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Global Tuberculosis Control

SURVEILLANCE, PLANNING, FINANCING

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List of abbreviations

ADB	Asian Development Bank
AFB	Acid-fast bacilli
AFR	WHO African Region
AFRO	WHO Regional Office for Africa
ALM	American Leprosy Mission
ALTI	Aide au Lépreux et Tuberculeux de l'Ituri
AMR	WHO Region of the Americas
AMRO	WHO Regional Office for the Americas
ARV	Antiretroviral treatment
AusAID	Australian Agency for International Development
BRAC	Bangladesh Rural Advancement Committee
CB	Community-based
CDC	Centers for Disease Control and Prevention, USA
CDR	Case detection rate (i.e. smear-positive case detection rate, whole country)
CENAT	Centre National Anti-Tuberculeux
CESAL	Centro de Estudios de Solidariedad con l'America Latina
CIDA	Canadian International Development Agency
CRL	Central reference laboratory
DARE	District AIDS and Reproductive Health Project (Kenya)
DANIDA	Danish International Development Agency
DDR	DOTS detection rate (i.e. smear-positive case detection rate under DOTS)
DFB	Damien Foundation Belgium
DFID	UK Department for International Development
DOTS	The internationally recommended control strategy for TB
DOT	Directly observed treatment
DTBE	Division of TB Elimination (CDC)
EMR	WHO Eastern Mediterranean Region
EMRO	WHO Regional Office for the Eastern Mediterranean
EPOS	EPOS Health Consultants
ESP	Essential services package
EU	European Union
EUR	WHO European Region
EURO	WHO Regional Office for Europe
FDB	Fondation Damien Belgique
FEFO	First expiry, first out
FHI	Family Health International
FILHA	Finnish Lung and Health Association
GDEP	Global DOTS Expansion Plan
GDF	Global TB Drug Facility
GFATM	Global Fund to Fight AIDS, TB and Malaria
GLRA	German Leprosy Relief Association
GMS	German Medical Service
GTZ	Gesellschaft für Technische Zusammenarbeit (German development agency)
HBC	The 22 high-burden countries accounting for approximately 80% of all new TB cases arising each year
HIV	Human immunodeficiency virus
HSR	Health Sector Reform
HPSP	Health and Population Sector Programme
HSDP	Health Sector Development Programme
ICD	Italian Cooperation for Development
IEC	Information, Education, Communication
IFRC	International Federation of Red Cross and Red Crescent Societies
IEDC	Infectious and Endemic Disease Control Project (China)
IPT	Isoniazid preventive therapy
IUATLD	International Union Against Tuberculosis and Lung Disease
JATA	Japan Anti-Tuberculosis Association
JFAP	Japan Foundation for AIDS Prevention
JICA	Japan International Cooperation Agency
KfW	Kreditanstalt für Wiederaufbau
KNCV	Royal Netherlands Tuberculosis Association
LGA	Local Government Areas
MCNV	Medical Committee Netherlands-Vietnam
MDR-TB	Multidrug-resistant tuberculosis
Merlin	Medical Emergancy Relief International
MPA	Minimum Package of Activities
MPH	Master of Public Health
MoH	Ministry of Health
MoPH	Ministry of Public Health
MSF	Médecins Sans Frontières
NASCOP	National AIDS/STDs Control Programme
NGO	Non-governmental organization
NHC	National Health Committee
NHLA	Norwegian Heart and Lung Association
NICC	National Interagency Coordinating Committee
NLHA	National Lung Health Association
NLR	National Leprosy Relief Association
NPO	National programme officer
NPS	National Prevalence Survey
NTLP	National Tuberculosis and Leprosy Programme
NTP	National Tuberculosis Control Programme
NWFP	North-West Frontier Province (Pakistan)
OPAS	Organização Pan-Americana da Saúde (PAHO)
OSI	Open Society Institute (Soros)
PAHO	Pan-American Health Organization
PHC	Primary Health Care
PHRI	Public Health Research Institute
PIH	Partners in Health
QA	Quality Assurance
RIT	Research Institute for Tuberculosis (Japan)
RNTCP	Revised National TB Control Programme
SANTA	South African National TB Association
SAPP II	Social Action Programme, Project II (Pakistan)
SCC	Standardized short-course chemotherapy
SEAR	WHO South-East Asia Region
SEARO	WHO Regional Office for South-East Asia
SIDA	Swedish International Development Agency
SPC	Secretariat of the Pacific Community
STI	Sexually transmitted infection
TADSA	TB Alliance DOTS Support Association
TB	Tuberculosis
TBL	Tuberculosis and Leprosy
TLCP	Tuberculosis and Leprosy Control Programme
TLMI	The Leprosy Mission International
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
WB	World Bank
WPR	WHO Western Pacific Region
WPRO	WHO Regional Office for the Western Pacific

Summary

Background and aims

1. This is the 6th annual report on global TB control. It includes data on case notifications and treatment outcomes from all national control programmes that have reported to WHO, together with an analysis of plans, finances, and constraints on DOTS expansion for 22 high-burden countries (HBC). Seven consecutive years of data are now available to assess progress towards the 2005 global targets for case detection (70%) and treatment success (85%).

Methods

2. During 2001, a standard form for reporting surveillance data was sent to 210 countries via WHO regional offices. The form requests information about policy and practice in TB control, the number and types of TB cases notified in 2000, and the outcomes of treatment and retreatment for smear-positive cases registered in 1999.
3. NTP managers in the 22 HBC were asked to identify the major constraints to DOTS expansion, and to present 3–5 year plans and budgets to overcome these constraints as they move towards target case detection and cure rates.

Main findings

4. The number of countries implementing the DOTS strategy increased by 21 during 2000, bringing the total to 148 (out of 210). By the end of year 2000, over half (55%) the world's population lived in parts of countries providing DOTS. DOTS programmes notified almost two million new TB cases, more than one million of which were smear-positive.
5. However, the 1.02 million smear-positive cases notified under DOTS represent only one quarter (27%) of the estimated total, and the rate of progress in case finding between 1999 and 2000 was no faster than the average since 1994, a mean annual increment of 133 000 smear-positive cases. Globally, DOTS programmes must recruit an extra 330 000 smear-positive patients each year to reach 70% case detection by 2005.
6. Over half of the additional smear-positive cases reported under DOTS in 2000 (as compared with 1999) were found in just five countries—India (28%), the Philippines (19%), Ethiopia (6%), South Africa (5%) and Myanmar (4%). Only India, the Philippines, and Myanmar significantly increased the proportion of all new cases detected.
7. DOTS programmes successfully treated 80% of all registered new smear-positive patients in 1999, but only 19% of all new smear-positive cases estimated to have arisen that year.
8. Following the departure of Peru from the list of HBC, Viet Nam was the only high-burden country to have reached targets for case detection and cure by the end of year 2000.
9. The constraints on DOTS expansion most commonly identified were: lack of qualified staff and management skills, shortage of laboratory equipment, absence of collaboration between TB and HIV programmes, an unregulated private sector, and decentralization of health services. Other constraints restricted to a subset of HBC include poor access to health services (e.g. Ethiopia, Mozambique), and war (Afghanistan, DR Congo).
10. All 22 HBC have prepared a plan for DOTS expansion, with the collaboration of international technical partners; 11 have established National Interagency Coordination Committees; 19 have budgets for one or more years 2002–5; six were assisted by the Global Drug Facility.
11. The budgets developed by the 22 HBC, which usually focus on costs specific to TB control only, currently total US$ 436–486 million per year for the period 2002–5. At least 17% of this total is not yet funded. The largest anticipated shortfalls are in Afghanistan, DR Congo, Indonesia, Myanmar, Uganda and Pakistan, where 29–100% of the budget is not yet funded. When the costs not covered in these budgets are added, the total public investment required in TB control in the 22 HBC is estimated at around US$ 1 billion per year, with a funding gap of up to US$ 300 million per year.

Conclusion

12. Between 1999 and 2000, global TB control continued along the steady but slow path traced since 1994. At this rate of progress, the target of 70% case detection under DOTS will not be reached until 2013.
13. 2001 was a year for the preparation of plans and identification of funding gaps; the emphasis in 2002 will be on implementing these plans for DOTS expansion.
14. Funds permitting, the biggest advances during 2002 are expected in Cambodia, China, India, Myanmar, Pakistan, the Philippines, and Uganda. The challenge will be to show that DOTS expansion in these and other countries can significantly accelerate case finding while high cure rates are maintained.

Introduction

The goal of this annual report is to chart progress in TB control and, in particular, progress in implementing the WHO DOTS strategy.[1] The targets for global TB control ratified by the World Health Assembly are: (1) to treat successfully 85% of detected smear-positive TB cases, and (2) to detect 70% of all such cases. Since these targets were not reached by the end of year 2000 as originally planned, the target year has been re-set to 2005.[2]

Monitoring and evaluation are carried out through WHO's Global TB Monitoring and Surveillance Project, established in 1995. Last year we reported on the steady but slow progress in DOTS implementation.[3] India showed the biggest progress in DOTS expansion. China recorded a large reduction in prevalence in provinces supported by a World Bank loan as compared with the rest of the country. Peru had reduced incidence sufficiently to be removed from the list of 22 high-burden countries (HBC), which account for about 80% of all new cases each year. It has been replaced by Mozambique. However, the overall rate of recruitment of patients by DOTS programmes suggested that the global target of 70% case detection would not be reached until 2013.

The current report is number six in the series. It presents data available at 21 January 2002 on case notifications for 2000, treatment results for patients registered in 1999, and the status of DOTS implementation by the end of 2000. This information is supplemented, where possible, with the latest data on progress made by countries during 2001. We compared the new figures with those in previous reports (data from 1994 onwards), paying special attention to progress in the 22 HBC.

Whether TB control programmes will be able to reach the 2005 targets depends on how well they can identify the major constraints on effective TB control, and on how effectively they can develop plans and set budgets to overcome these constraints. To assist this process, we asked NTP managers in the 22 HBC to identify the principal constraints, and to set out their 3–5 year plans and budgets for DOTS expansion.[4] The results are intended to be used as a set of blueprints for TB control between now and 2005.

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[1] World Health Organization. *WHO Tuberculosis Programme: Framework for Effective Tuberculosis Control*. Geneva: WHO 1994. WHO/TB/94.179.

World Health Organization. *An Expanded Framework for Effective Tuberculosis Control*. Geneva: WHO 2002. WHO/CDS/TB/2002.297.

[2] World Health Organization. Fifty-third World Health Assembly. *Stop Tuberculosis Initiative, Report by the Director General*. A53/5, 5 May 2000.

[3] World Health Organization. *Global Tuberculosis Control. WHO Report 2001*. WHO/CDS/TB/2001.287. See http://www.who.int/gtb/publications/globrep01/index.html.

[4] This updates some information in: World Health Organization. *Global DOTS Expansion Plan*. Geneva: WHO 2001. WHO/CDS/STB/2001.11.

Methods

Progress in global TB control

Collection of surveillance data

WHO member states and other countries and territories voluntarily report communicable disease surveillance data to WHO. One distinctive feature of TB surveillance is the collection of data on treatment outcomes as well as disease incidence. Another is the stratification of data by type of control strategy (DOTS or non-DOTS). Together, these data are important in monitoring progress towards targets (85% treatment success, 70% case detection), and in assessing the epidemiological impact of DOTS.

Before setting out the details of methods used to collect the most recent set of data, we make four general remarks about the process. First, the questions posed on the WHO form for data collection assume that countries are able to provide precisely the information requested. We recognize, however, that some countries have slightly different definitions and procedures, and we encourage respondents to note such differences in their reports.

Second, WHO deals with national health authorities, most of whom supervise only public systems of TB control. In a number of countries, TB treatment is unregulated, case reporting by private practitioners to the local health authority is not mandatory, and legislation is not enforced, or not dictated by clear criteria and definitions. Under these circumstances, the data collected by the national health authority, and reported in turn to WHO, will be incomplete, and inaccurate in some countries.

Third, this report presents data with a significant time delay. Published in 2002, it contains data that were compiled mostly during 2001. The new data available are case notifications for 2000 (the most recent year of complete information), and treatment outcomes for patients registered in 1999. Treatment results always lag notifications by one year because treatment usually lasts 6–9 months. WHO recommends that data are compiled and analysed more often than once per year within countries, e.g. quarterly, but this is unnecessary for monitoring at the global level.

Fourth, we have, for this report, systematically updated our surveillance database by asking respondents to tell us of any retrospectively adjusted figures for case notifications (smear-positive cases and all forms of TB) for each year since 1995. Because some countries update their information without notifying WHO, the numbers published in this report may not agree with other publications on TB surveillance.

During 2001, we asked the national health authorities in 210 countries and territories to complete a standard TB data collection form (Annex 1). The form was accompanied by WHO/IUATLD definitions for TB surveillance.[5] The form asks for:

1. programme information in 2000, i.e. national policy and typical practice, population coverage of DOTS and other non-DOTS strategies, and completeness of reporting;
2. TB cases reported during 2000, divided into various types, and including a stratification of smear-positive cases by age and sex;
3. treatment outcomes for smear-positive cases registered during 1999, plus outcomes for all retreatment cases.

The information about policy and practice concerns the country as a whole, whereas the other sections ask for data from DOTS and non-DOTS areas separately. Treatment and (especially) retreatment outcomes are not expected from non-DOTS programmes, but the form allows respondents to supply these data if they can do so.

Completed forms were first reviewed in the relevant WHO country and regional office, and then at WHO, Geneva. Inconsistencies in the data were followed up with NTP managers, or with other responsible persons in countries. Data were analysed principally with Microsoft Access and Excel.[6]

Surveillance in the European region

In the WHO European Region, tuberculosis monitoring and surveillance are carried out jointly with EuroTB (Institut de Veille Sanitaire, Paris), the WHO Collaborating Centre for the surveillance of tuberculosis in Europe, with financial support from the European Commission. A joint WHO/EuroTB data collection form was sent to countries, designed to meet the overlapping objectives of both organizations, and to minimize the burden of reporting imposed on NTP managers. In addition to the information requested on the global form (Annex 1), the WHO/EuroTB form asks for TB notifications by nationality, citizenship, age and sex, and notifications and treatment outcomes by sputum culture and smear examination.

In the European Region only, national respondents were invited to report to WHO directly via the regional web-site

[5] WHO/IUATLD/KNCV. Revised international definitions in tuberculosis control. *Int. J. Tuberc. Lung. Dis.* 2001; 5: 213–215.

[6] WHO offers reference material about national recording and reporting systems, and prototype software designed for national or provincial TB managers to assemble, clean, and analyse their TB data. For further information, contact local or regional WHO offices, or bleedd@who.int.

TABLE 1

Categorization of countries

Category	Definition
0	Countries not reporting to WHO.
1	Countries **not** implementing the DOTS strategy and having an estimated incidence rate of 10 **or more** cases per 100 000 population.
2	Countries implementing the DOTS strategy in less than 10% of the total population (**pilot phase**).
3	Countries implementing the DOTS strategy in 10 to 90% of the total population (**expansion phase**).
4	Countries implementing the DOTS strategy in over 90% of the total population (**routine implementation**).
5	Countries **not** implementing the DOTS strategy but having an estimated incidence rate of less than 10 cases per 100 000 population (**low incidence**).

TABLE 2

Technical elements of the WHO TB control strategy (DOTS)*

MICROSCOPY • Case detection among symptomatic patients self-reporting to health services, using sputum smear microscopy.**

SCC/DOT • Standardized short-course chemotherapy using regimens of 6–8 months for at least all confirmed smear-positive cases. Good case management includes directly observed therapy (DOT) during the intensive phase for all new sputum positive cases, during the continuation phase of regimens containing rifampicin, and during the entirety of a retreatment regimen.***

DRUG SUPPLY • Establishment and maintenance of a system to supply all essential anti-tuberculosis drugs, and to ensure no interruption in their availability.

RECORDING AND REPORTING • Establishment and maintenance of a standardized recording and reporting system, allowing assessment of treatment results (see Table 5).

* The DOTS strategy comprises five elements in all, including political commitment.
** Sputum culture can be used for diagnosis, but direct sputum smear microscopy should still be performed for all suspected cases.
*** In countries that have consistently documented high treatment success rates, directly observed therapy 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.

(http://cisid.who.dk/tb). This system provides messages to help check data on entry, and immediate feedback on the TB situation in neighbouring countries, using a menu for custom queries of the regional database.

Categorization of countries

From the responses as a whole (but particularly the section on policy), we accepted or revised each country's own determination of its DOTS status. Countries were then further categorized qualitatively (or semi-quantitatively), as shown in Figure 1, using the definitions in Table 1. A country was considered to be implementing the DOTS strategy if by 31 December 2000 it had a national TB control policy based on WHO recommendations, it complied with all technical elements of the DOTS strategy[1,5] (Table 2), and it reported on notifications and treatment outcomes from DOTS areas.

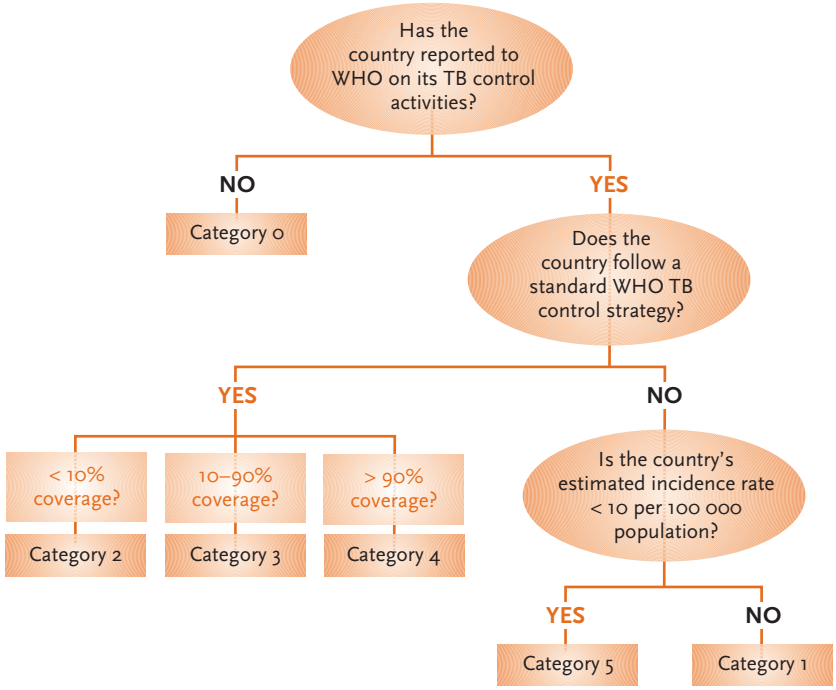
If DOTS was implemented only in some districts (or equivalent administrative units) on the initiative of local authorities, but endorsed by national authorities, the country was classified as DOTS. If a country reported that DOTS was newly implemented during 2000, so that the results of cohort analysis were not yet available, it was also classified as DOTS, provided 2000 case notifications from DOTS areas were available.

This system of categorization provides a first impression of each country's progress in TB control. However, WHO targets are expressed more stringently in terms of treatment success and the case detection rate. TB control should ensure high treatment success before expanding case finding. The reason is that a proportion of patients given less than a fully-curative course of treatment remain chronically infectious, and continue to spread TB. Thus DOTS programmes must be shown to achieve high cure rates in pilot projects before attempting country-wide coverage. Case detection and treatment success rates are defined and measured as follows.

Case detection

We made separate assessments of TB control programmes in DOTS and non-DOTS areas. Case notifications distinguished between all types of TB and sputum smear-positive cases (or culture-positive cases, in some countries). Table 3 contains standard case definitions, including recent minor revisions.[5]

FIGURE 1. **Categorization of countries**



As an indicator of each NTP's ability to detect and identify smear-positive cases we calculated the proportion of new sputum smear-positive cases out of all new pulmonary cases (expected value 65–80% in areas with a low prevalence of HIV infection).[7]

Case notifications represent only a fraction of the true number of cases arising in a country because of incomplete coverage by health services, inaccurate diagnosis, or deficient recording and reporting. The estimated smear-positive case detection rate is defined as:

$$\text{case detection rate} = \frac{\text{annual new smear-positive notifications (country)}}{\text{estimated annual new smear-positive incidence (country)}}$$

where the value of the denominator comes from a reappraisal of TB incidence for year 2000 (Table 4).[8] A stricter measure of case finding is the fraction of all incident smear-positive cases that are detected (and potentially treated) by DOTS programmes:

$$\text{DOTS detection rate} = \frac{\text{annual new smear-positive notifications (under DOTS)}}{\text{estimated annual new smear-positive incidence (country)}}$$

The case detection rate (CDR) and the DOTS detection rate (DDR) are identical when a country reports only from DOTS areas. This should happen only when DOTS coverage is 100%.

Treatment success and cure rate

To assess the quality of treatment programmes for new smear-positive cases, we first compared the number of new cases registered for treatment in 1999 with the number of cases notified as smear-positive in 1999. These numbers should be the same. Small differences may arise because diagnoses are changed, or because patients are lost between diagnosis and the start of treatment. Second, we determined what fraction of registered cases was evaluated for outcome. All registered cases should be evaluated but discrepancies arise, for example, when sub-national reports are not received at national level. Third, we compiled data on the six standard, mutually exclusive outcomes of treatment (Table 5). Treatment success is defined as the proportion of registered patients who were cured plus the proportion who completed treatment.

These figures are reported as percentages of all registered cases, so that the six possible outcomes plus the fraction of cases not evaluated sum to 100%. If the number registered is not provided, we use the number notified for the cohort year as the denominator. If the sum of the outcomes is greater than the number registered (or the number notified if the number registered is not provided), the sum of outcomes is used as the denominator. Although treatment outcomes are expressed as percentages, they are usually referred to as 'rates'.

We have not attempted to assess how many cases should have been registered on retreatment regimens, to compare with the number that were actually registered. If the number registered for retreatment was not stated, we expressed retreatment outcomes in terms of the number evaluated.

[7] World Health Organization. *Tuberculosis Handbook*. Geneva: WHO 1998. WHO/TB/98.253

[8] Corbett EL, Watt CJ, Walker N, Maher D, Raviglione MC, Williams B, Dye C. *The growing burden of tuberculosis: global trends and interactions with the HIV epidemic* (submitted for publication).

TABLE 3

Definitions of tuberculosis cases

CASE OF TUBERCULOSIS • A patient in whom tuberculosis has been bacteriologically confirmed, or has been diagnosed by a clinician. Note: any person given treatment for tuberculosis should be recorded.

DEFINITE CASE • Patient with positive culture for the *Mycobacterium tuberculosis* complex. In countries where culture is not routinely available a patient with 2 sputum smears positive for acid-fast bacilli (AFB+) is also considered a definite case.

SMEAR-POSITIVE PULMONARY CASE • At least two initial sputum smear examinations (direct smear microscopy) AFB+; or one sputum examination AFB+ and radiographic abnormalities consistent with active pulmonary tuberculosis as determined by the treating medical officer; or one sputum specimen AFB+ and culture positive for *M. tuberculosis*.

SMEAR-NEGATIVE PULMONARY CASE • Pulmonary tuberculosis not meeting the above criteria for smear-positive disease. Diagnostic criteria should include: at least 3 sputum smear examinations negative for AFB; and radiographic abnormalities consistent with active pulmonary TB; and no response to a course of broad-spectrum antibiotics; and decision by a clinician to treat the patient with a full course of anti-tuberculosis therapy; or positive culture but negative AFB sputum examinations.

EXTRAPULMONARY CASE • Patient with tuberculosis of organs other than the lungs e.g. pleura, lymph nodes, abdomen, genito-urinary tract, skin, joints and bones, meninges. Diagnosis should be based on one culture-positive specimen, or histological or strong clinical evidence consistent with active extrapulmonary disease, followed by a decision by a clinician to treat with a full course of anti-tuberculosis chemotherapy. Note: a patient diagnosed with both pulmonary and extrapulmonary tuberculosis should be classified as a case of pulmonary tuberculosis.

NEW CASE • Patient who has never had treatment for tuberculosis, or who has taken anti-tuberculosis drugs for less than 1 month.

RELAPSE CASE • Patient previously declared cured but with a new episode of bacteriologically positive (sputum smear or culture) tuberculosis.

RETREATMENT CASE • Patient previously treated for tuberculosis whose treatment failed, who defaulted (treatment interrupted, see Table 5, 'Definitions of treatment outcomes'), or who relapsed.

CHRONIC CASE • Patient who is sputum positive at the end of a retreatment regimen.

TABLE 4

Estimated incidence of TB: high-burden countries, 2000

			NUMBER ESTIMATED				
			ALL CASES		SMEAR-POSITIVE CASES		
	COUNTRY	POPULATION (1000s)	THOUSANDS	RATE PER 100 000 POP	THOUSANDS	RATE PER 100 000 POP	CUMULATIVE INCIDENCE (%)
1	India	1 008 937	1 856	184	831	82	21
2	China	1 275 133	1 365	107	588	46	37
3	Indonesia	212 092	595	280	267	126	44
4	Nigeria	113 862	347	305	150	132	48
5	Bangladesh	137 439	332	242	149	109	51
6	Ethiopia	62 908	249	397	105	166	54
7	Philippines	75 653	249	330	112	148	57
8	Pakistan	141 256	247	175	111	78	60
9	South Africa	43 309	228	526	93	214	63
10	Russian Federation	145 491	193	132	87	59	65
11	DR Congo	50 948	163	320	70	138	67
12	Kenya	30 669	149	484	62	201	68
13	Viet Nam	78 137	148	189	66	85	70
14	UR Tanzania	35 119	126	359	54	153	72
15	Brazil	170 406	116	68	52	30	73
16	Thailand	62 806	88	140	39	62	74
17	Uganda	23 300	82	351	35	149	75
18	Myanmar	47 749	80	168	36	76	76
19	Mozambique	18 292	79	433	33	180	77
20	Cambodia	13 104	75	572	33	256	77
21	Zimbabwe	12 627	74	584	30	234	78
22	Afghanistan	21 765	70	321	31	144	79
	Total, high-burden countries	3 781 004	6 910	183	3 033	80	79
	Global total	**6 053 531**	**8 735**	**144**	**3 836**	**63**	**100**

TABLE 5

Definitions of treatment outcomes

CURED • Initially smear-positive patient who has a negative sputum smear in the last month of treatment, and on at least one previous occasion.*

COMPLETED TREATMENT • Patient who has completed treatment but does not meet the criteria for cure or failure.

DIED • Patient who died during treatment, irrespective of cause.

FAILED • Smear-positive patient who remained smear-positive, or became smear-positive again, at least 5 months after the start of treatment.

INTERRUPTED TREATMENT (DEFAULTED) • Patient who did not collect drugs for 2 months or more at any time after registration.

TRANSFERRED OUT • Patient who was transferred to another reporting unit and for whom treatment results are not known.

SUCCESSFULLY TREATED • The sum of cases that were cured and that completed treatment (expressed as a percentage of the number registered in the cohort).**

* Some European countries define cure in terms of culture conversion, rather than sputum smear conversion.[9]

** A cohort is a group of patients diagnosed and registered for treatment during a given time period, usually one quarter of a year.

[9] Veen J, Raviglione MC, Rieder HL, Migilori GB, Graf P, Grzemska M, Zalesky R. Standardized tuberculosis treatment outcome monitoring in Europe. *Eur Respir J* 1998; 12: 505–510.

Planning for DOTS expansion

Building on the Global DOTS Expansion Plan (GDEP) 2001,[4] WHO worked during 2001 with NTP managers and representatives of the 22 HBC in an effort to achieve the following six objectives:

1. assess progress made in preparing medium-term plans (3–5 years) for DOTS expansion, guiding each country towards the 2005 targets;
2. review country plans using a checklist of essential elements;
3. update the 2000 country profiles;[4]
4. review WHO regional plans;
5. determine the principal technical and financial partners;
6. determine whether or not a National Interagency Coordination Committee (NICC) had been formed.

Development and review of national DOTS expansion plans

Progress in the development of country plans (objectives 1 and 2) was assessed by asking NTP managers from all HBC to provide WHO with their DOTS expan-

sion plan. Each plan was reviewed to determine whether the following elements of an ideal plan are included:

- coverage of the period 2001–2005;
- a situational analysis, including an assessment of constraints and resulting gaps;
- a statement of broad goals;
- measurable objectives and a time frame for achieving them, with specific objectives of reaching a DOTS population coverage of > 90% (Figure 1, category 4); and achieving 70% case detection and 85% treatment success by 2005;
- clear identification of strategies specifically corresponding to each objective, saying how DOTS will be expanded, how case detection and cure rates will be improved, how the private sector will be involved, how community-based care will be incorporated, and how TB/HIV will be addressed;
- clear identification of tasks or activities specifically corresponding to each strategy;
- a budget;
- a section on monitoring and evaluation, saying how the NTP will know if objectives and goals have been met.

Development of country profiles

Year 2001 country profiles (Annex 3) were updated (objective 3) by incorporating information from the following sources: tables summarizing planning status (prepared for WHO in advance of the 2nd DOTS Expansion Working Group meeting, Paris, October 2001); posters presented at the Paris meeting; and through a series of consultations with, and reviews of the profiles by, NTP staff and collaborating technical agencies. Each country profile contains the five sections shown in Box 1.

Development of regional plans for DOTS expansion

WHO regional offices were asked to outline TB control activities in 2001 (objective 4), with a description of constraints and proposed actions to expand DOTS, and to list global and local partners who will respond to the various needs of programmes.

Partnerships and coordination

The network of donors and collaborating organizations (objective 5) was monitored through direct consultation with NTP managers and WHO regional offices. Lead technical agencies, along with other technical and financial partners, are listed in each country profile. The coordination of these numerous agencies is vital for the efficient use of limited resources within countries. To assist this process, WHO recommends the establishment of a formal coordination mechanism, such as a National Interagency Coordinating Committee (NICC). We therefore asked (objective 6) NTP managers in each of the 22 HBC to report on whether such a mechanism exists.

Financing DOTS expansion

The analysis of the financial resources required for TB control in the 22 HBC had seven objectives:

1. assess the availability of budget data for the period 2002–2005;
2. assess the quality and completeness of budgets against a set of standard criteria, and use this assessment to indicate where further work may be needed;
3. summarize the average annual budget for TB control in each of the HBC and for all 22 countries combined;
4. estimate the budget available per patient;
5. provide, in standard format, a detailed breakdown of budgets, including identification of funding gaps;
6. provide estimates of the total cost of TB control in each of the HBC, including costs imposed on general health services (which are often excluded from TB budgets);
7. provide estimates of the gap between the total cost of TB control in the 22 HBC and available funding.

As with information on planning, we asked NTP managers in all 22 HBC, as members of the Global DOTS Expansion Working Group, to provide budget data (objective 1). Countries were categorized as (a) having a budget, (b) in the process of developing a budget, or (c) not yet having a budget. This report reflects information available as of January 2002.

Budgets were reviewed (objective 2) using a standard checklist of nine questions (Box 2). Total budgets, existing pledges, and funding gaps were converted into an annual average (objective 3) by dividing by the number of years covered. The average budget per patient (objective 4) was obtained by dividing by the average number of patients that must be treated each year if targets for

BOX 1

Standard format of country profiles (Annex 3)

1. **TB control within the health system** describes the relationship between the TB control system and the overall health care system.
2. **Progress in DOTS coverage** describes the most recent data available to WHO including, where possible, preliminary information on coverage during 2001.
3. **Planning for TB control** describes the major DOTS expansion planning initiatives undertaken, including a table with the constraints to DOTS expansion (classified as constraints relating to political environment, to health system capacity, or to people and community) and the actions taken in 2001, or planned for 2002, to overcome them.
4. **Partnerships** describes the key technical and financial partners along with the kind of support they are providing.
5. **Financing TB control** presents budgets and information on existing funding and funding gaps (see also "Financing DOTS expansion").

case detection and cure are to be reached. The number of patients to be treated was calculated from estimated incidence in 2000, from case detection rates, from trends in incidence and population projections for the period 2001–5, and assuming linear progress toward 70% case detection over the period 2001–5. The methods are described in full elsewhere.[10]

Line items in the budgets were assigned to one of eight categories (objective 5): staff, buildings, diagnostic supplies and equipment, first-line drugs, training, programme management and supervision, activities specifically aimed at increasing case detection and cure rates, and miscellaneous. Budgets were summed for each category, and for all categories combined. Wherever possible, government funding (regular budgets and loans) and grants were identified, and hence the budget gap, for each category and for all categories combined.

Budgets were also reviewed to check whether any costs associated with diagnosis and treatment had been omitted (objective 6). Where important costs were not included—such as days in hospital at the beginning of treatment, or outpatient visits to general health services for observation of treatment—these were estimated (per patient) using published and unpublished economic costing studies. These costs were then added to the total budget per patient to give a comprehensive estimate of the financial resources (per patient) required for TB control. The total annual costs associated with achieving targets were then estimated as the total cost per patient multiplied by the average annual number of patients to be treated during the period 2001–5.

An estimate of the total funding gap (objective 7) is given by the difference between total costs and funds already available, where the latter include funds for costs specific to TB control and for general health services staff and infrastructure. This gap is usually greater than the gap identified in country budgets. Full details of the methods used for objectives 6 and 7 are provided elsewhere.[10]

BOX 2

Questions used to evaluate budget estimates

1. **How are budgets related to targets for TB control?**
   Should be linked to targets for DOTS population coverage, case detection and cure.
2. **How comprehensive are budgets with respect to service delivery?**
   Should cover costs specific to TB control, including the budgets required for dedicated tuberculosis hospitals and clinics; should cover all relevant administrative levels of the country; would ideally cover the cost of using resources that are not specific to TB control i.e. general health services staff and infrastructure.
3. **Do budgets cover all major items specific to TB control?**
   Should include diagnostic supplies and equipment, first-line drugs, training, programme management and supervision.
4. **Do budgets include all relevant financial inputs?**
   Should include staff, buildings, vehicles, supplies, and equipment.
5. **What time period do budgets cover?**
   Should cover period 2002–5.
6. **Do budgets include a detailed breakdown by line item?**
7. **Do budgets include a detailed breakdown of the funding gap by line item?**
8. **What types of TB case are covered in budgets?**
   Should include all types of case for which care is publicly funded (not necessarily smear-positive cases only).
9. **Do budgets include funds for new interventions or strategies specifically aimed at increasing case detection and cure rates to target levels?**

[10] Floyd K, Blanc L, Raviglione MC, Lee JW. *Resources required for the achievement of global tuberculosis control targets* (submitted for publication).

Results

Progress in global TB control

Countries reporting to WHO

By 21 January 2002, 202 (89%) of 210 countries reported case notifications for 2000 and/or treatment outcomes for patients registered in 1999, 10 more than last year. We received reports from all 22 HBC, all countries with more than 30 million people except Canada, and all other countries with more than 10 million people except Madagascar (Tables 6a and 6b).

