

Implementing the Stop TB Strategy

The Stop TB Strategy, launched by WHO in 2006, sets out the interventions that need to be implemented to achieve the MDG, Stop TB Partnership and World Health Assembly targets discussed in **Chapter 1**. The Global Plan to Stop TB, launched by the Stop TB Partnership in 2006, describes how, and at what scale, the strategy should be implemented over the decade 2006–2015 (see also **Chapter 1**). To monitor implementation of the strategy, WHO has asked countries to report on the implementation of TB control activities according to the strategy’s major components and subcomponents (**Tables 2.1 and 2.2**) since 2006. In the 2007 round of data collection, countries were asked to report on activities implemented in 2006 and on activities planned for 2007 (see **Annex 2** for details on methods). In a few cases, data for 2008 were also requested.

This chapter summarizes the major findings and, wherever possible, presents these alongside comparable data reported in previous years to illustrate trends over time. It is structured in seven major sections. The first provides an overview of the completeness of reporting

for each component of the Stop TB Strategy. The next six sections present results for the six major components of the Stop TB Strategy, as follows:

- *DOTS expansion and enhancement.* This section starts with an overview of DOTS implementation, including the number of countries in which DOTS is implemented, DOTS population coverage and the number of patients treated in DOTS programmes. It then discusses political commitment, case detection through quality-assured bacteriology, standardized treatment with supervision and patient support, drug supply and management systems, and monitoring and evaluation including impact measurement.
- *TB/HIV, MDR-TB and other challenges.* This section analyses the implementation of collaborative TB/HIV activities, the provision of diagnosis and treatment for cases of MDR-TB, TB control activities for prisoners, refugees and other high-risk groups, and TB control activities in special situations such as humanitarian emergencies.
- *Health system strengthening.* This section covers how the diagnosis of TB and treatment of TB patients are integrated into primary health care services, human resource development (HRD), and the links

TABLE 2.1
Components of the Stop TB Strategy

1. Pursuing high-quality DOTS expansion and enhancement
a. Political commitment with increased and sustained financing
b. Case detection through quality-assured bacteriology
c. Standardized treatment with supervision and patient support
d. An effective drug supply and management system
e. Monitoring and evaluation system, and impact measurement
2. Addressing TB/HIV, MDR-TB and other challenges
— Implement collaborative TB/HIV activities
— Prevent and control MDR-TB
— Address prisoners, refugees, other high-risk groups and special situations
3. Contributing to health system strengthening
— Actively participate in efforts to improve system-wide policy, human resources, financing, management, service delivery and information systems
— Share innovations that strengthen health systems, including the Practical Approach to Lung Health (PAL)
— Adapt innovations from other fields
4. Engaging all care providers
— Public–Public and Public–Private Mix (PPM) approaches
— Implement International Standards for Tuberculosis Care
5. Empowering people with TB, and communities
— Advocacy, communication and social mobilization
— Community participation in TB care
— Patients’ Charter for Tuberculosis Care
6. Enabling and promoting research
— Programme-based operational research
— Research to develop new diagnostics, drugs and vaccines

TABLE 2.2
Technical elements of the DOTS strategy

Case detection through quality-assured bacteriology
Case detection among symptomatic patients self-reporting to health services, using sputum smear microscopy. Sputum culture is also used for diagnosis in some countries, but direct sputum smear microscopy should still be performed for all suspected cases.
Standardized treatment with supervision and patient support
Standardized short-course chemotherapy using regimens of 6–8 months for at least all confirmed smear-positive cases. Good case management includes directly observed treatment (DOT) during the intensive phase for all new smear-positive cases, during the continuation phase of regimens containing rifampicin and during the entirety of a re-treatment regimen. In countries that have consistently documented high rates of treatment success, DOT may be reserved for a subset of patients, as long as cohort analysis of treatment results is provided to document the outcome of all cases.
An effective drug supply and management system
Establishment and maintenance of a system to supply all essential anti-TB drugs and to ensure no interruption in their availability.
Monitoring and evaluation system, and impact measurement
Establishment and maintenance of a standardized recording and reporting system, allowing assessment of treatment results

between planning for TB control and planning for the health sector and public sector as a whole. It also covers implementation of the Practical Approach to Lung Health (PAL).

- *Engaging all care providers.* This section provides information on the implementation of public-private and public-public mix (PPM) approaches to TB control, including the use of the International Standards for Tuberculosis Care (ISTC).
- *Empowering people with TB, and communities.* This section assesses advocacy, communication and social mobilization (ACSM) activities, community participation in TB care and adoption of the Patients' Charter;
- *Enabling and promoting research.* This section summarizes operational research activities.

Further details about the implementation of all major components and subcomponents of the Stop TB Strategy are provided for each of the 22 HBCs in Annex 1.

2.1 Data reported to WHO in 2007

The data that were reported to WHO in 2007 are summarized in **Tables 2.3 and 2.4**. Reporting was best for questions about the existence and content of national strategic plans for TB control, ACSM and community TB

care. Reporting was least complete for questions about collaborative TB/HIV activities that aim to reduce the burden of TB in HIV-positive people (intensified TB case-finding and provision of isoniazid preventive therapy, or IPT), TB control for special groups and populations, and PPM. Among the 22 HBCs, most of the data that were requested were provided.

2.2 DOTS expansion and enhancement

2.2.1 DOTS coverage and numbers of patients treated

The total number of countries implementing DOTS has increased steadily from 1995, reaching 184 countries by 2006 (**Figure 2.1**). All 22 HBCs have had DOTS programmes since 2000, many of which have been established for much longer.

DOTS coverage within countries has also increased since 1995 (**Table 2.5**). By the end of 2006, 93% of the world's population lived in counties, districts, oblasts and provinces of countries that had adopted DOTS. Population coverage was reported to exceed 90% in all regions except Europe (**Figure 2.2**). All but three HBCs (Brazil, Nigeria and the Russian Federation) reported that at least 90% of the population lived in areas where DOTS was being implemented. Population coverage in Brazil, Nigeria and the Russian Federation was 86%, 75% and 84% respectively (**Table 2.5**).

TABLE 2.3

Reporting on implementation of the Stop TB Strategy, non high-burden countries, 2006. Number of countries (out of 179 countries reporting) answering given percentage of questions on each sub-component of the strategy.

	COMPLETENESS OF REPORTING			
	<50%	50–75%	75–90%	>90%
1. DOTS expansion and enhancement				
National strategic plan for TB control	16	4	8	153
Case detection through quality-assured bacteriology	62	34	41	44
Standardized treatment, with supervision and patient support	30	121	30	0
Drug supply and management system	57	40	63	21
Monitoring and evaluation, including impact measurement	57	46	21	57
2. TB/HIV, MDR-TB and other challenges				
Collaborative TB/HIV activities				
Mechanisms for collaboration and policy development	57	16	52	56
HIV-testing for TB patients, provision of CPT and ART	69	37	12	63
Intensified TB case-finding and IPT for HIV-positive people	119	11	11	40
Management of MDR-TB				
Policy and stage of implementation	59	7	16	99
Diagnosis and treatment of MDR-TB	42	7	65	67
High-risk groups and special situations	120	46	0	15
3. Health system strengthening				
Practical Approach to Lung Health (PAL)	128	3	40	9
Human resource development	55	6	31	89
4. Engaging all care providers				
Public-private and public-public mix approaches (PPM)	128	10	11	32
International Standards for Tuberculosis Care	127	8	0	46
5. Empowering people with TB, and communities				
Advocacy, communication and social mobilization (ACSM)	61	0	0	120
Community participation in TB control	61	0	0	120
Patients' Charter for Tuberculosis Care	68	6	0	107
6. Enabling and promoting research				
Operational research	83	23	0	75

TABLE 2.4

Reporting on implementation of the Stop TB Strategy, high-burden countries, 2006. Number of countries (out of 22) answering given percentage of questions on each sub-component of the strategy.

	PERCENTAGE OF QUESTIONS ANSWERED			
	<50%	50–75%	75–90%	>90%
1. DOTS expansion and enhancement				
National strategic plan for TB control	0	0	3	19
Standardized treatment, with supervision and patient support	0	1	12	9
Case detection through quality-assured bacteriology	1	1	15	5
Drug supply and management system	0	1	10	11
Monitoring and evaluation, including impact measurement	1	7	10	4
2. TB/HIV, MDR-TB and other challenges				
Collaborative TB/HIV activities				
Mechanisms for collaboration and policy development	0	0	12	10
HIV-testing for TB patients, provision of CPT and ART	5	3	1	13
Intensified TB case-finding and IPT for HIV-positive people	11	5	6	0
Management of MDR-TB				
Policy and stage of implementation	0	1	4	17
Diagnosis and treatment of MDR-TB	2	1	5	14
High-risk groups and special situations	1	1	20	0
3. Health system strengthening				
Links with other planning initiatives	1	3	9	9
Practical Approach to Lung Health (PAL)	0	0	19	3
Human resource development	1	6	8	7
4. Engaging all care providers				
Public–private and public–public mix approaches (PPM)	0	2	9	11
International Standards for Tuberculosis Care	2	0	0	20
5. Empowering people with TB, and communities				
Advocacy, communication and social mobilization (ACSM)	3	1	2	16
Community participation in TB control	3	3	15	1
Patients' Charter for Tuberculosis Care	2	9	0	11
6. Enabling and promoting research				
Operational research	4	6	0	12

FIGURE 2.1

Number of countries implementing DOTS (out of a total of 212 countries), 1991–2006

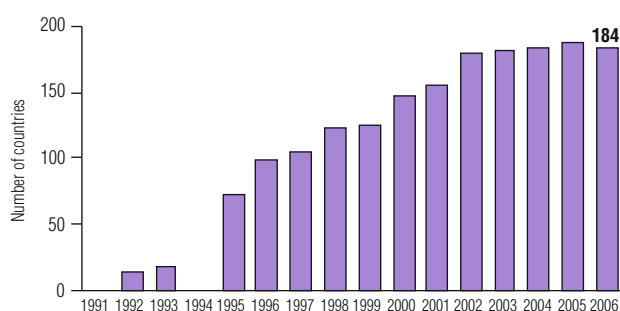


FIGURE 2.2

DOTS coverage by WHO region, 2006. The purple portion of each bar shows DOTS coverage as a percent of the population. The numbers in each bar show the population (in millions) within (purple portion) or outside (grey portion) DOTS areas.

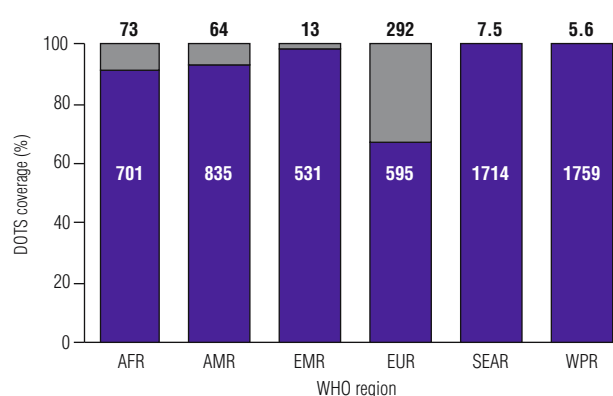


TABLE 2.5

Progress in DOTS implementation, 1995–2006

	PERCENT OF POPULATION COVERED BY DOTS											
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1 India	1.5	2	2.3	9	13.5	30	45	51.6	67.2	84.0	91.0	100
2 China	49	60	64	64	64	68	68	78	91	96	100	100
3 Indonesia	6	13.7	28.3	80	90	98	98	98	98	98	98	98
4 South Africa	–	0	13	22	66	77	77	98	99.5	93	94	100
5 Nigeria	47	30	40	45	45	47	55	55	60	65	65	75
6 Bangladesh	40.5	65	80	90	90	92	95	95	99	99	99	100
7 Ethiopia	39	39	48	64.4	63	85	70	95	95	70	90	100
8 Pakistan	2	8	–	8	8	9	24	44	66	79	100	100
9 Philippines	4.3	2	15	16.9	43	89.6	95	98	100	100	100	100
10 DR Congo	47	51.4	60	60	62	70	70	70	75	75	100	100
11 Russian Federation	–	2.3	2.3	5	5	12	16	25	25	45	83	84
12 Viet Nam	50	95	93	96	98.5	99.8	99.8	99.9	100	100	99.9	100
13 Kenya	15	100	100	100	100	100	100	100	100	100	100	100
14 UR Tanzania	98	100	100	100	100	100	100	100	100	100	100	100
15 Uganda	–	0	100	100	100	100	100	100	100	100	100	100
16 Brazil	–	0	0	3	7	7	32	25	33.6	52	68	86
17 Mozambique	97	100	84	95	–	100	100	100	100	100	100	100
18 Thailand	–	1.1	4	32	59	70	82	100	100	100	100	100
19 Myanmar	–	59	60	60.3	64	77	84	88.3	95	95	95	95
20 Zimbabwe	–	0	0	100	11.6	100	100	100	100	100	100	100
21 Cambodia	60	80	88	100	100	99	100	100	100	100	100	100
22 Afghanistan	–	–	12	11	13.5	15	12	38	53	68	81	97
High-burden countries	24	32	36	43	45	55	61	68	79	87	94	98
AFR	43	46	56	61	56	71	70	81	85	83	88	91
AMR	12	48	50	55	65	68	73	73	78	83	88	93
EMR	16	12	18	33	51	65	71	77	87	90	97	98
EUR	5.4	8.2	17	22	23	26	32	40	42	47	60	67
SEAR	6.7	12	16	29	36	49	60	66	77	89	93	100
WPR	43	55	57	58	57	67	68	77	90	94	98	100
Global	22	32	37	43	47	57	62	69	78	83	89	93

Zero indicates that a report was received, but the country had not implemented DOTS. – Indicates that no report was received.

