning, financing*. WHO Report 2003. Geneva: WHO; 2003 (WHO/CDS/TB/2003.316).
3. *Report on nationwide random survey for the epidemiology of tuberculosis in 2000*. Beijing: Ministry of Health; 2002.
4. Order of the State Council. *Law of the People's Republic of China on the prevention and treatment of infectious diseases*. Available at: <http://www.chinacdc.cn/n272442/n272530/n272907/n272922/6837.html>
5. Ma JQ, Yang GH, Shi XM. Information technology platform in China's disease surveillance system. *Dis Surveillance*. 2006;21:1-3.

^a Ministry of Health, Beijing, People's Republic of China.

^b Center for Disease Control and Prevention, Beijing, People's Republic of China.

^c World Health Organization, Beijing, People's Republic of China. Correspondence to Daniel P Chin (e-mail: chind@chn.wpro.who.int).

Building political commitment in Peru for TB control through expansion of the DOTS strategy

Cesar Bonilla^a & Jaime Bayona^b

In the context of public health, Peru has a long history in the fight against TB.^{1,2} In 1990, the National TB Control Program became a national health priority, receiving government support to establish a programme that has been a model of efficiency at the global level.¹ Maintaining TB's status as national health priority requires a significant level of political commitment, as the base paper noted.^{3,4}

However, in a country like Peru where the health situation is closely related to constant change and rapid social transformation, an important element in ensuring political commitment is positioning the National TB Control Program as the key player in TB management. This effort's basic principles must be communicated to administrative, political and financial decision-makers.

Political commitment for TB control must be sustained despite changing heads of government and fluctuating political trends. An important element in ensuring political commitment lies in the participation of civil society and TB patient organizations in all levels of TB control activities, including human rights issues.⁴

When national priorities shift and attention is deflected, TB control efforts can suffer.³ This is exemplified by the negative impacts that resulted from health sector reform efforts early in the current decade.⁵ Until approximately 2001, Peru was on the path to exceeding its Millennium Development Goals regarding TB control. In 2001–2003, the health reform process caused deterioration in TB case-detection activities.⁵ Since 2004, this trend has been reversed, yet we must now redouble our efforts to achieve the Millennium Development Goals.

We agree with the lead article's comments relating to maintaining quality of services, and the Peruvian experience shows that expansion of the DOTS strategy has also allowed us to successfully identify and intervene in high vulnerability areas with elevated risk of tuberculosis transmission. These areas include the prison population, the marginalized urban population in extreme poverty, indigenous populations, those with MDR-TB and others co-infected with HIV.

In 2004, the National TB Control Program was strengthened by four functional pillars: coordination, management, communication and cooperation. These entities all share the responsibilities of management, leadership and accountability. To further ensure political commitment, a technical committee (from government offices of finance and logistics) and an advisory committee (NGOs, technical and financial institutions, scientific and academic institutions) were set up as essential parts of the National TB Control Program. This type of partnership has been crucial in securing political commitment, as civil society and the Ministry of Health have joined efforts to work as a team by sharing leadership and responsibility and integrating activities under a new organizational culture.

These political commitments come not only from the Ministry of Health, but also from other ministries such as Justice, Internal Affairs, Education and others. Such commitments are in the process of being transferred to regional and local levels. The partnership plays an essential role in maintaining political commitment when leaders change and when health services are decentralized.

Finally, the political commitment gained in Peru can be seen in national budget priorities. In the past 15 years, the average budget allocated to the National TB Control Program was US\$ 3 million per year. In 2006, this was raised to almost US\$ 10 million, representing substantial political commitment.⁵ ■

References

1. *Health, a key to prosperity: successful stories in developing countries*. Geneva: WHO; 2002 (WHO/CDS/2004.4).
2. *Global tuberculosis control: surveillance, planning, and financing*. Geneva: WHO; 2002 (WHO/CDS/TB/2002.295).
3. Nunn, Paul et al. The research agenda for improving health policy systems performance and service delivery for tuberculosis control: a WHO perspective. *Bull World Health Organ*, 2002;80(6):471-476.
4. Stop TB Partnership. The Global Plan to Stop TB, 2006-2015. Actions for life: towards a world free of tuberculosis. *Int J Tuberc Lun Dis*. 2006; 10(3):240-1.
5. *Construyendo alianzas estratégicas para detener la Tuberculosis: La experiencia peruana*. Lima: Ministerio de Salud, Dirección General de Salud de las Personas; 2006.