Categorization of countries, 1995–2000

The number of countries implementing a strategy consistent with DOTS has continued to increase, reaching 148 (of 210) in 2000, 22 more than in 1999 (Figure 2,

TABLE 6a

List of countries implementing DOTS, 2000

CATEGORY 2 (8 countries)	CATEGORY 3 (44 countries)	CATEGORY 4 (95 countries)	
Brazil	Afghanistan	Algeria	Libyan Arab Jamahiriya (the)
Bulgaria	Argentina	American Samoa	Malawi
Dominican Republic (the)	Armenia	Andorra	Malaysia
Guyana	Australia	Antigua and Barbuda	Maldives
Pakistan	Azerbaijan	**Austria**	Mali
Papua New Guinea	*Bolivia*	Bahamas (the)	Malta
Paraguay	Cameroon	Bahrain	Marshall Islands (the)
Uzbekistan	China	Bangladesh	Mauritius
	Colombia	Belize	Micronesia (Federated States of)
	Costa Rica	Benin	Mongolia
	Côte d'Ivoire	Bhutan	Morocco
	Democratic People's Republic of Korea (the)	Bosnia and Herzegovina	Mozambique
	Democratic Republic of the Congo (the)	Botswana	Namibia
	Ecuador	Brunei Darussalam	**Nauru**
	Eritrea	Burkina Faso	Netherlands (the)
	Ethiopia	Cambodia	**New Zealand**
	Ghana	Chile	Nicaragua
	Haiti	China, Hong Kong SAR	**Northern Mariana Islands** (the Commonwealth of the)
	Honduras	China, Macao SAR	Norway
	India	Comoros (the)	Oman
	Italy	Congo (the)	Peru
	Japan	Cook Islands	Portugal
	Lao People's Democratic Republic (the)	Cuba	Puerto Rico
	Lithuania	Czech Republic (the)	Qatar
	Mexico	Djibouti	Rwanda
	Myanmar	Egypt	Saint Kitts and Nevis
	Nepal	El Salvador	Saint Lucia
	Niger (the)	**Estonia**	Saint Vincent and the Grenadines
	Nigeria	Fiji	Samoa
	Panama	French Polynesia	San Marino
	Philippines (the)	Georgia	Saudi Arabia
	Poland	**Guam**	Seychelles
	Romania	Guatemala	**Singapore**
	Russian Federation (the)	**Guinea-Bissau**	Slovakia
	Sierra Leone	Hungary	Slovenia
	Somalia	Indonesia	Solomon Islands
	South Africa	Iran (Islamic Republic of)	Suriname
	Sri Lanka	Iraq	Syrian Arab Republic (the)
	Sudan (the)	Jamaica	Togo
	Thailand	Jordan	Tonga
	Turkmenistan	Kazakhstan	Tunisia
	United Arab Emirates (the)	Kenya	Uganda
	Vanuatu	Kiribati	United Republic of Tanzania (the)
	Yemen	Kyrgyzstan	United States of America (the)
		Latvia	Uruguay
		Lebanon	Venezuela
		Lesotho	Viet Nam
			Zimbabwe

Bold: countries that adopted DOTS in 2000

Italics: countries that moved one or more categories down since 1999 due to decrease in coverage.

Underline: countries that moved one or more categories up since 1999.

TABLE 6b

List of countries not implementing DOTS or not reporting to WHO, 2000

CATEGORY 0 (23 countries)

Anguilla
British Virgin Islands
Burundi
Canada
Cape Verde
Central African Republic (the)
Chad
Dominica
Equatorial Guinea
Gabon
Gambia (the)
Guinea
Kuwait
Liberia
Madagascar
Netherlands Antilles
Palau
Senegal
Turks and Caicos Islands
Tuvalu
United States Virgin Islands
Wallis and Futuna Islands
West Bank and Gaza

CATEGORY 1 (33 countries)

Albania
Angola
Barbados
Belarus
Belgium
Croatia
Denmark
Finland
France
Germany
Greece
Ireland
Israel
Luxembourg
Mauritania
Montserrat
New Caledonia
Niue
Republic of Korea (the)
Republic of Moldova (the)
Sao Tome and Principe
Spain
Swaziland
Switzerland
Tajikistan
The former Yugoslav Republic of Macedonia
Tokelau
Trinidad and Tobago
Turkey
Ukraine
United Kingdom of Great Britain and Northern Ireland (the)
Yugoslavia
Zambia

CATEGORY 5 (7 countries)

Bermuda
Cayman Islands
Cyprus
Grenada
Iceland
Monaco
Sweden

Bold: countries that reported in 1999 and were classified as DOTS, but did not report in 2000
Italic: countries that reported in 1999 and were classified as non-DOTS, but that did not report in 2000
Underline: countries that reported in 2000, and were classified as DOTS in 1999 but not in 2000.

FIGURE 2. **Number of countries implementing DOTS, 1990–2000**

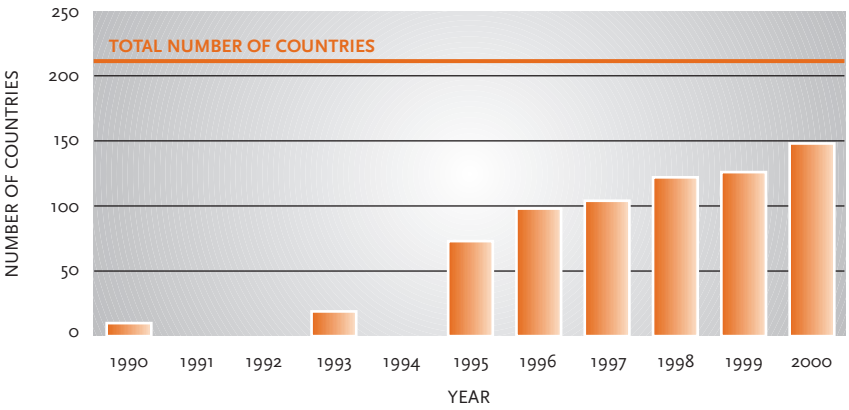


Table 6a). All 22 HBC were classified as DOTS in 2000, though Brazil submitted incomplete data. Ninety-six countries had implemented DOTS in over 90% of the country (category 4; Figures 3 and 4). Eight countries were in the DOTS pilot phase (category 2), and 44 were in the expansion phase (category 3). Five countries classified as DOTS based on 1999 data did not report for 2000. Since 1995, countries have generally been moving out of category 1 (non-DOTS, high incidence) into categories 2–4 (Figure 3).

By the end of 2000, over half (55%) of the world's population lived in counties, districts, oblasts, and provinces of countries that provide DOTS services. Reported DOTS population coverage was over 65% in the WHO regions of Africa, the Americas, and the Western Pacific, and lowest in the European Region (17%, Figure 5). Table 7 presents DOTS coverage for each HBC, and for the whole world, from 1995 to 2000.

Fourteen countries implemented DOTS for the first time in 2000 (Table 6a). Three had limited coverage (< 10%, category 2), including Bulgaria. Three achieved moderate coverage (10–90%, category 3). The eight that reached high coverage (> 90%) were mostly small countries and islands. Among the four countries that moved up to category 3 in 2000 were DPR Korea and the Russian Federation. Bangladesh, Egypt, Indonesia, Iraq, and Zimbabwe all claimed full coverage (category 4).

Case notifications, 1995–2000

The 202 countries reporting to WHO notified a total of 3 671 973 cases (61 per 100 000 population), of which 1 529 806 (42%) were sputum smear-positive (Table 8). These totals are slightly larger than those for 1999.

Among all cases reported for 2000, almost 2 million (over half) originated in DOTS areas (Table 8). Of the smear-positive cases, over 1 million (about two thirds) were notified under DOTS. Both of these figures represent an increase of 18% over 1999. The African (20%), South-East Asia (38%), and Western Pacific Regions (22%) together accounted for 80% of all notified cases and similar

FIGURE 3. **Changes in the categorization of countries, 1995–2000, according to the scheme in Figure 1**

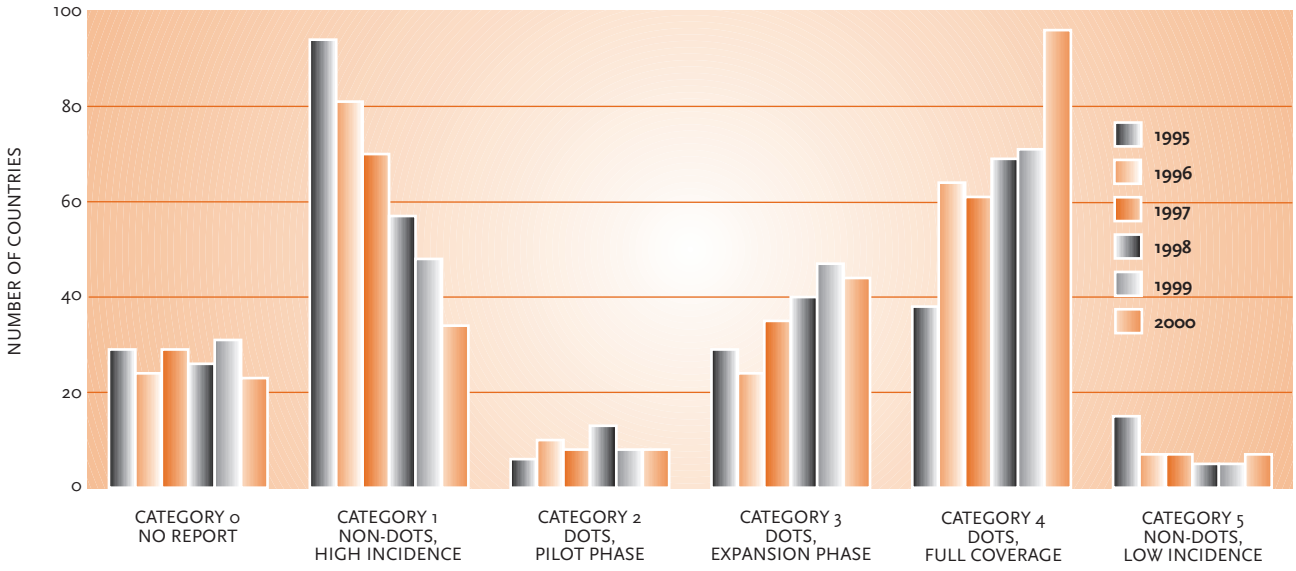


FIGURE 4

Proportions of countries with different levels of DOTS coverage, 2000

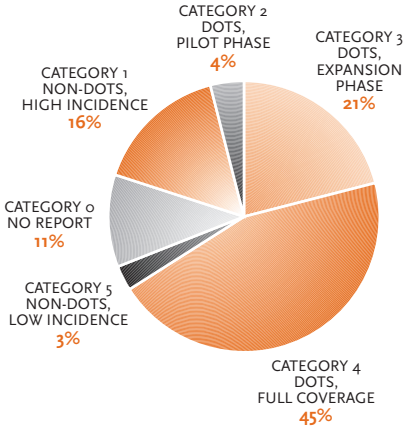


TABLE 7

Progress in DOTS implementation: high-burden countries, 1995–2000

		PERCENT OF POPULATION COVERED BY DOTS					
		1995	1996	1997	1998	1999	2000
1	India	1.5	2	2.3	9	13.5	30
2	China	49	60.4	64.2	63.9	64	68
3	Indonesia	6	13.7	28.3	80	90	98
4	Nigeria	47	30	40	45	45	47
5	Bangladesh	40.5	65	80	90	90	92
6	Ethiopia	39	39	48	64.4	63	85
7	Philippines	4.3	2	15	16.9	43	89.6
8	Pakistan	2	8		8	8	9
9	South Africa			13	22	66	77
10	Russian Federation		2.3	2.3	5	5	12
11	DR Congo	47	51.4	60	60	62	70
12	Kenya	15	100	100	100	100	100
13	Viet Nam	50	95	93	96	98.5	99.8
14	UR Tanzania	98	100	100	100	100	100
15	Brazil		0	0	3	7	7
16	Thailand		1.1	4	32	59	70
17	Uganda		0	100	100	100	100
18	Myanmar		59	60	60.3	64	77
19	Mozambique	97	100	84	95		100
20	Cambodia	60	80	88	100	100	99
21	Zimbabwe		0	0	100	11.6	100
22	Afghanistan			12	11	13.5	15
	Total, high-burden countries	24	32	36	43	46	55
	Global total	**22**	**32**	**36**	**43**	**46**	**55**

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

TABLE 8

Summary of notifications by WHO region, 2000

		% OF POP *	NOTIFICATIONS		NEW SS+	% OF NEW PULM
			NUMBER	%	NOTIFICATIONS	CASES SS+ *
AFR	DOTS	68	622 655	85	309 513	64
	non-DOTS	23	105 910	15	44 037	52
	no report	9.0				
	Total		**728 565**		**353 550**	
AMR	DOTS	65	123 576	53	70 327	72
	non-DOTS	31	109 980	47	59 399	64
	no report	3.8				
	Total		**233 556**		**129 726**	
EMR	DOTS	65	120 834	88	56 630	68
	non-DOTS	34	17 162	12	4 088	34
	no report	1.1				
	Total		**137 996**		**60 718**	
EUR	DOTS	17	73 860	20	22 430	40
	non-DOTS	83	296 075	80	70 497	29
	no report	0.0				
	Total		**369 935**		**92 927**	
SEAR	DOTS	49	445 296	32	235 511	62
	non-DOTS	51	952 093	68	272 640	31
	no report	0.0				
	Total		**1 397 389**		**508 151**	
WPR	DOTS	67	598 218	74	326 993	60
	non-DOTS	33	206 314	26	57 741	31
	no report	0.0				
	Total		**804 532**		**384 734**	
Global	DOTS	55	1 984 439	54	1 021 404	62
	non-DOTS	43	1 687 534	46	508 402	34
	no report	1.6				
	Total		**3 671 973**		**1 529 806**	

* Percent of population: the regional DOTS population includes only that portion of the population of DOTS countries that is covered by DOTS.

TABLE 9

Case notifications: high-burden countries, 2000

		NUMBER NOTIFIED				% OF NEW PULMONARY
		ALL CASES		SMEAR-POSITIVE		CASES SMEAR POSITIVE *
		DOTS	NON-DOTS	DOTS	NON-DOTS	DOTS	NON-DOTS
1	India	211 751	903 967	95 012	254 362	56	31
2	China	348 436	114 937	191 280	22 486	58	20
3	Indonesia	67 949		50 633		77	
4	Nigeria	25 821		17 423		73	
5	Bangladesh	59 669	15 689	35 644	2 641	66	20
6	Ethiopia	91 101		30 510		50	
7	Philippines	96 371	32 124	49 991	17 065	56	56
8	Pakistan	11 050		3 285		37	
9	South Africa	87 836	23 433	62 399	14 992	84	77
10	Russian Federation	8 288	129 309	2 330	23 793	32	20
11	DR Congo	60 627		36 123		82	
12	Kenya	58 067	6 092	26 162	2 611	54	55
13	Viet Nam	89 792		53 169		75	
14	UR Tanzania	54 442		24 049		58	
15	Brazil	2 420	76 831	416	40 666	21	62
16	Thailand	34 187		17 754		59	
17	Uganda	30 372		17 246		66	
18	Myanmar	30 840		17 254		67	
19	Mozambique	21 158		13 257		77	
20	Cambodia	18 891		14 822		93	
21	Zimbabwe	51 918		15 455		36	
22	Afghanistan	7 107		2 892		55	
	Total, high-burden countries	1 468 093	1 302 382	777 106	378 616	62	32
	Global total	**1 984 439**	**1 687 534**	**1 021 404**	**508 402**	**62**	**34**

* Expected percentage of new pulmonary cases that are smear positive is 65–80%.

FIGURE 5. **DOTS population coverage by WHO region, 2000**

Each bar shows the population of the region, and the orange portion of the bar shows the population covered by DOTS. The number above each bar is the percent of the population covered.

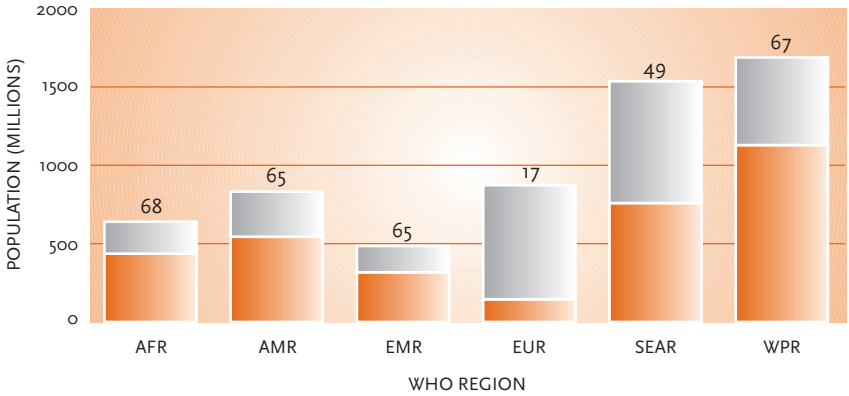
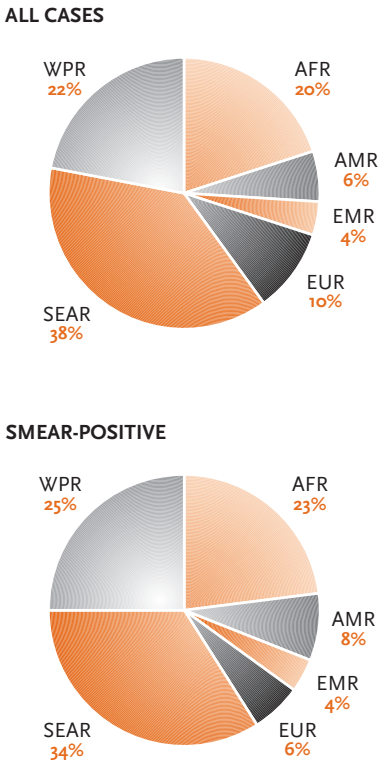


FIGURE 6

Proportions of all notified cases, and smear-positive cases, by WHO region, 2000



proportions of sputum smear-positive cases (Figure 6).

In DOTS areas, 52% of all new cases were smear-positive (45–60% expected), compared with 30% in other areas. Sixty-two percent of new pulmonary cases were sputum smear-positive in DOTS areas (55–70% expected), compared with 32% elsewhere (Tables 8 and 9).

Although the global case notification rate has remained approximately stable since 1980 (Figure 7), the number of cases enrolled in DOTS programmes has increased linearly. The increment in smear-positive cases detected by DOTS programmes between 1999 and 2000 was 151 924 cases, similar to the annual average of 132 572 (standard error: 20 106) since 1994.

Figure 8 shows the series of case notifications that have been used to judge trends in incidence for groups of epidemiologically similar countries.[3] Notification rates were standardized to 100 in 1990, in order to reveal trends more clearly by eliminating the absolute differences between countries in that year. Although the incidence of TB has been rising quickly in central and eastern Europe (8%/year), and in the eastern and southern African countries most affected by HIV/AIDS (10%/year), there is strong evidence that the rates of increase are slowing in both parts of the world (Figure 9). There are also signs that TB is declining more quickly again in Established Market Economies after a relatively stable period during the early 1990s (Figure 9).

Case detection rate, 1995–2000

The 3 671 973 cases of tuberculosis (all forms) notified in 2000 represent 42% of the 8.74 million estimated new cases; the total of 1 529 806 new smear-positives is 40% of the 3.84 million estimated cases (Tables 4, 8, 10). Both of these fractions have remained fairly stable over the six years we have compiled data. Twenty-three percent of all estimated cases, and 27% of estimated smear-positive cases, were detected under DOTS. The detection rate of smear-positive cases within

FIGURE 7. **Global trend in the case notification rate, 1980–2000**

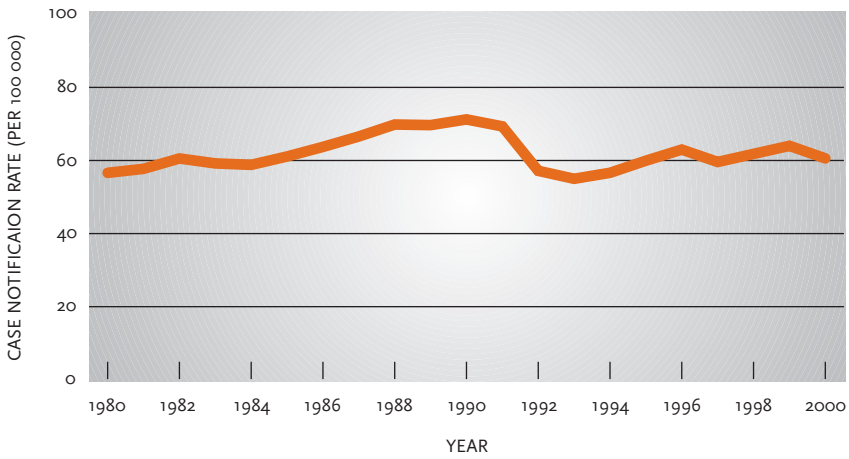
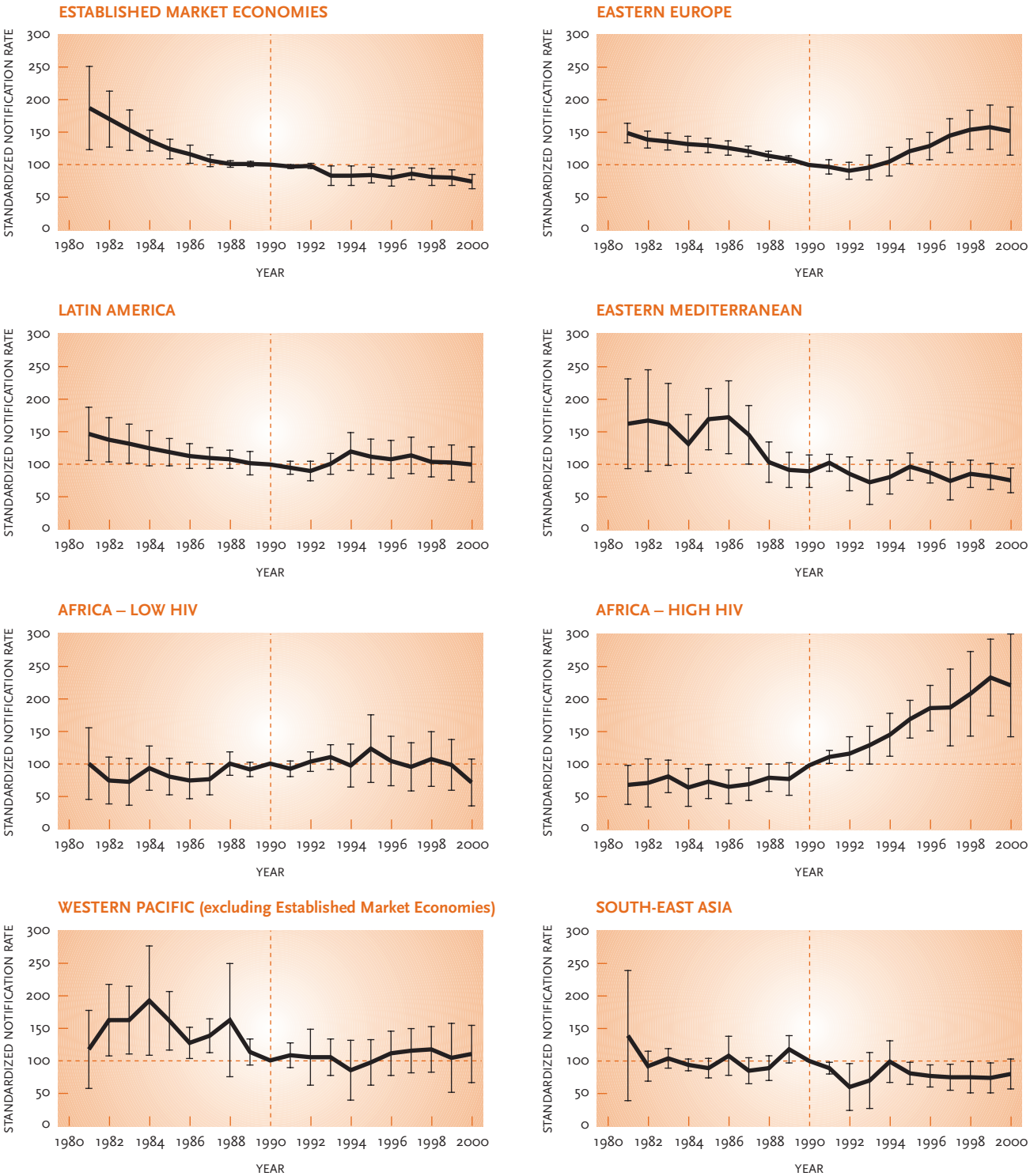


FIGURE 8. **Trends in case notification rates for selected countries in different regions, 1981–2000**

To highlight trends in notifications within regions, the rates for all countries have been expressed relative to an arbitrary standard of 100 in 1990. Error bars are 95% CL on the standardized (unweighted) rates. Countries selected in each region are those for which case notifications were judged to represent trends in incidence over the period 1981–2000.



Established Market Economies: Australia, Austria, Belgium, Canada, Czech Rep, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Japan, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, United Kingdom, United States. **Eastern Europe:** Albania, Armenia, Belarus, Croatia, Estonia, Kazakhstan, Kyrgystan, Latvia, Lithuania, Poland, Romania, Russia, Slovakia, Slovenia, Tajikistan, Turkmenistan, Ukraine, Uzbekistan, Yugoslavia. **Eastern Mediterranean:** Cyprus, Jordan, Lebanon, Morocco, Oman, Qatar, Syria, Tunisia. **Latin America:** Argentina, Chile, Cuba, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Jamaica, Mexico, Nicargua, Peru, Puerto Rico, Uruguay, Venezuela. **Africa - low HIV:** Algeria, Benin, Comoros, Guinea, Madagascar, Mali, Mautirania, Mauritius. **Africa - high HIV:** Botswana, Central African Republic, Côte d'Ivoire, DR Congo, Kenya, Lesotho, Malawi, Uganda, UR Tanzania, Zambia, Zimbabwe. **South-East Asia:** Bhutan, India, Maldives, Sri Lanka. **The Western Pacific:** Cambodia, China Hong Kong SAR, China Macao SAR, Lao PDR, Malaysia, Rep Korea, Viet Nam

TABLE 10

Case detection rate of new smear-positive cases (%): high-burden countries, 1995–2000

		DOTS PROGRAMMES						WHOLE COUNTRY					
		1995	1996	1997	1998	1999	2000	1995	1996	1997	1998	1999	2000
1	India	0.3	0.8	1.0	1.5	6.5	11	34	37	34	34	42	42
2	China	16	24	26	33	32	33	24	30	33	37	36	36
3	Indonesia	1.4	4.6	7.5	12	19	19	12	*	*	*	*	*
4	Nigeria	8.5	13	9.0	10	11	12	*	*	*	*	*	*
5	Bangladesh	6.6	14	18	23	23	24	15	21	23	26	26	26
6	Ethiopia	15	19	21	22	23	29	*	*	*	*	23	*
7	Philippines	0.4	0.5	3.2	10	19	45	101	89	80	67	68	60
8	Pakistan	1.0	1.8		3.9	2.1	3.0	3	*	—	14	6	*
9	South Africa			5.9	21	64	67	40	66	77	86	85	84
10	Russian Federation		0.4	0.9	0.9	1.6	2.7	62	65	60	56	27	30
11	DR Congo	46	52	49	59	55	51	50	*	48	*	*	*
12	Kenya	59	59	55	57	53	43	*	*	*	*	*	47
13	Viet Nam	30	60	78	82	82	80	61	78	*	85	82	*
14	UR Tanzania	61	59	55	54	50	45	*	*	*	*	*	*
15	Brazil				4.1	4.0	0.8	81	80	80	81	79	80
16	Thailand		0.3	5.0	21	39	46	55	45	35	*	*	*
17	Uganda			62	61	56	50	56	59	61	*	57	*
18	Myanmar		25	26	28	32	48	25	28	28	*	*	*
19	Mozambique†	53	48	45	45		40	*	*	*	*	43	*
20	Cambodia	42	35	44	45	49	44	*	44	*	*	*	*
21	Zimbabwe				57	52	52	44	54	61	*	*	*
22	Afghanistan			2.0	6.0	5.4	9.2	—	—	*	*	*	*
	All high-burden countries	8.3	12	15	19	22	26	31	34	35	37	38	38
	Global	**11**	**15**	**16**	**21**	**23**	**27**	**35**	**38**	**38**	**40**	**40**	**40**

— not available
* no additional data beyond DOTS report
† no report was received for Mozambique for 1999, but the most recent report included updated information for 1999

DOTS programmes has been rising faster than the overall smear-positive detection rate, approaching a 40% ceiling (Figure 10, Table 10). Case detection rates in 2000, as in previous years, were lowest in the Eastern Mediterranean Region and highest in Europe and the Americas (Figure 11).

Treatment results, 1994–1999 cohorts

The number of new sputum smear-positive cases notified under DOTS in 1999 was 869 480 (Table 11a), approximately the same number of cases (876 284) that was registered for treatment in 1999 (Annex 6 lists notified and registered cases for 1999 by country). Brazil and Ethiopia registered many fewer cases than were originally notified, and Brazil evaluated only 12%; Pakistan and the Philippines registered many more than were notified.

Of the registered cases, 96% were evaluated for treatment outcome (Tables

FIGURE 9. **Trends in TB notification rates, 1991–2000**

Average percent change in notification rates between consecutive years for 3 groups of countries. See Figure 8 for countries included.

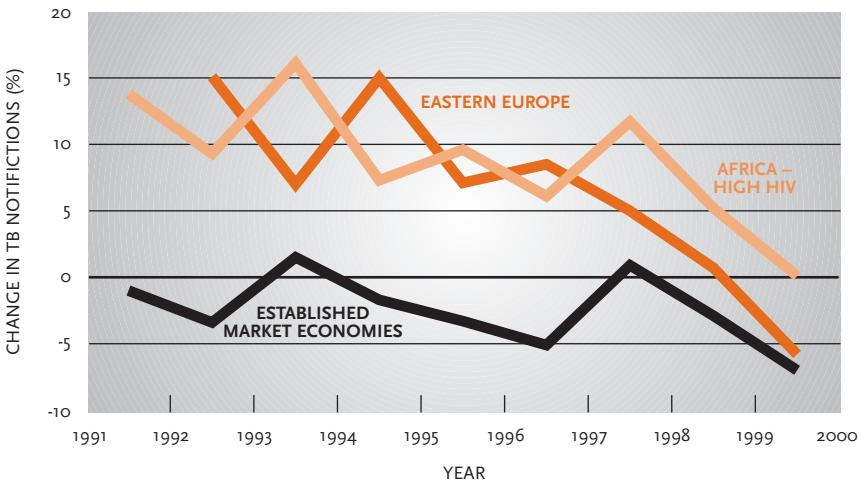


FIGURE 10. **Global case detection rate (orange bars) and DOTS detection rate (grey bars), 1995–2000**

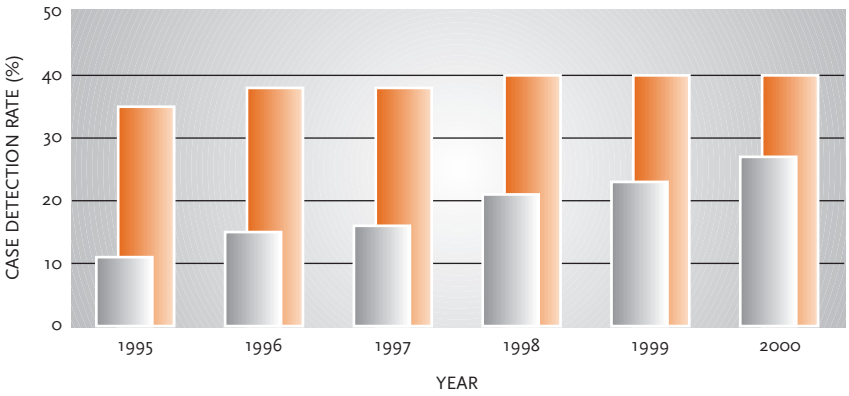
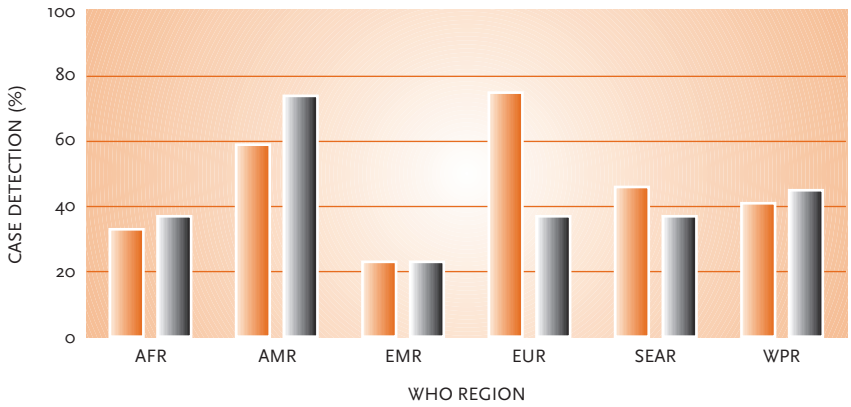


FIGURE 11. **Detection rates of all TB cases (orange bars) and of smear-positive TB (green bars) by WHO region, 2000**



11a and 12). Seventy-two percent of the registered cases were cured and a further 8% completed treatment (no laboratory confirmation of cure), giving an overall treatment success rate of 80% in DOTS areas. Eighty-three percent of evaluated cases, and 19% of all estimated smear-positive cases, were treated successfully under DOTS.

The discrepancy between cases notified and registered was bigger in non-DOTS areas (Table 11b). In the non-DOTS areas that presented results, treatment success was low (28%), and the cure rate significantly lower (22%). As usual, this poor performance is explained primarily by the low evaluation rate (41%), and secondarily by treatment interruption (7%). Looking at evaluated patients only, 68% were successfully treated outside DOTS programmes.

By WHO region, the documented treatment success rates under DOTS varied from 69% in Africa to 94% in the Western Pacific Region (Figure 12, Table 12). Fatal outcomes were most common in Africa (7%), where a higher fraction of cases are HIV-positive, and Europe (6%), where a higher fraction of cases occur among the elderly. Treatment interruption (default) was most frequent in the African (11%) and Eastern Mediterranean Regions (8%).