As reported in greater detail in [Chapter 1](#), 4.9 million new cases of TB were notified by DOTS programmes in 2006, of which 2.5 million were new smear-positive cases. These numbers represented 98% and 99% of total TB case notifications (DOTS and non-DOTS programmes), respectively. The percentage of all estimated new cases of smear-positive TB detected by DOTS programmes – the case detection rate – was 61% globally in 2006; the case detection rate for all cases was 54%. A cumulative total of 31.8 million new and relapse cases have been treated in DOTS programmes in the 12 years from 1995 (when reliable records began) to 2006. Globally, the treatment success rate was 84.7% in the 2005 cohort, meaning that the target of 85% has almost been reached. The Western Pacific Region has reached both targets related to DOTS implementation (i.e. 70% case detection rate and 85% treatment success rate), and the South-East Asia Region and the Region of the Americas are close to doing so. The other three regions (African, European and Eastern Mediterranean regions) are much further from achieving these targets. This short summary of the data that are presented in much greater detail in [Chapter 1](#) is useful for setting the information provided in the rest of this chapter in context.

2.2.2 Political commitment

Continued political commitment is essential for sustaining DOTS as well as for introducing and then scaling up other components of the Stop TB Strategy. Two indicators of political commitment are the existence of a national strategic plan for TB control and the share of the total funding required for TB control that is being provided from domestic sources.

A national strategic plan for TB control was reported to exist in 155 countries, including all HBCs. Among HBCs, eight increased domestic funding for TB control between 2007 and 2008: Afghanistan, Brazil, Ethiopia, Mozambique, Myanmar, the United Republic of Tanzania, Viet Nam and Zimbabwe. In a further eight HBCs (Cambodia, China, the Democratic Republic of the Congo, India, Indonesia, Kenya, the Russian Federation and South Africa), domestic funding in 2008 was maintained at a level similar to 2007. The share of the NTP budget being funded from domestic sources averages 64% across the 22 HBCs for 2008, but varies from less than 20% in Afghanistan, Kenya, Myanmar and Uganda to 30–50% in eight countries (for example, Indonesia, Mozambique, Nigeria and Pakistan) to 50–69% in four countries (for example, China and the Philippines) to over 70% in five countries (Brazil, India, the Russian

TABLE 2.6

Stock-outs of laboratory reagents and of first-line anti-TB drugs, 2006

	LABORATORY REAGENTS AND SUPPLIES		FIRST-LINE ANTI-TB DRUGS	
	CENTRAL	PERIPHERAL	CENTRAL	PERIPHERAL
1 India	N	N	N	N
2 China	Y	Some units	N	N
3 Indonesia	N	N	N	N
4 South Africa	N	N	N	All units
5 Nigeria	N	–	N	N
6 Bangladesh	N	N	N	N
7 Ethiopia	N	N	N	N
8 Pakistan	N	Some units	N	N
9 Philippines	N	N	N	N
10 DR Congo	N	Some units	N	Some units
11 Russian Federation	N	N	N	N
12 Viet Nam	N	N	N	N
13 Kenya	N	N	N	N
14 UR Tanzania	N	N	N	All units
15 Uganda	N	Some units	Y	Some units
16 Brazil	Y	All units	N	N
17 Mozambique	N	N	N	N
18 Thailand	N	N	N	N
19 Myanmar	N	N	N	N
20 Zimbabwe	N	Some units	Y	Some units
21 Cambodia	N	N	N	N
22 Afghanistan	N	N	N	N
High-burden countries^a	2/22	6/21	2/22	6/22
AFR (46) ^b	6/39	9/35	7/38	12/38
AMR (44)	3/35	8/29	6/35	9/27
EMR (22)	2/22	5/21	3/21	3/20
EUR (53)	3/37	6/35	2/35	4/35
SEAR (11)	1/10	2/11	1/10	1/11
WPR (36)	5/32	6/26	7/28	5/24
Global (212)	20/175	36/157	26/167	34/155

– Indicates information not provided.

^a In the lower part of the table the numerator of each fraction is the number of countries reporting stock-outs; the denominator is the number of countries providing information.

^b The number of countries in each region is shown in parentheses.

Federation, South Africa and Viet Nam). There were insufficient data to make an assessment for Thailand. Full details about financing for TB control, including discussion of how domestic funding is related to a country's income level, are provided in [Chapter 3](#).

2.2.3 Case detection through quality-assured bacteriology

Sputum smear microscopy is being widely used for the diagnosis of TB: 85% of reporting countries (151/177) stated that it is used for all people with suspected pulmonary TB. This included 20 HBCs. Laboratory supplies are generally adequate, but six HBCs reported stock-outs at peripheral level in some units: Brazil, China, Pakistan, the Democratic Republic of the Congo, Uganda and Zimbabwe ([Table 2.6](#)). Among all countries, 20 reported some stock-outs at central level; 36 reported stock-outs at peripheral level ([Table 2.6](#)). More positively, almost all HBCs have established links with non-NTP laboratory services, including laboratories in the private sector and/or laboratory services provided by nongovernmental organizations (NGOs). This should help to expand diagnostic capacity in future, which is particularly needed in Ethiopia, Nigeria and Pakistan. In these three HBCs, the number of laboratories performing sputum smear microscopy is below the recommended benchmark of 1 per 100 000 population ([Table 2.7](#)) and case detection rates remain below the global target of 70%.

While coverage and use of sputum smear microscopy services are generally high, the availability of culture and DST remains limited in most HBCs ([Table 2.7](#)). Only seven HBCs had at least one culture laboratory for every 5 million population, which is the level recommended in the Global Plan. These were Brazil, Cambodia, China, the Russian Federation (with 34 culture laboratories for every 5 million population), South Africa, Thailand and Viet Nam. The same set of countries, plus Indonesia and Uganda, had one laboratory able to provide services for drug susceptibility testing (DST) per 10 million population. This leaves many countries with a major shortage of laboratories providing culture and DST services. Encouragingly, the need for expansion of culture and DST capacity has been widely recognized. Among the 22 HBCs, 17 have plans to establish or scale up culture and DST services.

National reference laboratories (NRLs) are essential for the expansion of quality-assured culture and DST services. Most HBCs listed increased NRL capacity and improved NRL performance as a priority activity for 2007. For this to be successful, there are several major challenges that need to be overcome. These include a shortage of adequately trained staff, insufficient funding, suboptimal biosafety standards and limited availability of sustained technical assistance.

Given the demand for improvement in diagnostic services, particularly for drug-resistant TB, the supra-national reference laboratory network (SRLN) is also in

TABLE 2.7

Coverage of laboratory services, high-burden countries, 2006

	POPULATION THOUSANDS	NATIONAL REFERENCE LABORATORY (NRL)	ACCESS TO DIAGNOSTIC SERVICES						LABORATORIES INCLUDED IN EXTERNAL QUALITY ASSURANCE (EQA) FOR SPUTUM SMEAR MICROSCOPY	
			SPUTUM SMEAR		CULTURE		DST		NUMBER	%
			NUMBER OF LABS	PER 100 000 POP	NUMBER OF LABS	PER 5 MILLION POP ^a	NUMBER OF LABS	PER 10 MILLION POP ^a		
1 India	1 151 751	Y	11 968	1.0	8	0.03	8	0.07	9 422	79
2 China	1 320 864	Y	3 010	0.2	360	1.4	90	2.7	2 770	92
3 Indonesia	228 864	N	4 855	2.1	41	0.9	11	1.8	4 855	100
4 South Africa	48 282	Y	143	0.3	13	1.3	8	2.7	143	100
5 Nigeria	144 720	N	694	0.5	0	0.0	0	0.0	416	60
6 Bangladesh	155 991	Y	687	0.4	3	0.1	0	0.2	679	99
7 Ethiopia	81 021	Y	713	0.9	1	0.1	1	0.1	–	–
8 Pakistan	160 943	N	982	0.6	3	0.1	1	0.2	318	32
9 Philippines	86 264	Y	2 374	2.8	3	0.2	3	0.3	2 374	100
10 DR Congo	60 644	Y	1 069	1.8	1	0.1	1	0.2	1 069	100
11 Russian Federation	143 221	N	4 953	3.5	978	34	302	68	998	20
12 Viet Nam	86 206	Y	874	1.0	18	1.0	2	2.1	740	85
13 Kenya	36 553	Y	770	2.1	2	0.3	2	0.5	400	52
14 UR Tanzania	39 459	Y	690	1.7	3	0.4	1	0.8	690	100
15 Uganda	29 899	Y	726	2.4	3	0.5	2	1.0	515	71
16 Brazil	189 323	Y	4 044	2.1	193	5.1	38	10	2 100	52
17 Mozambique	20 971	Y	250	1.2	1	0.2	1	0.5	11	4.4
18 Thailand	63 444	Y	937	1.5	65	5.1	18	10	864	92
19 Myanmar	48 379	Y	391	0.8	2	0.2	1	0.4	50	13
20 Zimbabwe	13 228	Y	180	1.4	1	0.4	1	0.8	10	5.6
21 Cambodia	14 197	Y	186	1.3	3	1.1	1	2.1	186	100
22 Afghanistan	26 088	N	500	1.9	1	0.2	1	0.4	–	–

– Indicates information not provided; labs, laboratories; pop, population.

^a To provide culture for diagnosis of paediatric, extrapulmonary and ss-/HIV+ TB, as well as DST for re-treatment and failure cases, most countries will need one culture facility per 5 million population and one DST facility per 10 million population. However, for countries with large populations (numbers shown in italics), one laboratory for culture and DST in each major administrative area (e.g. province) may be sufficient. See also footnote 3 in country profiles (Annex 1).

the process of global expansion. Currently, there are 26 SRLs: two in the African Region, five in the Region of the Americas, 11 in the European Region, one in the Eastern Mediterranean Region, two in the South-East Asia Region and five in the Western Pacific Region (Figure 2.3). All regions have plans to expand their SRL networks, and candidate laboratories will be assessed and evaluated in the near future. This should increase coverage of quality-assured culture and DST services at both national and global levels.

2.2.4 Standardized treatment, with supervision and patient support

The vast majority of reporting countries (96%, 173/181) use standardized short-course chemotherapy, including all HBCs. Treatment with the Category I regimen for 6 months is used in 122 countries worldwide, while 31 countries use an 8-month regimen without rifampicin in the continuation phase of treatment. Among countries using the 8-month regimen, 13 (including five HBCs) have plans to switch to the 6-month regimen.