DOTS expansion and TB control: the case of Mali

Masoud Dara^c & Alimata Naco^d

Background

Mali is a vast country in west Africa with a population of 13.1 million and a surface area of 1 241 000 km². Poverty is a major problem, with 63.8% of population living below the poverty threshold.¹ Only 47% of population lives less than 5 km from a health centre.² In 2002, DOTS was launched in Mali with financial support from the Canadian International Development Agency and technical assistance from the KNCV Tuberculosis Foundation, the World Health Organization and other partners. In 2005, the programme notified 4883 tuberculosis cases (34/100 000 population), far below the WHO estimates of 36 914 cases.³ The TB case detection rate for sputum smear-positive pulmonary patients in 2005 was 21%. Mali's HIV/AIDS epidemic seems to be less widespread than in eastern and southern Africa, with an estimated 1.8% of the adult population being infected with HIV.⁴

DOTS expansion: achievements and challenges

Among the achievements of the Global DOTS Expansion Plan mentioned by in the base paper, Mali has benefited from increased external and internal financial resources, in-

^a National TB Program, Lima, Peru. Correspondence to Cesar Bonilla (e-mail: cesarbon@yahoo.es).

^b Socios En Salud Sucursal PERU, Lima, Peru.

^c KNCV Tuberculosis Foundation, Parkstraat 17, The Hague 2501 CC, The Netherlands. Correspondence to Masoud Dara (e-mail: daram@kncvtbc.nl).

^d Programme National de Lutte contre la Tuberculose, République du Mali.

ternational technical assistance and the Global Drug Facility's provision of quality anti-TB drugs.

Laboratory diagnosis has been a major challenge in the initial phase of DOTS expansion. With international technical assistance and availability of additional human and financial resources, the microscopy network has been substantially strengthened. In 2005, 3530 new sputum smear-positive patients were notified, which represents a 26% increase over 2001.

During the 1990s and in line with health sector reform, vertical programmes were abolished or scaled down considerably. Mali has experienced what authors refer to as "competing fashions". Implementation of national TB control guidelines, supervision, monitoring and evaluation were hampered by competing priorities. To address these challenges, the health ministry recruited more staff at the central level and identified regional supervisors. Strengthened monitoring and evaluation led to significant improvement of treatment outcome in most regions. The treatment success rate for new sputum smear-positive patients improved from 61% for 2002 cohort to 77% for mid-2005 cohort, while the default rate significantly decreased from 29% in 2002 to 7% in mid-2005. With further decentralization of treatment, improved supervision and patients' education, higher treatment success rates may be achievable.

Mali is still far from the global target of 70% TB case detection of sputum smear-positive pulmonary patients. Focus group discussions with patients have shown that traditional healers play an important role in the Malian society. Prelimi-

nary results of operational research in the Sikasso region have shown that training and sustainable collaboration with traditional healers may improve TB case detection.⁵

The level of drug resistance is not known, but it is not expected to be high among new patients, as the treatment failure rate among new TB patients is only 2%. The programme considers direct observation of treatment a cornerstone of its strategy to minimize the risk of drug-resistant TB cases emerging.

A limited study in Bamako has shown that 10.1% of TB patients are co-infected with HIV. There is a need to intensify TB/HIV collaborative activities, to offer HIV testing and counselling for TB patients and to address bottlenecks in diagnosis and management of TB/HIV co-infection.

Despite significant progress due to the DOTS expansion in Mali, challenges remain that require strong national and international partnerships to achieve sustainable TB control. ■

References

1. *World development indicators*. Washington: World Bank; 2006.
2. *Poverty reduction strategy paper implementation report; Mali Country Report No. 05/439*. Washington: International Monetary Fund; 2005.
3. *Global tuberculosis control: surveillance, planning, financing*. Geneva: WHO; 2006 (WHO/HTM/TB/2006.362).
4. Mishra V et al. HIV testing in national population-based surveys: experience from the Demographic and Health Surveys. *Bull World Health Organ* 84:7;537-545.
5. Dara M, Berthé M, van der Werf M, Naco A, Coulibaly A. *Impact of training and collaboration with traditional healers on TB case detection in Sikasso region of Mali*. Paris: World Lung Health Conference; 2005.