Comparing treatment results for six consecutive cohorts (1995–99) shows that the overall success rates have re-

FIGURE 12. **Treatment success in (a) DOTS and (b) non-DOTS areas, by WHO region, 1999 cohort**

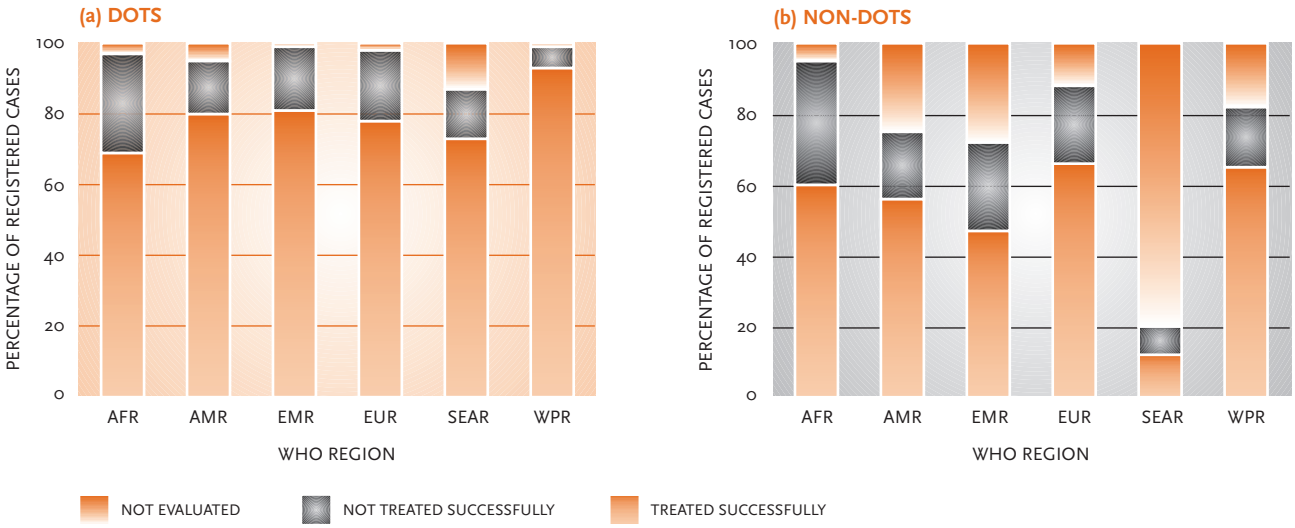


TABLE 11A

Treatment outcomes for new smear-positive cases: high-burden countries: DOTS strategy, 1999 cohort*

		NOTIFIED	REGISTERED*	REGST'D (%)	TREATMENT OUTCOMES (%)* CURED	COMPLETED TREATMENT*	DIED	FAILED	DEFAULTED	TRANS-FERRED	NOT EVAL'D	TREATMENT SUCCESS (%)	% EST* CASES SUCCESSFULLY TREATED UNDER DOTS
1	India	53 034	53 086	100	80	2.1	4.5	3.0	9.3	0.8	0.1	82	5.3
2	China	188 525	188 112	100	96		1.1	1.0	0.7	0.3	0.5	96†	31
3	Indonesia	49 172	46 187	94	42	8.2	1.4	1.2	1.6	0.5	45	50	8.7
4	Nigeria	15 903	14 868	93	60	15	6.0	2.7	13	2.6	0.0	75	7.9
5	Bangladesh	34 047	34 047	100	78	3.5	4.6	0.8	7.8	2.9	2.7	81	19
6	Ethiopia	21 457	15 980	74	60	16	6.8	1.0	9.7	4.0	2.6	76	13
7	Philippines	20 477	36 913	180	70	17	2.7	1.5	5.8	3.1	0.0	87†	30
8	Pakistan	2 269	2 967	131	56	14	4.4	0.7	21	3.6	0.3	70	1.9
9	South Africa	54 404	63 304	116	52	7.9	7.0	1.3	13	17	2.2	60	45
10	Russian Federation	1 274	1 542	121	63	2.7	9.4	9.3	6.3	7.5	2.1	65	1.3
11	DR Congo	34 923	34 923	100	59	9.7	5.4	0.9	7.4	8.8	8.7	69	38
12	Kenya	27 197	24 670	91	64	14	6.0	0.3	9.5	6.2	0.0	78	38
13	Viet Nam	53 561	53 227	99	90	2.1	2.9	1.2	2.0	1.2	0.4	92†	75
14	UR Tanzania	24 125	23 994	99	71	6.2	9.8	0.4	6.7	5.7	0.0	78	38
15	Brazil	2 108			10	0.9	0.6	0.1	0.6		88	11	0.4
16	Thailand	14 934	13 650	91	73	4.1	11	1.9	8.2	2.2	0.0	77	27
17	Uganda	18 149	14 250	79	30	31	7.8	0.3	16	5.1	9.1	61	27
18	Myanmar	11 458	11 641	102	70	11	5.4	1.7	10	1.9	0.0	81	26
19	Mozambique		11 791		69	2.3	11	1.3	12	2.6	1.5	71	28
20	Cambodia	15 744	15 744	100	91	2.8	2.6	0.4	3.0	0.5	0.0	93†	46
21	Zimbabwe	14 414	12 791	89	59	14	10	0.1	6.6	11	0.0	73	34
22	Afghanistan	1 669			80	6.4	4.3	2.1	5.0	2.0	0.0	87†	5.0
	High-burden countries	658 844	673 687	102	75	6.1	4.1	1.2	5.8	3.7	4.6	81	19
	Global (DOTS)	**869 480**	**876 284**	**101**	**72**	**8.2**	**4.4**	**1.4**	**6.2**	**3.7**	**4.1**	**80**	**19**

* Cohort: cases diagnosed during 1999 and treated/followed-up through 2000. See table 5 and accompanying text for definitions of treatment outcomes. If number registered was provided, this (or the sum of the outcomes, if greater) was used as the denominator for calculating treatment outcomes. If the number registered was missing, then the number notified (or the sum of the outcomes, if greater) was used as the denominator. Est: estimated cases for 1999 (as opposed to notified or registered).
†=treatment success > 85%.

TABLE 11B

Treatment outcomes for smear-positive cases: high-burden countries: non-DOTS strategy, 1999 cohort*

		NOTIFIED	REGISTERED*	REGST'D (%)	TREATMENT OUTCOMES (%)* CURED	COMPLETED TREATMENT*	DIED	FAILED	DEFAULTED	TRANS-FERRED	NOT EVAL'D	TREATMENT SUCCESS (%)
1	India	296 736	291 932	98	7.0	3.3	0.2	0.2	5.2	1.9	82	10
2	China	23 901	19 878	83	84		1.4	8.1	3.7	1.5	1.1	84
3	Indonesia											
4	Nigeria											
5	Bangladesh	3 774	3 774	100	44	12	0.5	0.4	25	5.6	13	56
6	Ethiopia		4 531		28	39	3.9	0.8	18	4.8	4.5	68
7	Philippines	52 896										
8	Pakistan	3 979										
9	South Africa	23 667	18 191	77	33	16	6.3	1.4	19	23	1.2	49
10	Russian Federation	20 470										
11	DR Congo											
12	Kenya		2 747		82	6.0	5.1	1.5	4.0	1.4	0.0	88†
13	Viet Nam	244	46	19	85	8.7	4.3	0.0	2.2	0.0	0.0	93†
14	UR Tanzania											
15	Brazil	39 326			53		4.0	0.2	8.2	2.5	32.2	53
16	Thailand											
17	Uganda											
18	Myanmar											
19	Mozambique											
20	Cambodia											
21	Zimbabwe											
22	Afghanistan		252		54	30	2.4	2.8	9.5	1.2	0.0	84
	High-burden countries	464 993	341 099	73	18	3.9	1.1	0.7	6.5	3.0	67	22
	Global (non-DOTS)	**619 954**	**394 361**	**64**	**22**	**6.1**	**1.5**	**1.3**	**7.2**	**3.4**	**59**	**28**

* see notes for Table 11a.

TABLE 12

Treatment outcomes for smear-positive cases, by WHO Region and strategy, 1999 cohort*

WHO REGION / STRATEGY		NOTIFIED	REGISTERED	REGST'D (%)	TREATMENT OUTCOMES (%)* CURED	COMPLETED TREATMENT*	DIED	FAILED	DEFAULTED	TRANS-FERRED	NOT EVAL'D	TREATMENT SUCCESS (%)	% EST* CASES SUCCESSFULLY TREATED UNDER DOTS
AFR	DOTS	254 581	274 971	108	58	11	7.4	1.1	11	8.7	3.4	69	22
	non-DOTS	25 207	38 793	154	41	18	6.1	1.8	15	13	4.9	60	
AMR	DOTS	68 152	67 852	100	66	14	4.3	1.2	6.2	3.3	4.7	80	31
	non-DOTS	64 677	54 692	85	50	6.6	4.4	0.7	11	3.6	25	56	
EMR	DOTS	43 886	51 238	117	69	14	3.8	1.8	8.0	2.8	0.7	83	16
	non-DOTS	19 250	20 415	106	36	11	1.0	6.4	13	5.3	28	47	
EUR	DOTS	17 766	16 828	95	63	15	5.8	6.1	4.9	3.5	1.9	78	6.2
	non-DOTS	13 346	3 679	28	61	5.5	6.7	7.4	4.3	3.5	12	66	
SEAR	DOTS	176 793	170 226	96	68	4.9	4.3	1.7	6.7	1.3	13	73	9.2
	non-DOTS	308 997	302 779	98	8.8	3.6	0.3	0.2	5.6	1.9	80	12	
WPR	DOTS	283 934	318 165	112	89	4.9	2.0	1.2	2.0	0.8	0.5	94†	35
	non-DOTS	48 891	34 959	72	54	10	1.9	7.1	5.0	3.2	18	65	
Global	DOTS	845 112	899 280	106	72	8.2	4.4	1.4	6.2	3.7	4.1	80	19
	non-DOTS	480 368	455 317	95	22	6.1	1.5	1.3	7.2	3.4	59	28	

* see notes for Table 11a.

TABLE 13

Treatment success for smear-positive cases (%): high-burden countries, 1994–99 cohorts

		DOTS PROGRAMMES 1994	1995	1996	1997	1998	1999	WHOLE COUNTRY 1994	1995	1996	1997	1998	1999
1	India	83	79	79	82	84	82	*	25	21	18	27	21
2	China	94	96	96	96	97	96	91	93	94	95	95	95
3	Indonesia	94	91	81	54	58	50	*	*	*	*	*	*
4	Nigeria	65	49	32	73	73	75	*	*	*	*	*	*
5	Bangladesh	73	71	72	78	80	81	*	*	63	73	77	79
6	Ethiopia	74	61	73	72	74	76	*	*	71	*	*	74
7	Philippines	80	—	82	83	84	87	88	60	35	78	71	*
8	Pakistan	74	70	—	67	66	70	69	*	—	*	23	*
9	South Africa	—	—	69	73	74	60	78	58	61	68	72	57
10	Russian Federation	—	65	62	67	68	65	—	*	57	*	*	*
11	DR Congo	71	80	48	64	70	69	72	74	48	64	*	*
12	Kenya	73	75	77	65	70	78	*	*	*	*	*	79
13	Viet Nam	91	91	90	85	93	92	*	89	89	85	92	92
14	UR Tanzania	80	73	76	77	76	78	*	*	*	*	*	*
15	Brazil	—	—	—	—	91	11	70	17	20	27	40	51
16	Thailand	—	—	78	62	68	77	58	64	*	58	*	*
17	Uganda	—	—	33	40	62	61	—	44	*	*	*	*
18	Myanmar	—	66	79	82	82	81	77	67	79	*	*	*
19	Mozambique	67	39	54	67	—	71	*	*	55	65	—	*
20	Cambodia	84	91	94	91	91	93	*	*	*	*	*	*
21	Zimbabwe	—	—	—	—	70	73	52	53	32	59	*	*
22	Afghanistan	—	—	—	45	33	87	—	—	—	*	*	86
	High burden countries	87	83	78	81	83	81	83	53	50	56	62	60
	Global	**77**	**79**	**77**	**78**	**81**	**80**	**75**	**57**	**54**	**59**	**64**	**63**

Cohort: see notes for Tables 11a. — not available; * no additional data beyond DOTS report.

TABLE 14

Retreatment outcomes in DOTS programmes: high-burden countries, 1999 cohort*

			TREATMENT OUTCOMES (%)*							
		REGISTERED	CURED	COMPLETED TREATMENT*	DIED	FAILED	DEFAULTED	TRANS-FERRED	NOT EVAL'D	TREATMENT SUCCESS (%)
1	India	23 204	54	16	7.0	5.4	17	1.2	0.2	69
2	China	43 638	93	2.5	1.6	1.5	0.8	0.2	0.0	96†
3	Indonesia	1 374	46	24	2.8	2.8	4.4	2.3	17	70
4	Nigeria	1 639	61	13	7.6	5.1	9.0	3.8	0.0	74
5	Bangladesh	1 459	75	4.8	3.7	2.2	9.8	4.2	0.0	80
6	Ethiopia	846	59	15	8.6	3.0	10	4.1	0.0	74
7	Philippines									
8	Pakistan	1 093	19	56	1.2	2.0	20	1.9	0.0	75
9	South Africa	21 125	40	7.3	8.4	3.6	20	20	1.1	47
10	Russian Federation	1 578	21	23	7.9	15	13	10	9.1	45
11	DR Congo	2 608	60	7.5	7.0	1.8	7.3	11	5.7	67
12	Kenya	1 545	62	11	11	0.6	10	4.9	0.0	73
13	Viet Nam	5 283	83	3.7	4.6	4.3	2.0	2.5	0.0	87†
14	UR Tanzania	1 737	70	4.9	13	0.9	6.4	5.0	0.0	75
15	Brazil									
16	Thailand	716	60	7.4	13	5.6	10	3.6	0.0	68
17	Uganda	1 111	28	20	11	1.0	11	5.5	24	48
18	Myanmar	2 292	61	10	7.1	3.9	14	3.8	0.0	71
19	Mozambique	1 371	69	2.4	12	2.0	11	3.6	0.0	71
20	Cambodia	792	88	3.2	3.7	1.2	2.8	1.0	0.0	91†
21	Zimbabwe	943	50	17	16	0.8	7.8	9.2	0.0	66
22	Afghanistan		72	11	3.9	4.6	3.9	3.9	0.0	84
	High-burden countries	114 354	67	8.6	5.3	3.1	9.4	5.0	1.2	76
	Global	**144 865**	**64**	**10**	**5.7**	**3.6**	**9.6**	**4.8**	**2.4**	**74**

* see notes for Table 11a.

mained approximately stable at 77–81% under DOTS, and 54–64% worldwide (Table 13).

In DOTS areas, 144 865 cases were registered for retreatment in 1999, roughly the same as the 1998 cohort. The latest data give an overall treatment success rate of 74%, but only 64% of patients had documented smear conversions (Table 14, Annex 2).

Progress in TB control in 22 high-burden countries

This is the first annual report in which all 22 HBC provided data from DOTS programmes covering at least part of the country (Table 15). The arrows in Figure 13 depicting progress in DOTS implementation from 1999 to 2000 are typically short. Viet Nam was the only HBC to have reached targets for both case detection and cure.

Treatment success under DOTS generally exceeded 70%, and exceeded the 85% target in five countries. It has been lower in African countries such as Uganda, Mozambique and South Africa, in part because of high death rates linked to HIV/AIDS. Low cure rates in the Russian Federation can be explained, in part, by treatment failure linked to drug resistance. Afghanistan reported the biggest improvement in treatment success between 1998 and 1999: their data suggest that 87% of 1799 smear-positive cases were successfully treated in 1999 (though this is somewhat more than the number notified in that year). Brazil's recorded treatment success under DOTS was 11%; it is so low because only 250 of 2108 registered smear-positive patients were evaluated.

TABLE 15

Progress in DOTS implementation: high-burden countries, 1999–2000

	DOTS				
		HIGH TREATMENT SUCCESS (≥ 70%)			
NON-DOTS OR INCOMPLETE DATA	LOW TREATMENT SUCCESS (< 70%)	LOW CASE DETECTION* (< 10%)	INTERMEDIATE CASE DETECTION (10–49%)		HIGH CASE DETECTION (≥ 50%)
	Brazil DR Congo Indonesia Russian Federation South Africa Uganda	**Afghanistan** **Pakistan**	Bangladesh Cambodia China Ethiopia **India** Kenya **Mozambique**	Myanmar Nigeria Philippines **Thailand** UR Tanzania	Viet Nam **Zimbabwe**

* DOTS detection rate: patients found and treated through DOTS programmes.
Bold: countries that moved one or more categories up since 1999.
Underline: countries that moved one or more categories down since 1999.

FIGURE 13. **DOTS progress in high-burden countries, 1999–2000**

Treatment success refers to cohorts of patients registered in 1998 or 1999, and evaluated, respectively, by the end of 1999 or 2000. The DOTS detection rate is the fraction of estimated cases notified under DOTS in 1999–2000. Arrows mark progress in countries that supplied notification and cohort data for at least two years. For Mozambique the start of the arrow is 1998 notifications and treatment success for the 1997 cohort. Countries should enter the graph at top left, and proceed rightwards to the target zone. Countries from AFR, AMR and EMR are shown in orange, those from SEAR and WPR are shown in black.

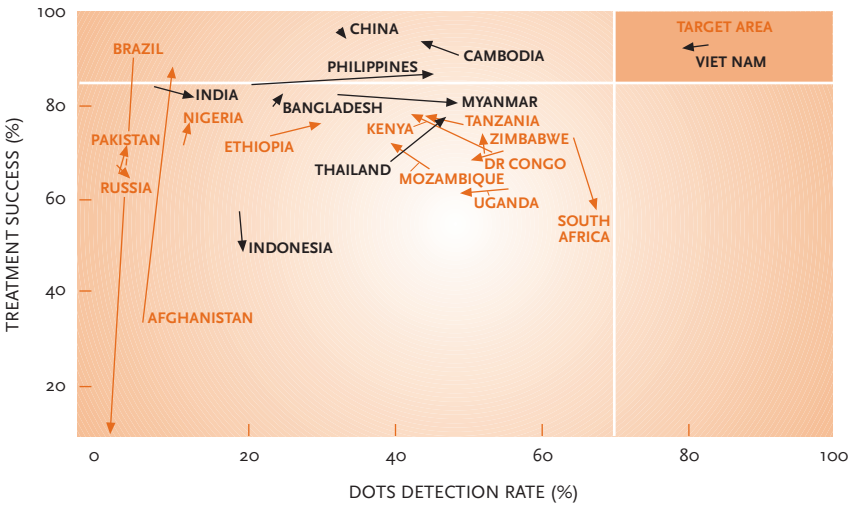
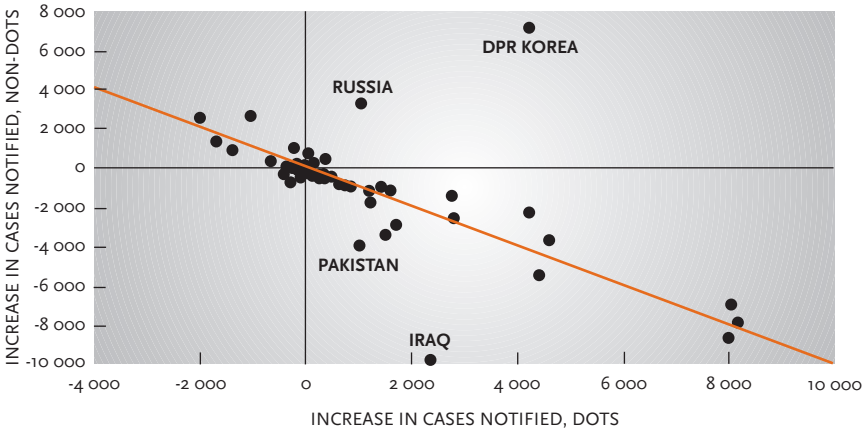


FIGURE 14. **Increase in DOTS notifications at the expense of non-DOTS notifications**

Graph shows increase in number of cases notified under DOTS vs non-DOTS for 68 countries with DOTS and non-DOTS notifications for 1999 and 2000. Numbers for India and the Philippines (not shown on graph) are as follows: India notified 41 978 more cases under DOTS, and 42 374 fewer under non-DOTS, the Philippines notified 29 514 more cases under DOTS, and 35 831 fewer under non-DOTS.



Over half of the additional smear-positive cases notified in 2000, as compared with 1999 (excluding countries that did not report for 1999), were from DOTS programmes in India (41 978), Philippines (29 514), Ethiopia (9053), South Africa (7995), and Myanmar (5796).

Because the overall detection rate of smear-positive cases is low (40%), DOTS programmes are expected to recruit patients that would not have been notified outside DOTS areas. That is, we expect to see more patients added to DOTS programmes than have been added to or subtracted from non-DOTS programmes. Disappointingly, data for 68 countries show that, in general, the gain in DOTS areas is about the same as the loss from non-DOTS areas (Figure 16). Iraq and Pakistan reported fewer cases in total, and DPR Korea and the Russian Federation added more cases to non-DOTS than to DOTS programmes.

A fuller account of progress in each of the 22 HBC can be found in Annex 3.

Progress in TB control in all DOTS countries

139 DOTS countries provided data on treatment success and case detection (Figure 15); in 48 (35%), DOTS detection and treatment success rates exceeded 50% and 70%, respectively (Figure 16). These countries appear to have reached, or are close to reaching, WHO targets, but together accounted for only 12% of all estimated TB cases in 2000. Besides Viet Nam, the countries that appear to have met WHO targets include Cuba, the Maldives, Nicaragua, and Malaysia.

Of 113 countries that provided data for both 1998 and 1999 cohorts, 61 (54%) showed higher treatment success rates for the 1999 cohort; 24 (21%) improved DOTS detection by more than 1% while maintaining treatment success above 70%. Annex 7 tabulates case detection and treatment success rates by country over the six years for which we have data.

Planning for DOTS expansion

Development and review of national DOTS expansion plans

Table 16 gives an overview of the country plans; further details are in Annex 3. Of the 22 HBC, all but six have completed a plan for DOTS expansion that will guide TB control efforts for the next 3–5 years. Six of the countries (Afghanistan, China, Mozambique, Russian Federation, Thailand, and Zimbabwe) are still developing plans or have complete plans that are not yet available to WHO. All 22 countries will have finished the planning process before the end of 2002.

Of the plans currently available, all have a budget, and many have clearly-stated goals, but some are missing, or partially missing, essential elements. For example, Nigeria's plan could include a more critical analysis of constraints and resulting gaps, and a clearer statement of goals. The objectives described in the plans of Pakistan and DR Congo could be refined, so that they are measurable within a specific period of time. Plans for India, Indonesia, Bangladesh, DR Congo, Brazil, and Myanmar do not mention the particular objective of full DOTS coverage by 2005. DR Congo's plan does not mention the target objective of 85% treatment success by 2005. The objective of 70% case detection is not mentioned in Tanzania's plan.

Plans for Nigeria, Pakistan, the Philippines, and Brazil could describe better links between strategies and objectives. Indonesia's plan does not describe clear strategies for expanding DOTS. Plans for India, Indonesia, Nigeria, Bangladesh, DR Congo, Vietnam, and Myanmar do not describe, or only partially describe, strategies for increasing case detection and cure rates.

Pakistan, South Africa, India, and Kenya include strategies in their plans for involving the private sector in DOTS expansion. Pakistan, South Africa, Kenya, Vietnam, Brazil, Uganda, and Cambodia, and partially Indonesia, include strategies for developing community-based care. South Africa, Kenya, Vietnam, Tanzania, Uganda, and Cambodia include strategies for dealing with TB and HIV co-infection.

FIGURE 15. **DOTS status in 2000**

Estimated DOTS detection rate in 2000 and treatment success for the 1999 cohort in 139 countries reporting to WHO. The remaining DOTS countries have adopted the strategy too recently to provide treatment outcomes.

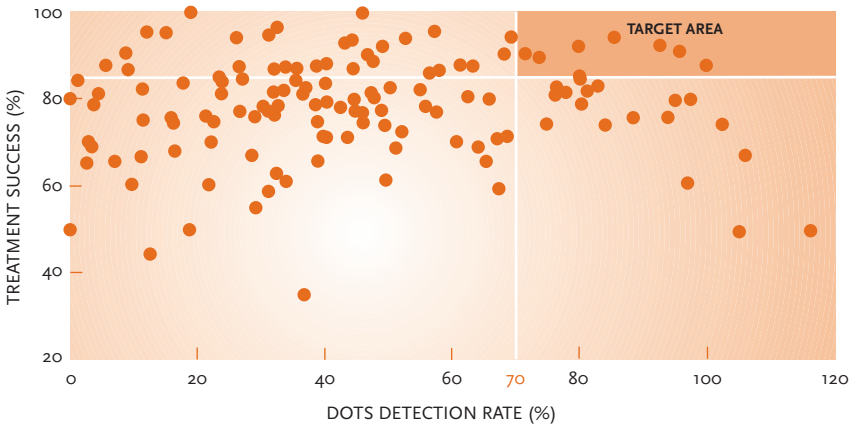
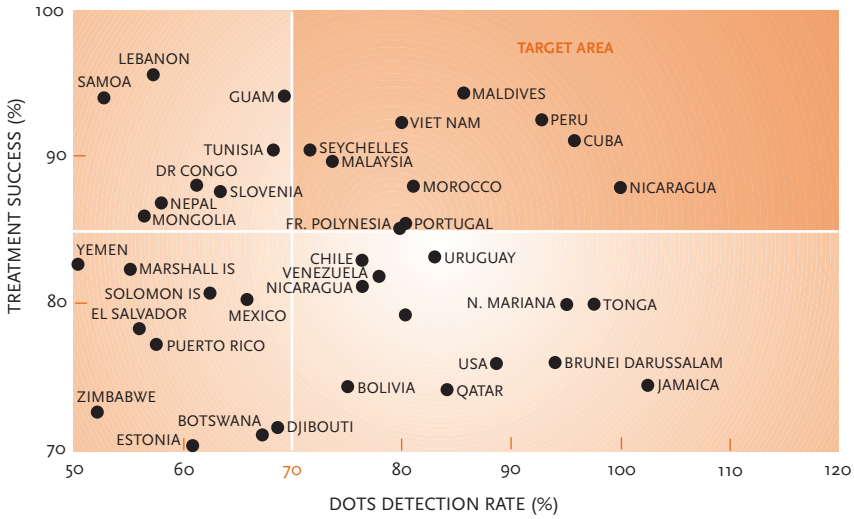


FIGURE 16. **Magnified view of Figure 15**

48 countries that reported treatment success rates over 70% and estimated DOTS detection rates over 50%



With the exceptions of Nigeria, Pakistan, South Africa, and DR Congo, all countries have plans that include tasks or activities corresponding to their strategies for expanding DOTS. Pakistan, South Africa, DR Congo, Kenya, Vietnam, Tanzania, and Uganda all have clear strategies for monitoring and evaluation. In several other countries (India, Indonesia, Nigeria, Bangladesh, Ethiopia, the Philippines, Myanmar, and Cambodia), plans for monitoring and evaluation are underdeveloped, and Brazil has none.

Country planning for DOTS expansion

The most commonly identified constraints to DOTS expansion were a lack of qualified staff, a lack of management skills, and weak laboratory networks (Annex 3). In countries with a high prevalence of HIV, the absence of collaboration between the HIV and TB programmes is a major constraint to the detection and management of TB (and AIDS) cases. The low access to health care services in Ethiopia and Mozambique is a serious obstacle to achieving countrywide DOTS coverage. The private

TABLE 16

Provisional assessment of country plans

COUNTRY	COVERS PERIOD 2001–5	SITUATIONAL ANALYSIS/BACKGROUND SECTION INCLUDING ANALYSIS OF CONSTRAINTS/GAPS	BROAD GOAL STATEMENT[1]	ARE THERE SPECIFIC OBJECTIVES TO ACHIEVE THE FOLLOWING TARGETS, AND ARE ALL OBJECTIVES CLEARLY STATED, TIME-FRAMED, AND MEASURABLE?[2]			ARE THERE STRATEGIES CLEARLY LINKED TO EACH OBJECTIVE, INCLUDING SPECIFIC STRATEGIES RELATED TO THE FOLLOWING?[3]						TASKS/ACTIVITIES DEFINED FOR EACH STRATEGY[5]	BUDGET	MONITORING AND EVALUATION SECTION INCLUDED[6]
				DOTS COVERAGE > 90% OF COUNTRY POPULATION BY 2005	70% CASE DETECTION AND 85% SUCCESSFUL TREATMENT OF SMEAR-POSITIVE CASES BY 2005	OBJECTIVES	HOW DOTS WILL BE EXPANDED	INCREASING CASE DETECTION AND SUCCESSFUL TREATMENT RATES, OTHER THAN "DOTS EXPANSION"[4]	PRIVATE SECTOR	COMMUNITY-BASED CARE	TB AND HIV	OTHER STRATEGIES			
India	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes	No	No	Yes	Yes	Yes	Partial
China	Plan under development and not yet available for review														
Indonesia	Yes	Yes	Yes	No	Yes	Yes	No	Partial	No	Partial	No	Yes	Yes	Yes	Partial
Nigeria	02–05	Partial	Partial	Yes	Yes	Yes	Yes	No	No	No	No	No	No	Yes	Partial
Bangladesh	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	No	No	Yes	Yes	Yes	Partial
Ethiopia	02–06	Yes	Yes	By 2006	By 2006	Yes	Yes	Yes	Objective only, no strategy			Yes	Yes	Yes	Partial
Philippines	00–04	Yes	Yes	100%[7]	Yes	Yes	Yes	Yes	Partial	No	No	Partial	Yes	Yes	Partial
Pakistan	Yes	Yes	Yes	Yes	Yes	Partial	Yes	Yes	Yes	Yes	No	Partial	No	Yes	Yes
South Africa	02–05	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
Russian Federation	Plan under development and not yet available for review														
DR Congo	Yes	Yes	Yes	No	See note[8]	No	Yes	No	No	No	No	Yes	No	Yes	Yes
Kenya	Yes	Yes	Yes	100%	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vietnam	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Partial	Partial	Yes	Yes	Yes	Yes	Yes	Yes
Tanzania	01–04	Yes	Yes	100%	See note[9]	Yes	Yes	Yes	Partial	No	Yes	Yes	Yes	Yes	Yes
Brazil	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No	Yes	No	No	Yes	Yes	No
Thailand	Plan under development and not yet available for review														
Uganda	01–04	Yes	Yes	See note[10]		Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Myanmar	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Partial	No	No	Yes	Yes	Yes	Partial
Mozambique	Plan under development and not yet available for review														
Cambodia	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Partial	Yes	Yes	Yes	Yes	Yes	Partial
Zimbabwe	Plan under development and not yet available for review														
Afghanistan	Plan under development and not yet available for review														

1 This should be a very broad, overarching statement of what will be achieved if the plan is successfully implemented.
2 An objective should include a date by which a measurable target/indicator will be achieved e.g. Achieve 70% case detection rate by 2005 (the 70% is the target/indicator; 2005 is the date). The terms "output", "product", "specific objective" are also sometimes used to describe an objective.
3 A strategy should state the practical steps that will be implemented to achieve the objective.
4 In some countries, DOTS coverage is reported as 100%. However, case detection rates have not reached 70% and successful treatment rates are below 85%. It may therefore be necessary, in some circumstances, to identify additional strategies to reach these control targets.
5 Plan should include detailed tasks/activities that must be undertaken to implement each of the strategies.
6 Evaluation section should say how the country will know if the objectives were met and should also say how they will evaluate whether or not meeting the objectives made any difference to achieving the goal.
7 By 2004.
8 70% case detection objective clearly stated, but no objective related to successful treatment.
9 No case detection objective, treatment success will increase by 5% to 81% by 2004.
10 100% DOTS coverage, 70% case detection, treatment success of 80% by end 2003.

health care sector is unregulated in most countries, and commonly does not comply with DOTS standards, though there are exceptions in parts of India, Indonesia, and the Philippines.

Health sector reform, especially the decentralization of TB control activities, was identified as a major constraint in Indonesia and the Philippines because district and provincial governments have been reluctant to participate in, and fund, TB control. By contrast, reform has been seen as an opportunity in Cambodia, Ethiopia, and Kenya, where there is now the potential for better access to DOTS. Other countries did not experience major changes in the organization of their health systems during the period under review, but those with systems that were already decentralized have found it hard to expand DOTS quickly because of the time needed to convince local authorities to participate.

The war in Afghanistan nearly destroyed the health infrastructure, and the newly-developed DOTS programme was severely curtailed. Similarly in DR Congo, DOTS cannot be expanded into areas affected by war or civil unrest.

To help alleviate drug shortages, the Global Drug Facility supplied three countries (DR Congo, Kenya, Myanmar) in 2001, and placed orders for three additional countries (Pakistan, Uganda, Nigeria) to be delivered in the first quarter of 2002. All HBC have a secure supply of TB drugs for 2002. Except in parts of China, drugs will be supplied free of charge to all patients.

For each constraint identified, most national TB control programmes have begun to implement activities to overcome them, generally through training, advocacy, and establishment of a laboratory network. Major steps have been taken by India and China to institutionalize TB control in the government system by obtaining either a government resolution (India), or by having the national plan for TB control endorsed by the government (China).

WHO regional plans

In 2000, WPRO prepared a medium-term regional strategic plan for 2001–2005. During 2001, all other regional offices prepared such plans, including the expansion of regional capacity and the involvement of partners. The strategic plans describe activities that will be undertaken by WHO and partners to assist all countries with DOTS expansion. In 2001, as part of the GDEP, regional meetings of technical and financial partners were held in the WHO regions of Africa, the Americas, Europe and the Western Pacific to present the plans and to discuss country support for DOTS expansion activities.

Partnerships and coordination

As recommended in the Global DOTS Expansion Plan,[4] an international lead technical partner has been identified for each of the 22 HBC (Annex 3). One of the roles of lead agencies is to stimulate the establishment of a NICC. NICCs have now been formed in 11 of the 22 HBC (i.e. Brazil, Cambodia, China, Kenya, Myanmar, Pakistan, Philippines, Russia, Tanzania, Thailand, Vietnam) and are under development in all others, and should be operational by the end of 2002.

Financing DOTS expansion

Assessment of budgets in relation to standard criteria

Budgets for some or all of the years 2002–5 are available for 17 of the 22 HBC (Table 17, Annex 3). Budgets are in the process of being developed for the Russian Federation, South Africa, Mozambique, and Zimbabwe; a budget is reported to be available for Thailand. For the Russian Federation and Thailand, other recent data provide an indication of the likely budget required. Thus, as of January 2002, more or less accurate budgets were available for 19 of the 22 HBC.

For Ethiopia, Bangladesh, Brazil, Tanzania, Nigeria, Pakistan, Kenya, and DR Congo, it is not clear whether budgets have been explicitly linked to an estimate of the total number of patients to be treated. For Ethiopia and Bangladesh, budgets appear low in relation to recent estimates[10] of the total number of patients that will need to be treated if the 70% case detection target is to be reached in 2005. Ethiopia's budget is provisional, but will be completed during 2002 (Annex 3).