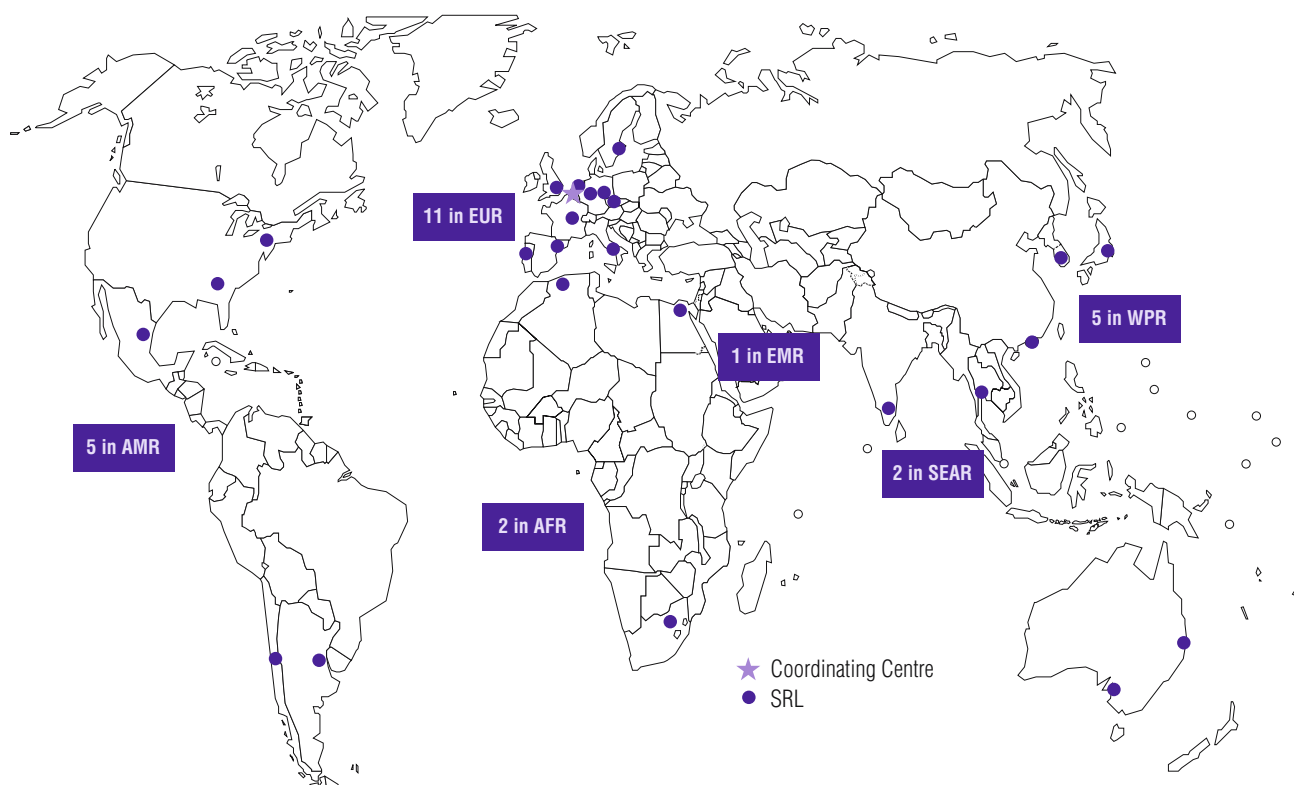
Health-facility based, community-based or home-based directly observed therapy (DOT) was used during the initial phase of treatment in 166 countries, although only 123 of these stated that it was used for all patients in all DOTS units. Among HBCs, Brazil, China, Nigeria, Pakistan and Thailand reported that DOT was available only in some units and/or only for some patients.

Almost all reporting countries (96%, 170/178), including all HBCs, provided anti-TB drugs free-of-charge to all patients being treated with the Category I regimen under DOTS. Incentives and enablers are used in some countries, mostly in the European Region. Examples include food parcels, tickets for public transport and provision of psychological counselling to ensure adherence to treatment.

2.2.5 Drug supply and management system

Uninterrupted provision of quality-assured anti-TB drugs is fundamental to effective TB control. However, despite the availability of funding from the Global Fund and the Global Drug Facility (GDF), as well as the option of procurement at highly competitive prices from the GDF, drug shortages continue to occur in all regions, at both central and peripheral levels (Table 2.6). This includes shortages in two HBCs (Uganda, and Zimbabwe) at central level, and in five HBCs (the Democratic Republic of the Congo, South Africa, Uganda, the United Republic of Tanzania and Zimbabwe) at peripheral level. Reported shortages were particularly common in the African Region and the Region of the Americas. Reporting on drug availability was relatively incomplete for the Region of the Americas as well the European and Western Pacific regions. This suggests that better monitoring of drug stocks is needed in some countries in these regions, for example via the revised recording and

FIGURE 2.3
Tuberculosis supranational reference laboratory network, 2006



reporting forms that have been developed by WHO and other partners.

During the past year, the availability of quality-assured and affordable anti-TB drugs has improved. For example, the prequalification process for paediatric formulations of fixed-dose combinations (FDCs) has been accelerated via mechanisms including pooled procurement by the GDF, the involvement of UNITAID and provision of technical assistance from the WHO prequalification project. A total of 71 countries including 12 HBCs ordered FDCs from the GDF in 2007.

Members of the Stop TB Partnership, including WHO and Management Sciences for Health, continue to hold training workshops in drug management in collaboration with the GDF. In 2007, two workshops were held, one in Benin and the other in Cape Town.

2.2.6 Monitoring and evaluation, including impact measurement

Global targets to reduce the epidemiological burden of TB have been set for 2015 within the context of the MDGs and by the Stop TB Partnership (see **Chapter 1**). Measuring progress towards these targets requires routine monitoring of case notifications and treatment outcomes, as well as evaluation of the impact of TB control on incidence, prevalence and mortality using routine surveillance data (TB case notification data and TB mortality data from vital registration systems) and, in some cases, special surveys of the prevalence of disease,

infection or mortality. Questions related to impact measurement were asked on the WHO data collection form for the first time in 2007.

Out of 212 countries, 184 DOTS countries and seven non-DOTS countries routinely record and report data on case notifications and treatment outcomes. In addition, 119 (of 202) reporting countries (59%) stated that they publish an annual report of NTP activities and performance. Although some countries have been publishing an annual report for more than 20 years, most countries started to produce such reports in the 1990s. Among the 22 HBCs, all published annual reports except for the Democratic Republic of the Congo, South Africa and Thailand.

Plans to assess the impact of TB control were reported by 128 out of 202 (63%) countries (**Table 2.8**). Among HBCs, only Afghanistan, the Democratic Republic of the Congo and Mozambique did not report having a plan for impact measurement. The proportion of countries with a plan for impact measurement was particularly high in the South-East Asia Region (9 out of 11 countries).

In-depth analysis of routine surveillance data collected by NTPs was the most frequent method by which countries intended to assess the impact of TB control (116/128, 91%). Analysis of mortality data from vital registration systems (also a form of routine surveillance data) was also reported by a large number of countries (51 out of 128 reporting countries), with numbers in absolute terms highest in the European and Western

TABLE 2.8

Plans to assess the impact of TB control on the epidemiological burden of TB in the next 10 years

	PLAN TO ASSESS IMPACT EXISTS	IN-DEPTH ANALYSIS OF ROUTINE SURVEILLANCE DATA	PREVALENCE OF DISEASE SURVEY ^a	PREVALENCE OF INFECTION SURVEY ^a	MORTALITY SURVEY	ANALYSIS OF VITAL REGISTRATION DATA (MORTALITY RECORDS)
1 India	Y	Y	Y, sub-national	Y	Y	N
2 China	Y	Y	Y	Y	Y	Y
3 Indonesia	Y	N	Y	Y, sub-national	Y	Y
4 South Africa	Y	Y	Y	N	N	Y
5 Nigeria	Y	Y	Y	–	N	N
6 Bangladesh	Y	Y	Y	Y	N	N
7 Ethiopia	Y	Y	N	Y	Y	N
8 Pakistan	Y	Y	Y, sub-national	Y	N	N
9 Philippines	Y	N	Y	Y	N	N
10 DR Congo	N	N	N	N	N	N
11 Russian Federation	Y	Y	Y	Y	Y	Y
12 Viet Nam	Y	Y	Y	Y	N	N
13 Kenya	Y	Y	Y	Y	N	N
14 UR Tanzania	Y	Y	Y	Y	N	N
15 Uganda	Y	Y	Y	N	N	N
16 Brazil	Y	Y	N	N	Y	Y
17 Mozambique	N	N	N	N	N	N
18 Thailand	Y	Y	Y	N	Y	N
19 Myanmar	Y	Y	Y	N	Y	Y
20 Zimbabwe	Y	Y	Y	N	N	Y
21 Cambodia	Y	N	Y	Y	N	N
22 Afghanistan	N	N	N	N	N	N
High-burden countries^b	19	16	17	12	8	7
AFR (46) ^c	27	22	18	9	5	4
AMR (44)	23	23	5	5	5	9
EMR (22)	15	13	12	10	2	3
EUR (53)	32	32	13	12	9	18
SEAR (11)	9	8	7	5	6	5
WPR (36)	22	18	14	11	7	12
Global (212)	128	116	69	52	34	51

– Indicates information not provided.

^a National survey unless otherwise specified.

^b The lower part of table shows the number of countries planning each type of assessment (including those planning sub-national surveys).

^c The number of countries in each region is shown in parentheses.

Pacific regions and the Region of the Americas. Only four countries in the African Region (Comoros, Rwanda, South Africa and Zimbabwe) reported plans to use mortality data from vital registration systems.

Surveys of the prevalence of disease were being planned by 69 countries, including 55 national and 14 sub-national surveys. Of the 44 countries that reported the year in which they were intending to start their national surveys, 8 (18%) were due to start in 2007, 17 (39%) in 2008, 7 (16%) in 2009 and the remainder in later years. Measurement of burden and impact is particularly well advanced in the Western Pacific Region, where all four HBCs have already undertaken at least one disease prevalence survey and where follow-up surveys are planned.

In December 2007, the WHO Task Force on TB Impact Measurement agreed a set of epidemiological criteria to guide the selection of countries that should undertake prevalence of disease surveys during the period up to 2015.¹ These criteria were used to identify countries with all or a combination of the following characteristics: (i) weak routine reporting systems; (ii) high TB prevalence;

(iii) high TB burden (number of cases); and (iv) high HIV/AIDS prevalence. The Task Force also considered whether a country already had a plan to conduct a survey within the next 10 years and whether they had done a survey since the year 2000. Of the 57 countries that met the criteria, 30 reported plans to carry out a national (n=25) or sub-national (n=5) survey. Among HBCs, 20 met the criteria, of which 17 reported plans to carry out either a national survey (n=15) or a sub-national survey (n=2, India and Pakistan). Three HBCs met the criteria but did not report having a plan to conduct a survey within the next 10 years: the Democratic Republic of the Congo, Ethiopia and Mozambique. Of the 155 countries that did not meet the criteria, 39 reported having a plan to conduct either a national (n=30) or a sub-national (n=9) survey.

The Task Force also identified a shorter list of 21 countries² in which surveys should be prioritized in order

¹ *Report of the second meeting of the WHO Task Force on TB Impact Measurement. Geneva, 6–7 December 2007.* Geneva, World Health Organization, 2007 (unpublished).

² From among the longer list of 57 countries.

to produce credible regional and global assessments of whether the 2015 impact targets are achieved, as well as to assess progress in the period up to 2015. This list includes 15 HBCs and six other countries.¹ Among the 21 countries, 16 countries (including 12 HBCs) have reported plans to carry out national surveys and two (1 HBC) have reported plans to carry out a sub-national survey.

Most of the 52 countries that are planning prevalence of TB infection (tuberculin) surveys at national or sub-national levels also reported plans to conduct prevalence of disease surveys. It is important that these countries try to implement both surveys at the same time and in the same place.

Population-based mortality surveys (e.g. verbal autopsy studies) were being planned by only 34 countries. From the available data, it is not clear if these surveys will be limited to TB or whether they will be combined with collection of data for other diseases.

2.3 TB/HIV, MDR-TB and other challenges

2.3.1 Collaborative TB/HIV activities

Globally, there were an estimated 709 000 new HIV-positive TB cases in 2006 (see [Chapter 1](#) for further details). This estimate accounts for the revisions to the global estimates of HIV prevalence in the general population that were published by UNAIDS in December 2007.² The African Region accounts for 85% of estimated cases, India for 3.3%, the European Region for 1.8% and other countries for 9.4%.

Collaborative TB/HIV activities are essential to ensure that HIV-positive TB patients are identified and treated appropriately, and to prevent TB in HIV-positive people.³ These activities include establishing mechanisms for collaboration between TB and HIV programmes (coordinating bodies, joint TB/HIV planning, monitoring and evaluation, HIV surveillance); for HIV-positive people, intensified TB case-finding and, for those without active TB, IPT; infection control in health-care and congregate settings; HIV testing for TB patients; and, for those TB patients infected with HIV, co-trimoxazole preventive therapy (CPT) and ART.

Mechanisms for collaboration and policy development

Among 63 countries that have been identified as priorities at global level⁴ and which collectively account

for 97% of estimated HIV-positive cases worldwide, around 40 had established coordinating bodies, developed a joint TB/HIV plan and were undertaking HIV surveillance by 2006 ([Figure 2.4](#)). Around 50 countries had policies for HIV counselling and testing among TB patients, as well as for provision of CPT and ART to those coinfecting with HIV; these countries account for about 90% of the estimated number of HIV-positive TB cases globally. A relatively high number of countries also had policies for intensified case-finding among HIV-positive people. In contrast, a smaller number of countries had policies related to IPT (26 countries) and infection control (31 countries), with these countries accounting for only 66% and 41% respectively of the global number of HIV-positive TB cases. While there was variation in the extent to which mechanisms for collaboration or policies were in place in 2006, in all instances there was an improvement compared with 2005 ([Figure 2.4](#)).