With only one exception (Brazil), budgets cover all relevant administrative levels of the country and all major costs specific to TB control (i.e. first-line drugs, diagnostic supplies and equipment, programme management and supervision, and training). Nine of the 17 countries include all essential financial inputs, while eight do not include a budget for staff costs (usually because these costs are assumed to be covered by general government budgets). For Brazil, it is unclear what type of inputs are included.

Most budgets cover the entire period 2002–5, though Uganda and Tanzania have budgets only for 2002–4. All budgets cover funding for the types of patients for whom care is publicly funded. Except for Afghanistan, all budgets include some funds specifically for activities to increase case detection and cure rates.

Most budgets do not include an assessment of the costs associated with using resources that are not specific to TB control i.e. use of general health services staff and infrastructure (e.g. buildings, equipment, non-staff operating costs) for the provision of treatment. These resources are used every day that a tuberculosis patient spends in hospital, and every time a patient makes an outpatient visit for observation of treatment or monitoring of sputum status. Only in China, Indonesia, the Philippines, and Cambodia have such costs been considered. The budget for China covers the costs associated with payments to general health workers (e.g. village doctors) for observing treatment. In the other three countries, budgets include the cost of staff time spent on tuberculosis patient care in general health services.

Budgets, funds and funding gaps

The budgets for the 19 HBC for which data are available total around US$ 450–500 million per year (Table 18). This total excludes South Africa, Mozambique, and Zimbabwe. The country with the largest budget is the Russian Federation

TABLE 17

Characteristics of budgets

COUNTRY	EXPLICITLY LINKED TO ACHIEVING GLOBAL TARGETS[1]	COVERS ALL ADMINISTRATIVE LEVELS OF THE COUNTRY	INCLUDES ALL MAJOR COMPONENTS OF COSTS *SPECIFIC* TO TB CONTROL	INCLUDES ASSESSMENT OF COSTS ASSOCIATED WITH USING RESOURCES THAT ARE *NOT TB-SPECIFIC* i.e. GENERAL HEALTH SERVICES STAFF AND GENERAL HEALTH SERVICES INFRASTRUCTURE	INCLUDES ALL FINANCIAL INPUTS[2]	COVERS PERIOD 2002–2004/5 INCLUDING BREAKDOWN BY YEAR	INCLUDES BREAKDOWN BY LINE ITEM	INCLUDES BREAKDOWN OF THE FUNDING GAP BY LINE ITEM	ALLOWS FOR TREATING ALL PATIENTS FOR WHOM CARE IS PUBLICLY FUNDED	INCLUDES FUNDS FOR NEW INTERVENTIONS OR STRATEGIES AIMED AT INCREASING CASE DETECTION AND CURE RATES TO TARGET LEVELS
India	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
China	Yes	Yes	Yes	Yes[3]	Yes	Yes	Yes	Yes	Yes[4]	Yes
Indonesia	Yes	Yes	Yes	Yes[3]	Yes	Yes	Yes	Yes	Yes	Yes
Nigeria	??	Yes	Yes	No	No	Yes	Yes	No	Yes	Yes
Bangladesh	??	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes
Ethiopia	??	Yes	Yes	No	No	Yes	Yes	No	Yes	Yes
Philippines	Yes	Yes	Yes	Yes[3]	Yes	Yes	Yes	Yes	Yes	Yes
Pakistan	??	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
South Africa	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Russian Federation	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
DR Congo	??	Yes	Partially	No	No	Yes	Yes	Yes	Yes	Yes
Kenya	??	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes
Viet Nam	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
UR Tanzania	??	Yes	Yes	No	Yes	2001/2–2003/4	Yes	Yes	Yes	Yes
Brazil	??	Federal only	Yes	No	??	Yes	No	No	Yes	??
Thailand	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Uganda	Yes	Yes	Yes	No	No[5]	2001/2–2003/4	Yes	Yes	Yes	Yes
Myanmar	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Mozambique	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Cambodia	Yes	Yes	Yes	Yes[3]	Yes	Yes	Yes	Yes	Yes	Yes
Zimbabwe	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Afghanistan	Partially	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No
All	Yes + No	Yes + No	Yes + No	Yes + No	Yes + No	Yes + No	Yes + No	Yes + No	Yes	Yes + No

1 ?? Indicates that the existing estimate of the budget required appears low in relation to the number of patients to be treated if targets are to be reached in 2005 (see next table) and/or the number of cases to be treated is not specified.
2 Staff, buildings, equipment, vehicles and supplies. Where "No" is entered, the main exclusion is staff costs.
3 Estimates for China include the costs associated with use of general health workers (e.g. village doctors) for DOT; costs for Cambodia, Indonesia and the Philippines include costs associated with the staff required in general health services as well as TB-control specific requirements.
4 In China, public funding is only provided for (a) new smear-positive, (b) retreatment, and (c) seriously-ill smear-negative and extra-pulmonary patients (about 11% of the total number of patients in this latter category).
5 Data are available regarding the costs of all financial inputs, but data on staff costs were not included in the final budget supplied to WHO.
N.A.: no budget estimates were available when analysis was undertaken.

(US$ 150–200 million per year), followed by China (US$ 97 million per year) and India (US$ 46 million per year). Indonesia (US$ 35 million per year) and the Philippines (US$ 22 million per year) also have relatively large budgets. Except for Brazil (US$ 15 million per year at federal level), other countries have budgets of less than US$ 10 million per year.

Data on both funding and funding gaps are available for 16 HBC (Figure 17). Government funding accounts for a large share in India, Brazil, Thailand, and the Philippines, and is also around or above 60% of the total budget for China, Indonesia, and Vietnam. Grant funding overall is low (Table 18), at less than 5% of the total budget required according to current data. However, it is very high in certain countries, notably Tanzania (> 80% of the budget) and Bangladesh (75% of the total budget). Donor funding is also important in Kenya, Cambodia, Uganda, DR Congo, and Pakistan. In absolute terms, the biggest pledges made so far by donors are to India, Tanzania, and Bangladesh.

The total funding gap, according to existing estimates, amounts to US$ 81 million per year for the 16 countries that have estimates. With a gap of US$ 44 million per year, China accounts for more than 50% of the total gap (Table 18),

TABLE 18

Estimated total budgets, funding, and costs for all resources required for TB control: high-burden countries[1]

COUNTRY	TOTAL BUDGET PER YEAR ACCORDING TO EXISTING ESTIMATES (US$ MILLIONS)	GOVERNMENT CONTRIBUTION (INCLUDING WB LOAN FUNDS)PER YEAR (US$ MILLIONS)	DONOR FUNDS PLEDGED PER YEAR (US$ MILLIONS)	RESOURCE GAP PER YEAR (US$ MILLIONS)	GAP AS % TOTAL ESTIMATED BUDGET	IMPLIED BUDGET PER PATIENT TREATED [2,3]	TOTAL ESTIMATED COST PER YEAR FOR ALL RESOURCES REQUIRED FOR TB CONTROL [3,4] (US$ MILLIONS)	TOTAL ESTIMATED COST PER PATIENT TREATED [3,4]
India	46	38 (approx) for 2001–3	5 (approx) for 2001–3	1 for 2001–3	2	33	111	78
China	97	52.5	0.5	44	45	243	97	243
Indonesia	35	24.5	0.5	10	29	166	35	166
Nigeria	7	??	??	??	??	53	18	131
Bangladesh	5	1	3 for 2001–3	0 for 2001–3	0	25	24	121
Ethiopia	5	0.1 (approx)	??	??	??	25	18	91
Philippines	22	17	0	5	23	114	22	114
Pakistan	7	3	1	3	43	33	24	119
South Africa	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	230	1365
Russian Federation	150–200 [1]	N.A.	N.A.	N.A.	N.A.	788–1051	150–200	788–1051
DR Congo	8	??	1	7	88	78	13	115
Kenya	5	2	2	1	20	31	36	235
Viet Nam	7	5	1	1	14	71	19	202
UR Tanzania	5	0.1–0.3	4.4	0.6	12	54	10	101
Brazil	15 at federal level	15	??	0	0	203	52	699
Thailand	10 [1]	10	N.A.	0	0	197	21	401
Uganda	3	0.5	0.5	2	67	60	8	166
Myanmar	2	0.4	0.04	2	80	66	2	66
Mozambique	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	Not yet estimated	Not yet estimated
Cambodia	5	2	1	2	40	155	10	327
Zimbabwe	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	22	324
Afghanistan	2	0	??	2	100	67	2	67
All	436–486	171 + ??	20 + ??	81 + ??	> 17	25–1051	926–976	66–1365

1 Figures are averages for the period 2002–5, except for the Russian Federation (based on data for 1999–2001) and Thailand (based on data for 2000).
2 Total estimated average budget per year divided by average number of patients to be treated per year.
3 Number of patients to be treated based on estimated number of cases, case detection data, the assumption that targets will be reached in 2005, and the assumption that there is constant progress towards targets (see Methods section).
4 In addition to budget totals, these estimates include costs that are not typically considered in budget estimates. The main costs not typically included in budget estimates are costs associated with using resources that are not TB-specific i.e. general health services staff and infrastructure (buildings, equipment, non-staff operating costs). These resources are used when patients are hospitalized at the beginning of treatment and when they make outpatient visits for observation of treatment or monitoring of sputum status. Sources include plan budgets and costing studies. Estimated costs in year 2000 US$ prices.
N.A.: No budget estimates were available when analysis was undertaken.

though it is anticipated that a World Bank loan will substantially reduce this shortfall in the near future. The budget gap is also high in Indonesia, at US$ 10 million per year. Other countries have budget gaps of up to US$ 5 million per year. As a fraction of the total budget required, the gaps are biggest (29–100%) in Afghanistan, DR Congo, Myanmar, Uganda, Pakistan, Cambodia and Indonesia.

The estimated budget per patient ranges from US$ 25 in Bangladesh and Ethiopia to US$ 800–1 000 in the Russian Federation. Most countries have a budget per patient in the range of US$ 30–70, though estimates for China, Thailand, Indonesia, Cambodia, and Brazil are higher (US$ 150–250).

Breakdown of budgets

Detailed breakdowns by line item are provided for each country in Annex 3. The overall breakdown for the 16 HBC that have provided data is shown in Figure 18. Staff and buildings are excluded from this figure for two main reasons: data on budgets for staff are not available for seven of the 16 countries, and only one country (India) has provided data for building costs.

The main budget items, excluding staff and buildings, are drugs (37%) and

FIGURE 17. **Funding availability and funding gaps, 16 high-burden countries for which data are available**

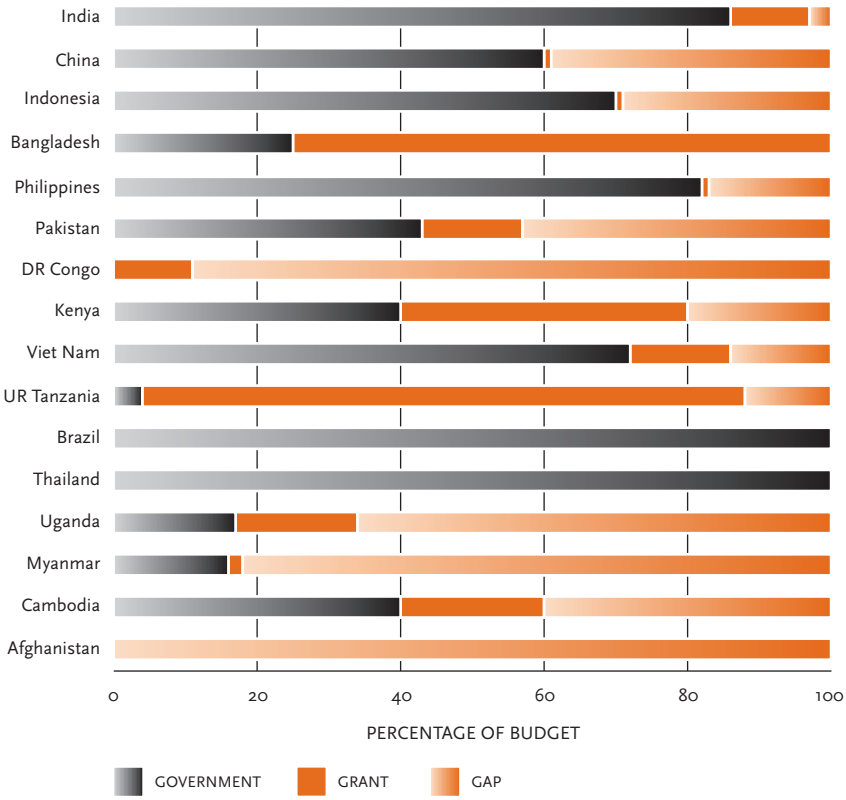


FIGURE 18

Breakdown of country budgets excluding staff and building costs, 16 high-burden countries for which data are available

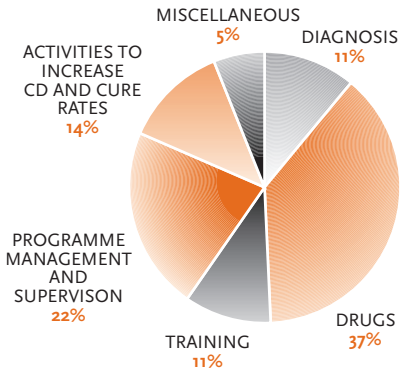
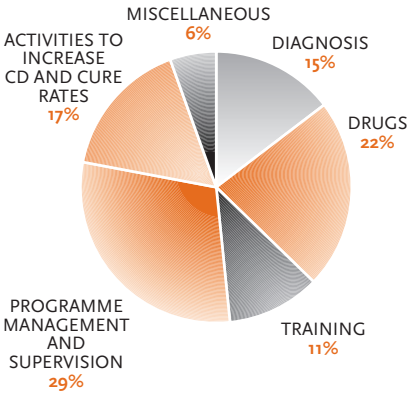


FIGURE 19

Breakdown of funding gaps identified in country budgets, excluding staff and building costs, 14 high-burden countries for which data are available



programme management and supervision (22%). Diagnostic supplies and equipment, training, and activities specifically aimed at increasing case detection and cure rates (e.g. private sector strategy, health education) amount to around 10% each.

The breakdown of budget gaps for the 14 countries that provided data (India, China, Indonesia, Pakistan, Bangladesh, the Philippines, DR Congo, Kenya, Vietnam, Tanzania, Uganda, Myanmar, Cambodia, and Afghanistan) is similar, though with more emphasis on programme management and supervision, and less emphasis on drugs (Figure 19). Of the total funding gap of US$ 301 million in these countries (this total is for all years for which data are available, and excludes staff and building costs), 29% is for programme management and supervision, and 22% for drugs.

Total costs of TB control and total funding gaps

The total cost of all resources required for TB control in the 22 HBC (i.e. including the items that are usually not considered in TB budgets) is around US$ 1 billion per year (Table 18).[11] The countries with the largest resource requirements are South Africa, the Russian Federation, India, and China. Most other countries require US$ 10–35 million per year. On a per patient basis, costs are highest in South Africa and the Russian Federation (at over US$ 1 000 per patient), and lowest (at US$ 70–80) in Myanmar, Afghanistan, and India. The gap between total costs (US$ 1 billion per year) and available funding may be around US$ 300 million per year, or about one third of the total resources required.

[11] Recent estimates indicate that when low and lower middle-income countries beyond the 22 HBC are considered, this increases to a total requirement of US$ 1.2 billion per year. See note 10.

Discussion

Progress in global TB control

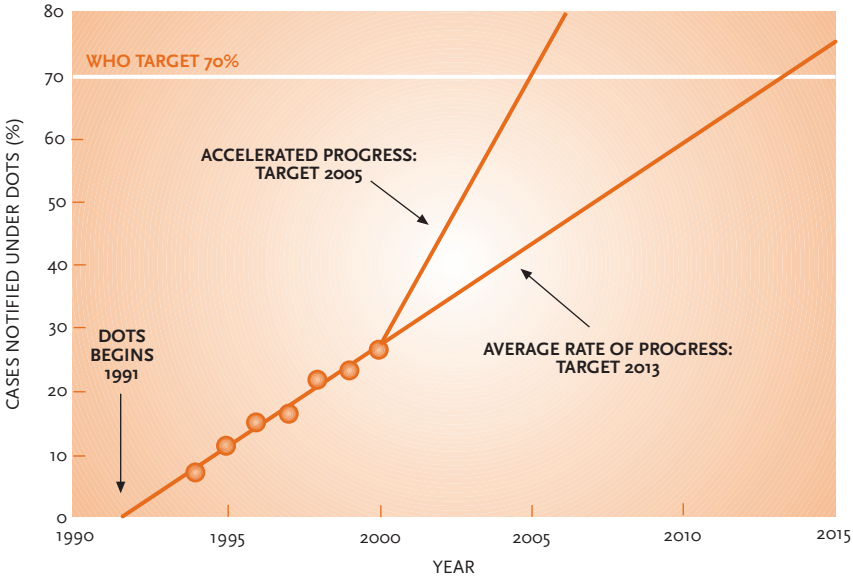
The encouraging news about DOTS expansion is that 148 countries had adopted the WHO strategy by the end of 2000; over half the world's population lived in counties, districts and provinces that provide DOTS; nearly 2 million new TB patients were notified under DOTS in 2000, over one million of them smear-positive; and treatment had a successful outcome for 80% of registered patients.

A more arresting observation is that the rate of progress in case finding has not changed since 1994. NTPs around the world have been enrolling an average of 130 000 extra smear-positive cases each year, at which rate the target of 70% case detection will not be reached until 2013 (Figure 20). Another concern is that the smear-positive case detection rate under DOTS (27%) appears to be approaching a ceiling of 35–40%. Since our records began in 1994, NTPs have never notified, from all sources, more than 40% of estimated smear-positive cases, and DOTS programmes have generally recruited cases that would previously have been notified under non-DOTS schemes. To reach the target for case detection by 2005, about 330 000 additional smear-positive cases must be recruited each year under DOTS, including a substantial fraction of the 60% of new cases that are not notified each year to WHO.

Among the 22 HBC, the greatest strides in case finding under DOTS were taken in India, the Philippines, Ethiopia, South Africa, and Myanmar. In the three Asian countries, these improvements almost certainly represent real increases in the proportion of cases detected and cured. It is more doubtful that DOTS programmes in Ethiopia and South Africa have detected larger proportions of cases, because case notifications in these two countries are rising anyway with the spread of HIV/AIDS.

FIGURE 20. **Progress towards the 70% case detection target**

Points mark the number of smear-positive cases notified under DOTS 1994–2000, expressed as a percentage of all estimated cases for each year. The solid line through these points indicates the current average annual increment of about 130 000 new cases, which intersects the target in year 2013; the steeper line represents a higher annual increment of approximately 330 000 cases, and reaches the 70% target by 2005.



Planning for DOTS expansion

To reach target case detection and cure rates by 2005 will require comprehensive planning, adequate financing, and rapid implementation. The evaluation of constraints to DOTS expansion, and remedial actions taken to overcome these constraints, was carried out through extensive exchanges with NTP managers, and with the staff of WHO's regional and country offices. This approach has led to a better understanding of the difficulties faced by programmes, and the kinds of solutions used to overcome them, in relation to, for example, the development of laboratory networks, the immense need for training, and the challenges of health sector reform.

For most regions and countries, 2001 was the year to prepare plans and lay the foundations for an organized expansion of DOTS within the framework of the GDEP. It is expected that 2002 will be the year for implementation. To assist with this process WHO and Stop TB partners, in collaboration with some programme managers, are developing guidelines for planning and budgeting DOTS implementation and expansion. External evaluation and technical support to countries have already assisted some countries in preparing or improving plans and financial estimates. The analysis of plans revealed key areas for

support, such as identification of successful strategies for DOTS expansion, for increasing case detection and cure rates, for involvement of other sectors in TB control, and for budgeting. Further discussion with NTP managers will improve country plans, leading to better implementation of DOTS.

Assisted by the Stop TB Partnership, all 22 HBC made progress towards preparing sound strategic plans during 2001. However, the content and quality of current strategic plans vary widely (in part because the guidelines for writing such plans are still under development). Despite the high and rising TB burden linked to HIV, three African countries—Kenya, Tanzania, and Uganda—are ready to further expand DOTS. The same applies to Cambodia, China, and the Philippines in the Western Pacific Region (Viet Nam having already reached WHO targets), and to India and Myanmar in the South-East Asia Region. Nigeria and Pakistan have just completed the planning phase and substantial additional funding is expected to be available in early 2002. Elements missing from the plans presented by some other countries suggest that they are not immediately ready to scale up DOTS. This applies especially to Bangladesh, Brazil, Mozambique, and Zimbabwe.

Following the lead of the regional office for the Western Pacific, all other WHO regional offices have started to respond in a systematic way to the needs of all countries through strategic planning. International partnerships are now better organized than ever, and in a position to provide strong technical support to countries. More donors are investing in TB control, and the establishment of the Global Fund to fight AIDS, Tuberculosis and Malaria should provide an opportunity to accelerate the implementation of plans developed during 2001. New services, such as the Global Drug Facility, are beginning to supply countries with essential drugs for TB control. Assurance of a reliable supply of 4-drug fixed-dose combination tablets facilitates successful DOTS expansion. These four-drug combinations simplify chemotherapy and reduce the risk of inadequate treatment. There is potential for this pharmaceutical newcomer to improve TB control.

Financing DOTS expansion

The total financial resources required for TB control in the 22 HBC, at an estimated US$ 1 billion per year if targets are to be met in 2005, are small in the context of recent estimates of the resources required for both HIV/AIDS and malaria. However, important funding gaps are evident, and if progress in global tuberculosis control is to be made, these will need to be filled—by governments, by donors, or by both. Initially, new funds would be best targeted to the funding gaps identified in existing country budgets (Annex 3), since these gaps represent the unfunded components of existing plans for DOTS implementation. These gaps currently total almost US$ 100 million per year, and are largely for items and activities specific to TB control. Subsequently, funding may also need to be directed towards new investment in general health services.

The variation among countries in the total estimated cost of TB control, existing country budgets, and costs and budgets per patient, is striking. Costs in the 22 HBC are dominated by four countries—South Africa, the Russian Federation, India, and China account for 65% of the total. Existing country budgets, while not typically considering all the costs associated with provision of diagnosis and treatment, largely support this finding. South Africa has yet to complete a detailed budgeting exercise, but China, India, and the Russian Federation account for about 70% of the total budget for the 19 HBC that have provided estimates. Budgets per patient vary across two orders of magnitude, from US$ 25 in Bangladesh and Ethiopia up to a maximum of US$ 1 051 in the Russian Federation; the total estimated cost per patient ranges from US$ 66 to US$ 1 051.

This variation is due, in part, to differences in estimated numbers of cases, the prices of inputs such as staff and materials, and differences in how TB control is delivered. South Africa has the highest total costs because it is a middle-income country (and therefore has higher costs, especially for staff), and because hospitalization for the first 1–2 months of treatment is common in rural areas. High costs for the Russian Federation reflect reliance on an extensive infrastructure for provision of diagnosis and treatment—there are over 100 000 beds in specialized tuberculosis dispensaries, hospitals and sanatoria. Relatively modest requirements in India and China reflect their reliance on outpatient care, drug prices in the region of US$ 10–20 per patient (versus US$ 30–40 in several other countries), and relatively low average income levels. This variation indicates that efficiency could be improved, and resource requirements lowered, in some settings.

In the case of the budget data, variation also reflects differences in the type of costs considered and, possibly, the quality of the budgeting exercise. For example, the budget for China covers all inputs required for TB control, including dedicated staff and facilities and payments to general health workers for observing treatment. For the Russian Federation, the budget covers an extensive network of dedicated TB hospitals and clinics; for several other countries, the costs of national TB programme staff are not included, and nor are the costs associated with using general health system staff and facilities. Where budgets currently appear low in relation to estimated numbers of cases and the number of patients that will need to be treated if targets are to be achieved, a review of the existing estimates may be warranted.

Budget gaps range from zero to 100% of the budget in the 16 countries that provided estimates. There is a big difference in nine countries between the total budget and the funding that will be provided by government. Only three countries (Bangladesh, Kenya, Tanzania) have, as of January 2002, significantly narrowed the gap between the total budget and government funding with pledges from donors.

On the positive side, current information about grant funding from donors almost certainly underestimates com-

mitments for the period 2002–5, because many donors make firm pledges one year at a time. For the 16 HBC represented in Figure 17, grant funding for 2002 totals US$ 27 million, compared with the annual average of US$ 20 million for the period 2002–5. Furthermore, the US$ 27 million for 2002 would certainly be much higher if data were included for Nigeria and the Russian Federation, where donor funding is expected to be important. Ethiopia received around US$ 4 million in 2001, and is likely to receive much more during 2002–5. Altogether, these three countries could increase donor funding in 2002 to around US$ 40 million. However, this level of grant funding is still not sufficient to fill the funding gaps that have been identified. Increased funding commitments to TB control from traditional donors, the Global Fund to Fight AIDS, TB and Malaria, or governments, or all three, is necessary if existing plans for improved TB control are to be fully implemented.

Although budgeting for DOTS implementation has advanced enormously over the past year, there is room for improvement. Immediate priorities include:

- finalizing budgets for the 5 countries that currently lack data i.e. the Russian Federation, Zimbabwe, Mozambique, Thailand, and South Africa;
- ensuring that all budgets are closely tied to the achievement of targets. In particular, the total number of patients to be treated needs to be stated, and the budget requirement explicitly linked to this total; and
- filling existing gaps in budgets—detailed breakdowns of the total budget, and the funding sources and funding gap for this budget, are not yet available for Brazil, Ethiopia, and Nigeria.

A more general limitation is that most existing budgets focus on costs specific to TB control only. They do not include an assessment of costs to the general health system, e.g. for staff and buildings that are shared among different types of patients. These resources are essential for successful TB control because they are used every time a patient makes an outpatient visit to a health facility to collect drugs, or to monitor sputum smear status, and every time a patient is hospitalized. At present, the implicit assumption in many budgets is that these costs do not need to be included because they are covered by general government health budgets. In some countries, this may be a reasonable assumption. However, there are several countries where the number of patients to be treated will need to increase substantially if case detection targets are to be met; and a few where patient numbers may increase even without an increase in the proportion detected, due to the impact of the HIV/AIDS epidemic. In combination with scaling up of interventions in other priority areas (e.g. HIV/AIDS and malaria), it is therefore important that countries assess the extent to which health systems have the capacity to manage increased numbers of patients, or whether additional investment is required. If additional investment is required, it will be important to assess the funding available for such investment, and to identify funding gaps. Such analyses would also make the existing budget data more comprehensive and would improve the accuracy of current estimates of total costs and funding gaps in all HBC.

Finally, existing budgets propose conspicuously small investments in new interventions, or in specific actions to increase case detection and cure rates. At present, the total planned investment in such interventions amounts to US$ 24 million per year. We recommend a closer scrutiny of budgets to verify that this sum of money really will be sufficient to reach targets for case detection and cure.

ANNEX 1

Data collection form

WHO TB data collection form - for notifications in 2000, and treatment outcomes of cases registered in 1999.

1. Identification

A **Country**

National TB control programme manager (or person filling out this form):

B **Name**

C **Functional Title**

D **Address**

E **Telephone**

F **Fax**

G **E-mail**

This report concerns national data over a one year period: policy and notifications for 2000, and treatment outcomes for cases notified in 1999.

If any data you provide are based on less than one year, or less than national scope, please note this in 'Remarks.'

Also, please note if you use a reporting calendar different from the Gregorian calendar, January 1 - December 31.

WHO TB data collection form - for notifications in 2000, and treatment outcomes of cases registered in 1999.

2. Policies/strategic components of TB control implemented in 2000

Indicate which components are present, using one of the valid responses to the right of each box.

* A	**Sputum microscopy routinely used to diagnosis suspected pulmonary cases.**		*No. Yes, everywhere. Yes, in some units/areas. Don't know.*
B	**Adults presenting to general health facilities (for any reason) are systematically screened for prolonged cough to identify TB 'suspects'.**		*No. Yes, everywhere. Yes, in some units/areas. Don't know.*
C	**Culture routinely used to diagnosis suspected pulmonary cases.**		*No. Yes, everywhere. Yes, in some units/areas. Don't know.*
* D	**Standardized, short-course chemotherapy (less than 9 months) used to treat all sputum smear-positive cases.**		*No. Yes, everywhere. Yes, in some units/areas. Don't know.*
* E	**Direct obervation of treatment used routinely -- at least during the initial phase (2-3 months) of treatment.**		*No. Yes, everywhere. Yes, in some units/areas. Don't know.*
* F	**Monitoring of treatment outcomes by cohort.**		*No. Yes, everywhere. Yes, in some units/areas. Don't know.*
* G	**A system of TB drug forecasting, financing, and procurement.**		*No. Yes. Don't know. Not applicable (decentralized).*

** Essential components of DOTS.*

3. Coverage of strategies and completeness of reporting in 2000

Enter absolute numbers, except where indicated as %.	**DOTS**	**Other**
A **How many administrative/operational units were there in 2000?**		
B **What percentage of the country's population was living in geographic areas served by 'DOTS' units?**	%	
C **How many administrative/operational units did NOT report ANY information on NOTIFICATIONS.**		
D **- What percentage of the population is covered by these units.**	%	%
E **How many administrative/operational units did NOT report ANY information on TREATMENT OUTCOMES.**		
F **How many times per year are administrative/operational units supposed to report results of treatment outcome monitoring to the next supervisory level?**		

WHO TB data collection form - for notifications in 2000, and treatment outcomes of cases registered in 1999.

3. Coverage of strategies and completeness of reporting in 2000, continued.

G **Approximately what percentage of your TB cases for 2000 were cases diagnosed by private clinicians?** [ ] %

H **Approximately what percentage of your notifications for 2000 were cases in foreign-born or non-nationals? (if you know both, report smaller of the two)** [ ] %

I **Please provide the most recent official number of deaths due to TB in your country (all forms, both sexes):** [ ]

J **- What is the year for this number?** [ ]

K **- What is the source of this number?** [ ]

L **What was the population of your country for 2000 (best estimate)?** [ ]

M **- What is the source of this population estimate?** [ ]

N **Is information available on HIV seroprevalence among TB patients and among the general population?** [ ] *No.* *Yes.*

- If yes, please include data, year, and source in 'Remarks', or attach.

4. Notifications for 2000 (absolute numbers)

		DOTS	Other
A	**New pulmonary smear-positive**		
B	**New pulmonary smear-negative**		
C	**New pulmonary: no smear or results unknown**		
D	**New extra-pulmonary**		
E	**Relapse smear-positive**		
F	**TOTAL NOTIFICATIONS**		

Re-treatment not included in WHO notifications:

G	**Pulmonary smear-positive re-treatment after failure**		
H	**Other retreatment**		

WHO TB data collection form - for notifications in 2000, and treatment outcomes of cases registered in 1999.

4. Notifications for 2000, continued (absolute numbers)

Age and sex of new pulmonary smear-positive cases

		0-14	15-24	25-34	35-44	45-54	55-64	65+	Total
	DOTS								
I	**Male**								
J	**Female**								
	Other								
K	**Male**								
L	**Female**								

If data are based on less than a year's worth of data, please note this in 'Remarks.'

5. Treatment outcomes for new pulmonary smear-positive cases registered in 1999 (absolute numbers, except for 'Z')

Please explain any exclusions in your remarks. If you normally stratify any of the six outcome categories (e.g., death from TB versus death with TB), please provide these data below or in 'Remarks.'

		example	DOTS	Other
X	New pulmonary smear-positive cases notified in 1999	*111*		
Y	**Cohort registered for treatment**	***107***		
Z	*Proportion of cases registered for treatment (Y/X)*	*0.96*		
A	**Cured**	*63*		
B	**Completed**	*22*		
C	**Died**	*4*		
D	**Failed**	*6*		
E	**Defaulted**	*7*		
F	**Transferred out**	*2*		
G	***total evaluated:***	*104*		
H	*Other not evaluated:*	*3*		

WHO TB data collection form - for notifications in 2000, and treatment outcomes of cases registered in 1999.

6. Re-treatment outcomes for cases registered in 1999 (absolute numbers)

Please explain in your remarks which retreatment cases are included in your data. If you normally stratify any of the six outcome categories (e.g., death from TB versus death with TB), please provide these data below or in 'Remarks.'

		example	**DOTS**	**Other**
Y	**Cohort registered for treatment**	***107***		
A	**Cured**	*63*		
B	**Completed**	*22*		
C	**Died**	*4*		
D	**Failed**	*6*		
E	**Defaulted**	*7*		
F	**Transferred out**	*2*		
G	***total evaluated:***	*104*		
H	*Other not evaluated:*	*3*		

7. Updates for 1995-1999 (absolute numbers)

Please provide data where missing or incorrect. Explain any changes in 'Remarks.'

		New smear-positives	Total notifications
A	**1995**		
B	**1996**		
C	**1997**		
D	**1998**		
E	**1999**		

WHO TB data collection form - for notifications in 2000, and treatment outcomes of cases registered in 1999.

8. Remarks

ANNEX 2

Global profile

Explanatory notes
Global profile

The global profile consists of the following:

- Case finding (for the latest year)—an overview of notifications, estimated cases, and detection rates.
- Treatment outcomes (for the previous year's cohort)—both treatment and retreatment outcomes from DOTS and non-DOTS programmes. See Table 5 for defintions of treatment outcomes.
- WHO TB control categories (current year)—the number of countries reporting to WHO by region, the number of countries in each WHO category (see Table 1), and the percentage of the regional population in each category.

Global profile: case notification and detection rates, 2000

		Population		All cases			New smear-positive cases (ss+)				
				Notified			Notified			Estimated	
		Number	%	Number	rate	%	Number	rate	% pulm cases	Number	% of est detected
Region*		a	a/sum(a)	b	b/a	b/sum(b)	c	c/a	d	e	c/e
AFR	**DOTS**	**435 727 804**	**71**	**622 655**	**143**	**85**	**309 513**	**71**	**64**		
	non-DOTS	146 070 147	24	105 910	73	15	44 037	30	51		
	No Report	57 833 529	9								
		616 441 115	104	728 565	118	100	353 550	57		943 680	37
AMR	**DOTS**	**543 545 654**	**65**	**123 576**	**23**	**53**	**70 327**	**13**	**71**		
	non-DOTS	257 018 909	31	109 980	43	47	59 399	23	64		
	No Report	31 215 194	4								
		831 779 757	100	233 556	28	100	129 726	16		175 291	74
EMR	**DOTS**	**316 532 149**	**65**	**120 834**	**38**	**88**	**56 630**	**18**	**68**		
	non-DOTS	163 208 177	34	17 162	11	12	4 088	3	34		
	No Report	5 105 347	1								
		484 845 673	100	137 996	28	100	60 718	13		266 331	23
EUR	**DOTS**	**145 457 953**	**17**	**73 860**	**51**	**20**	**22 430**	**15**	**40**		
	non-DOTS	728 116 763	83	296 075	41	80	70 497	10	29		
	No Report	0									
		873 574 716	100	369 935	42	100	92 927	11		220 813	42
SEAR	**DOTS**	**758 973 523**	**49**	**445 296**	**59**	**32**	**235 511**	**31**	**62**		
	non-DOTS	776 660 538	51	952 093	123	68	272 640	35	31		
	No Report	0									
		1 535 634 061	100	1 397 389	91	100	508 151	33		1 367 185	37
WPR	**DOTS**	**1 128 611 061**	**67**	**598 218**	**53**	**74**	**326 993**	**29**	**60**		
	non-DOTS	559 410 050	33	206 314	37	26	57 741	10	31		
	No Report	43 815	0.0								
		1 688 064 926	100	804 532	48	100	384 734	23		862 873	45
Global	**DOTS**	**3 328 848 144**	**55**	**1 984 439**	**60**	**54**	**1 021 404**	**31**	**62**		
	non-DOTS	2 630 484 584	43	1 687 534	64	46	508 402	19	34		
	No Report	94 197 885	2								
		6 053 530 613	100	3 671 973	61	100	1 529 806	25		3 836 173	40

* WHO Regions (see Regional profiles for countries/territories in each region): AFR - Africa, AMR - the Americas, EMR - the Eastern Mediterranean, EUR - Europe, SEAR - South-East Asia, WPR - the Western Pacific

Global profile, cont'd: treatment success for the 1999 cohort

Region*		New smear-positive cases									Re-treatment cases								
		Registered	% cured	% compl-eted	% died	% failed	% default	% trans-ferred	% not eval	% succ-ess	Registered	% cured	% compl-eted	% died	% failed	% default	% trans-ferred	% not eval	% succ-ess
AFR	DOTS	274 971	57.5	11.2	7.4	1.1	10.6	8.7	3.4	68.8	39 515	46.6	9.9	9.3	3.0	15.5	13.4	2.2	56.6
	non-DOTS	38 793	41.2	18.4	6.1	1.8	14.5	13.1	4.9	59.6	4 592	32.8	17.1	8.9	3.8	16.9	20.4	0.2	49.8
AMR	DOTS	67 852	66.4	14.0	4.3	1.2	6.2	3.3	4.7	80.4	13 399	52.5	14.9	4.4	3.2	9.7	3.2	12.0	67.4
	non-DOTS	54 692	49.6	6.6	4.4	0.7	10.5	3.6	24.7	56.2	10 823	8.8	8.7	1.9	0.3	5.5	1.8	73.0	17.6
EMR	DOTS	51 238	69.0	13.9	3.8	1.8	8.0	2.8	0.7	83.0	4 508	39.4	32.3	4.1	5.5	14.7	3.4	0.7	71.6
	non-DOTS	20 415	36.0	10.9	1.0	6.4	12.5	5.3	28.0	46.9	598	49.8	9.2	7.4	14.5	14.2	4.2	0.7	59.0
EUR	DOTS	16 828	62.9	14.9	5.8	6.1	4.9	3.5	1.9	77.8	6 667	42.4	14.7	9.0	13.6	9.9	5.5	4.9	57.1
	non-DOTS	3 679	60.6	5.5	6.7	7.4	4.3	3.5	12.2	66.1	165	40.0	17.0	12.1	10.9	7.9	2.4	9.7	57.0
SEAR	DOTS	170 226	68.2	4.9	4.3	1.7	6.7	1.3	12.8	73.2	31 408	56.2	14.0	6.8	4.9	14.9	1.8	1.4	70.2
	non-DOTS	302 779	8.8	3.6	0.3	0.2	5.6	1.9	79.5	12.4	1 223	44.3	11.4	5.5	5.6	11.0	3.0	19.2	55.8
WPR	DOTS	318 165	88.7	4.9	2.0	1.2	2.0	0.8	0.5	93.6	50 897	90.8	3.0	2.2	1.9	1.1	0.5	0.4	93.9
	non-DOTS	34 959	54.1	10.4	1.9	7.1	5.0	3.2	18.2	64.5	846	11.3	12.9	1.3	2.6	0.8	0.1	70.9	24.2
Global	**DOTS**	**899 280**	**72.0**	**8.2**	**4.4**	**1.4**	**6.2**	**3.7**	**4.1**	**80.2**	**146 394**	**64.2**	**9.8**	**5.7**	**3.6**	**9.6**	**4.8**	**2.4**	**73.9**
	non-DOTS	**455 317**	**21.6**	**6.1**	**1.5**	**1.3**	**7.2**	**3.4**	**59.0**	**27.6**	**18 247**	**19.0**	**11.3**	**4.2**	**2.2**	**8.8**	**6.5**	**48.0**	**30.3**

* WHO Regions (see Regional profiles for countries/territories in each region): AFR - Africa, AMR - the Americas, EMR - the Eastern Mediterranean, EUR - Europe, SEAR - South-East Asia, WPR - the Western Pacific

Global profile, cont'd: WHO TB control categories, 2000

	Number		Number of countries in each category						% regional population in each category**					
Region*	Countries	Reports	0	1	2	3	4	5	0	1	2	3	4	5
AFR	46	35	11	5	0	10	20	0	9	4	0	53	34	0
AMR	44	37	7	3	4	9	18	3	4	0	22	27	47	0
EMR	23	21	2	0	1	5	14	1	1	0	29	17	53	0
EUR	51	51	0	21	2	8	17	3	0	51	4	33	12	1
SEAR	10	10	0	0	0	6	4	0	0	0	0	77	23	0
WPR	36	33	3	4	1	6	22	0	0	3	0	89	8	0
Global	210	187	23	33	8	44	95	7	2	9	6	60	24	0

* WHO Regions (see Regional profiles for countries/territories in each region): AFR - Africa, AMR - the Americas, EMR - the Eastern Mediterranean, EUR - Europe, SEAR - South-East Asia, WPR - the Western Pacific

** Percent of regional population in each category: each country is assigned to only one of the above categories. This is in contrast to the case notification and dectection rates table (page 46), where the population of any country can be divided into DOTS and non-DOTS areas.

ANNEX 3

Profiles of high-burden countries

COUNTRY PROFILE

Afghanistan

Progress in DOTS coverage

In addition to the effects of long-term civil conflict and unstable governance, TB control activities in Afghanistan nearly collapsed with the outbreak of war following the events of September 11, 2001. Before the war, there were 55 health facilities in 7 regions providing TB services to the community: 18 of them were supported by the (previous) Ministry of Public Health (MoPH) and WHO, 15 by MoPH and NGOs, and 22 by NGOs. However, DOTS coverage was only 18% in 2000. Treatment outcomes were poor because DOTS was only loosely implemented, particularly in the MoPH sector: the treatment success rate was only 33% in MoPH facilities, although NGOs achieved a 78% success rate.

Planning for TB control

Efforts to strengthen TB control started early in 2001, and included the donation of anti-TB drugs and TB control activity funds. The first national TB coordination meeting was held in August 2001 with the participation of all regional TB coordinators and several partners. One international TB expert and 16 national TB experts were recruited. A plan for DOTS expansion for the next 2 years was developed, and the first partners' forum with donors would have taken place in November 2001. However, all planned activities ceased with the outbreak of war.

Following the installation of the new provisional government at the end of 2001, rehabilitation of TB control began in the context of overall reconstruction of health services. An international TB expert to be based in Kabul beginning January 2002 will facilitate coordination with national and international partners, including NGOs. A strategic plan for 2002–2005 will be developed in early 2002, with the aim of achieving 30% DOTS coverage by the end of 2002, and reaching global targets by 2005. Activities will focus on leadership development, logistical management, human resources, and partnership. There are tremendous challenges in undertaking this rehabilitation, including extremely weak health infrastructure, low staff motivation due to poor salaries, weak technical leadership and skills, weak coordination with partners, and insufficient funds.

Partnerships

WHO leads in providing overall technical and financial support for the country with support from GLRA. MEDAIR, GMS, and other NGOs provide TB diagnostic and treatment services in their catchment areas. ICD has provided training for laboratory personnel and quality control. Norway provided a large quantity of TB drugs and laboratory supplies and Italy will continue to provide programme funds. Continued operation depends on external aid.

Financial estimates

Budget estimates for TB control for a five-year timeframe were calculated in 2000, before the war. The total required was estimated to be US$ 11.3 million, an average of US$ 2.3 million per year. These estimates, however, will need to be revised in light of the new government's plans for reconstructing health services. The total budget will probably need to be at least double the original estimate because of the serious damage to health services infrastructure during the war. Contributions from the government, which were virtually nil in the past, will depend on the financial capacity of the new government.

AFGHANISTAN: Budget estimates, existing funding, and budget gaps for 2002 and 2001–2005 (as estimated in 2000), US$ millions

COST ITEM	BUDGET 2002	FUNDING 2002			BUDGET 2001–5	FUNDING 2001–5		
		GOV'T	GRANTS	GAP		GOV'T	GRANTS	GAP
Staff	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.
Buildings	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.
Diagnosis					0.4	Assumed negligible	0	0.4
Drugs					8.4	As above	0	8.4
Training					0.2	As above	0	0.2
Programme management and supervision					1.0	As above	0	1.0
Activities to increase case detection and cure rates					0	As above	0	0
Miscellaneous*					1.3	As above	0	1.3
TOTAL					11.3	As above	0	11.3

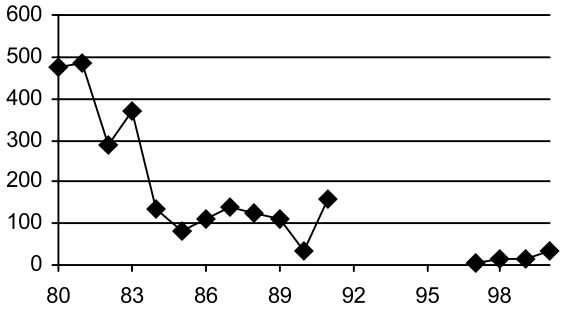
n.e. = not estimated
* this represents staff costs of US$ 250 000 per year, to cover employment of international (one person) and national (several people) staff

AFGHANISTAN

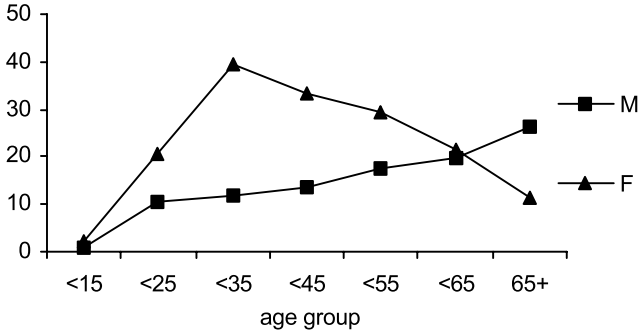
LATEST INFORMATION:	2000
Population	21 764 955
Est. incidence (all cases/100 000 pop)	321
Global rank (by est. number of cases)	22
Regional rank	2
Est. adult (15-49y) TB cases that are HIV+ (%)	0.0
Est. multi-drug resistance (new cases)	7.3
DOTS status (year adopted)	DOTS (1997)

TRENDS:	1997	1998	1999	2000
DOTS population coverage (%)	12	11	14	15
Notification rate (all cases/100 000 pop)	6.3	15	16	33
Detection (new ss+ cases, %)	2.0	6.0	5.4	9.2
- DOTS detection (new ss+, %)	2	6	5	9
Treatment success countrywide (new ss+, %)	45	33	86	- -
- Treatment success under DOTS (%)	45	33	87	- -
- Est. new ss+ success under DOTS (%)	3	3	5	- -

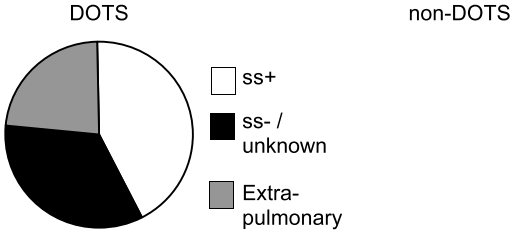
NOTIFICATION RATE (all cases per 100 000 pop)



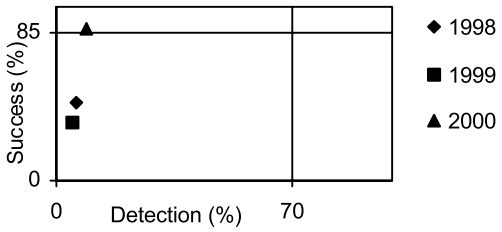
RATE BY AGE AND SEX (new ss+) *



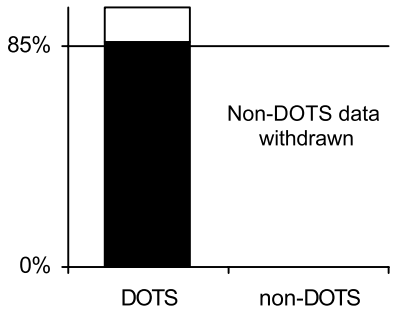
CASE TYPES NOTIFIED (new)



DOTS DETECTION AND DOTS SUCCESS RATES **

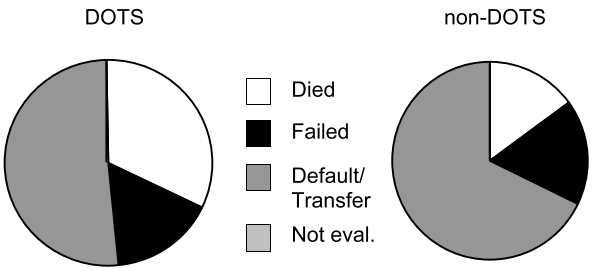


TREATMENT SUCCESS RATE (new ss+)



Nb registered: 1 787 DOTS

UNSUCCESSFUL TREATMENT OUTCOMES (new ss+)



* The age and sex rates may be based on data that do not include all smear-positive cases notified.
** DOTS treatment success rates are shown here by year of report, i.e., for the cohort registered during the previous year.
ss+ = sputum smear-positive. Est = estimated. '- -' = data not yet collected by WHO. Eval = evaluated. Pop = population.

AFGHANISTAN: Constraints to DOTS expansion and remedial actions

	CONSTRAINTS TO DOTS EXPANSION	ACTION TAKEN IN 2001 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION	ACTION PLANNED IN 2002 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION
POLITICAL ENVIRONMENT			
Political commitment	• War and change of governments; new interim government is not yet fully functional	• National TB coordination meeting in August 2001 attended by all TB coordinators, NGOs and WHO: principles of DOTS expansion for 2 years were agreed on, donor meeting planned for Nov. 2001 but prevented by the war	• Preparation of strategic plan with new government, within the context of overall health reconstruction in Afghanistan • Develop partnership with national authority, NGOs, international agencies, and others • Implement strategic plan to reconstruct TB control in Afghanistan
Financial resources	• Crisis and change of governments, no secured funds	• Support received from Norway (drugs) and Italy (programme funds), but interrupted by war	• Establish National Interagency Coordination Committee
Sustainability of existing DOTS services	• Extremely weak general health services • Heavy dependence on external support • War and change of governments	• Involvement of all partners and local authorities • National coordination meeting planned, but not held because of war	• Develop strategic plan in the context of Afghan health reconstruction, with plan aiming to integrate TB control in PHC network
HEALTH SYSTEM CAPACITY			
Health services infrastructure	• Extremely weak general health services • Change of governments and destruction of health services infrastructure due to war	• Development of a mid-term strategic plan (interrupted by war) • International medical officer appointed by WHO in early September 2001	• Develop strategic plan in the context of Afghan health reconstruction, with plan aiming to have NTP actively involved
Health sector reform including private sector integration	• Destruction of already-weak health services during war • Uncontrolled private health sector	• Strengthened DOTS activities in public health sector through the above activities (but interrupted by war)	• Develop strategic plan • Rehabilitate of DOTS activities in public health services in the context of Afghan health reconstruction • Start dialogue with private health sector
Access to health care services and facilities	• Limited access to health services due to weak infrastructure, particularly for women	• Strengthened DOTS activities in public health sector, but activities interrupted by war	• Develop strategic plan • Rehabilitate DOTS activities
Staffing	• Low motivation of staff resulting from low salaries • Lack of supervision • Weak technical skills at all levels	• Held master trainer course in July 2001 • Recruited one international TB expert • Recruited key national experts to facilitate DOTS (interrupted by war)	• Develop strategic plan • Continue recruitment of key national staff
Management and communication	• Weak managerial capacity and limited communication channels	• Recruitment of one international and key national staff	• Continue recruitment of key national staff • Coordination with partners
Drug supply	• Shortage of drugs in early 2001 and difficulties in distribution due to destruction of logistics	• Receipt of drugs from Norway but distribution was interrupted by the war	• Develop strategic plan • Apply for GDF support
Laboratory resources	• Lack of proper diagnostic activities including a laboratory network	• Held master laboratory trainers training course in September 2001 (started before the war, but was interrupted)	• Develop strategic plan • Continue coordination with partners • Re-train key laboratory staff • Establish laboratory training institution in cooperation with NGO in Pakistan • Establish national TB reference laboratory
Quality of TB services	• Weak DOTS activities (low treatment success rate)	• Strengthen DOTS activities through the above activities described in table	• Develop strategic plan • Reconstruct DOTS activities • Improve quality control in laboratory network
Programme monitoring and surveillance	• Lack of proper data recording and reporting • Lack of effective network with partners, particularly NGOs	• Plan to hold national TB coordinators meeting to establish network systems in collaboration with partners and WHO sub-offices (interrupted by war)	• Regular meetings with national coordinators • Establish communication network by using WHO sub-offices • Supervision of supervisors
Emerging issues	• War and subsequent collapse		• Reconstruction of the country
PEOPLE AND COMMUNITIES			
Community health education	• Limited community involvement • Presence of TB stigma	• Exchange of information with NGO on community-based DOTS (interrupted by war)	• Promote community-based DOTS within the context of TB control rehabilitation

COUNTRY PROFILE

Bangladesh

TB Control within the health system

A major health sector-wide approach to health reform—the 1998–2003 Health and Population Sector Programme (HPSP)—integrated the National TB Programme as part of the Essential Services Package (ESP). Health policy is directed at improving equity and accessibility to essential health services, including TB care.

Progress in DOTS coverage

DOTS was introduced in the city of Rajshahi in 2001, increasing coverage to 92% (according to the 2001 Population Census). The case detection rate under DOTS was 24% in 2000. A significant difference persists between DOTS coverage and the case detection rate because large numbers of patients seek treatment from non-DOTS providers within designated DOTS areas, including medical college hospitals and private practitioners. Treatment success for new smear-positive cases treated under DOTS has increased for the fourth consecutive year, and is now 81% for the 1999 cohort. Treatment success outside DOTS areas was only 56%, largely due to a high default rate (25%).

Planning for TB Control

Bangladesh has a 5-year strategic plan (2001–2005) for DOTS expansion. There is presently no National Interagency Coordinating Committee.

Health sector reform will facilitate TB partnerships with the private sector, thereby ensuring standardization of TB treatment. Private practitioners provide a major portion of health services, and the implementation of DOTS within the private system is vital. A well-orchestrated transition of the reformed ESP supportive services (i.e. training, procurement, health information, supervision) is essential for increasing the capacity of public health services for TB case detection.

Partnerships

Partnerships are a key component of Bangladesh's success in combining international collaboration with effective NGO involvement for DOTS delivery and national political commitment. Since the introduction of DOTS in 1993 the government has established technical partnerships with WHO, complemented by NGOs. The Government of Bangladesh has strengthened its alliance with the World Bank to assist with health sector reform. Costs to support TB have been shared by WHO, international NGOs, and national NGOs (supported by USAID and ADB). BRAC and Damien Foundation Belgium (DFB) presently provide TB services to 40% of the population.

Financial estimates

The budget specifically for TB control is US$ 3.7 million for the period July 2001–June 2002. Of this, about US $3.6 million is for drugs and laboratory supplies. In addition, funding of US$ 0.4 million has been allocated for joint tuberculosis and leprosy control activities, such as programme management and supervision. Of the total of US $4.1 million, US$ 1.1 million is being provided by the government, and US$ 3 million by donors. No funding gaps are anticipated for drugs, laboratory supplies, training, surveillance, and technical assistance during the period 2001–2003. However, this will require a regular flow of funds and implementation capacity. It is estimated that the budget and funding shares will be similar in 2002–3, but after 2003 when the current HPSP (Health and Population Sector Plan) ends, funding is uncertain. A national plan for 2001–5, which has recently been developed, indicates that a total budget of around US$ 25 million is required for this five-year period.

The budget estimates shown in the table do not include the costs associated with using resources that are not TB-

BANGLADESH: Budget estimates for 2001–2005, US$ millions

COST ITEM	BUDGET 2002	FUNDING 2002			BUDGET 2001–5	FUNDING 2001–5		
		GOV'T	GRANTS	GAP		GOV'T	GRANTS	GAP
Staff	n.e.				n.e.			
Buildings	n.e.				n.e.			
Diagnosis					2.3			
Drugs					13.3			
Training					1.9			
Programme management and supervision					3.0			
Activities to increase case detection and cure rates*					2.5			
Miscellaneous					1.8			
TOTAL					24.8			

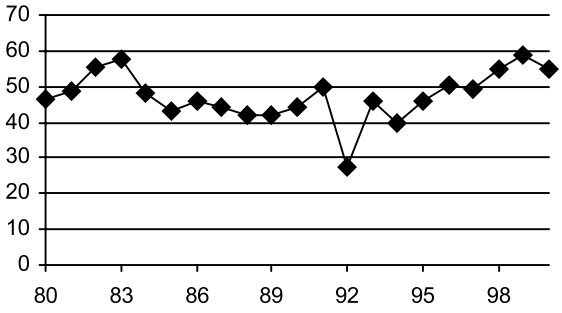
n.e. = not estimated
* includes health education and operational research

BANGLADESH

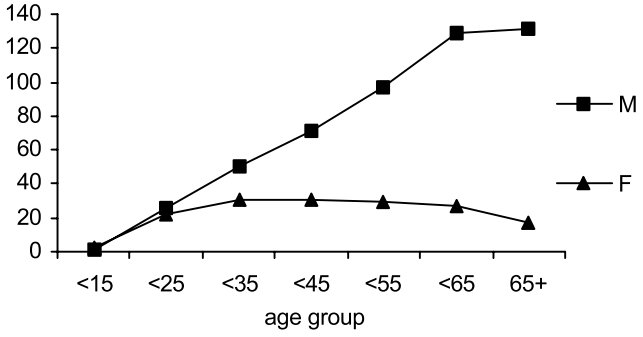
LATEST INFORMATION:	2000
Population	137 439 261
Est. incidence (all cases/100 000 pop)	242
Global rank (by est. number of cases)	5
Regional rank	3
Est. adult (15-49y) TB cases that are HIV+ (%)	0.1
Est. multi-drug resistance (new cases)	1.4
DOTS status (year adopted)	DOTS (1993)

TRENDS:	1997	1998	1999	2000
DOTS population coverage (%)	80	90	90	92
Notification rate (all cases/100 000 pop)	49	55	59	55
Detection (new ss+ cases, %)	23	26	26	26
- DOTS detection (new ss+, %)	18	23	23	24
Treatment success countrywide (new ss+, %)	73	77	79	- -
- Treatment success under DOTS (%)	78	80	81	- -
- Est. new ss+ success under DOTS (%)	14	19	19	- -

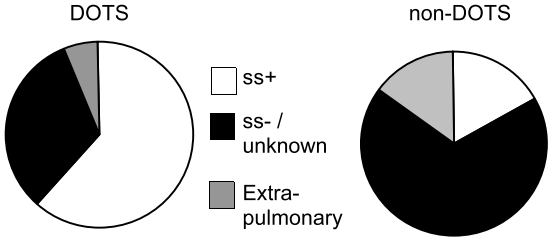
NOTIFICATION RATE (all cases per 100 000 pop)



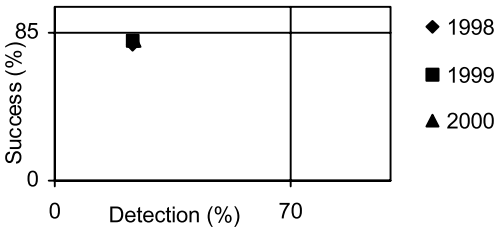
RATE BY AGE AND SEX (new ss+) *



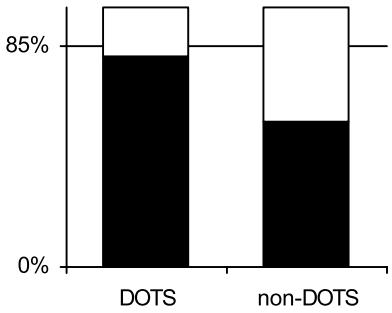
CASE TYPES NOTIFIED (new)



DOTS DETECTION AND DOTS SUCCESS RATES **

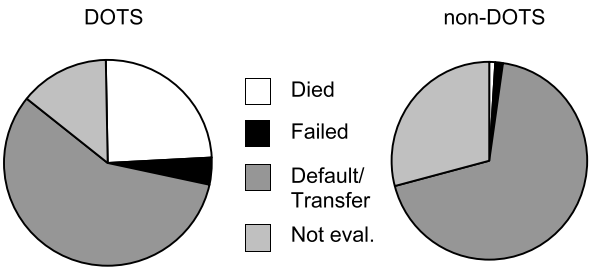


TREATMENT SUCCESS RATE (new ss+)



Nb registered: 34 047 DOTS , 3 774 non-DOTS

UNSUCCESSFUL TREATMENT OUTCOMES (new ss+)



* The age and sex rates may be based on data that do not include all smear-positive cases notified.
** DOTS treatment success rates are shown here by year of report, i.e., for the cohort registered during the previous year.
ss+ = sputum smear-positive. Est = estimated. '- -' = data not yet collected by WHO. Eval = evaluated. Pop = population.

specific (i.e. general health services staff and general health services infrastructure). Estimates of these costs are provided in the results section of this report.

It would be useful to have an assessment of whether there is any need for investment in general health services if the number of cases to be treated expands in line with projected increases in case detection. ■

BANGLADESH: Constraints to DOTS expansion and remedial actions

	CONSTRAINTS TO DOTS EXPANSION	ACTION TAKEN IN 2001 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION	ACTION PLANNED IN 2002 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION
POLITICAL ENVIRONMENT			
Political commitment	• Slow reorganization of the Health and Population Sector Programme (HPSP) (e.g. supply, surveillance, supervision, training)	• In-depth review of NTP • Formulated strategic plan for DOTS expansion • NGO partnerships expanded	• Incorporate strategic plan for DOTS expansion into HPSP plan
Financial resources	• Delays in disbursement and implementation	• Improved communication with management team	• Further improve communication with management team
Sustainability of existing DOTS services		• DOTS has been further integrated into the ESP package	• Continue the process of DOTS integration into an effective ESP delivery
HEALTH SYSTEM CAPACITY			
Health services infrastructure	• Lack of health infrastructure at community level • Government secondary and tertiary level health facilities phasing into the HPSP reform	• Revise standards for implementing DOTS • Community clinics were under construction	• Further extend collaboration within the Ministry of Health and Family Welfare, and between the ministry, NGOs, and the private sector
Health sector reform including private sector integration	• Little collaboration with general hospitals, medical colleges, and private providers	• Extended partnerships to the private sector to ensure standardization of treatment and DOTS expansion	• Continue to involve private sector partners to ensure standardization of treatment and DOTS expansion
Access to health care services and facilities	• Lack of urban facilities delivering ESP • Poor knowledge of availability of DOTS services in the population	• DOTS expanded in 2 metropolitan cities • Opened more community clinics for DOTS • Government and NGOs services were better integrated	• Expand DOTS in Dhaka city • Further expand DOTS in community clinics and urban facilities • Promote DOTS services
Management and communication	• Ministry of Health and Family Welfare not fully unified		• Revise training material under the Health and Population Sector Programme, and strengthen central management
Drug supply	• Lengthy central procurement process	• Improved drug procurement procedures to ensure uninterrupted supply of quality TB drugs and proper buffer stocks at every level	• Ensure consistent supply of quality drugs by introducing drug blister-packs • Include DOTS in local-level planning
Laboratory resources	• Shortage of microscopes and delay in training microscopist	• Microscopes procured and microscopist trained	• Open national reference laboratory
Quality of TB services	• Poor quality control of microscopy services	• Improved supervision of laboratories	• Establish quality control in national TB Reference laboratory
Programme monitoring and surveillance	• HPSP health information system in transition • Supervisors at divisional level not appointed • Shortage of transport	• Identified priorities and activities to strengthen monitoring and surveillance	• Strengthen supervision and monitoring by revising registers/forms, developing application software, and providing transport • Start national drug resistance surveillance programme • Design national TB survey to validate actual TB incidence and prevalence
PEOPLE AND COMMUNITIES			
Community health education	• Poor knowledge of DOTS services among the population • Poor attitude of ESP providers	• Implemented behaviour-change communication strategic plan for DOTS	• Strengthen community education and social mobilization campaigns and promote participation of NGOs and the community in TB control

Brazil

TB control within the health system

Brazil demonstrated renewed commitment to effective TB control in 1998 by adopting the DOTS strategy. Health sector reform has provided opportunities to decentralize TB services at the periphery, and bestow authority upon mayors so as to ensure accessibility to the general population. TB control is now well-integrated within the primary health care system.

Progress in DOTS coverage

In 1998 DOTS was implemented in selected facilities in 4 states of Central West Brazil and the National Health Board declared TB a priority problem. However by 2000 only 7% of the population had access to DOTS and these areas detected less than 1% of estimated smear positive cases. Furthermore, treatment outcomes were only provided for 12% (250 cases) of smear positive cases notified in 1999. Outside DOTS areas, TB patients are still under self-administered short course chemotherapy and cohort analysis of smear positive cases at district level has not been implemented. Brazil notified an estimated 80% of smear-positive cases in 2000, but failed to evaluate treatment outcomes for 35% of cases notified in 1999. Rapid improvements in the recording and reporting system are required to ensure correct assessment of the numbers of cases notified, the number registered for treatment, and treatment outcomes, both within and outside DOTS areas. The country has the financial resources and political will required to implement the DOTS strategy country-wide. Rapid staff training, implementation of the recommended recording and monitoring system, and increased supervision in 2002 should allow the country to reach the WHO targets before 2005.

Partnerships

Overall external technical collaboration for the country is led by WHO/PAHO and IUATLD. Other partners are GLRA and DFB for training and monitoring activities. CDC is a potential source of technical support in the future. Brazilian NGOs have helped to build national technical partnerships.

Planning for TB control

A strategic plan (2001–2005) maps out the pathway by which Brazil will reach global targets for TB control by 2005. The plan promotes political and social mobilization, and expansion of DOTS to 329 priority municipalities (of 5500 in the country) from which 80% of TB cases are reported. A National Interagency Coordinating Committee has recently been created to assist with planning and coordination of TB control, and an international advisor for TB control was appointed in 2002. Standardized guidelines for TB case management, recording, and reporting according to international standards will be implemented in 2002. TB drugs are procured and distributed by the government through the national treasury.

Budget estimates

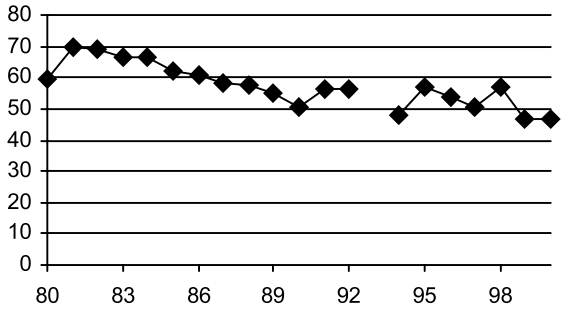
A five-year budget will be included in the plan currently under development. Current information indicates that a federal budget of around US$ 15 million per year is required. The new plan should include a fully itemised budget, and explain how budget estimates are linked to the plan to reach global targets by 2005.

BRAZIL

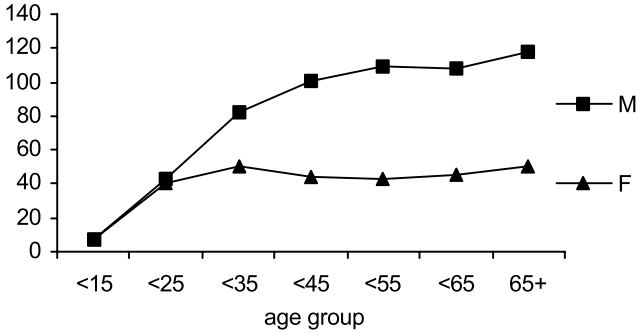
LATEST INFORMATION:	2000
Population	170 406 280
Est. incidence (all cases/100 000 pop)	68
Global rank (by est. number of cases)	15
Regional rank	1
Est. adult (15-49y) TB cases that are HIV+ (%)	3.3
Est. multi-drug resistance (new cases)	0.9
DOTS status (year adopted)	DOTS (1998)

TRENDS:	1997	1998	1999	2000
DOTS population coverage (%)	0	3	7	7
Notification rate (all cases/100 000 pop)	51	57	47	47
Detection (new ss+ cases, %)	80	81	79	79
- DOTS detection (new ss+, %)		4	4	1
Treatment success countrywide (new ss+, %)	27	40	51	- -
- Treatment success under DOTS (%)		91	11	- -
- Est. new ss+ success under DOTS (%)		0	0	- -

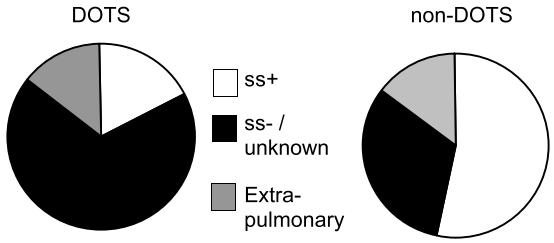
NOTIFICATION RATE (all cases per 100 000 pop)



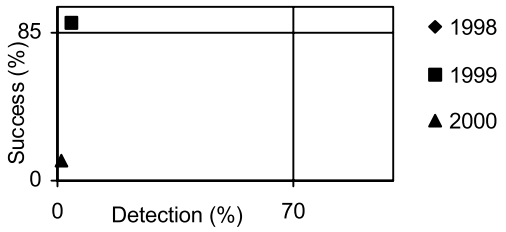
RATE BY AGE AND SEX (new ss+) *



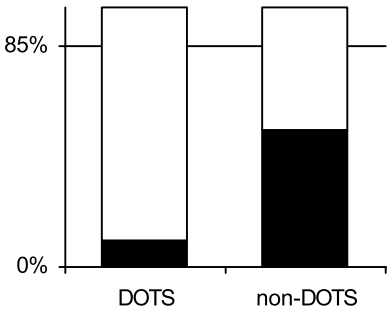
CASE TYPES NOTIFIED (new)



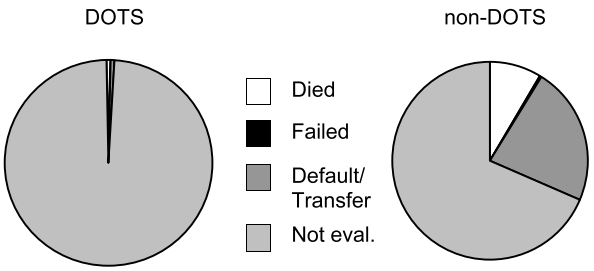
DOTS DETECTION AND DOTS SUCCESS RATES **



TREATMENT SUCCESS RATE (new ss+)



UNSUCCESSFUL TREATMENT OUTCOMES (new ss+)



Nb registered: 2 108 DOTS , 39 326 non-DOTS

* The age and sex rates may be based on data that do not include all smear-positive cases notified.
** DOTS treatment success rates are shown here by year of report, i.e., for the cohort registered during the previous year.
ss+ = sputum smear-positive. Est = estimated. '- -' = data not yet collected by WHO. Eval = evaluated. Pop = population.