When all countries that reported data are considered, the number of countries with policies is much higher, but the fraction of the global number of HIV-positive TB cases covered is almost the same ([Figure 2.5](#)).

HIV testing for TB patients

HIV testing for TB patients is a critical entry point to interventions for both treatment and prevention. There was a substantial increase in provision of HIV testing for TB patients between 2002 and 2006, with reported numbers increasing from 21 806 patients across 9 countries in 2002 (less than 1% of notified TB cases) to 687 174 patients across 112 countries in 2006 – equivalent to 12% of notified TB cases ([Figure 2.6](#)). In the African Region, 287 945 patients (22% of all notified cases) were tested ([Table 2.9](#)).

This increase in numbers of patients tested for HIV may be exaggerated by the increase in the number of countries reporting data and the share of the global number of HIV-positive TB cases accounted for by reporting countries (see numbers and percentages below the bars of [Figure 2.6](#)). Stronger and clearer evidence that HIV testing has increased since 2004 is presented in [Figure 2.7](#). This shows the number of TB patients who were tested for HIV in 64 countries that reported data for all three years 2004–2006. The number of TB patients tested for HIV in 11 African countries representing 57% of estimated HIV-positive TB cases globally (and 66% of cases in the African Region, data not shown) increased almost five-fold in three years, while the percentage of all notified cases that were tested increased from 7.5% to 35%. Most of this increase was driven by two countries (Kenya and South Africa) and, to a lesser extent, by Malawi and Zambia (data not shown). Outside the African Region, the number of patients tested for HIV also increased, but by a much smaller amount in absolute terms. The percentage of TB patients tested outside Africa was, however, relatively high (e.g. 56% in 2006).

Across all reporting countries (n=101), testing led

¹ The list of 21 countries is: Bangladesh, Cambodia, China, Ghana, Indonesia, Kenya, Malawi, Mali, Mozambique, Myanmar, Nigeria, Pakistan, the Philippines, Rwanda, Sierra Leone, South Africa, Thailand, the United Republic of Tanzania, Uganda, Viet Nam and Zimbabwe.

² *2007 AIDS epidemic update*. Geneva, Joint United Nations Programme on HIV/AIDS and WHO, 2007 (UNAIDS/07.27E/JC1322E).

³ *Interim policy on collaborative TB/HIV activities*. Geneva, World Health Organization, 2004 (WHO/HTM/TB/2004.330; WHO/HTM/HIV/2004.1).

⁴ Refers to 41 countries that were identified as priorities at global level in 2002 and that account for 97% of estimated HIV-positive TB cases globally, plus 22 additional countries that UNAIDS has defined as having a generalized HIV epidemic.

FIGURE 2.4
Mechanisms for collaboration and policies for collaborative TB/HIV activities, 63 priority countries, 2005–2006. Numbers under bars are the percentage of total estimated HIV-positive TB cases accounted for by reporting countries.

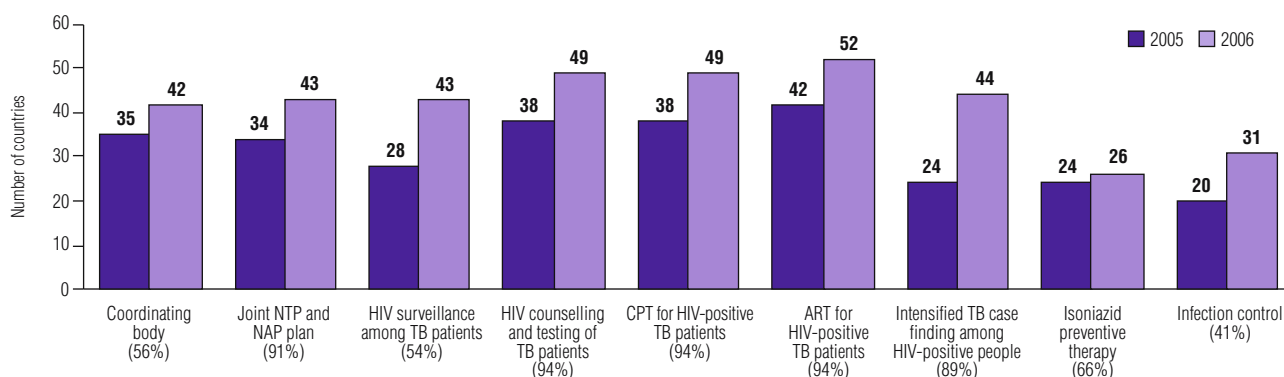


FIGURE 2.5
Mechanisms for collaboration and national policies for collaborative TB/HIV activities, all countries, 2006. Numbers under bars are the percentage of total estimated HIV-positive TB cases accounted for by countries with the respective mechanism or policy.

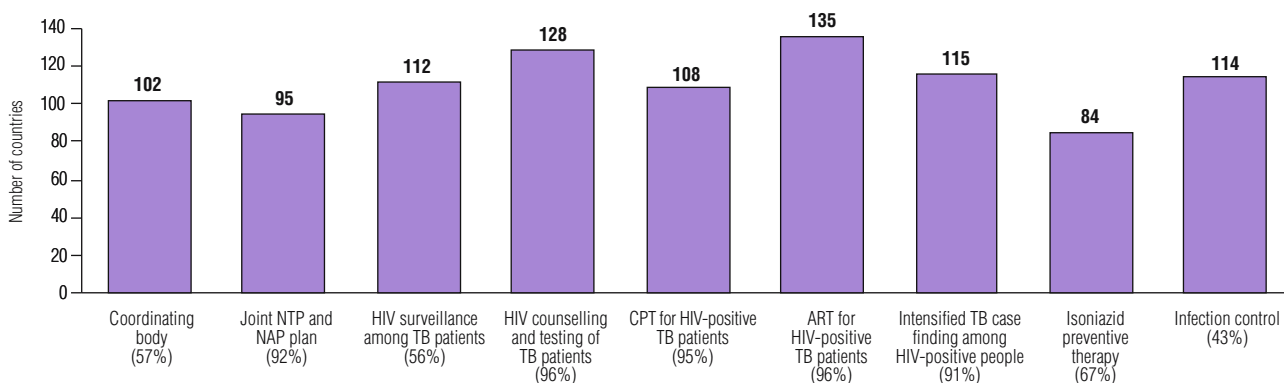


FIGURE 2.6
HIV testing for TB patients, all countries, 2006. Numbers under bars represent the number of countries reporting data followed by the percentage of total estimated HIV-positive TB cases accounted for by reporting countries.

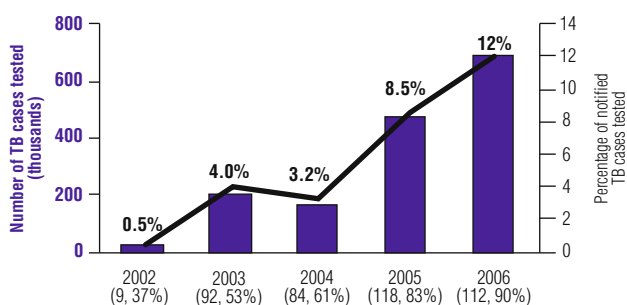


FIGURE 2.7
HIV testing in the 64 countries that reported data for each year 2004–2006. Numbers above bars are the percentage of notified TB cases that were tested for HIV.

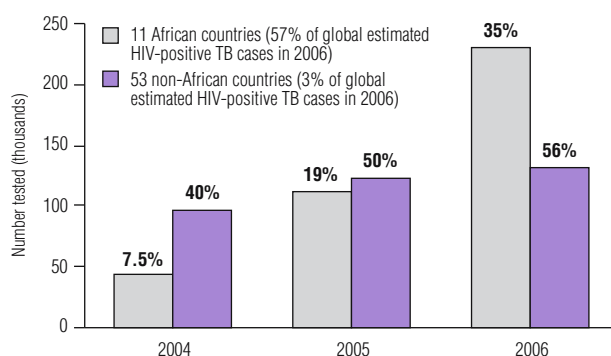


TABLE 2.9
HIV testing and treatment in TB patients, by WHO region, 2006

	% OF NOTIFIED TB PATIENTS TESTED FOR HIV	% OF TESTED TB PATIENTS HIV-POSITIVE	% OF ESTIMATED HIV-POSITIVE TB CASES ^a IDENTIFIED BY TESTING	% OF IDENTIFIED HIV-POSITIVE TB PATIENTS STARTED ON CPT	% OF IDENTIFIED HIV-POSITIVE TB PATIENTS STARTED ON ART	REGIONAL DISTRIBUTION OF ESTIMATED HIV-POSITIVE TB CASES
AFR	22	52	25	78	39	85
AMR	32	15	54	84	76	3.0
EMR	1.4	6.1	4.0	17	16	0.9
EUR	46	1.7	41	54	45	1.8
SEAR	4.1	18	40	66	33	5.6
WPR	2.7	6.9	12	66	35	3.2
Global	12	27	26	78	41	100

^a Including estimated HIV-positive TB cases in countries which did not provide information on testing.

FIGURE 2.8
HIV testing for TB patients in selected countries, 2006

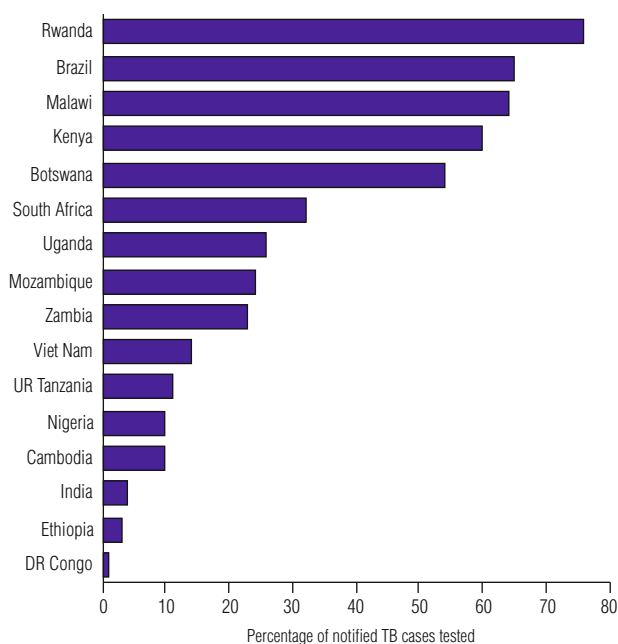
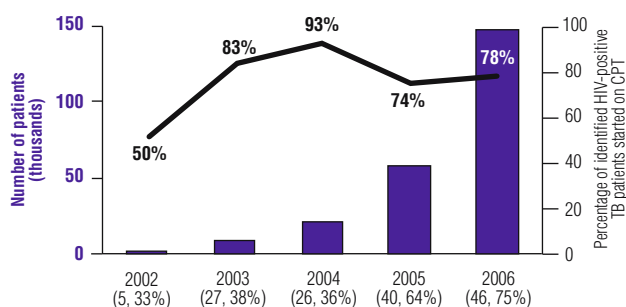


FIGURE 2.9
Co-trimoxazole preventive therapy for HIV-positive TB patients, 2002–2006. Numbers under bars represent the number of countries reporting data followed by the percentage of total estimated HIV-positive TB cases accounted for by reporting countries.



to the detection of 186 217 HIV-positive TB patients. These detected cases represent approximately 26% of the number of HIV-positive TB cases estimated to exist in 2006 (Table 2.9). However, there is considerable variation among regions. In the South-East Asia and Western Pacific regions in particular, targeted HIV testing (of patients in specific geographical areas or of patients with specific risk factors) appears to result in a relatively high proportion of the estimated number of HIV-positive TB cases being identified through testing. In South-East Asia, only 4% of notified cases were tested, but this resulted in the detection of 40% of the region's estimated HIV-positive TB cases. In the Western Pacific Region, the figures were 3% and 12%, respectively.

This progress in the number of TB patients being tested for HIV is impressive. However, there is room for further improvement, as illustrated by the high variability in current testing rates among countries (Figure 2.8). The high testing rates achieved by a few countries show that there is scope for increasing testing rates elsewhere.

Provision of CPT and ART to HIV-positive TB patients

A major reason for promoting HIV testing in TB patients is to facilitate provision of CPT and ART to HIV-positive patients. This seems to be working. The benefits of testing can be seen in the high proportion of TB patients testing positive for HIV who were treated with CPT (78%) and ART (41%) in 2006. These proportions represent a slight improvement from 2005 (Figure 2.9 and Figure 2.10). In absolute terms, the improvement in provision of CPT and ART is much more marked. In 2006, almost 146 586 HIV-positive TB patients were treated with CPT in 46 countries that collectively account for 75% of the global number of HIV-positive TB cases, and 66 601 were started on ART across 54 countries that account for 75% of the global number of HIV-positive TB cases. As with HIV testing, trends are somewhat distorted by the variation in the number of countries reporting data (see figures below bars in both Figure 2.9 and Figure 2.10). However, there has been a large increase in the number of patients benefiting from both treatment interventions since 2004. In Africa specifically, the

proportion of patients in whom HIV infection was diagnosed who are started on CPT reached 78% in 2006; the figure for ART was 41% (Table 2.9).