BRAZIL: Constraints to DOTS expansion and remedial actions

	CONSTRAINTS TO DOTS EXPANSION	ACTION TAKEN IN 2001 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION	ACTION PLANNED IN 2002 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION
POLITICAL ENVIRONMENT			
Political commitment	• Lack of effective political commitment and mobilization on part of Ministry of Health and state/local authorities	• The Ministry of Public Health has launched a strategic plan with social mobilization for leprosy and TB	The first phase of the Strategic Plan (2002) includes: • Political and social mobilization extending to all community programmes • Creation of an inter-institutional group presided by the Ministry of Health • Selection of 329 municipalities (80% of TB cases) as priority for the expansion of DOTS • Appointment of an international advisor
Sustainability of existing DOTS services	• Lack of sufficient resources for capacity building and supervision for the expansion of DOTS	• Increasing the resources for the expansion of DOTS in the priority municipalities	• Initiation of a strategic plan for capacity building and supervision for the expansion of DOTS
HEALTH SYSTEM CAPACITY			
Health services infrastructure	• Necessary to integrate activities of TB control with the DOTS strategy	• Prepared DOTS expansion plan • Created National Interagency Coordinating Committee	• Implementation of a training plan for personnel in the 329 priority municipalities
Health sector reform including private sector integration	• Decentralization of health to the 5 500 municipalities has not been accompanied by TB programme expansion to the majority of these municipalities	• Prepared a strategic plan for the 329 priority municipalities that represent 80 % of TB cases in the country	• Development of a plan of activities in municipalities with more than 5 000 inhabitants
Access to health care services and facilities	• Lack of a total integration of the programme with health services	• Elaboration of a strategic plan for the 329 priority municipalities	• Expanded capacity for diagnosis and treatment through family and community health programmes • Trained 5 000 health professionals and 20 000 auxiliary staff in TB control activities
Management and communication	• Understaffing of the central unit and at the state level has hampered managerial capacity and regular supervision at the municipal level	• Enhanced managerial and supervisory capacity at both the central and inter-state levels	• Improved TB supervision and monitoring
Drug supply	• Problems with planning for drugs	• Implementation of monitoring system for drug supply	• Expanded TB drug programming and stock monitoring in states and municipalities
Laboratory resources	• Weak organization of laboratory network	• Trained core group of laboratory technicians and developed network of laboratories to address lack of qualified staff	• Implementation of a plan for capacity and supervision of the laboratory network
Programme monitoring and surveillance	• Need to improve TB data analysis related to patient follow-up status	• Identification of resources for the training of personnel	• Execution of a plan of activities in the 329 priority municipalities
Emerging issues	• TB/HIV coinfection rates may become a potential threat to overall TB control	• Selection of Rio de Janeiro and São Paulo as pilot areas for the development of joint plans for TB/HIV/AIDS	• Commencement of a pilot plan in Rio de Janeiro (USAID funds)
PEOPLE AND COMMUNITIES			
Community health education	• Lack of a strategic plan of action	• Initiated community education and social mobilization campaign for TB Control and Leprosy Elimination to continue to expand NGO and community participation in the fight against TB	• Initiation of a plan of activities in the 329 priority municipalities

COUNTRY PROFILE

Cambodia

TB control within the health system

For the last 10 years, Cambodia has been rebuilding a health system dismantled by war. The overall strategy is to improve equity and accessibility to essential health services, including TB care. Since the public health infrastructure was very weak when DOTS was adopted in 1994, TB treatment was provided only in hospitals. The positive impact of the health reforms is demonstrated by the fact that, in year 2000, core primary health care services were available in 73 districts through 67 referral hospitals and approximately 500 health centres. National TB policies are standardized through technical guidelines on TB case management and laboratory procedures. A large TB unit in Phnom Penh, employing 20 full- or part-time medical doctors, operates from the only lung health hospital in the country. The strengthening of the health network will allow TB services to become progressively more decentralized to peripheral health centres, improving access for all.

Progress in DOTS expansion

The estimated incidence of TB is extremely high (572 cases per 100,000 population). By the end of 2001, DOTS was available in 261 health centres and 2 hospitals situated in all 24 provinces and municipalities. In addition, home-based TB care is available for most of the patients living in the capital city. TB microscopy services are provided by 151 laboratories, and laboratory quality control is ensured through twice-yearly re-reading of selected slides. Treatment success has exceeded 85% for many years, while the estimated case detection rate has remained under 50%, well below the 70% target.

Planning for TB control

A new five-year (2001–2005) policy and strategy for TB control was released in 2001, along with a new national health framework. By the end of 2005, DOTS should be available in all of the 946 health centres (one facility per 10 000 population) which are being developed or built throughout the country, adding to 75 national, referral, and NGO hospitals. The NTP is presently revising its TB recording and reporting system to ensure full compatibility with the needs of the changing health system. These changes mean that training and supervision have become paramount in promoting high-quality services, such as the consistent use of smear microscopy for diagnosis. The inclusion of adequate training on TB control is being carefully considered within the training package on essential health services. Strong political commitment for TB control has translated into an increase in the national budget for TB drugs.

Partnerships

A multisectoral partnership, the "National Committee Against Tuberculosis", has been established and is chaired by the Prime Minister. Overall external technical collaboration is led by WHO and JICA. Other external support from MSF and RIT has helped to maintain technical quality. The main funding partners are the World Bank and JICA.

Financial estimates

Detailed budget estimates are available for the period 2001–2005. The total is approximately US$ 23 million, an average of US$ 5 million per year. In addition, the World Food Programme provides food worth approximately US$ 1 million per year. The main budget items are drugs, programme management and supervision, training and staff. Existing funding for 2001–2005 includes around US$8 million from the government and US$ 5 million from grants. The remaining budget gap is US$ 10 million.

The budget estimates shown in the table cover all staff resources required

CAMBODIA: Budget estimates, existing funding, and budget gaps for 2002 and 2001–2005, US$ millions

COST ITEM	BUDGET 2002	FUNDING 2002			BUDGET 2001–5	FUNDING 2001–5		
		GOV'T	GRANTS	GAP		GOV'T	GRANTS	GAP
Staff	0.6			0.3	3.9			2.1
Buildings	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.
Diagnosis	0.2				0.9			0.4
Drugs	1.0			0.2	5.9			1.9
Training	1.0			0.3	4.9			2.5
Programme management and supervision	1.0			0.1	5.4			1.9
Activities to increase case detection and cure rates	0.5			0.3	2.4			1.5
Miscellaneous	0			0	0			0
TOTAL	4.3			1.2	23.4	8.2	4.9	10.3

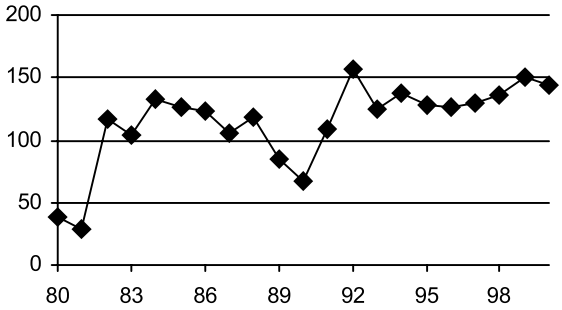
n.e. = not estimated

CAMBODIA

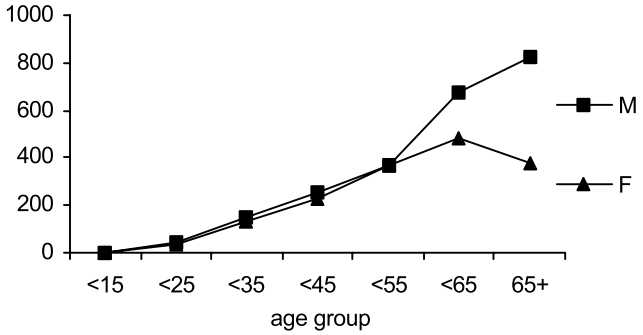
LATEST INFORMATION:	2000
Population	13 104 030
Est. incidence (all cases/100 000 pop)	572
Global rank (by est. number of cases)	20
Regional rank	4
Est. adult (15-49y) TB cases that are HIV+ (%)	20
Est. multi-drug resistance (new cases)	4.2
DOTS status (year adopted)	DOTS (1995)

TRENDS:	1997	1998	1999	2000
DOTS population coverage (%)	88	100	100	99
Notification rate (all cases/100 000 pop)	129	136	151	144
Detection (new ss+ cases, %)	44	45	49	44
- DOTS detection (new ss+, %)	44	45	49	44
Treatment success countrywide (new ss+, %)	91	91	93	- -
- Treatment success under DOTS (%)	91	91	93	- -
- Est. new ss+ success under DOTS (%)	38	41	46	- -

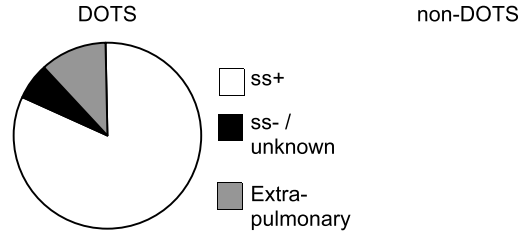
NOTIFICATION RATE (all cases per 100 000 pop)



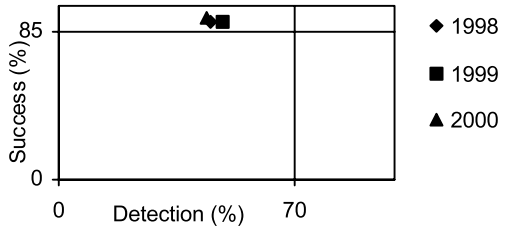
RATE BY AGE AND SEX (new ss+) *



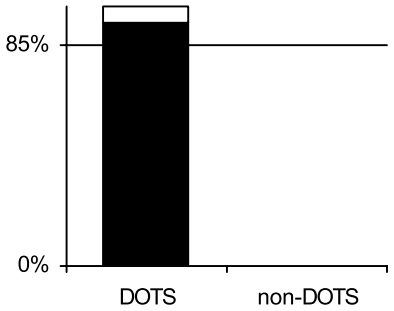
CASE TYPES NOTIFIED (new)



DOTS DETECTION AND DOTS SUCCESS RATES **

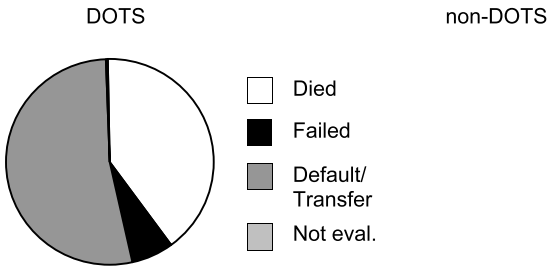


TREATMENT SUCCESS RATE (new ss+)



Nb registered: 15 744 DOTS

UNSUCCESSFUL TREATMENT OUTCOMES (new ss+)



* The age and sex rates may be based on data that do not include all smear-positive cases notified.
** DOTS treatment success rates are shown here by year of report, i.e., for the cohort registered during the previous year.
ss+ = sputum smear-positive. Est = estimated. '- -' = data not yet collected by WHO. Eval = evaluated. Pop = population.

for TB control activities (both dedicated TB programme staff and general health staff). They do not include some of the costs associated with hospitalisation of TB patients, or some of the costs associated with outpatient visits by TB patients to general health facilities (e.g. buildings, non-staff operating costs). Estimates that do include these costs are provided in the results section of this report.

CAMBODIA: Constraints to DOTS expansion and remedial actions

	CONSTRAINTS TO DOTS EXPANSION	ACTION TAKEN IN 2001 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION	ACTION PLANNED IN 2002 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION
POLITICAL ENVIRONMENT			
Financial resources	• Irregular release of funding	• Establish NICC to seek multi-donor assistance	• Assure sustainable funding with NICC collaboration • Use part of JICA project and WHO funding contribution as a buffer fund
Sustainability of existing DOTS services	• Low salary & user fee system for non-TB patients	• Clear MoH policy of free TB Service	• Measures to motivate staff including decentralization of activity budget
HEALTH SYSTEM CAPACITY			
Health services infrastructure	• Health centre network is not completed		• Expand DOTS in districts where MPA health centers are established
Health sector reform including private sector integration	• Non-adherence of private sector to DOTS strategy	• Continued to strengthen TB control component during health sector reform so as to ensure that TB is reflected as a priority at the operational and health centre levels • An NGO hospital joined NTP	• Provide NTP information to private sector
Access to health care services and facilities	• Late detection of TB cases		• Increase case detection rates by decentralized DOTS and IEC activities
Staffing	• Lack of staff capacity is primary constraint being faced amidst rapid expansion of health system • Low staff salaries in public sector • Lack of clarity in terms of roles and functions of various units and staff at all levels	• Trained health care centre staff to implement DOTS in health centres and at the community level	• Continue staff motivation and capacity building efforts by several measures such as study tour to model areas, decentralized activity budget, and training
Management and communication	• Lack of management capacity	• Trained core group of managers at all levels of the system to address turnover of staff and lack of qualified staff	• Recruit new staff from MoH
Drug supply	• Drug needs will continue to increase due to improved case detection and worsening TB/HIV epidemic	• One year safety stock in central level was established by the government. Drugs for 2002 were already secured	• Request to government of Japan to donate drugs from 2003 to cope with the increase in patients due to TB/HIV and DOTS expansion
Laboratory resources	• Shortage of qualified supervisors at central level	• Trained core group of laboratory technicians at all levels of the system to address turnover of staff and lack of qualified staff	• Improve capacity of laboratory network
Quality of TB services	• Significant number of false-positive laboratory results	• Strengthened supervision and on-the-job training at TB unit level	• Train referral hospital TB physicians • Improve capacity of supervisors at provincial and operational district levels
Programme monitoring and surveillance	• No basic data on TB prevalence and incidence		• National TB Prevalence Survey is planned (April–November 2002)
Emerging issues	• Increasing number of TB/HIV cases	• Strengthened collaboration of TB and HIV/AIDS services • TB screening clinic was started at CENAT	• HIV/TB Survey is planned • IPT may start in big cities
PEOPLE AND COMMUNITIES			
Community health education	• Mosaic pattern of TB services due to the expansion process of DOTS and transitional process of HSR	• Strengthen community education in areas where TB services have been established	• NGO involvement to develop IEC materials and to disseminate at community level

COUNTRY PROFILE

China

TB control within the health care system

A three-tier primary health care system is in place in the rural areas with health units at the country, township, and village levels. Villages have simple clinics staffed by doctors, townships have a clinic or a small hospital, and counties have several hospitals. In urban areas, the health system is dominated by hospitals of various sizes. Outpatient departments of the hospitals serve as the entry point for patients seeking primary care. Fewer than 20% of patients have health insurance and 80–90% of patients pay out-of-pocket for medical expenses.

Currently, there are three modes of TB control in China, though these will be integrated in 2002. The first mode delivers the DOTS strategy with free diagnosis for all suspects and free treatment for infectious TB cases, and was supported (until the end of 2001) through a World Bank loan for half of the country. The drug supply is centralized and is procured by international bidding, keeping prices low and quality high. Treatment in DOTS programmes is provided in TB dispensaries, to which cases diagnosed elsewhere should be referred. The second mode is the "Promoting and Strengthening TB Control Project" funded by the government and covering a population of 160 million with a modified DOTS strategy. The fees paid by patients are based on socioeconomic status. The third mode covers the remaining 480 million people without a well-defined strategy.

Progress in DOTS coverage

After rapid expansion of DOTS during the early 1990s, DOTS coverage in 2000 (68%) and case detection in 2000 (33%) have changed little since 1996. The World Bank-funded Infectious and Endemic Disease Control (IEDC) Project provided DOTS to approximately 50% of the population until the end of 2001, with the remaining 18% being funded by national sources.

Preliminary results from the 2000 National TB Prevalence Survey (NPS) found that in the 13 provinces covered by the project, the prevalence of smear-positive TB had fallen by 36% since 1990, compared to 3% elsewhere. Only 13% of cases with a known diagnosis of TB were referred to TB dispensaries for treatment, suggesting gross under-referral of TB patients from hospitals where most TB diagnoses are made. Improving the system of referral, or integrating hospitals into DOTS programmes, is clearly essential for improving TB control in China.

Planning for TB control

The three priorities for TB control in China are: to maintain DOTS services where they have been introduced during the 1990s; to increase case detection within DOTS areas by strengthening the referral of patients to TB dispensaries; and to expand DOTS to the remaining 40% of the country.

China has completed a National Plan for the Prevention and Control of TB (2001-2010), though the implementation plan and annual work plans for 2001-2005 are still under development and not yet available. A National Interagency Coordinating Committee has been established and its first meeting will be held in early 2002.

Beginning in 2002, additional support is expected to expand DOTS to 20 provinces: 7 provinces will be funded through combined resources contributed by Japanese Grant Aid, the World Bank, and DFID; 9 provinces by World Bank and DFID; and 4 provinces with Japanese Government Grant Aid alone. Together, these funds will cover around 610 million people in 20 provinces in 2002. Therefore, if the provinces previously funded by the IEDC project (and not included in the new projects) are able to continue providing DOTS, the total DOTS coverage for the country should exceed the previous coverage of 68%.

Beginning in 2002, the national TB control plan (2001–2010) will unify and harmonize the three present modes of TB control. The plan aims to facilitate DOTS expansion to 90% of the country and double the current case detection rate (to reach 70%) by 2005, while keeping the same high level of treatment success. Strengthening of the central TB control unit is being planned and this will be essential if the proposed expansion is to be achieved. National TB policies and guidelines will be formulated and used throughout the country. Initiation

Partnerships

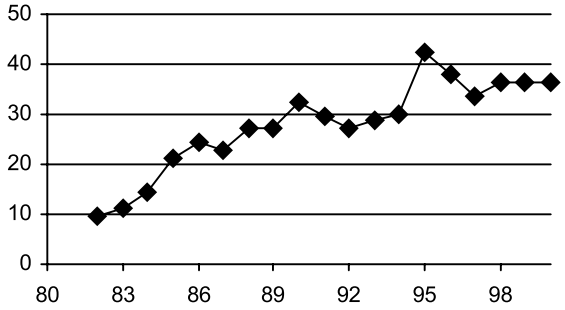
China has combined growing national political commitment with international technical and financial cooperation. The World Bank has been a key partner since 1991 through their World Bank loan project. Japan is providing grant aid support to a TB project in 2002. DFID will likely join with the World Bank to fund a new TB project, beginning in 2002. WHO has provided overall technical collaboration since inception of the World Bank loan project in 1991 and has posted one TB expert in the country since late 1999. Other partners include DFB through their support to TB control in Tibet and Inner Mongolia, KNCV through their participation in regular joint World Bank-WHO monitoring mission, and IUATLD through their support to the Chinese Anti-TB association.

CHINA

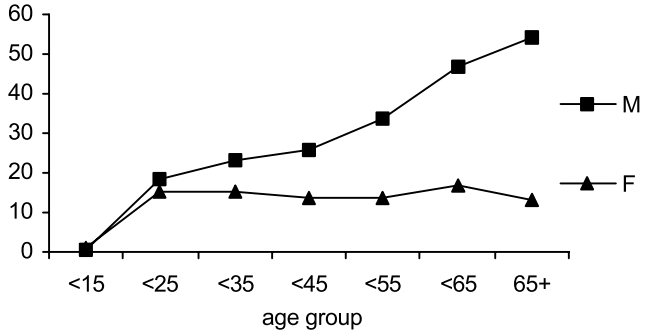
LATEST INFORMATION:	2000
Population	1 275 132 866
Est. incidence (all cases/100 000 pop)	107
Global rank (by est. number of cases)	2
Regional rank	1
Est. adult (15-49y) TB cases that are HIV+ (%)	0.4
Est. multi-drug resistance (new cases)	5.3
DOTS status (year adopted)	DOTS (1995)

TRENDS:	1997	1998	1999	2000
DOTS population coverage (%)	64	64	64	68
Notification rate (all cases/100 000 pop)	34	36	36	36
Detection (new ss+ cases, %)	33	37	36	36
- DOTS detection (new ss+, %)	26	33	32	33
Treatment success countrywide (new ss+, %)	95	95	95	- -
- Treatment success under DOTS (%)	96	97	96	- -
- Est. new ss+ success under DOTS (%)	28	32	31	- -

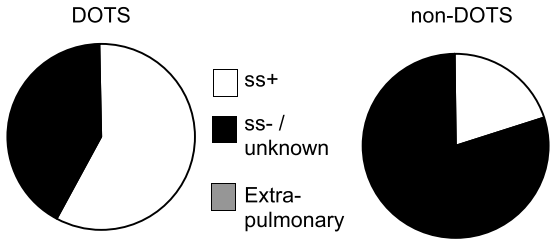
NOTIFICATION RATE (all cases per 100 000 pop)



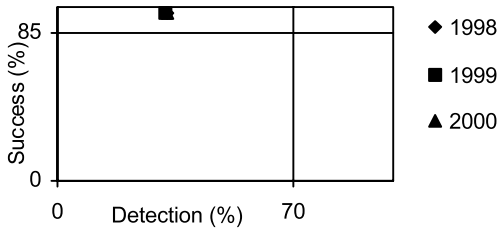
RATE BY AGE AND SEX (new ss+) *



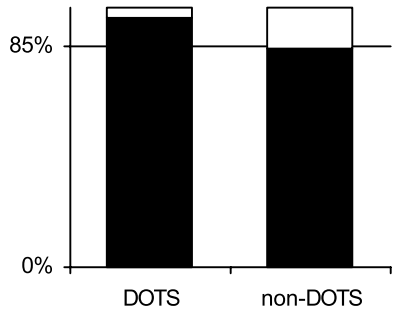
CASE TYPES NOTIFIED (new)



DOTS DETECTION AND DOTS SUCCESS RATES **

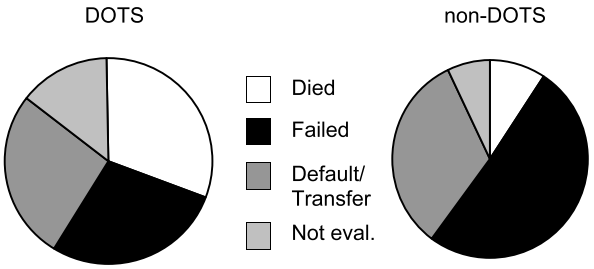


TREATMENT SUCCESS RATE (new ss+)



Nb registered: 188 112 DOTS , 19 878 non-DOTS

UNSUCCESSFUL TREATMENT OUTCOMES (new ss+)



* The age and sex rates may be based on data that do not include all smear-positive cases notified.
** DOTS treatment success rates are shown here by year of report, i.e., for the cohort registered during the previous year.
ss+ = sputum smear-positive. Est = estimated. '- -' = data not yet collected by WHO. Eval = evaluated. Pop = population.

of the new 10-year TB control plan coincides with the termination of the World Bank IEDC TB project, the government's own project, and the start of new projects.

Financial estimates

Detailed budget estimates have been prepared. The total budget for DOTS implementation for the period 2001–2005 is US$ 484.8 million (average US$ 97 million per year). The main budget items are staff, programme management and supervision, diagnosis, training, and drugs. Central government funding of US$ 4.8 million per year and provincial government funding of US$ 10.5 million per year have already been committed, as have donor funds of about US$ 2.5 million for 2002. Staff and buildings are funded at the local level. There is a budget gap of about US$ 44 million per year at present. However, further funds are expected to be available from a World Bank loan and local governments, both of which are currently being discussed.

CHINA: Budget estimates, existing funding, and budget gaps for 2002 and 2001–2005, US$ millions

COST ITEM	BUDGET 2002	FUNDING 2002			BUDGET 2001–5	FUNDING 2001–5		
		GOV'T	GRANTS	GAP		GOV'T	GRANTS	GAP
Staff	37	37			185	185		
Buildings	1.8				5.3			
Diagnosis	7.8		0.7		35.2		0.7	
Drugs	7.9		1.5		54.1		1.5	
Training	8.5				39.6			
Programme management and supervision	24.7				118.5			
Activities to increase case detection and cure rates*	6.0		0.3		32.5		0.3	
Miscellaneous	4.2				14.6			
TOTAL	97.9	52.3**	2.5	43.1	484.8	261.5**	2.5	220.8

* includes health education, case reporting fee, operational research and social assessments

** US$ 15.3 million per year (or US$ 76.5 million over 5 years) in governmental funding has been allocated but not yet been ear-marked for specific budget categories. Therefore, this amount is not reflected in the line item breakdown, but is included in the total.

CHINA: Constraints to DOTS expansion and remedial actions

	CONSTRAINTS TO DOTS EXPANSION	ACTION TAKEN IN 2001 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION	ACTION PLANNED IN 2002 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION
POLITICAL ENVIRONMENT			
Political commitment	• Lack of a national plan to fully expand DOTS to the entire country	• The State Council of China developed and disseminated the National Plan to Prevent and Control TB (2001-2010) • National Interagency Coordination Committee (NICC) established to build political support	• Based on the national plan, develop implementation and annual work plans for 2001–2005 • First meeting of NICC to be held in early 2002
Financial resources	• Insufficient funding to expand DOTS	• Central government will provide $US4.8 million each year for TB from 2001 to 2005 • Provincial governments are preparing to provide additional funds for TB control • Preparations made for a WB/DFID TB Control Project that will cover 16 provinces • Japanese Grant Aid Project was approved for 11 provinces	• Anticipated approval of new WB/DFID TB Control Project in first half of 2002 • The government will seek additional support in order to fill remaining gap in funding for TB control
Sustainability of existing DOTS services	• Sustainability of DOTS coverage achieved cannot be ensured by national resources alone	• Commitment secured from Japan to support TB project in 2002, and ongoing preparation for new WB/DFID project	• Same as for "Financial resources"
HEALTH SYSTEM CAPACITY			
Health sector reform including private sector integration	• Insufficient cooperation between TB control institutions and other health care providers		• Based on the National Plan, strengthen the referral of TB patients to the TB dispensaries for diagnosis and treatment
Staffing	• Insufficient staff to expand DOTS at each level	• Plan to strengthened central provincial and lower level TB control unit with needed human and financial resources	
	• Insufficient training provided to TB control staff	• Plan made to strengthen training of staff at all level	• Implement training program for TB control workers through new TB projects
Management and communication issues	• Lack of trained TB program managers	• Management training for core group of programme managers especially at provincial level	• Strengthen management and coordination of various TB projects
Drug supply	• Insufficient access to free TB drugs in the country	• Funding secured through central governmental funding and Japanese Grant Aid for free drugs to about 3/4 of the country	• Procure and distribute quality TB drugs
Laboratory resources	• System for quality control of sputum microscopy not fully operational		• Develop and implement national plan for quality control of sputum microscopy
Programme monitoring and surveillance	• TB surveillance system tied to different projects and not to a single national reporting system • Insufficient monitoring of provincial TB control programmes	• Revision of TB reporting system underway and decision made to have a single uniform reporting system • Plan made to strengthen supervision visits to provinces beginning in 2002	• Finalization and implementation of new national TB surveillance system • Increase monitoring visits to provinces from central level
Emerging issues	• Increasing mobile population making case-finding and management more difficult • Emergence of MDR-TB • Emergence of TB-HIV co-epidemic	• Drug resistance surveillance projects expanded to 2 more provinces in China	• Pilot project will be established to tackle problems of TB among the mobile population and HIV-associated TB • Free TB diagnosis and treatment will be provided to TB patients in mobile population • Drug resistance surveillance projects to expand to 2 more provinces in China • Rapid expansion of DOTS to reduce MDR-TB
PEOPLE AND COMMUNITIES			
Community health education	• Lack of population knowledge about TB		• New IEC strategy will be developed and implementation will begin in 2002 • Carry out social assessments; develop and implement new IEC strategy

COUNTRY PROFILE

Democratic Republic of the Congo

TB control within the health care system

The thrust of current health policy in DR Congo is to improve equity and accessibility to essential health services through primary health care, including all principal public health interventions such as TB control. TB services have been decentralized to the level of the peripheral health centre in an effort to reach the most disadvantaged sections of the population. Links and collaboration between public primary care services and a growing private sector remain limited.

Progress in DOTS coverage

DOTS coverage is nominally 70%. True coverage is lower because, through political instability and war, the fragile DOTS programme has sometimes, and in some places, lacked drugs, trained staff, and funding. DOTS zones with sufficient resources, such as the area around Kinshasa, have attracted patients from other parts of the country, generating artificially high case notification rates (exceeding 100 per 100 000 population). Because of population mobility, and the changing geography of civil conflict, effective DOTS coverage varies within and between years. Some areas previously designated as DOTS were unable to report for 2000, and some that did report began their DOTS programmes late in the year. Despite these difficulties, the estimated smear-positive case detection rate in 2000 exceeded 50%. Treatment success was 69%, limited by default (7%), transfers lost to follow-up (9%), and the failure to record any outcome for a proportion of patients (9%). The rigorous criteria for the receipt of drugs via GDF are expected to encourage the collection of more reliable data in 2002.

Planning for TB control

With assistance from IUATLD and WHO, the NTLP has completed a strategic plan for DOTS expansion (2001–2005). The plan will guide TB control efforts, with the intent of reaching the global targets for case detection and cure by 2005. As yet, there is no National Interagency Coordinating Committee. Staffing has been strengthened at the national level with the express purpose of improving programme monitoring and data management.

Financial estimates

The budget required for the period 2001–2005 is currently estimated as US$ 41 million. The biggest budget items are programme management and supervision, drugs, and inputs required for diagnosis. The budget for activities specifically related to increasing case detection and cure rates is comparatively small. The GDF is supplying drugs worth US$ 1.6 million in 2002. In 1999, funding from other donors was approximately US$ 3 million. The estimated budget gap for the period 2002–5 is US$ 36 million.

Budget estimates should be extended to include a breakdown by year. An explanation of how the existing budget estimates have been linked to the goal of reaching global targets by 2005 is also required.

The budget estimates shown in the table do not include the costs associated with using resources that are not TB-specific (i.e. general health services staff and general health services infrastructure). WHO estimates of these costs are provided in the results section of this report.

The national programme coordinator has requested assistance to estimate the full costs of implementing DOTS in the country. In such an assessment, it is important to include an evaluation of whether there is any need for investment in general health services if the number of cases to be treated expands in line with projected increases in case detection.

Partnerships

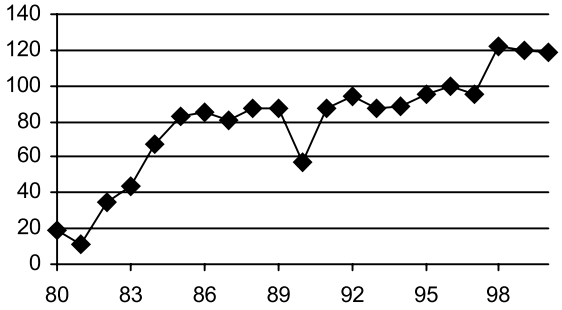
Overall technical support is provided by WHO and DFB. For the period 2000–2005, the Ministry of Health has entrusted programme monitoring to IUATLD, acting on behalf of the Stop TB Partnership. Various donors are providing financial support, advice on management, and materials including drugs, reagents, and laboratory equipment. These donors include FDB, Foperda, TLMI, ALM, and ALTI. Other partners provide support through NGOs already based in the country, e.g. the European Union and Coopération Belge via FDB and the Ligue Nationale Antituberculeuse et Antilèpreux du Congo. Solidarité Protestante works through TLMI. USAID directs funds through KNCV and IUATLD. Diagnostic and treatment centres that are part of the primary health care system are often supported by religious missions. All of these activities are carried out within the framework of the Stop TB Partnership.

DEMOCRATIC REPUBLIC OF THE CONGO

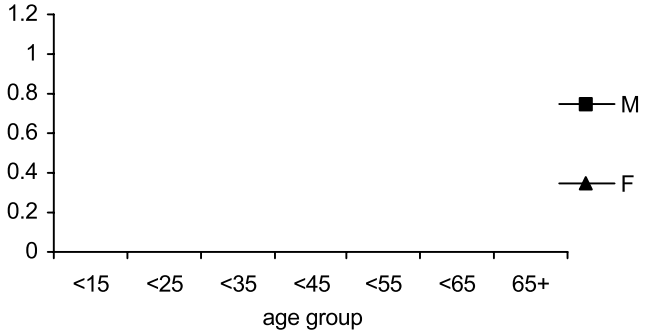
LATEST INFORMATION:	2000
Population	50 948 236
Est. incidence (all cases/100 000 pop)	320
Global rank (by est. number of cases)	11
Regional rank	4
Est. adult (15-49y) TB cases that are HIV+ (%)	24
Est. multi-drug resistance (new cases)	1.5
DOTS status (year adopted)	DOTS (1995)

TRENDS:	1997	1998	1999	2000
DOTS population coverage (%)	60	60	62	70
Notification rate (all cases/100 000 pop)	95	122	120	119
Detection (new ss+ cases, %)	48	59	55	51
- DOTS detection (new ss+, %)	49	59	55	51
Treatment success countrywide (new ss+, %)	64	70	69	- -
- Treatment success under DOTS (%)	64	70	69	- -
- Est. new ss+ success under DOTS (%)	31	41	38	- -

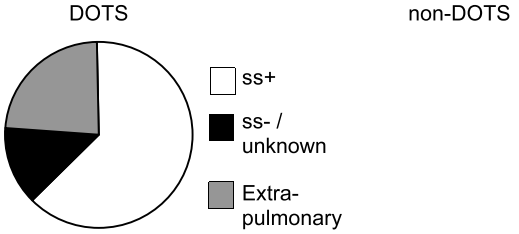
NOTIFICATION RATE (all cases per 100 000 pop)



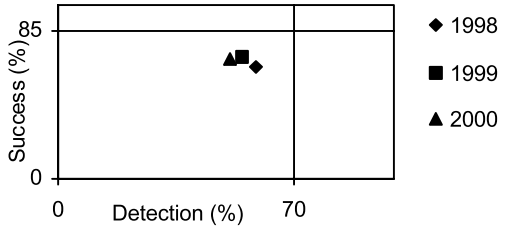
RATE BY AGE AND SEX (new ss+) *



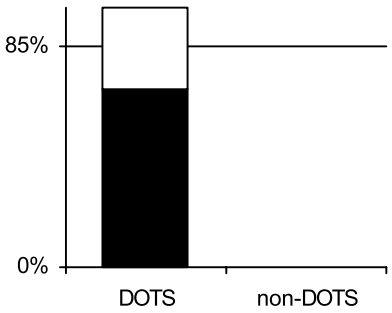
CASE TYPES NOTIFIED (new)



DOTS DETECTION AND DOTS SUCCESS RATES **

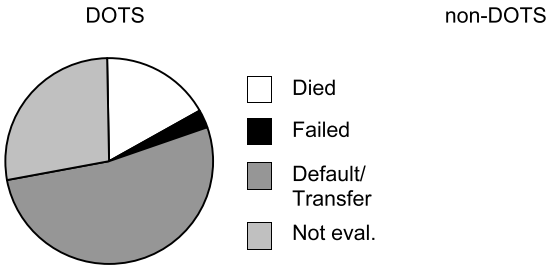


TREATMENT SUCCESS RATE (new ss+)



Nb registered: 34 923 DOTS

UNSUCCESSFUL TREATMENT OUTCOMES (new ss+)



* The age and sex rates may be based on data that do not include all smear-positive cases notified.
** DOTS treatment success rates are shown here by year of report, i.e., for the cohort registered during the previous year.
ss+ = sputum smear-positive. Est = estimated. '- -' = data not yet collected by WHO. Eval = evaluated. Pop = population.