Intensified TB case-finding and provision of IPT among HIV-positive people

Screening for TB among HIV-positive people attending HIV care services grew from 194 718 people in 2005 to 314 394 people in 2006 (Figure 2.11). Among those screened, 84 713 were found to have TB; this number is equivalent to 12% of the 709 000 HIV-positive TB cases estimated to exist globally. This high proportion suggests that if screening for TB was increased beyond its currently low levels (only 0.9% of the estimated 33 million HIV-positive people were screened in 2006), TB case-finding would improve.

Provision of IPT remains at very low levels, with reported numbers treated with IPT reaching only 27 056 in 2006 – equivalent to less than 0.1% of the estimated 33 million people estimated to be infected with HIV globally (Figure 2.11). The low number of people being treated with IPT is inconsistent with policy establishment: while 84 countries reported the existence of an IPT policy, only 25 reported any provision of IPT. Numbers on IPT are also dominated by Botswana, which accounted for 70% of the total number of people reported to be on IPT globally in 2006.

Progress against Global Plan targets

The Global Plan describes the progress required to implement collaborative TB/HIV activities for each year 2006–2015, within the framework of the goal of universal access to ART by 2010. The milestones or targets included for each year in the Global Plan provide a benchmark against which progress in practice can be assessed. A comparison of Global Plan expectations with implementation reported by countries is shown in Table 2.10. This shows that, among the 171 countries considered in the Global Plan, 541 415 TB patients were tested for HIV compared with 1.6 million specified in the Global Plan. The proportions of TB patients tested for HIV were 20% and 47% respectively. A total of 146 581 HIV-positive TB patients were started on CPT in 2006, compared with the 500 000 specified in the Global Plan. In terms of the percentage of TB cases found to be HIV-positive and that were enrolled on CPT, the comparison is much more favourable: 86% of TB cases in whom HIV infection was diagnosed were started on CPT in 2006 based on country reports, compared with the target of 46% for 2006 in the Global Plan. For ART, 66 542 diagnosed HIV-positive TB cases were reported to have been enrolled in 2006, compared with a target of 220 000 in the Global Plan. As for CPT, the figures are more impressive in terms of the percentage of diagnosed HIV-positive cases started on ART; 41% according to country reports compared with 44% in the Global Plan. The bigger differences between the absolute numbers of people

FIGURE 2.10

Antiretroviral therapy for HIV-positive TB patients, 2003–2006. Numbers under bars represent the number of countries reporting data followed by the percentage of total estimated HIV-positive TB cases accounted for by reporting countries.

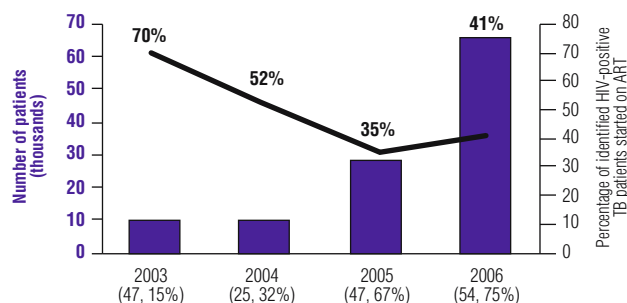


FIGURE 2.11

Intensified TB case finding, diagnosis of TB and IPT provision among HIV-positive people, 2006. Numbers above bars show the number of people receiving the intervention as a percentage of estimated HIV-positive people in reporting countries. Numbers under bars represent the number of countries reporting data followed by the percentage of total estimated HIV-positive TB cases accounted for by reporting countries.

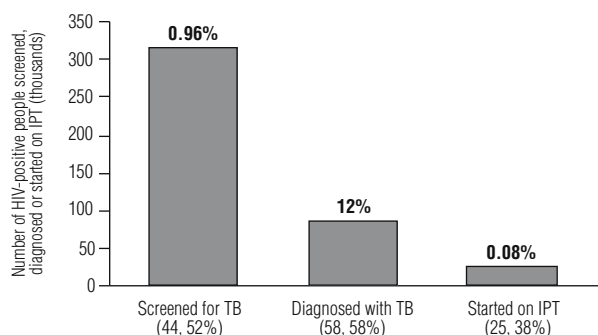


TABLE 2.10

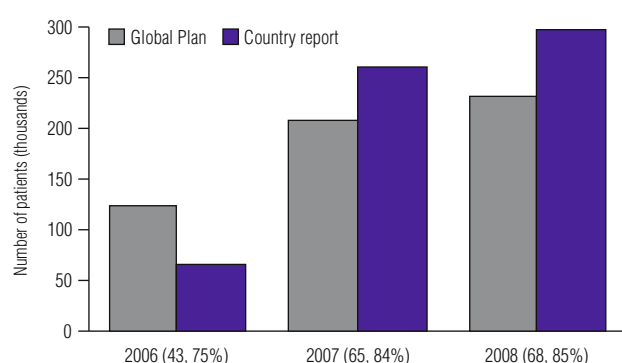
Collaborative TB/HIV activities, 2006: country reports compared with expectations given in *The Global Plan to Stop TB, 2006–2015*

	COUNTRY REPORTS AND LATEST ESTIMATES ^a	GLOBAL PLAN
	(MILLIONS OR PERCENTAGES)	
HIV-testing for TB patients, provision of CPT and ART		
Number of TB patients tested for HIV	0.5 ^b	1.6
Total number of notified TB cases including new, re-treatment and other cases	3.6 ^c	3.4
Proportion of all notified TB cases that were tested for HIV	20% ^{c,d}	47%
Intensified TB case-finding and IPT for people with HIV		
Number of diagnosed HIV-positive TB cases enrolled on CPT	0.2	0.5
Number of diagnosed HIV-positive TB cases	0.19	1.02
Proportion of all HIV-positive TB cases that enrolled on CPT	86% ^e	46%
Number of diagnosed HIV-positive TB cases enrolled on ART	0.07	0.22
Number of diagnosed HIV-positive TB cases eligible for ART	0.19	0.5
Proportion of all HIV-positive TB cases that enrolled on ART	41% ^f	44%
Intensified TB case-finding and IPT for people with HIV		
Number of HIV-positive people attending HIV services screened for TB	0.31	11
Number of HIV-positive people attending HIV services	7.3	18
Proportion of HIV-positive people attending HIV services that were screened for TB	8.5% ^g	61%
Number of eligible HIV-positive people offered IPT	0.03 ^h	1.2
Estimated number of HIV-positive people eligible to receive IPT	28	30
Proportion of estimated number of HIV-positive people eligible for IPT that received IPT	0.3% ⁱ	4%

^a Includes only those countries in the Global Plan, i.e. countries in sub-regions Central Europe and Established Market Economies are excluded here. Includes patients reported from DOTS and non-DOTS areas.
^b Maximum number included for each country is the number of notified cases multiplied by the population coverage of collaborative TB/HIV activities anticipated by the Global Plan.
^c The numbers of notified TB cases are weighted according to the population coverage of collaborative TB/HIV activities anticipated by the Global Plan.
^d Only the 95 countries which provided both numerator and denominator are included in this percentage.
^e Only the 43 countries which provided both numerator and denominator are included in this percentage.
^f Only the 47 countries which provided both numerator are included in this percentage.
^g Only the 37 countries which provided both numerator and denominator are included in this percentage.
^h While the Global Plan includes only people newly diagnosed with HIV in this indicator, country reports include all HIV-positive people eligible for IPT, regardless of year of diagnosis.
ⁱ Only the 17 countries which provided the numerator are included in the denominator of this percentage.

FIGURE 2.12
Antiretroviral therapy for HIV-positive TB patients: country reports compared to the Global Plan, 2006–2008.

Data from country reports are notified cases (2006) and projections (2007–2008). Numbers under bars represent the number of countries reporting data followed by the percentage of total estimated HIV-positive TB cases accounted for by reporting countries.



receiving CPT and ART compared with similar numbers for the percentage of diagnosed HIV-positive TB cases started on such treatment in both country reports and the Global Plan are attributable to the shortfall in HIV testing. For patients to be treated with either CPT or ART, they must first be diagnosed with HIV, which means that a much higher percentage of TB patients must be tested for HIV.

For ART specifically among TB/HIV interventions, the WHO data collection form requests countries to provide projections of the number of HIV-positive patients who will be started on ART in 2007 and 2008, as well as actual provision of ART in 2006. These data are compared with the Global Plan targets for ART in **Figure 2.12**. About one-third of the countries reported ART projections for 2007 and 2008. Nonetheless, among those countries that did report, anticipated progress is encouraging, with projected numbers higher than the Global Plan targets for those countries in 2007 and 2008.

Activity in HIV care services (intensified case-finding and IPT) is far from Global Plan targets (**Table 2.10**). The Global Plan target for 2006 was to screen 11 million HIV-positive people for TB; the actual figure reported was 314 211. IPT provision remains at very low levels, although, as noted above, Botswana is an exception.

Overall, implementation of TB/HIV interventions falls short of the Global Plan targets. Importantly, however, data from individual countries show that these

TABLE 2.11

Number of MDR-TB cases estimated, notified and expected to be treated, 27 global priority countries and WHO regions

	ESTIMATED CASES, 2006		NOTIFIED	EXPECTED TO BE TREATED	
	% OF ALL TB CASES WITH MDR-TB	NUMBER OF MDR-TB CASES	2006	2007	2008
1 China	8.3	130 548	2	165	388
2 India	4.9	110 132	21	100	450
3 Russian Federation	19	36 037	3 949	24 100	24 000
4 Pakistan	5.0	15 233	–	0	0
5 Bangladesh	4.0	14 583	–	50	150
6 South Africa	2.6	14 034	6 716	4 843	5 252
7 Ukraine	22	13 429	–	–	–
8 Indonesia	2.2	12 142	59	–	100
9 Philippines	4.6	11 848	403	170	340
10 Nigeria	2.3	11 171	–	0	500
11 Uzbekistan	24	9 829	83	60	395
12 DR Congo	2.8	7 044	1	–	–
13 Kazakhstan	25	6 608	4 117	–	–
14 Viet Nam	4.0	6 421	–	100	–
15 Ethiopia	1.9	5 825	–	50	50
16 Myanmar	4.8	4 251	666	75	75
17 Tajikistan	20	3 204	0	0	–
18 Azerbaijan	29	2 397	398	50	150
19 Republic of Moldova	27	2 035	1 040	290	–
20 Kyrgyzstan	18	1 368	336	–	–
21 Belarus	16	1 096	651	–	–
22 Georgia	12	652	266	155	225
23 Bulgaria	13	451	53	50	50
24 Lithuania	17	425	332	–	–
25 Armenia	14	381	215	30	–
26 Latvia	14	218	143	130	115
27 Estonia	20	128	52	67	–
Global priority countries	5.6	421 490	19 503	30 485	32 240
AFR	2.2	66 711	7 074	7 673	7 993
AMR	3.4	12 254	2 088	6 736	5 301
EMR	4.2	25 475	295	901	928
EUR	16	82 042	12 498	27 243	27 358
SEAR	4.3	149 615	767	2 587	3 004
WPR	6.9	153 042	631	1 397	1 643
Global	4.8	489 139	23 353	46 537	46 227

– Indicates information not provided.

targets are achievable if currently less well-performing countries emulate targets that have already been reached or exceeded in several countries.

2.3.2 Diagnosis and treatment of MDR-TB

The most recent estimates suggest that, globally, there were about 489 000 cases of MDR-TB in 2006. These cases are very unevenly spread, with 27 countries (of which 15 are in Eastern Europe) accounting for 86% of the total (Table 2.11). These 27 countries have been identified as priorities for improved diagnosis and management of MDR-TB at global level.