DEMOCRATIC REPUBLIC OF THE CONGO: Budget estimates, existing funding, and budget gaps for 2002 and 2001–2005, US$ millions

COST ITEM	BUDGET 2002	FUNDING 2002			BUDGET 2001–5	FUNDING 2001–5		
		GOV'T	GRANTS	GAP		GOV'T	GRANTS	GAP
Staff	0.6			0.6	2.9			
Buildings	0.3			0.3	0.3			
Diagnosis	3.2		0.04	3.2	6.4			
Drugs	3.7		1.6+ ??	0.7	10.8			
Training	1.0			1.0	4.4			
Programme management and supervision	6.4		0.5	5.9	14.3			
Activities to increase case detection and cure rates*	0.3			0.3	1.3			
Miscellaneous**	0.3			0.3	0.9			
TOTAL	15.8	??	2.1 +??	12.3	41.3	??	5.0	36.3

* includes activities to mobilize the community to identify symptomatic suspects and organizing World TB Day,

** includes pilot TB/HIV project, evaluation of a project in Kinshasa, and a pilot project in prisons

DEMOCRATIC REPUBLIC OF THE CONGO: Constraints to DOTS expansion and remedial actions

	CONSTRAINTS TO DOTS EXPANSION	ACTION TAKEN IN 2001 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION	ACTION PLANNED IN 2002 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION
POLITICAL ENVIRONMENT			
Political commitment	• War has caused a decrease in the budget for health • Some territories managed by several authorities	• Strengthened political commitment to advocate for adequate national budget for TB drugs and for all other components of TB control	• Intensify advocacy using medium term plan that has been endorsed by the government • Improve management of programmes countrywide with support from WHO
Financial resources	• Lack of financial resources	• Mobilized new partners (USAID)	• Hold national meeting of partners
Sustainability of existing DOTS services	• Lack of staff capacity • Political instability • War	• Increased staff at national level • Training of personnel • Planning, meetings and reviews	• Train staff at national and intermediate level
HEALTH SYSTEM CAPACITY			
Health services infrastructure	• No strategic plan	• Strategic plan was developed and presented for ministerial approval • Mobilized international and bilateral partnerships and engaged local partners, including private practitioners and USAID	• Continue to mobilize new partners using the medium term plan • Organize advocacy meetings • Produce and disseminate advocacy material
Health sector reform including private sector integration	• Limited resources for developing public–private projects	• Involved private sector by providing training and patient management tools	• Pilot project for private sector involvement in the city of Kinshasa • Task force to study issue of private sector and propose solutions
Access to health care services and facilities	• Insufficient collaboration between TB and HIV programmes • Low coverage of primary health care due to war	• Start of WHO/USAID pilot project	• Implement TB/HIV pilot project in city of Kinshasa • Strengthen partnership for primary health care (USAID and religious groups)
Staffing	• Severe understaffing of central unit • Lack of staff motivation due to low salaries	• Provided additional staff at central and intermediate levels, and ensured adequate training at peripheral levels	• Reinforce human resources with additional staff and training of existing staff • External monitoring of the programme
Drug supply	• Drug supply regularly endangered by rapid increases of TB detection in areas with a high prevalence of HIV • Drug supply is limited by national and external financial resources • Lack of buffer drug stocks	• Secured funds for TB drugs through GDF beginning 2002 • Drugs also received from EU and partner NGO enabled buffer stock	• Establishment of a management committee for drugs and development of management tools, including for supervision
Laboratory resources	• Weak laboratory network	• Secured funds for laboratory reagents by traditional partners	• Improve and expand laboratory resources and microscope equipment by mobilising resources, training, and quality control
Quality of TB services	• Despite long-term external support, quality of services provided by government facilities remains low in some areas	• Regular monitoring of NLTP with collaboration of IUATLD and other partners • Development of training plan	• Intensify training and quality supervision • Use of IUATLD technical guide
Programme monitoring and surveillance	• Insufficient equipment and human resources • Poor communication infrastructure	• Regular monitoring by IUATLD • WHO support with a national programme officer	• Improve information system by improving equipment, increasing human resources and better communication (telephone and internet)
PEOPLE AND COMMUNITIES			
Community health education	• Insufficient human and financial resources	• Population education during World TB Day	• Produce TV programmes • Produce and display banners throughout provinces

COUNTRY PROFILE

Ethiopia

TB control within the health care system

In 1997, Ethiopia established a twenty-year Health Sector Development Programme to improve the health of all Ethiopians by enhancing accessibility to a basic package of quality primary health care, focusing on cost-effective interventions, and expanding health services in rural areas. Health reform has integrated TB care into general health services, and has progressively decentralized service delivery to peripheral health centres thereby reaching the most disadvantaged without compromising TB quality assurance.

Partnerships

National commitment to effective planning has improved the management of national resources and strengthened local ownership. The Health Sector Development Plan (HSDP) facilitates effective international partnerships for TB control. Overall technical support for the country is led by KNCV, with one WHO expert posted at central level. MSF Belgium provides technical and financial support in one region (Somali Region). The government established donor co-ordination in 1998, and several major donors guide investments in TB control and DOTS implementation. The Dutch Government provides financial support for TB drugs and some operational costs. The GRLA provides overall programme support costs and WHO contributes to some specific activities. The dependence on donors is unavoidable in the short term, and there is a strong likelihood that technical and financial partnerships will need to continue in the future.

Progress in DOTS coverage

A total of 47 zones (out of 66 zones in the country) have implemented DOTS, with a geographical coverage of 85% in 2000. However, since only 55% of Ethiopians have access to (live within 10 km of) general health services it will be hard to provide DOTS to more than half the population if the service remains confined to health facilities. A more precise analysis as found in the Draft Strategic Plan 2002–2006 suggests that 875 out of 2563 (34%) health facilities were using DOTS towards the end of 2001. True access appears to be closer to 34% than to 85% because around one third of estimated smear-positive cases were notified to DOTS programmes in 2000.

Although a growing fraction of patients are diagnosed as pulmonary smear-positive, the fraction in 2000 (34% of all notified new cases) was still less than expected. The treatment success rate of new smear-positive cases was 76% in the 1999 cohort. Expanding DOTS in a country with low access to general health services is a major challenge. The already low health status of the people is further endangered by an increase in TB incidence related to HIV/AIDS. Success will depend, in part, on identifying ways to provide DOT outside health facilities, and on improving collaboration between organizations concerned with the control of TB and HIV/AIDS.

Planning for TB control

Ethiopia has formulated a five-year 2002–2006 Strategic Plan that includes the DOTS strategy. A standardized planning process has ensured rapid DOTS expansion, and a National Interagency Coordinating Committee is being established to ensure coordination of planning and funding.

The TB programme has provided annual progress reports and received reviews by national and external experts. In June 2001, independent external evaluators reviewed the previous five-year programme and it was confirmed that TB and leprosy control are well integrated in the general health services and within the framework of the Health Sector Development Plan (HSDP). Recording and reporting systems are increasingly reliable and regular. Laboratory quality assurance has been established in 5 regions, and there continues to be a decrease in the use of inappropriate diagnostic procedures. It is expected that at the end of 2001, the programme will achieve a geographical coverage of around 90%.

Financial estimates

Draft budget estimates have been developed for 2002–6 but these are still considered very provisional. The TLCP will implement its activities for the first half of 2002 with funds remaining from the previous financial year. The main items in the provisional budget are drugs (US$ 15 million) and programme management and supervision (US$ 7 million). The budget for activities specifically related to increasing case detection and cure rates is comparatively small. The TLCP's estimated total budget for 2002–6 is US$ 25 million.

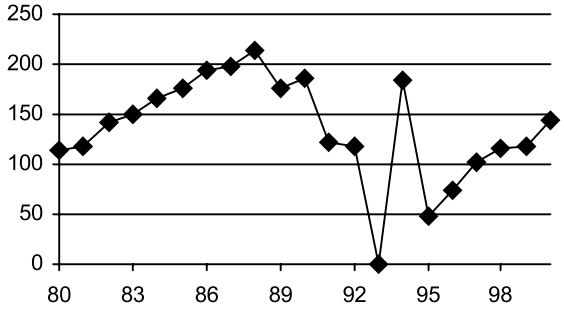
The budget estimates shown in the table do not include the costs associated with using resources that are not TB-specific (i.e. general health services staff and general health services infrastructure). It is important that analysis of these costs is included in the detailed budget exercise planned during the first half of 2002. The budget exercise should also include assessment of whether there is any need for investment in general health services if the number of cases to be treated expands in line with projected increases in case detection.

ETHIOPIA

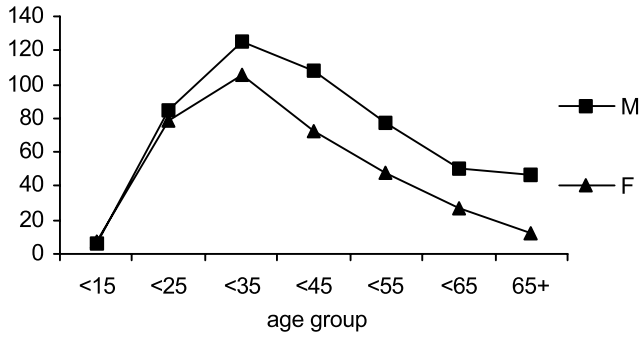
LATEST INFORMATION:	2000
Population	62 907 788
Est. incidence (all cases/100 000 pop)	397
Global rank (by est. number of cases)	6
Regional rank	2
Est. adult (15-49y) TB cases that are HIV+ (%)	42
Est. multi-drug resistance (new cases)	2.3
DOTS status (year adopted)	DOTS (1995)

TRENDS:	1997	1998	1999	2000
DOTS population coverage (%)	48	64	63	85
Notification rate (all cases/100 000 pop)	101	116	117	145
Detection (new ss+ cases, %)	21	22	23	29
- DOTS detection (new ss+, %)	21	22	23	29
Treatment success countrywide (new ss+, %)	72	74	74	- -
- Treatment success under DOTS (%)	72	74	76	- -
- Est. new ss+ success under DOTS (%)	11	13	13	- -

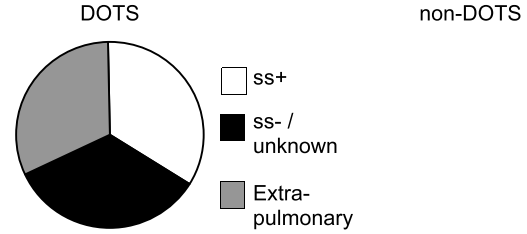
NOTIFICATION RATE (all cases per 100 000 pop)



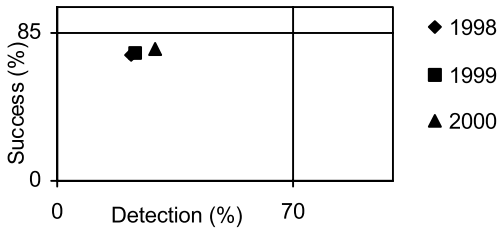
RATE BY AGE AND SEX (new ss+) *



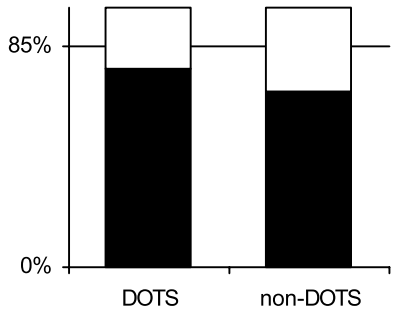
CASE TYPES NOTIFIED (new)



DOTS DETECTION AND DOTS SUCCESS RATES **

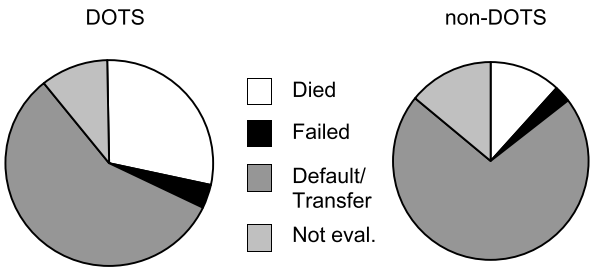


TREATMENT SUCCESS RATE (new ss+)



Nb registered: 15 980 DOTS , 4 531 non-DOTS

UNSUCCESSFUL TREATMENT OUTCOMES (new ss+)



* The age and sex rates may be based on data that do not include all smear-positive cases notified.
** DOTS treatment success rates are shown here by year of report, i.e., for the cohort registered during the previous year.
ss+ = sputum smear-positive. Est = estimated. '- -' = data not yet collected by WHO. Eval = evaluated. Pop = population.

ETHIOPIA: Budget estimates, existing funding, and budget gaps for 2002 and 2002–2006, US$ millions

COST ITEM	BUDGET 2002	FUNDING 2002			BUDGET 2001–6	FUNDING 2001–6		
		GOV'T	GRANTS	GAP		GOV'T	GRANTS	GAP
Staff	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.
Buildings	n.e.	n.e.	n.e.	n.e.	n..e.	n.e.	n.e.	n.e.
Diagnosis					1.4			
Drugs					15.0			
Training					0.5			
Programme management and supervision					7.4			
Activities to increase case detection and cure rates*					0.3			
Miscellaneous**					0.4			
TOTAL					25.0			

n.e. = not estimated

* includes training of staff in private health facilities, defaulter tracing, operational research related to the role of the community in TB care, identification and co-ordination of community treatment supervisors, IEC campaigns, and advocacy

** includes collaboration with HIV/AIDS home care programme, pilot study on fixed-dose combinations, studies of epidemiology of lymph node TB, technical assistance, and pilot studies of 1) treatment of latent TB infection in areas where VCT is available 2) cotrimoxazole therapy 3) feasibility of TB/HIV home care provided by family members 4) bleach digestion for AFB

ETHIOPIA: Constraints to DOTS expansion and remedial actions

	CONSTRAINTS TO DOTS EXPANSION	ACTION TAKEN IN 2001 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION	ACTION PLANNED IN 2002 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION
POLITICAL ENVIRONMENT			
Financial resources	• Delays in central government distribution of funds	• None	• A Financial Capacity (COCA) assessment of the MOH will be carried out to improve disbursement of funds
Sustainability of existing DOTS services	• TB and Leprosy Control Programme is too donor-dependent for future sustainability		• Develop strategies for future economic self-sufficiency
HEALTH SYSTEM CAPACITY			
Health services infrastructure	• Only about 50% health service coverage of population	• Implemented recommendations of five-year evaluation • Endorsed new five-year strategic plan	• Print final version of strategic plan and prepare "Plan of Action" to implement strategic plan
Health sector reform including private sector integration	• Training institutions, NGOs and private health sector not actively involved in TB control activities	• Studied new approaches to TB services	• Implementation of new training modules • Further development of pre-service TB control training
Staffing	• Chronic understaffing of the central unit and regional health bureaux has hampered regular supervision. Ethiopia has regular shortages of human resources and staff turnover is high	• Addition of 2 experts to TB-Leprosy Control Team, but still not at desired level • Trained core group of managers and laboratory technicians at all levels to address high staff turnover and lack of qualified staff	• Strengthen training programmes at all levels • Realize full strength of central unit
Management and communication	• Insufficient provision of continuing medical education to health workers at various levels		• Develop a comprehensive IEC plan for health workers
	• Training manuals, modules, and supervision guidelines not adequate	• Developed guidelines and checklist to improve supervision and on-the-job training	• Implement training curricula for district level and beyond
Drug supply	• Delays in drug procurement and distribution	• After August 2001 sufficient drug supply to DOTS implementing areas	• Tender for 2002 is floating. GDF will be involved for 2003 and onwards
Laboratory resources	• Long delay in supply of laboratory materials		• Secure uninterrupted supply • Include additional partners/donors
Quality of TB services	• Quality control network not fully operational	• QA system now expanded to five regions • Extended quality control of sputum smear microscopy to the rest of the regions in the programme • Laboratory manual revised	• Provide refresher training courses in zones currently under DOTS • Support visits by central unit
Programme monitoring and surveillance	• Chronic understaffing	• Increase training capacity	
Emerging issues	• TB and HIV teams not working together	• HIV/AIDS Task Force established at MoH with TLCP represented • Collaboration between AIDS/HIV and TBL teams in preparing phased implementation of TB/HIV care and support activities	• Involve all health facilities in DOTS strategy in those zones that have already begun to implement DOTS • Provide initial training for zonal TBL coordinators
PEOPLE AND COMMUNITIES			
Community health education	• Lack of emphasis on information, education, and communication	• Engaged in social mobilization and strengthened community education in areas where TB services have been established	• Develop and implement comprehensive IEC

COUNTRY PROFILE

India

TB control within the health care system

India has 35 states/union territories and nearly 600 districts. Health institutions in each district generally include one hospital in the main town, Community Health Centres (CHC), Primary Health Centres (PHC), and varying numbers of sub-centres. There are also district tuberculosis control clinics, district TB centres and, in some districts, sanatoria.

Although state governments are primarily responsible for health care, some national health programmes (e.g. family welfare, malaria, AIDS, leprosy, blindness, and TB) are supported by central government funds. The Revised National TB Control Program (RNTCP), designed by the Government of India in 1993 and updated recently, has put TB control high on the public health agenda.

Progress in DOTS coverage

DOTS coverage in India doubled during 2000, reaching 30% by the end of that year. It further increased to more than 40% during 2001. The states of Rajasthan, Kerala, and Delhi have achieved 100% coverage. Gujarat, Tamil Nadu and Himachal Pradesh are approaching full coverage, and Maharashtra and West Bengal have covered more than two thirds of their populations. In all, more than 450 million people had access to DOTS by the end of 2001.

The number of smear-positive cases reported under DOTS in 2000 (95 000) was about twice that for 1999, matching the improvement in DOTS population coverage. However, only about one third of estimated smear-positive cases in DOTS areas were notified, and the total number of smear-positive cases recorded nationally was about the same as in 1999. Treatment success for the 1999 cohort of new cases was just under the WHO target (82%), mainly because defaulting was still high (9%). Treatment results for the first 3 quarters of 2001 were about the same (83%). In some states, performance of the DOTS programme is substantially better than the national average: if Rajasthan were a separate country, it would be the second largest in the world, after Vietnam, to have reached global targets for case detection and cure. The treatment success outside DOTS areas is so low (21%) because a large fraction of cases is not evaluated.

Partnerships

Technical support to India is provided by WHO, including a network of 45 locally recruited supervisors who assist state and district officers to implement the programme with the support of a WB loan. GLRA provides direct financial and technical support through various projects. DFID and DANIDA support DOTS in one state each. CIDA and USAID also provide support for the programme. National efforts to build technical partnerships have been established with NGOs, community health volunteers, private sector, government employees' health services, armed forces, and the railways. More than 300 non-governmental organizations have entered into structured agreements to provide DOTS services as part of the RNTCP. India is demonstrating how adequate resources can be effectively mobilized and coordinated to address TB control.

Planning for TB control

With assistance from the World Bank, India has extended the RNTCP in the past year to cover the period 2001–2004 and to provide DOTS coverage to more than 80% of the country. There is, however, new commitment to extend DOTS coverage to the rest of Orissa State and the remaining 200 million people elsewhere in India through either DANIDA or the World Bank, both of whom are now working with the government and WHO on pre-DOTS planning. The RNTCP increased staffing at the central, state, and district levels to strengthen managerial and monitoring capacity, ensuring that effective TB services are maintained throughout the rapid expansion phase. As a further show of commitment to successful DOTS implementation, a donor coordinating committee was formed in 1998 but they have not yet formally organized themselves into a functional National Interagency Coordinating Committee that includes both the government and partners.

The challenges now facing the RNTCP are to push toward nationwide DOTS coverage, and to improve case finding from the current rate of 50–60% to at least 70% within areas where DOTS is already implemented. To achieve this expansion in case finding, the programme will need to reach out to all clinics, dispensaries, and hospitals, including those in the private sector, and to patients who often have poor access to care, including the homeless and immigrants.

Financial estimates

DOTS expansion is funded through regular government budgets, bilateral donors, and a World Bank credit for the period 2001–2003. No budget deficit is foreseen for this period. The main budget items are staff, drugs, activities related to increasing case detection and cure rates, and programme management and supervision.

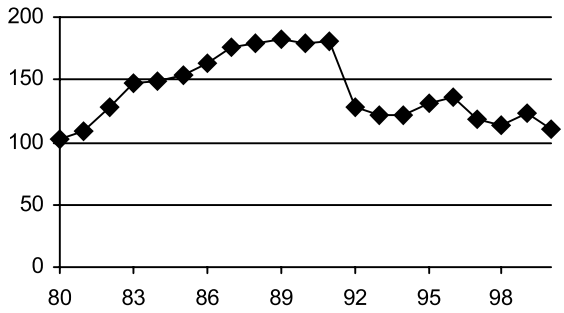
For 2004–2005, the contributions to be made by the Government, funds to

INDIA

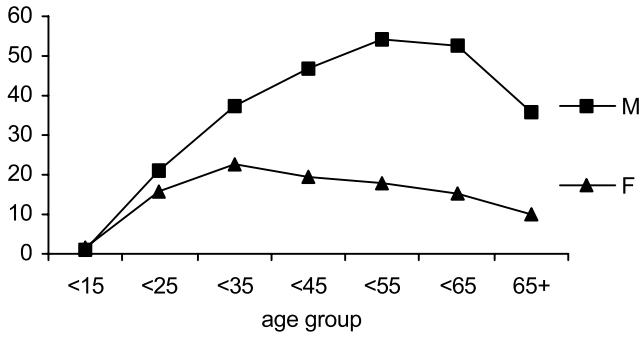
LATEST INFORMATION:	2000
Population	1 008 937 356
Est. incidence (all cases/100 000 pop)	184
Global rank (by est. number of cases)	1
Regional rank	1
Est. adult (15-49y) TB cases that are HIV+ (%)	4.0
Est. multi-drug resistance (new cases)	3.4
DOTS status (year adopted)	DOTS (1993)

TRENDS:	1997	1998	1999	2000
DOTS population coverage (%)	2	9	14	30
Notification rate (all cases/100 000 pop)	118	113	123	111
Detection (new ss+ cases, %)	34	34	42	42
- DOTS detection (new ss+, %)	1	2	6	11
Treatment success countrywide (new ss+, %)	18	27	21	- -
- Treatment success under DOTS (%)	82	84	82	- -
- Est. new ss+ success under DOTS (%)	1	1	5	- -

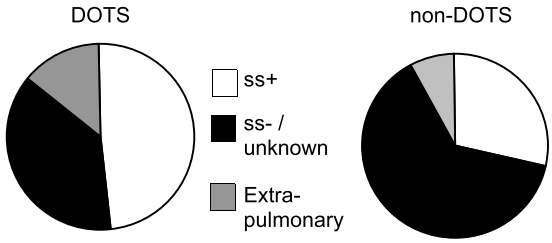
NOTIFICATION RATE (all cases per 100 000 pop)



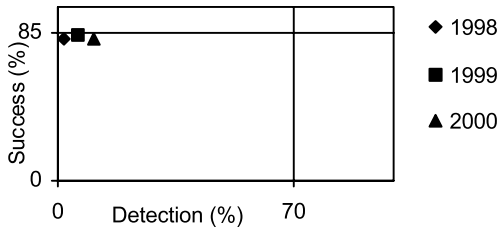
RATE BY AGE AND SEX (new ss+) *



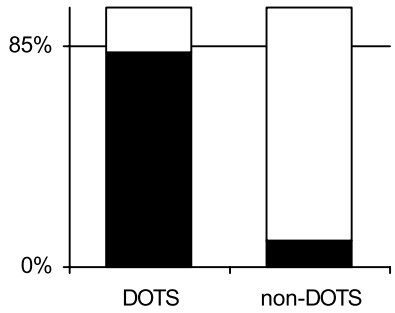
CASE TYPES NOTIFIED (new)



DOTS DETECTION AND DOTS SUCCESS RATES **

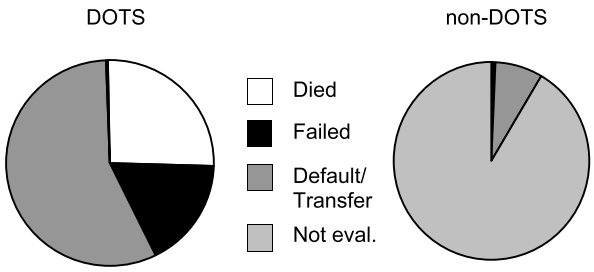


TREATMENT SUCCESS RATE (new ss+)



Nb registered: 53 086 DOTS , 291 932 non-DOTS

UNSUCCESSFUL TREATMENT OUTCOMES (new ss+)



* The age and sex rates may be based on data that do not include all smear-positive cases notified.
** DOTS treatment success rates are shown here by year of report, i.e., for the cohort registered during the previous year.
ss+ = sputum smear-positive. Est = estimated. '- -' = data not yet collected by WHO. Eval = evaluated. Pop = population.

be committed from other sources, and the budget gap are not currently defined. Existing estimates indicate that a total of approximately US$ 50 million per year is required to achieve national DOTS coverage in 2004 and 2005.

The budget estimates shown in the table do not include the costs associated with using resources that are not TB-specific (i.e. general health services staff and general health services infrastructure). Estimates of these costs are provided in the results section of this report.

INDIA: Budget estimates, existing funding, and budget gaps for 2001/2 and 2001/2–2003/4, US$ millions

COST ITEM	BUDGET 2001/2 (1 year)	FUNDING 2001/2			BUDGET 2001/2–2003/4 (3 years)	FUNDING 2001/2–2003/4		
		GOV'T (including World Bank credit)	GRANTS	GAP		GOV'T	GRANTS	GAP
Staff	8.5	7.2	1.3	0	30.7	26.4	3.6	0.7
Buildings	0.8	0.7	0.1	0	5.1	4.4	0.6	0.1
Diagnosis	2.7	2.3	0.4	0	7.4	6.3	0.9	0.2
Drugs	10.7	9.0	1.7	0	36.6	31.5	4.3	0.8
Training	2.8	2.4	0.4	0	11.3	9.7	1.3	0.3
Programme management and supervision	2.5	2.1	0.4	0	8.5	7.3	1.0	0.2
Activities to increase case detection and cure rates*	7.8	6.6	1.2	0	24.6	21.1	2.9	0.6
Miscellaneous	0.0	0.0	0.0	0	6.6	5.6	0.8	0.2
TOTAL	35.8	30.3	5.5	0.0	130.8	112.3	15.4	3.1

* Includes IEC (information, education, communication), NGO services, research, and counselling charges to be paid to non-government workers for patient cure/completion (honoraria and non-financial incentives).

Notes:
1. Detailed budget available for World Bank credit. Breakdown unavailable for DANIDA/DFID funds, so breakdown for grant funding in the table assumes the same budget distribution as that for areas being funded by the World Bank credit. All budget figures are provisional and do not necessarily represent approved policy.
2. Gap represents estimated cost to cover the unfunded area in Orissa, for which a request to DANIDA has been made to cover 24 million population over 3 years at RS 3/capita.

INDIA: Constraints to DOTS expansion and remedial actions

	CONSTRAINTS TO DOTS EXPANSION	ACTION TAKEN IN 2001 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION	ACTION PLANNED IN 2002 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION
POLITICAL ENVIRONMENT			
Political commitment	• Ensuring long-term commitment at national, state, and district levels	• Resolution passed by Central Council of Health to accelerate DOTS expansion • Increased ownership and responsibility of state governments by holding workshops for policy-makers and opinion-leaders at district level	• Continue all 2001 actions • Media campaign
Financial resources	• Ensuring full availability of required resources and capacity to use these resources	• Sustained government funding • Plan to extend World Bank credit • Improved financial management systems • Requested additional support from Danish Government to cover all of Orissa State	• Ensure effective fund release to districts by states • Amend World Bank Credit Agreement • Obtain additional support from Danish Government to cover all of Orissa State
Sustainability of existing DOTS services	• Tendency toward loss of quality and enthusiasm over time	• Intensive monitoring and supervision • Quarterly review meetings at state level	• Continue all 2001 actions • Systematic programme evaluation and dissemination of performance information • Meetings of all State & District TB Officers
HEALTH SYSTEM CAPACITY			
Health services infrastructure	• Lack of confidence in government TB services due to poor services in the past	• Improved quality of implementation • More than 300 NGOs participated in DOTS expansion efforts	• Increase number of NGOs participated in DOTS expansion efforts • Establish policy for involvement of private sector in RNTCP
	• Vacancies of key staff, (especially laboratory technicians) in general health services	• Approval for appointment of contractual staff on *ad hoc* basis, and advocacy for filling posts	• Policy for appointment of limited number of contractual staff without prior permission
Health sector reform including private sector integration	• Private sector providing poor quality services and poor results • Possible charges for TB diagnosis and treatment • Lack of full involvement of medical colleges	• Two-thirds of medical colleges in DOTS areas are now participating in DOTS • Extensive consultation on private sector involvement in RNTCP • Instructions to individual states not to charge for TB diagnosis and treatment	• Formation of nodal centres for increased medical college involvement in RNTCP • Establish policy and build partnerships for involvement of private sector in RNTCP • Central Council of Health resolution to provide free diagnosis and treatment of tuberculosis
Access to health care services and facilities	• DOTS not covering entire country • In RNTCP areas, detection rates are 50–60%	• Population coverage of RNTCP increased from 313 million to approximately 450 million • More intensive case detection in RNTCP areas	• Continue case detection activities • Expand DOTS to cover at least 550 million people
Management and communication issues	• Insufficient supervisory capacity at state level	• Enhanced managerial and supervisory capacity at state level through advocacy and provision of funds for contractual hiring	• Strengthen state/district level capacity for monitoring and supervision • Appoint additional staff via WHO to strengthen state & district management
Drug supply	• Poor distribution to local level • Low buffer stock at some districts at district level • Lack of adherence to FEFO	• Improved TB drug procurement procedure • Shelf-life extended so buffer stock enhanced • Intensive supervision of distribution and FEFO	• Implement independent drug quality control • Develop buffer stock of drugs, establish drug storage and state distribution capacity • Continue intensive supervision of distribution and FEFO
Laboratory resources	• Ineffective quality control • Weak laboratory supervisors • Lack of local electrical supply	• Development of an effective sputum microscopy protocol for quality assurance • Re-chargeable and solar batteries pilot tested	• Implement new quality assurance policy • Pilot other solutions to electrical problem • Re-train laboratory supervisors, improve supervision
Programme monitoring and surveillance	• Information on drug stock not comprehensively collected by DOTS quarterly reports	• Electronic tracking of medical store depots initiated • Improve response time to potential shortages	• Implement systematic programme evaluation • Revise programme management quarterly report after private sector policy finalized • Continue to expand electronic network

INDIA: Constraints to DOTS expansion and remedial actions (continued)

	CONSTRAINTS TO DOTS EXPANSION	ACTION TAKEN IN 2001 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION	ACTION PLANNED IN 2002 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION
HEALTH SYSTEM CAPACITY *(CONTINUED)*			
Emerging issues	• Growing threat of HIV/AIDS	• Joint action plan on HIV/TB coordination established	• Implement action plan on HIV/TB coordination
	• Spectre of MDR	• Continued drug resistance surveillance • Established/strengthened 2 reference laboratories	• Continue drug resistance surveillance • Establish/upgrade state mycobacterial laboratory facilities • DOTS-plus pilot projects will be considered
PEOPLE AND COMMUNITIES			
Community health education	• Lack of awareness of TB and its curability • Lack of awareness of success of RNTCP	• Engaged in social mobilization and community participation to promote awareness, use of, and sense of ownership of DOTS programme	• IEC at all levels via media campaign • Expanded social mobilization

COUNTRY PROFILE

Indonesia

TB control within the health system

Health services in Indonesia strive to include all sectors of society, stressing quality, equity, and affordable access. Primary health care is seen as a route to achieving affordable universal coverage. Decentralization of health services is underway, and will require more decision-making at local levels.

Progress in DOTS coverage

DOTS population coverage reached 98% in 2000, reflecting the high priority given to the programme in the country's health system. Unfortunately, the rapid programme expansion has led to deficiencies in training, supervision, and programme monitoring. These deficiencies are reflected in the status of reporting. Only 44% of all sites implementing DOTS submitted case finding reports in 2000. Treatment outcome reports for 1999 are only available for 62% of DOTS areas that had submitted case finding reports for that year. These grave reporting deficiencies have contributed to poor summary indicators (19% case detection, 50% success rate). With the current low level of reporting, these unfavourable figures may be due both to missing reports and actual poor results at the sites implementing DOTS. An accurate assessment of programme performance will depend on comprehensive reporting from all DOTS areas.

Planning for TB control

The recently finalized five-year plan provides a framework for a comprehensive quality improvement programme for the NTP. A key component of the plan is an analysis of the impact of ongoing decentralization in the Indonesian health care sector. Under this policy, budgetary authority is decentralized to the provinces and districts, and the amount of funds available for programme support from the central level is drastically reduced. It is, therefore, imperative that any programme implementation plan accounts for financial contributions made from the provincial and district levels. At these levels, funds are available from the national budget as well as through local tax revenues. In addition, some provinces receive substantial funding for the health sector from the central government through ADB or WB loans. Because 2001 was the first year that the new decentralized budget system was implemented, virtually no information was available on the actual amount allocated to TB programmes or to the health sector at the time the five-year plan was developed. Due to this lack of information, the amount of funding to be contributed by the peripheral levels was assumed to be very small initially (only 5% of total requirements in 2002), and to increase over time as the advocacy efforts of peripheral-level staff lead to more effective negotiations with local governments (58% of total requirements to be contributed by districts and provinces by 2006). Due to the lack of detailed information, the national five-year plan can only provide estimates of total donor contributions required to fill the 'funding gap'. There is an urgent need to develop the national plan by adding more detailed information to be supplied directly from provinces and districts, and work is currently underway to prepare this information by early 2002.