The Global Project on Anti-tuberculosis Drug Resistance Surveillance (DRS) continues to increase the number of countries from which a direct measure of the number of cases of MDR-TB is available. This allows estimates of the number of cases to be refined over time. By 2007, the project had collected data from 117 countries covering areas that contain more than 50% of global smear-positive TB cases. Recently, new data

have become available from new areas of three HBCs (China, India, and the Russian Federation) and from three HBCs for the first time: Ethiopia, the Philippines and the United Republic of Tanzania. Furthermore, 33 countries reported information on resistance to second-line drugs among MDR-TB cases in surveys or through routine surveillance systems. Full details are available in the fourth global report on anti-TB drug resistance surveillance.¹

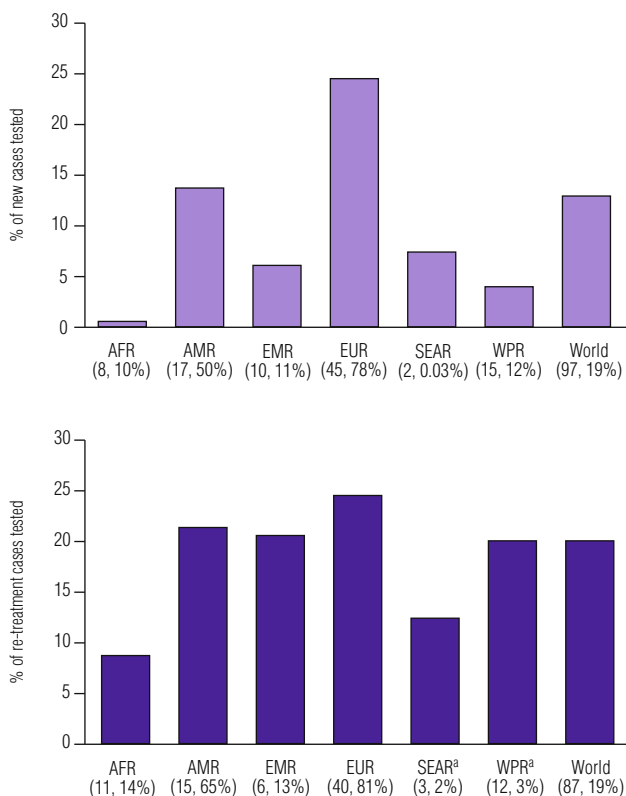
Diagnostic services

Diagnosis of MDR-TB depends on the extent to which DST services are available and used (see also section 2.2.3 above on Case detection through quality-assured bacteriology). In 2006, 118 732 diagnostic drug susceptibility tests were reported among 108 countries, with

¹ The WHO/IUATLD Global Project on Anti-tuberculosis Drug Resistance Surveillance. *Anti-tuberculosis drug resistance in the world. Fourth global report*. Geneva, World Health Organization, 2008 (WHO/HTM/TB/2008.394).

FIGURE 2.13

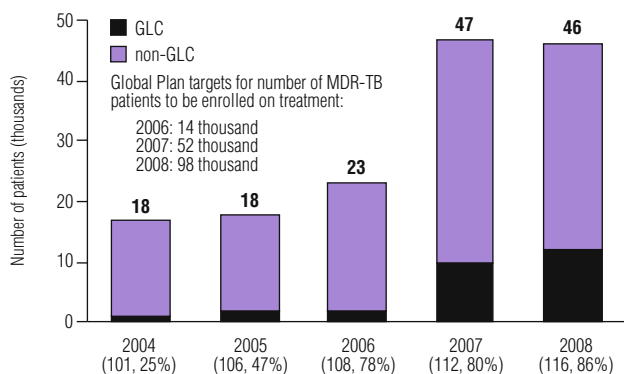
Diagnostic DST for new and re-treatment cases by WHO region, 2006. Numbers under bars represent the number of countries reporting data followed by the percentage of total estimated cases of MDR-TB accounted for by reporting countries.



^a Data from India and China excluded because testing of only 26 (India) and 10 (China) re-treatment cases was reported.

FIGURE 2.14

Notified cases of MDR-TB (2004–2006) and projected patients to be treated (2007–2008). Numbers under bars represent the number of countries reporting data followed by the percentage of total estimated cases of MDR-TB accounted for by reporting countries.



74% of these tests conducted in the European Region. The proportion of new cases for whom DST was done was also highest in the European Region (24%), followed by the Region of the Americas at 14% (Figure 2.13). The percentage of the regional number of MDR-TB cases accounted for by reporting countries was also relatively high in these regions, particularly for the European Region. In other regions, the proportion of new cases for whom DST was done was low among reporting countries. Figures were higher for all regions for re-treatment cases, ranging from 9% in the African Region to 24% in the European Region.

Among those tested in 2006, 23 353 cases of MDR-TB were diagnosed, of which just over half were in Europe. A total of 2 032 cases (8.7% diagnosed cases) were reported from GLC projects. Among the 27 global priority countries, 19 503 cases were notified, which is only 4.6% of the estimated number of cases in these countries (Table 2.11).

Scaling-up management of MDR-TB

The small number of MDR-TB cases diagnosed compared with the number of cases that are estimated to exist shows that an enormous amount of work remains to be done to improve the availability and provision of diagnosis and treatment for MDR-TB.

For the 27 global priority countries, the latest status of progress in introducing and scaling-up treatment of patients with MDR-TB in mid-2007 is shown in Table 2.12. Six countries have conducted a survey of drug resistance, implemented a GLC-approved pilot project, developed national guidelines for the management of MDR-TB and conducted related training, have scaled-up or are in the process of scaling-up activities, and have fully integrated MDR-TB treatment within the NTP including reporting of data: China, the Democratic Republic of the Congo, Estonia, Kazakhstan, the Republic of Moldova and Uzbekistan. Besides these countries, four others have reported expansion of activities: Azerbaijan, Kyrgyzstan, the Russian Federation and South Africa. Among all countries, the biggest expansion that is projected in absolute terms is in the Russian Federation, which forecasts that the number of MDR-TB cases treated will reach 24 000 in 2008, compared with just under 4 000 notified cases in 2006 (Table 2.11). Elsewhere, the increase in treated cases anticipated by NTPs that report being in the process of scaling-up is small in absolute terms. China is a notable example: while it ranks first globally in terms of estimated cases (130 548), the number of patients projected to be treated in 2008 is 388 (up from 165 cases in 2007), which is only 0.3% of the estimated cases (Table 2.11). At the other end of the spectrum, no activities related to the management of MDR-TB have begun in Nigeria or Pakistan, and, besides a survey of drug resistance, no further activities were reported by Ethiopia (Table 2.12).

Across all countries, increased implementation of

TABLE 2.12

Management of drug-resistant TB, global priority countries and WHO regions, 2007

	DRUG RESISTANCE SURVEY CONDUCTED	APPLIED TO GLC	GLC-APPROVED PROJECTS PILOTED	NATIONAL GUIDELINES FOR MANAGEMENT OF DRUG-RESISTANT TB	TRAINING MATERIAL	TRAINING CONDUCTED	SCALING UP INITIATED	MANAGEMENT OF DRUG-RESISTANT TB FULLY INTEGRATED INTO ACTIVITIES OF NTP	MDR-TB DATA REPORTED
1 China	Y	Y	Y	Y	Y	Y	Y	Y	Y
2 India	Y	Y	Y	Y	Y	N	N	Y	Y
3 Russian Federation	Y	N	Y	N	N	Y	Y	Y	Y
4 Pakistan	N	N	N	N	N	N	N	N	–
5 Bangladesh	N	Y	Y	Y	N	N	N	N	–
6 South Africa	Y	N	N	Y	Y	Y	Y	Y	Y
7 Ukraine	Y	Y	Y	N	N	N	N	N	–
8 Indonesia	Y	Y	Y	N	N	N	N	N	Y
9 Philippines	Y	Y	Y	N	N	N	N	N	Y
10 Nigeria	N	N	N	N	N	N	N	N	–
11 Uzbekistan	Y	Y	Y	Y	Y	Y	Y	Y	Y
12 DR Congo	Y	Y	Y	Y	Y	Y	Y	Y	Y
13 Kazakhstan	Y	Y	Y	Y	Y	Y	Y	Y	Y
14 Viet Nam	Y	Y	Y	N	N	N	N	N	–
15 Ethiopia	Y	N	N	N	N	N	N	N	–
16 Myanmar	Y	N	N	N	N	N	N	N	Y
17 Tajikistan	N	N	N	N	N	Y	N	Y	–
18 Azerbaijan	Y	Y	Y	N	N	Y	Y	Y	Y
19 Republic of Moldova	Y	Y	Y	Y	Y	Y	Y	Y	Y
20 Kyrgyzstan	Y	Y	Y	N	N	N	Y	Y	Y
21 Belarus	Y	N	N	N	Y	Y	N	Y	Y
22 Georgia	Y	Y	Y	–	–	Y	–	Y	Y
23 Bulgaria	N	N	N	N	N	N	N	N	Y
24 Lithuania	Y	Y	–	–	–	–	–	–	Y
25 Armenia	Y	N	Y	N	N	Y	N	N	Y
26 Latvia	Y	Y	Y	N	Y	Y	N	Y	–
27 Estonia	Y	Y	Y	Y	Y	Y	Y	Y	–
Global priority countries^a	22	17	18	9	10	14	10	15	18
AFR (46) ^b	19	10	5	15	8	7	5	16	14
AMR (44)	20	12	11	21	15	18	12	24	19
EMR (22)	11	5	4	9	5	4	4	13	12
EUR (53)	28	11	12	21	14	20	12	28	43
SEAR (12)	6	6	4	6	3	3	3	4	0
WPR (36)	17	4	5	8	4	6	3	10	14
Global (212)	101	48	41	80	49	58	39	95	102

– Indicates information not provided.

^a The lower part of table shows the number of countries answering "yes" to each question.

^b The number of countries in each region is shown in parentheses.

MDR-TB treatment was reported by 39 countries. Consistent with this, projections of the number of cases that would be diagnosed and treated globally in 2007 (46 537 cases) were much higher than the 23 353 cases notified in 2006 (Figure 2.14). Most of these cases are expected to be treated outside GLC projects, although the number enrolled for treatment in GLC projects is projected to increase more than five-fold by 2008, compared with 2005. Of all those cases notified in 2006 (within and outside GLC projects), it is not known what number were actually enrolled on treatment, and of those treated how many were treated according to WHO guidelines.¹ All that can be said for certain is that the 2032 patients who were enrolled on treatment in GLC projects were being treated according to WHO guidelines.

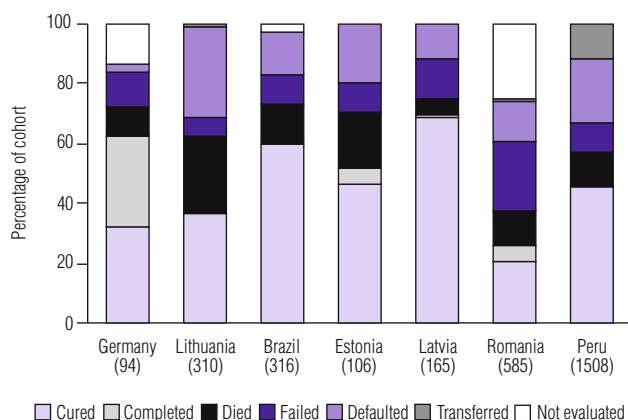
¹ *Guidelines for the programmatic management of drug-resistant tuberculosis*. Geneva, World Health Organization, 2006 (WHO/HTM/TB/2006.361)

Role of the Green Light Committee

Although many cases of MDR-TB are notified outside GLC projects, the GLC has put in place specific mechanisms to promote more rapid expansion of MDR-TB diagnosis and treatment. These include building partnerships with major funding mechanisms such as the Global Fund and UNITAID, reshaping and streamlining GLC application processes during 2006 and 2007, and facilitating the development of WHO guidelines for the programmatic management of drug-resistant TB in 2006.

By the end of 2007, 67 projects in 52 countries had been approved by the GLC, such that these projects will have access to high-quality and competitively-priced drugs for a cumulative total of over 30 000 patients with MDR-TB. In 2006 specifically, the GLC reviewed and approved applications for a total of 12 604 patients – six times more than in 2005. In 2006–2007, treatment programmes for MDR-TB in 20 countries were newly-approved by the GLC: these countries were Armenia, Bangladesh, Belize,

FIGURE 2.15
MDR-TB treatment outcomes in seven countries, 2003 cohort. Numbers under bars are the number of patients in the cohort.



Burkina Faso, Cambodia, China, the Democratic Republic of the Congo, Ecuador, Guatemala, Guinea, Kazakhstan, Lesotho, Mongolia, Paraguay, Rwanda, Samoa, Viet Nam, Uganda, Ukraine and Uruguay. At the end of 2007, most GLC-approved countries were in the Region of the Americas (14 countries) and the European Region (13 countries), followed by the African Region (7 countries), the Western Pacific Region (7 countries), the South-East Asia Region (6 countries) and the Eastern Mediterranean Region (5 countries).

These enhanced efforts by the GLC, however, cover less than 5% of patients with drug-resistant TB worldwide. There is an urgent need for countries to substantially increase the provision of treatment for patients with MDR-TB that meets the standards established in WHO guidelines.

Treatment outcomes

Given that it takes 18–24 months to treat patients with MDR-TB, the most recent year for which treatment outcome data were requested by WHO in 2007 was 2003. While 50 countries reported data, the size of the cohorts was too small (less than 40 in 42 countries; 28 of these countries had cohorts of fewer than 10 patients) to allow any useful analysis. The seven countries with larger cohorts are shown in **Figure 2.15**. The best treatment success rate (70%) was in Latvia, which has a GLC-approved project. Treatment success rates were also relatively high in Brazil (60%) and Germany (63%), neither of which has a GLC-approved project. In contrast, outcomes were especially poor in two other countries without GLC projects: Lithuania and Romania (36% and 26% treatment success rates, respectively, and high death and treatment failure rates). To improve our understanding of treatment outcomes for patients with MDR-TB, more data from more countries, both GLC-approved and outside the GLC framework, are needed.

Progress against Global Plan targets

As with collaborative TB/HIV activities, the Global Plan sets out the progress required in provision of treatment for MDR-TB cases for each year 2006–2015. During 2007, the targets for the number of patients to be diagnosed and treated for MDR-TB were reviewed, and revised to make the targets for 2010 comparable to the goal of universal access to ART by 2010.¹ The principal 2010 targets for MDR-TB are: (i) that diagnostic DST should be offered to all previously treated and chronic TB cases as well as to 90% of new TB cases with a high risk of having MDR-TB (e.g. contacts of MDR-TB cases, those for whom treatment is failing after 3 months); and (ii) that all those in whom MDR-TB is diagnosed should be enrolled in GLC-approved or equivalent treatment programmes. Despite the progress that has been made in some countries documented above, the number of MDR-TB patients notified in 2006 and country projections of the number of MDR-TB patients to be treated in 2007 and 2008 fall far behind the expectations of the Global Plan (**Figures 2.14 and Figure 2.16**). In 2007, the Global Plan indicates that 52 000 MDR-TB patients should be diagnosed and treated, while reports from countries representing 80% of MDR-TB cases globally indicate a figure of 46 537. In 2008, the Global Plan indicates that 98 000 patients should be diagnosed and treated, while reports from countries representing 86% of MDR-TB cases globally indicate a figure of 46 227 (little different to 2007).

Differences between Global Plan expectations and country projections vary by region, as shown for 2007 in **Figure 2.16**. In the African Region, the Eastern Mediterranean Region and the Region of the Americas, country forecasts are higher than Global Plan expectations, with relatively large numbers of patients expected to be treated in Brazil and South Africa in particular (see also **Chapter 3**, where the high number of patients expected to be treated in South Africa is also reflected in budget data). However, in the three regions with the greatest number of MDR-TB cases (the European, South-East Asia and Western Pacific regions), meeting the expectations of the Global Plan will require substantial efforts to scale-up diagnosis and treatment, especially in China and India.

2.3.3 High-risk groups and special situations

Vulnerable populations such as prisoners, refugees and other high-risk groups are considered in NTP plans in 138 (68%) of 202 reporting countries. Among the 22 HBCs, 19 have included such populations in their plans, including prisoners (20 HBCs), refugees and displaced people (10 HBCs), slum dwellers (9 HBCs), cross-border populations (8 HBCs), migrant workers (5 HBCs) and ethnic minorities (8 HBCs). Other vulnerable groups such as the homeless, alcohol dependent individuals, tobacco

¹ *The Global MDR-TB and XDR-TB response plan 2007–2008*. Geneva, World Health Organization, 2007 (WHO/HTM/STB/2007.387).

smokers, injecting drug users and patients with diabetes have also been considered in a few HBCs.

It is noteworthy that major political instability notwithstanding, NTP structures in Iraq have been maintained at national and governorate levels. TB control services were provided whenever and wherever possible, depending on the security situation. Among other known troubled areas, TB control activities have been successfully implemented in collaboration with various international partners in secured areas of Afghanistan, the eastern region of the Democratic Republic of the Congo and in Somalia. In the earthquake-affected regions of Azad Kashmir in Pakistan, NTP services were re-established quickly and successfully in 2006.

2.4 Health system strengthening

Apart from PAL implementation and human resource development (HRD), questions about the strengthening of health systems were sent to HBCs only; findings in sections 2.4.1 and 2.4.3 below therefore refer only to HBCs.

2.4.1 Integration of TB control within primary health care

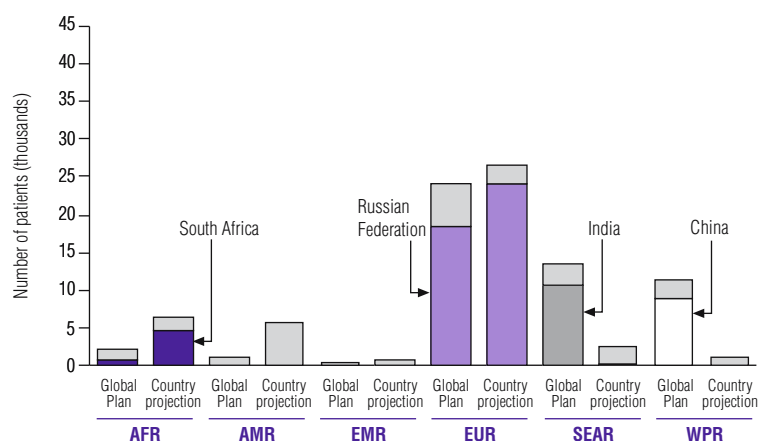
With a few exceptions, both TB diagnosis and TB treatment are fully integrated into the general health system. Laboratory services for TB diagnosis are integrated into general laboratory services in 15 of the 22 HBCs, and treatment is delivered through the general primary health care (PHC) network in all but two HBCs (China and the Russian Federation). General health-care staff are normally responsible for TB management in PHC settings, although seven HBCs have staff dedicated to TB control at PHC facilities such as clinics (Bangladesh, Brazil, China, Ethiopia, Mozambique, Myanmar and Nigeria). Distribution of anti-TB drugs is fully integrated into general drug distribution in 10 HBCs.

2.4.2 Human resource development

Optimum HRD for TB control requires at least seven components: (i) a recent HRD needs assessment; (ii) a comprehensive plan for HRD that addresses both training and staffing needs for all components of the Stop TB Strategy; (iii) up-to-date job descriptions; (iv) staff who are assigned to work on HRD at the national level; (v) inclusion of TB in the training curricula of doctors, nurses and laboratory technicians; (vi) training for existing staff at all levels of the health system; and (vii) systematic monitoring of recruitment and training needs, for example to account for staff turnover.

Only half of the HBCs have conducted a recent HRD needs assessment, and 13 HBCs reported having a comprehensive plan for HRD related to TB control (Table

FIGURE 2.16
Country projections of MDR/XDR-TB patients to be enrolled on treatment in 2007 compared with the Global Plan



2.13). Six HBCs are without comprehensive HRD plans or a recent HRD needs assessment: Cambodia, the Democratic Republic of the Congo, Mozambique, the Russian Federation, Uganda and Zimbabwe.

Among the HRD plans that do exist, several could be strengthened. Only 11 countries have considered staffing needs for all of the four following components of TB control: DOTS implementation, MDR-TB, collaborative TB/HIV activities and PPM (Table 2.13). Other plans address training needs but not staffing needs (e.g. Nigeria and the Philippines).

Job descriptions of staff involved in the implementation of the Stop TB Strategy were up-to-date or almost all up-to-date (in line with current policies and recommendations) in 17 HBCs; exceptions were the Russian Federation (none up-to-date), and the Democratic Republic of the Congo, Mozambique, Nigeria, and Zimbabwe (some up-to-date).

The number of staff assigned to HRD at national level remains limited. On the positive side, 15 of the 22 HBCs have a designated person for HRD at the central level of the NTP. However, a full-time member of staff was available in only four countries: Bangladesh, Brazil, China and South Africa. Staff working full-time on TB control are available at provincial (or equivalent) level in 20 HBCs. Monitoring of staff availability and turnover appears weak across HBCs. Only 10 HBCs provided at least some information about the availability of staff trained in TB control in primary health-care facilities.

Training related to TB control is included in the basic curricula of doctors in 18 HBCs, and in the curriculum of laboratory technicians in 15 HBCs. However, training of teaching staff in medical and nursing schools is available in only nine HBCs, and training for teachers of laboratory staff is being provided in just seven HBCs.

Among HBCs and other countries, around 87 reported having conducted a recent HRD needs assessment, and 90 countries reported having a comprehensive HRD plan (Table 2.13). The number of plans that considered staff-

TABLE 2.13

Human resource development (HRD), 2006

	HRD NEEDS ASSESSMENT	COMPREHENSIVE STRATEGIC HRD PLAN	HRD PLAN INCLUDES TRAINING NEEDS IN				HRD PLAN INCLUDES STAFFING NEEDS IN				JOB DESCRIPTIONS UP TO DATE
			DOTS	MANAGEMENT OF MDR-TB	COLLABORATIVE TB/HIV ACTIVITIES	PUBLIC-PRIVATE AND PUBLIC-PUBLIC MIX APPROACHES (PPM)	DOTS	MANAGEMENT OF MDR-TB	COLLABORATIVE TB/HIV ACTIVITIES	PUBLIC-PRIVATE AND PUBLIC-PUBLIC MIX APPROACHES (PPM)	
1 India	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	All
2 China	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	All
3 Indonesia	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Almost all
4 South Africa	Y	N	–	–	–	–	–	–	–	–	All
5 Nigeria	N	Y	Y	Y	Y	N	N	N	N	N	Some
6 Bangladesh	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	All
7 Ethiopia	Y	N	–	–	–	–	–	–	–	–	Almost all
8 Pakistan	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Almost all
9 Philippines	N	Y	Y	Y	Y	Y	N	N	N	N	Almost all
10 DR Congo	N	N	–	–	–	–	–	–	–	–	Some
11 Russian Federation	N	N	–	–	–	–	–	–	–	–	None
12 Viet Nam	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	All
13 Kenya	Y	N	–	–	–	–	–	–	–	–	Almost all
14 UR Tanzania	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Almost all
15 Uganda	N	N	–	–	–	–	–	–	–	–	All
16 Brazil	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	All
17 Mozambique	N	N	–	–	–	–	–	–	–	–	Some
18 Thailand	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Almost all
19 Myanmar	Y	Y	Y	N	Y	Y	Y	N	Y	Y	Almost all
20 Zimbabwe	N	N	–	–	–	–	–	–	–	–	Some
21 Cambodia	N	N	–	–	–	–	–	–	–	–	Almost all
22 Afghanistan	N	Y	Y	Y	Y	Y	–	Y	–	Y	All
High-burden countries^a	11	13	13	12	13	12	10	10	10	11	17
AFR (46) ^b	18	20	20	17	18	14	16	14	12	8	22
AMR (44)	17	18	17	17	17	15	14	16	16	13	20
EMR (22)	13	16	15	13	11	12	14	14	11	12	14
EUR (53)	17	13	10	12	11	8	10	12	11	7	28
SEAR (11)	6	7	7	5	5	5	7	4	5	5	9
WPR (36)	16	16	15	14	16	12	15	10	14	10	24
Global (212)	87	90	84	78	78	66	76	70	69	55	117

– Indicates not applicable (no plan, or activity not implemented).

^a Lower part of table shows the number of countries with affirmative answer (for last column, the number of countries where all or almost all job descriptions were up to date).

^b The number of countries in each region is shown in parentheses.

ing and/or training needs for major components of TB control ranged from about 60 to 80 countries, depending on the component, while 117 countries reported having up-to-date or almost up-to-date job descriptions. In no region except the Eastern Mediterranean and the South East Asia did the number of countries reporting that a key component of HRD was in place exceed half of the number of countries in the region.

Overall, these data show that major strengthening of HRD for TB control is needed in many countries in all regions.

2.4.3 Links between planning for TB control and broader health or public sector planning initiatives and frameworks

Given the level of integration of TB control activities within primary health-care services described above, TB control requires a well-functioning health-care system including NTP participation in efforts to strengthen health systems. Contributing to health system strengthening is an explicit component of the national strategic

plan for TB control in 20 of the 22 HBCs. Beyond this, five of the most important examples of national plans and frameworks to which plans for TB control should be aligned are national health development plans, poverty reduction strategy papers, national human resource plans for health, medium-term expenditure frameworks and sector-wide approaches (SWAp). Among HBCs that reported the existence of these plans and frameworks, the extent to which alignment of the national plan and budget for TB control was reported varied (Figure 2.17). The proportion of countries reporting alignment with medium-term expenditure frameworks and SWAp was high, but there is much scope to increase alignment with national plans for HRD as well as general plans for health-care development.

2.4.4 Practical Approach to Lung Health

PAL is included in the national plans of 73 countries including 10 HBCs. By the end of 2006, 26 countries including three HBCs had prepared detailed plans to develop and implement PAL activities. Of these, 24 had

established a national working group on PAL and 17 had produced national PAL guidelines. Seven countries were piloting or preparing for expansion, while eight countries were undertaking nationwide expansion of activities: Bolivia, Chile, El Salvador, Jordan, Kyrgyzstan, Morocco, South Africa and the Syrian Arab Republic. In 2007, five countries from the African Region including three HBCs (the Democratic Republic of the Congo, Ethiopia and Kenya) developed plans to initiate PAL implementation.

2.5 Engaging all care providers

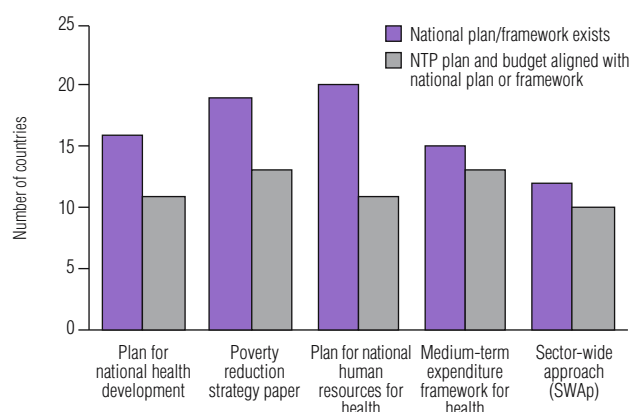
2.5.1 Public–public and public–private mix approaches

Considerable progress has been made since the PPM initiative was launched by WHO in 2000. By 2007, 16 of the 22 HBCs had a focal person for PPM in the central NTP, 16 had undertaken a situational analysis for PPM implementation and 14 had developed national operational guidelines for PPM. The number of HBCs scaling up PPM interventions more than tripled between 2005 and 2007, from four to 14 countries.

Almost half of the HBCs have managed to involve all health institutions belonging to public sector health-care networks, such as public hospitals, medical college hospitals, army health facilities and prison health facilities (Figure 2.18 and 2.19). A large number of HBCs have also started to involve private practitioners, private hospitals and NGO health facilities in key activities such as referral of patients with TB symptoms, diagnosis according to programmatic guidelines and treatment with anti-TB drugs provided by the NTP (Figures 2.18 and 2.19). However, in most HBCs, only a small fraction of all eligible providers belonging to these categories has been involved to date.

Of the top five HBCs, three HBCs (Bangladesh, China and India) reported formal PPM activities in place in

FIGURE 2.17
Alignment of NTP plans and budgets with other planning frameworks and initiatives, high-burden countries, 2006



nearly 100% of their basic management units (BMUs). However, geographical coverage of formal PPM activities does not imply a high level of actual involvement or contribution to referral, diagnosis and treatment by non-NTP providers. To quantify the contribution of different providers to referral, diagnosis and treatment, PPM monitoring that is in line with existing WHO guidelines on recording and reporting for NTPs needs to be implemented. By 2007, only nine of the 22 HBCs had started to systematically record the source of referral and place of treatment of patients.

Among all countries, around 100 or more (depending on the category of provider) reported that all or some of the following types of provider were involved in referral and diagnosis: private practitioners, private hospitals, general public hospitals, medical colleges and prisons. Numbers were lower (mostly around 60 to 80 countries reporting the involvement of some or all providers) for

FIGURE 2.18
Engagement of different types of providers in referral of TB suspects, high-burden countries, 2006

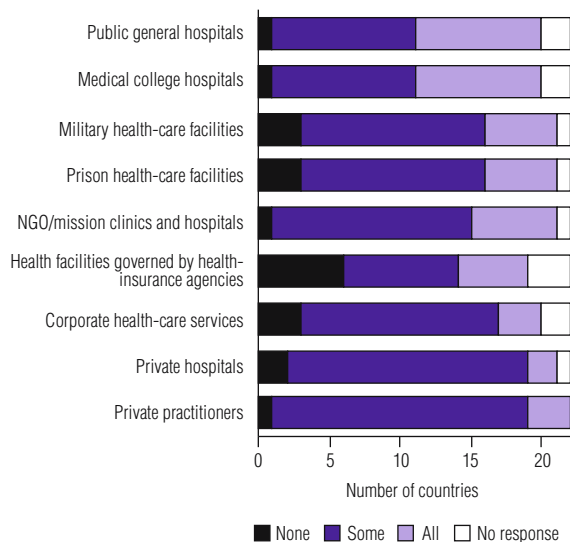
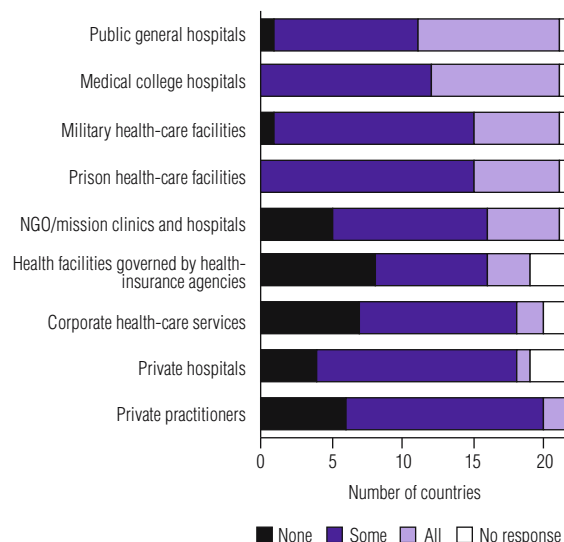


FIGURE 2.19
Engagement of different providers in free-of-charge TB treatment with recommended anti-TB drugs, high-burden countries, 2006



three categories: NGO and mission facilities, health and social insurance services, and the corporate sector. Figures were generally lower again for treatment. Around 70 countries reported that some or all providers in the following categories were involved in treatment: private practitioners, private hospitals, NGO and mission facilities, and health insurance services, although figures were higher for the involvement of medical colleges (100 countries) and general public hospitals (127 countries). Details of these data are not shown in this report, but are available upon request.

2.5.2 International Standards for Tuberculosis Care

The ISTC have been disseminated and used in seven HBCs and endorsed by national professional associations in six HBCs. Several HBCs have promoted and implemented the Standards in some settings: examples include Indonesia, India, Kenya, Thailand and the United Republic of Tanzania. Other HBCs including China, Kenya, Myanmar, Nigeria, Thailand and the United Republic of Tanzania have plans to either launch the ISTC nationally or to use them to target specific groups of care providers. Kenya plans to use the ISTC as a tool of accreditation. The ISTC have been particularly useful for convincing national professional societies and associations, as well as academic institutions, to support implementation of internationally recommended approaches to TB control.

2.6 Empowering people with TB, and communities

2.6.1 Advocacy, communication and social mobilization

An ACSM strategy involves three distinct sets of activities: advocacy aimed at changing the behaviour of leaders or decision-makers, communication channelled to

individuals and small groups, and social mobilization to secure support for efforts in TB control from civil society and the community as a whole. There has been progress in the effective implementation of ACSM activities at country level, often facilitated by grants from the Global Fund (grants for ACSM amounted to US\$ 85 million in rounds 6 and 7). In general, however, progress remains uneven. Several HBCs have advanced in all three areas (advocacy, communication, and social mobilization), while 13 have conducted knowledge, attitudes and practice (KAP) surveys to better target their ACSM activities and 14 have involved patient-centred organizations or networks in advocacy and/or implementation of DOTS. Monitoring and evaluation of ACSM activities remains problematic, as countries continue to struggle to identify useful measures of implementation and impact.

Most HBCs still need to build local capacity to improve implementation of their ACSM strategy. For example, 20 of the 22 HBCs have requested assistance to refine their ACSM strategies in 2007–2008, and 17 have requested help to develop appropriate ACSM indicators.

Data collection in 2007 focused on the 22 HBCs and for this reason we do not provide information for other countries in this report.

2.6.2 Community participation in TB care

Among the 22 HBCs, 20 reported that there was community involvement in TB care (Figure 2.20). Only one (Ethiopia) stated that there was no involvement of communities in TB care, while one did not respond (Thailand). At regional level, community involvement was most common in the South-East Asia Region (82% of countries), followed by the Western Pacific Region (67% of countries) and the African Region (65% of countries). In the African Region, community involvement in TB care is recognized to be a key mechanism for expanding access to high-quality TB care as well as improving awareness and understanding of the disease. In the other three regions, community involvement was reported to exist in only around 40% of countries (Figure 2.20). This suggests that community involvement in TB care is not yet a strategic priority for many countries in these regions, even though in the Region of the Americas the level of community involvement in PHC services as a whole is high.

A better understanding of how communities are currently involved in TB control is required to make full use of their potential contribution. For example, despite the fact that 20 HBCs report community involvement in TB care, little is known about the specific roles or functions for which communities have taken responsibility.

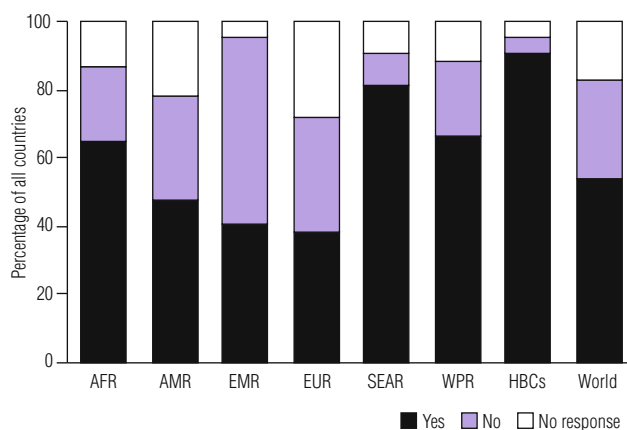
2.6.3 Patients' Charter

The Patients' Charter provides the foundation for a human rights-based approach to the involvement of patients and communities in TB care and prevention. To

FIGURE 2.20

Community participation in TB control, all countries, 2006.

Examples of community participation include identification and referral of TB suspects, and patient support. No response includes countries that did not report any data to WHO and countries that did not respond to questions on community participation in TB control.



date, only four HBCs have used it. This probably reflects the fact that it was only published in 2006, and as such there has been limited time for its adoption and use.

2.7 Enabling and promoting research

A total of 49 countries including 19 HBCs reported that operational research activities were implemented in 2006. The countries with the largest programmes of operational research (in terms of the number of studies being done) were China and India. The most common topics were related to the following components of the Stop TB Strategy: DOTS (around 40 studies, with examples including how to improve diagnosis and patient care); TB/HIV, MDR-TB and other challenges (about 40 studies); and PPM (7 studies). Many countries also reported conducting surveys of drug resistance and prevalence of disease, as well as plans to conduct in-depth analysis of the impact of TB control using routine surveillance data (see also sections 2.2.6 and 2.3.2 above).

2.8 Summary

Implementation of the Stop TB Strategy varies among components and among countries. The first component and foundation of the strategy – DOTS – is the most widely implemented. It is also the component for which progress is closest to matching the expectations of the Global Plan. In 2006, 93% of the world's population lived in areas where DOTS was being implemented, and the global case detection rate was 61%. The treatment success target of 85% had almost been reached by the end of 2005. At the same time, there is much scope for improvement in the provision of laboratory culture and DST services, and, while impact measurement is advanced in some regions, it is at an early stage of development in others.

Besides DOTS implementation, diagnosis and treatment of MDR-TB and collaborative TB/HIV activities

(both under component 2) are the other major parts of the Stop TB Strategy for which implementation can be best quantified. Although implementation still lags behind the Global Plan, there is clear evidence of major progress in the implementation of interventions such as HIV testing for TB patients and provision of CPT and ART to HIV-positive TB patients in the African Region. There is also progress in the diagnosis and treatment of MDR-TB, but here current and projected levels of implementation are far behind the Global Plan in the South-East Asia and Western Pacific regions, and within these regions in China and India in particular.

Among components 3–6, our understanding of implementation is more limited, because to date it is less well quantified. In the area of health system strengthening (component 3), considerable work on HRD is needed in many countries in all regions, although reported alignment with broader health sector planning frameworks as well as expansion of PAL to a larger number of countries are encouraging.

PPM and the ISTC (component 4) are being introduced and expanded in an increasing number of countries. However, the relative contribution of different providers to detection, referral or treatment of cases will remain unclear until the new routine recording and reporting forms recommended by WHO are more widely introduced.

ACSM (component 5) is still a new area for many countries and one where much more guidance and technical support are necessary. For this report, information on operational research (part of component 6) was comparatively superficial.

Overall, planning and implementation that covers all elements of the Stop TB Strategy and that is in line with the targets set in the Global Plan is already happening in some countries, but now needs to extend to many more.