Partnerships

A national multisectoral initiative (GERDUNAS) was established in 1999. In addition to steering national policy and advocacy at the central level, the initiative will be active in provinces and districts to ensure that funding for TB control is adequately reflected in the decentralized budget system. Overall external technical collaboration for the country is led by KNCV and WHO. Indonesia receives support from AusAID for staff and TB supportive costs, from the Asian Development Bank for overall strengthening of the health system, and from WHO and the Royal Netherlands Leprosy Relief Organization.

Financial estimates

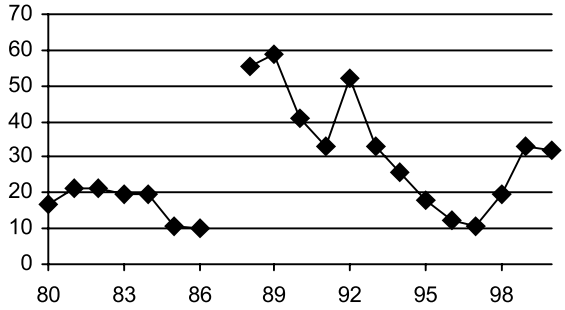
A detailed budget for DOTS expansion to reach global targets has been developed for the period 2002–2006. The total is US$ 176 million. The main budget items are staff, training, drugs, and programme management and supervision. Except for contributions from the Dutch government amounting to approximately US$ 3 million in 2002, no large-scale donor funding has been identified for the period 2002–2006 and there are important gaps for diagnosis, training, programme management and supervision, and activities to increase case detection and cure rates. The total gap is US$ 51 million, with the main gaps being related to training and activities specifically aimed at increasing case detection and cure rates.

INDONESIA

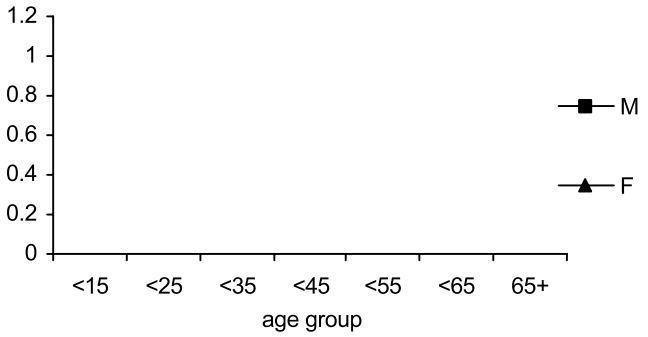
LATEST INFORMATION:	2000
Population	212 092 024
Est. incidence (all cases/100 000 pop)	280
Global rank (by est. number of cases)	3
Regional rank	2
Est. adult (15-49y) TB cases that are HIV+ (%)	0.3
Est. multi-drug resistance (new cases)	0.7
DOTS status (year adopted)	DOTS (1994)

TRENDS:	1997	1998	1999	2000
DOTS population coverage (%)	28	80	90	98
Notification rate (all cases/100 000 pop)	11	20	33	32
Detection (new ss+ cases, %)	7.5	12	19	19
- DOTS detection (new ss+, %)	7	12	19	19
Treatment success countrywide (new ss+, %)	54	58	50	- -
- Treatment success under DOTS (%)	54	58	50	- -
- Est. new ss+ success under DOTS (%)	4	9	9	- -

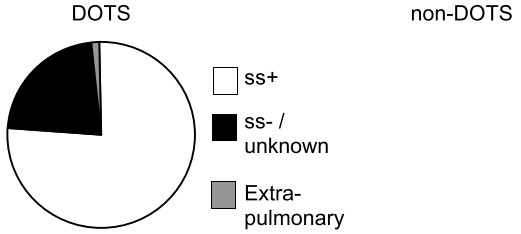
NOTIFICATION RATE (all cases per 100 000 pop)



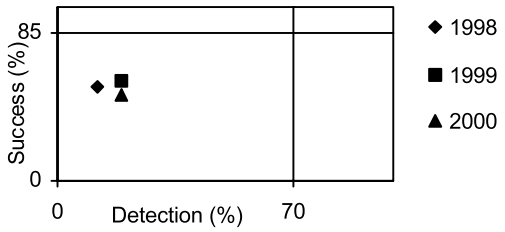
RATE BY AGE AND SEX (new ss+) *



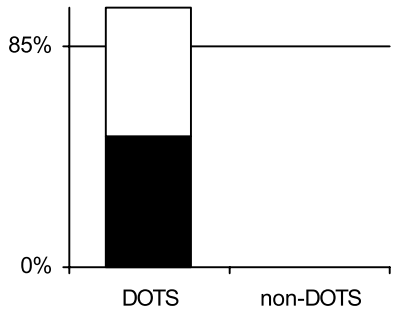
CASE TYPES NOTIFIED (new)



DOTS DETECTION AND DOTS SUCCESS RATES **

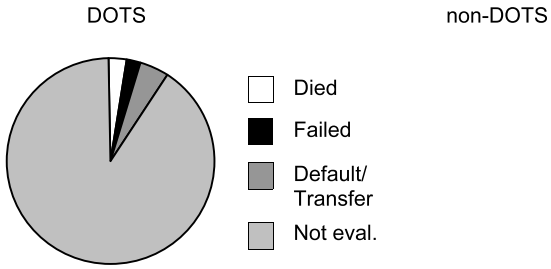


TREATMENT SUCCESS RATE (new ss+)



Nb registered: 46 187 DOTS

UNSUCCESSFUL TREATMENT OUTCOMES (new ss+)



* The age and sex rates may be based on data that do not include all smear-positive cases notified.
** DOTS treatment success rates are shown here by year of report, i.e., for the cohort registered during the previous year.
ss+ = sputum smear-positive. Est = estimated. '- -' = data not yet collected by WHO. Eval = evaluated. Pop = population.

INDONESIA: Budget estimates, existing funding, and budget gaps for 2002 and 2002–2006, US$ millions

COST ITEM	BUDGET 2002	FUNDING 2002			BUDGET 2001–6	FUNDING 2001–6		
		GOV'T	GRANTS	GAP		GOV'T	GRANTS	GAP
Staff	8.1	8.1	0	0	41.6	41.6	0	0
Buildings	0	0	0	0	0	0	0	0
Diagnosis	1.9	0.2	0	1.7	11.0	5.4	0	5.6
Drugs	5.0	5.0	0	0	35.4	35.4	0	0
Training	5.3	0	3	2.3	26.9	10.9	3	13.0
Programme management and supervision	4.5	1.0	0	3.5	17.8	12.5	0	5.3
Activities to increase case detection and cure rates*	3.4	0	0	3.4	22.1	9.2	0	12.9
Miscellaneous**	13.6	0	0	13.6	20.9	7.3	0	13.6
TOTAL	41.8	14.3	3	24.5	175.7	122.3	3	50.4

* includes health education and advocacy
** includes budget for establishing a TB research institute

INDONESIA: Constraints to DOTS expansion and remedial actions

	CONSTRAINTS TO DOTS EXPANSION	ACTION TAKEN IN 2001 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION	ACTION PLANNED IN 2002 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION
POLITICAL ENVIRONMENT			
Political commitment	• After decentralization, primary care at peripheral levels can no longer be enforced by central level resulting in poor commitment at peripheral levels	• Started country-wide advocacy campaign to promote new TB control strategy at peripheral levels	• Establish national movement for TB control (Gerdunas) at every level • Advocate for TB as a priority throughout health sector
Financial resources	• Change of financial structure and insufficient funds	• Ministerial visits to advocate for increased funding from local budgets • Implemented national advocacy activities to socialize the strategic plan and to obtain financial commitment from local governments	• Development TB financing through local government • Establish National Interagency Coordinating Committee for better coordination with donors
Sustainability of existing DOTS services	• Lack of laboratory services capacity	• Started equipment inventory	
HEALTH SYSTEM CAPACITY			
Health services infrastructure	• No DOTS expansion plan	• Developed strategic plan for 2002–2006	• Expand TB/Leprosy integrated approach
Health sector reform including private sector integration	• Links and collaboration between primary care services and private providers remain limited despite more than 50% of cases being detected by private sector • Lack of strong central unit to support decentralization	• Assessed public-private mix as relates to TB control through pilot projects in townships	• Implement field trial of public-private mix • Implement standard operating procedures to ensure diagnosis consistency and improved treatment evaluation, recording, and reporting • Strengthen central unit team through restructuring of central level and hiring of staff
Management and communication	• Urgent need for skilled managers to train and supervise TB service staff in 1100 hospitals	• Provided training and retraining for technical and managerial staff including 25 master trainers and 521 staff • Enhanced supervisory skills at district level through training of all staff	• Continue training and retraining of technical and managerial staff at health centre level
Drug supply	• Quality TB drugs not always available at all levels	• Drug provision by central government reached 100% of public health facilities	• Enhance regional and district capacity for drug management • Develop buffer stock
Laboratory resources	• Shortage of quality diagnostic services	• Trained laboratory technicians at all levels beginning with central level	• Enhance regional and provincial laboratory quality control network system
Programme monitoring and surveillance	• Lack of proper recording and reporting system • Extent of MDR-TB unknown	• Developed "epi-centre" software to improve reporting • Piloted small-scale survey to ascertain extent of MDR-TB	• Enhance TB implementation and monitoring • Expand drug resistance surveillance • Establish monitoring system for TB/HIV
PEOPLE AND COMMUNITIES			
Community health education	• Lack of knowledge about TB and its treatment among some populations as a result of low literacy levels	• Developed simple information, education, and communication materials and campaign activities	• Strengthen family empowerment for DOT • Advocate for information, education, and communication materials and campaign activities for DOT and TB patients

COUNTRY PROFILE

Kenya

TB control within the health system

Health policy seeks to improve equity and accessibility to essential health services, including public health interventions such as TB care. The positive impact of Kenya's health reform has enabled TB services to become progressively more decentralized at the level of the peripheral health centre so as to reach the most disadvantaged. Links and collaboration between primary care services and private providers remain limited despite increasing private sector involvement. Effective TB control has been made possible by high-level political commitment to making TB services universally available.

Progress in DOTS expansion

DOTS was introduced in 1993, and population coverage has been 100% since 1996. The estimated smear-positive case detection rate remains low (47%), though we still cannot rule out the possibility that the true incidence is lower than our estimate. Treatment success increased slightly from 77% for the 1998 cohort to 79% for the 1999 cohort. Addressing the problems of patients who interrupt treatment (10%), or whose treatment outcome after transfer is unknown (6%), is necessary if Kenya is to improve its treatment success rate. It is likely that this will also increase the reported death rate—currently 6%—as some of these patients will have died. This is particularly the case in urban areas; patients may return to their rural homes when they become very ill or when they can no longer afford to remain in the city.

Planning for TB control

A strategic plan covers 2001–2005, with the goal of reaching the global targets by 2005. A National Interagency Coordinating Committee also exists. Nationwide coverage of TB services is ensured through community participation, through a coordinated TB and HIV/AIDS response, and through innovative pilot projects with the private sector. There are three staff members at the central level, and all provinces and districts have programme coordinators. Strong managerial and operational structures are in place and have helped to successfully sustain effective TB services under increasingly difficult conditions. The recent integration of TB into the general health service during health sector reform expanded DOTS services and maintained the same high level of achievement.

Partnerships

Partnerships are a key component of Kenya's success in combining international collaboration with effective community involvement for DOTS delivery and national political commitment.

KNCV and WHO lead technical support for the country, with NLR, CDC and CDC LIFE support. The Dutch Government provided financial support for TB drugs and programme operating costs until June 2000. Since then, CDC has supported programme activities previously funded by the Dutch. Kenya has enlarged its alliance with the World Bank in the TB and HIV/AIDS programmes through the DARE project. About 20% of the drugs have been purchased with a grant from the GDF for use in 2002. FHI is supporting some laboratory and HIV/AIDS/TB activities.

Financial estimates

Detailed budget estimates have been prepared for the period 2001–5. The

KENYA: Budget estimates, existing funding, and budget gaps for 2002 and 2001–2005, US$ millions

COST ITEM	BUDGET 2002	FUNDING 2002			BUDGET 2001–5	FUNDING 2001–5		
		GOV'T	GRANTS	GAP		GOV'T	GRANTS	GAP
Staff	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.
Buildings	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.
Diagnosis	0.5	0.04	0.1	0.4	2.1	0.04	0.1	2.0
Drugs	2.9	1.4	1.5	0	15.9	8.0	7.5	0.4
Training	0.3	0	0.0	0.3	1.2	0	0	1.2
Programme management and supervision	1.0	0	0.6	0.4	2.5	0	0.5	2.0
Activities to increase case detection and cure rates*	0.3	0.1	0.2	0	1.1	0.1	0.2	0.8
Miscellaneous**	0.2	0	0.2	0	0.4	0	0.2	0.2
TOTAL	5.2	1.5	2.6	1.1	23.2	8.1	8.5	6.6

n.e. = not estimated

* includes IEC in the community and for patients and relatives; sensitisation of stakeholders and World TB Day; activities related to TB in prisons, slums and involvement of the private sector and other stakeholders.

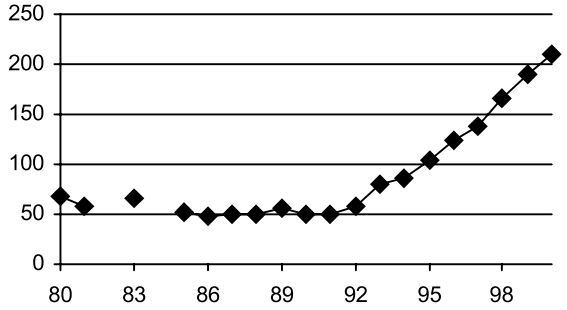
** includes surveillance of MDR and HIV infection among TB patients

KENYA

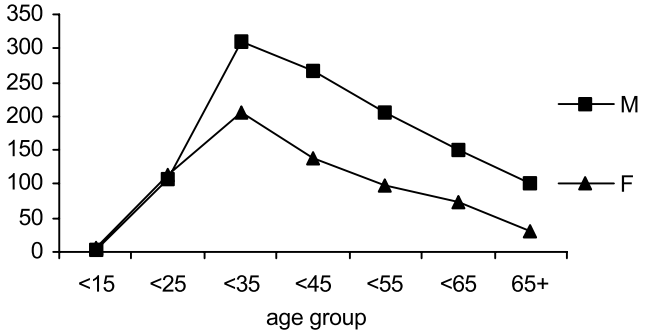
LATEST INFORMATION:	2000
Population	30 668 697
Est. incidence (all cases/100 000 pop)	484
Global rank (by est. number of cases)	12
Regional rank	5
Est. adult (15-49y) TB cases that are HIV+ (%)	49
Est. multi-drug resistance (new cases)	0.0
DOTS status (year adopted)	DOTS (1995)

TRENDS:	1997	1998	1999	2000
DOTS population coverage (%)	100	100	100	100
Notification rate (all cases/100 000 pop)	138	167	191	209
Detection (new ss+ cases, %)	55	57	53	47
- DOTS detection (new ss+, %)	55	57	53	43
Treatment success countrywide (new ss+, %)	65	70	79	- -
- Treatment success under DOTS (%)	65	70	78	- -
- Est. new ss+ success under DOTS (%)	36	40	38	- -

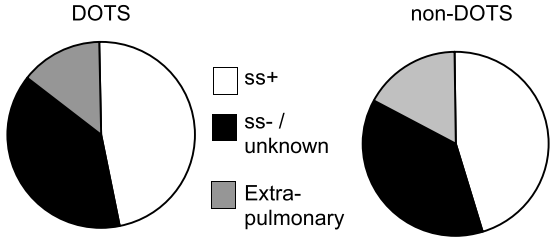
NOTIFICATION RATE (all cases per 100 000 pop)



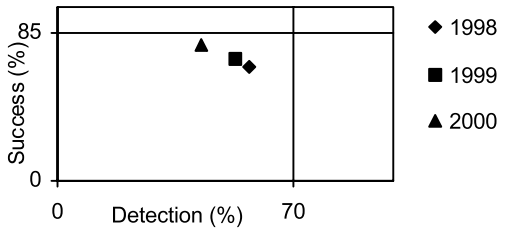
RATE BY AGE AND SEX (new ss+) *



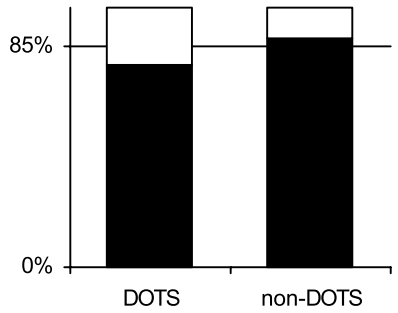
CASE TYPES NOTIFIED (new)



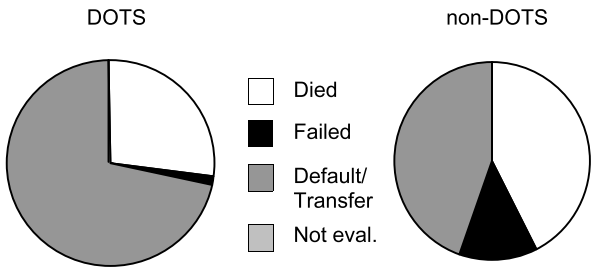
DOTS DETECTION AND DOTS SUCCESS RATES **



TREATMENT SUCCESS RATE (new ss+)



UNSUCCESSFUL TREATMENT OUTCOMES (new ss+)



Nb registered: 24 670 DOTS , 2 747 non-DOTS

* The age and sex rates may be based on data that do not include all smear-positive cases notified.
** DOTS treatment success rates are shown here by year of report, i.e., for the cohort registered during the previous year.
ss+ = sputum smear-positive. Est = estimated. '- -' = data not yet collected by WHO. Eval = evaluated. Pop = population.

total is US$ 23 million; the most important items are drugs, diagnosis and training. The budget for items specifically related to increasing case detection and cure rates is comparatively small. Funding of around US$ 16 million is currently available, leaving a funding gap of about US$ 7 million. The main funding gaps are for diagnosis and training. For 2002, the funding gap is US$ 1.1 million, which is for diagnosis, programme management and supervision, and activities related to increasing case detection and cure rates.

The budget estimates shown in the table do not include the costs associated with using resources that are not TB-specific (i.e. general health services staff and general health services infrastructure). Estimates of these costs are provided in the results section of this report.

It would be useful to have an assessment of whether there is any need for investment in general health services if the number of cases to be treated expands in line with (a) projected increases in case detection and (b) the impact of the HIV/AIDS epidemic on the TB patient caseload.

KENYA: Constraints to DOTS expansion and remedial actions

	CONSTRAINTS TO DOTS EXPANSION	ACTION TAKEN IN 2001 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION	ACTION PLANNED IN 2002 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION
POLITICAL ENVIRONMENT			
Political commitment	• None	• Draft strategic plan 2001–2005 completed and distributed to partners • Continued to hold donor co-ordination meetings	
Financial resources	• Lack of funds for training staff at all levels, for equipping laboratories, and for logistical support	• Funding proposal developed and sent to GFATM and GTZ	
HEALTH SYSTEM CAPACITY			
Health services infrastructure	• Weak HIV/TB collaboration and integration	• Enhanced collaboration between HIV and TB programs to address dual epidemic by moving TB Programme moved under one roof with HIV/AIDS (NASCOP) • Held joint planning meetings, NTP/NASCOP	• Further enhance collaboration between HIV and TB programmes to address dual epidemic • Hold joint planning meetings • NTP/NASCOP joint training of Health workers • Provincial and district co-ordinators to perform both TB and AIDS activities • Share budget
Health sector reform including private sector integration	• Apparent patient preference for private practitioners but no TB surveillance in private sector and no harmony in treatment regimes • Private practitioners threaten MDR prevention because of their limited awareness of NTP guidelines and provision of drugs without direct observation	• Established partnerships with private sector to ensure standardization of treatment • Rapid assessment of private sector through Nairobi pilot project	• Inventory health care providers to determine extent of private sector involvement in DOTS • Ministry to provide free TB drug supply to DOTS trained private practitioners
Access to health care services and facilities	• Unpredictable distribution of commodities to health centres due to weak logistical system	• Further decentralized DOTS to all peripheral health facilities to enhance accessibility and improve case finding • Contracted distribution of NTP commodities to the provinces • Purchased new motorcycles for all districts	• Distribute new motorcycles to the districts
Staffing	• Low morale amongst general health staff and staff attrition due to poor remuneration • Inadequate training of newly recruited coordinators because of lack of funds	• Recruited and trained additional NLTP staff (no impact on the general health staff)	• Enhance staff training at all levels of TB control • Improve staff supervision • Strengthened central unit with addition of a WHO NPO
Drug supply	• None	• Received GDF grant to ensure drug supply	• Normal procurement of government supplied drugs component
Laboratory resources	• Poor supervision • Broken down equipment in CRL leading to stoppage of quality control and assurance • Diminishing resources for purchase of equipment to open new AFB centres	• Renovation and reactivation of central reference laboratory	• Increase smear microscopy centres in both government and NGO hospitals and health centres • Strengthen procurement system of laboratory reagents and supplies
Quality of TB services	• No data on extent of MDR-TB	• Proposal presented to WHO for funding of drug resistance survey	• Drug resistance survey to be undertaken with WHO support
Programme monitoring and surveillance		• Closer collaboration with HIV/AIDS programme	• Closer collaboration with HIV/AIDS programme
Emerging issues	• Lack of private sector involvement in DOTS		• Expand the private sector DOTS project by giving free drugs to practitioners

Mozambique

TB control within the health system

Tuberculosis and HIV/AIDS are among the health priorities of the Mozambican Government. The Mozambique National Tuberculosis Control Program (NTCP) was launched in 1977. Since then, the NTCP has had strong political support, and is promoted by the Ministry of Health. The core functions of the NTCP are to assure effective treatment of all cases, provide manuals and guidelines, train new staff, conduct surveillance of TB drug resistance, and analyse statistics country-wide. The implementation plan of the National Directorate of Health includes efforts to expand health services, as well as ensuring integration and coordination of supervision within the provinces.

Progress in DOTS expansion

Mozambique introduced a standardized short-course drug regimen, one of the components of DOTS, as a pilot project in Maputo Province in 1984. In 2000 reported DOTS coverage was 100%, with direct observation of SCC applied nationwide. In 2000, 40% of estimated smear-positive cases were reported to WHO. If efforts to expand health services are successful this low case detection rate is likely to improve. Treatment success for the 1999 cohort varied between provinces, from 64% in Gaza, in the Southern Zone, to 84% in Niassa, in the Northern Zone. In the country as a whole, 92% of notified cases were registered for treatment, and of those 99% were evaluated. Treatment success for the 1999 cohort was 71% (up from 67% for the 1997 cohort); 11% died and 12% defaulted.

Partnerships

Partnership coordination is lead by the Ministry of Health to guide main partners and their activities to target areas or populations that benefit less from health and TB services. External technical support has been given by WHO and IUATLD for operations and for TB staff development, and by GLRA.

Planning for TB control

A strategic plan for DOTS expansion does not yet exist, nor does a National Interagency Coordinating Committee.

Financial estimates

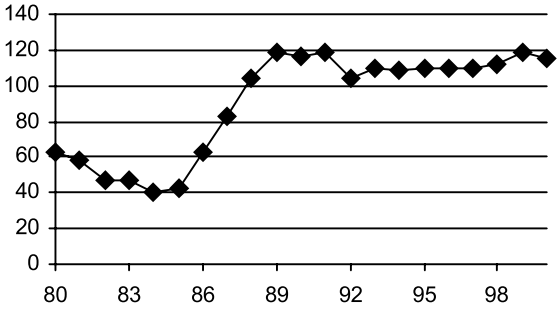
Financial data are not yet available for Mozambique.

MOZAMBIQUE

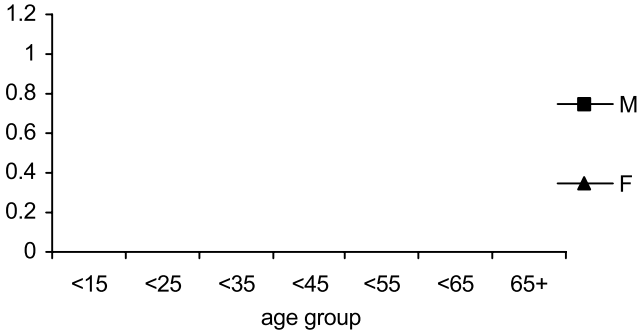
LATEST INFORMATION:	2000
Population	18 292 382
Est. incidence (all cases/100 000 pop)	433
Global rank (by est. number of cases)	19
Regional rank	8
Est. adult (15-49y) TB cases that are HIV+ (%)	48
Est. multi-drug resistance (new cases)	3.5
DOTS status (year adopted)	DOTS (1995)

TRENDS:	1997	1998	1999	2000
DOTS population coverage (%)	84	95		100
Notification rate (all cases/100 000 pop)	110	112	119	116
Detection (new ss+ cases, %)	45	45	43	40
- DOTS detection (new ss+, %)				40
Treatment success countrywide (new ss+, %)	65		71	- -
- Treatment success under DOTS (%)	67		71	- -
- Est. new ss+ success under DOTS (%)	23		28	- -

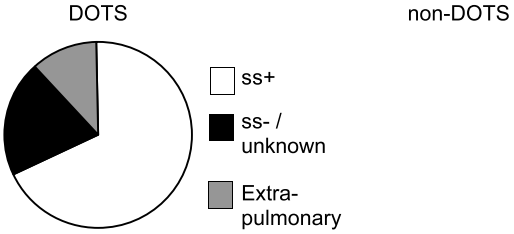
NOTIFICATION RATE (all cases per 100 000 pop)



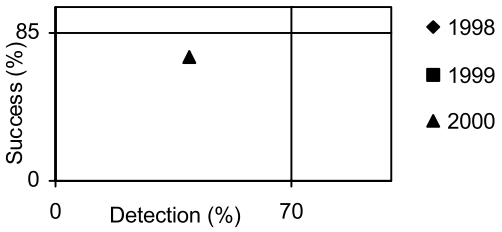
RATE BY AGE AND SEX (new ss+) *



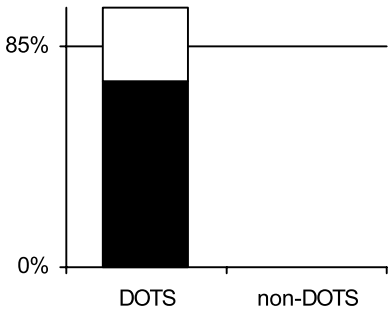
CASE TYPES NOTIFIED (new)



DOTS DETECTION AND DOTS SUCCESS RATES **

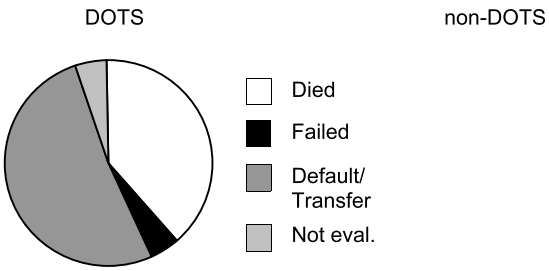


TREATMENT SUCCESS RATE (new ss+)



Nb registered: 11 791 DOTS

UNSUCCESSFUL TREATMENT OUTCOMES (new ss+)



* The age and sex rates may be based on data that do not include all smear-positive cases notified.
** DOTS treatment success rates are shown here by year of report, i.e., for the cohort registered during the previous year.
ss+ = sputum smear-positive. Est = estimated. '- -' = data not yet collected by WHO. Eval = evaluated. Pop = population.

MOZAMBIQUE: Constraints to DOTS expansion and remedial actions

	CONSTRAINTS TO DOTS EXPANSION	ACTION TAKEN IN 2001 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION	ACTION PLANNED IN 2002 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION
POLITICAL ENVIRONMENT			
Political commitment			
Financial resources			
Sustainability of existing DOTS services			
HEALTH SYSTEM CAPACITY			
Health services infrastructure	• Weak health services infrastructure as a result of long history of civil war ending in 1992, and floods in 2000 and 2001		• Create 5-year strategic plan to reach 100% TB case finding by expanding DOTS in zones not well covered • Develop plan for community and private sector interventions
Health sector reform including private sector integration			
Access to health care services and facilities	• Lack of access due to non-existent transportation in remote rural areas, coupled with great distances to reach even the smallest health units • Poorly equipped health units	• Developed partnerships and improved coordination in activities to reach people not covered by health services	• Develop DOTS expansion plan
Staffing	• Lack of staff training to understand even common diseases		• Develop DOTS expansion plan
Management and communication			
Drug supply			
Laboratory resources			
Quality of TB services			
Programme monitoring and surveillance			• Strengthen operational research in TB, HIV, and MRD-TB
Emerging issues			
PEOPLE AND COMMUNITIES			
Community health education			

COUNTRY PROFILE

Myanmar

TB control within the health care system

Myanmar has a strong health infrastructure and a large pool of well-educated and motivated health workers to deliver TB services, including trained community volunteers who carry out DOT from the various rural health centres. Administratively there are 16 states and divisions, 63 districts, and 324 townships. The unit of management for TB control is the township hospital, with each serving an average population of 130 000. A high-level interministerial policy-making body on health matters—the National Health Committee (NHC)—has been formed as part of recent policy reform efforts. The Ministry of Health has identified TB as the second most important health priority after malaria.

Progress in DOTS coverage

The DOTS strategy was implemented in Myanmar in 1995 and rapidly expanded to cover 64% of the population in 1999, and 77% of the population in 2000. Coverage is expected to increase to 90% by the end of 2001. In 2000, 48% of estimated new smear-positive cases were detected under DOTS, and 81% of the 1999 cohort of new smear-positive cases were successfully treated. The default rate of 10% indicates that patient observation during treatment can still be improved in some areas. Under present conditions, Myanmar will achieve 100% DOTS coverage by 2003. However, if the NTP has sufficient resources, 100% DOTS coverage will be achieved earlier.

Planning for TB control

Myanmar has a 5-year strategic plan for DOTS expansion covering the period from 2001-2005, as well as a National Interagency Coordinating Committee. As of January 2002, DOTS is implemented in 259 townships, while standard chemotherapy is provided in another 65 townships. WHO and UNDP have provided anti-TB drugs for the past few years on an annual ad hoc basis without sufficient quantity to constitute a buffer stock. After many years of drug shortages, reliable drug supply is now ensured through the GDF. While the agreement with the GDF removes a substantial barrier to successful DOTS implementation in Myanmar, the NTP still faces severe infrastructure problems, especially shortages of laboratory equipment and transportation. Negotiations with various donors are currently underway and may lead to additional funding to address these problems.

Partnerships

IUATLD and WHO lead overall technical support to the country. The Japanese Foundation for AIDS Prevention (JFAP) is conducting research. Three national NGOs—the Myanmar Maternal and Child Welfare Association, the Myanmar Red Cross Society, and the Myanmar Medical Association—facilitate DOT activities. Financial support is provided by the government, WHO, UNDP, and the GDF.

Financial estimates

Budget estimates are available for each year 2001–2005. The total is US$ 11.9 million, an average of US$ 2.4 million per year. The most important items are drugs, staff, technical assistance, and programme management and supervision. The total budget required in 2002 is US$ 2.8 million. Of this, US$ 0.6 million is currently funded and there is a gap of US$ 2.2 million. The main grant to date is US$ 0.2 million for drugs (supplied through the GDF).

It would be useful to have an assessment of whether there is any need for investment in general health services if the number of cases to be treated expands in line with projected increases in case detection.

MYANMAR: Budget estimates, existing funding, and budget gaps for 2001–2005, US$ millions[1]

COST ITEM	BUDGET 2002	FUNDING 2002			BUDGET 2001–5	FUNDING 2001–5		
		GOV'T	GRANTS	GAP		GOV'T	GRANTS	GAP
Staff	0.4	0.4	0	0	1.9	1.9	0	0
Buildings	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.
Diagnosis	0.2	**0**	**0**	**0.2**	0.9			
Drugs	1.0	0	0.2	0.8	5.0			
Training	0.2	**0**	**0**	**0.2**	0.8			
Programme management and supervision	0.5	**0**	**0**	**0.5**	1.2			
Activities to increase case detection and cure rates*	0.1	**0**	**0**	**0.1**	0.4			
Miscellaneous**	0.4	**0**	**0**	**0.4**	1.7			
TOTAL	2.8	0.4	0.2	2.2	11.9			

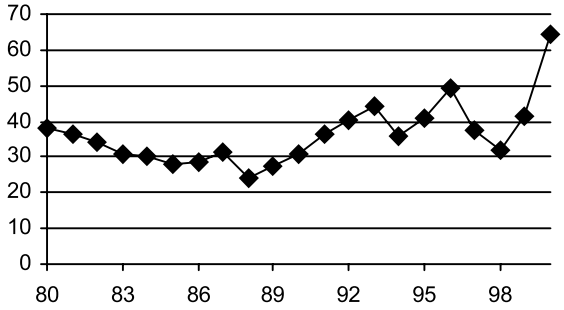
1 Figures in bold were deduced from Myanmar's budget and from information on total government and donor funding (see text). They were not provided by the Myanmar NTP.
n.e. = not estimated
* includes advocacy and health education
** includes research, technical support and a contingency budget

MYANMAR

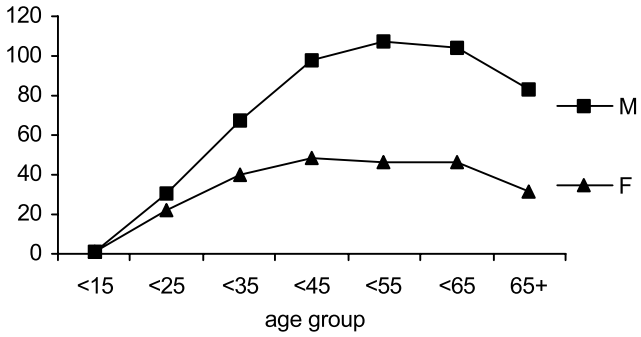
LATEST INFORMATION:	2000
Population	47 748 939
Est. incidence (all cases/100 000 pop)	168
Global rank (by est. number of cases)	18
Regional rank	5
Est. adult (15-49y) TB cases that are HIV+ (%)	11
Est. multi-drug resistance (new cases)	1.5
DOTS status (year adopted)	DOTS (1995)

TRENDS:	1997	1998	1999	2000
DOTS population coverage (%)	60	60	64	77
Notification rate (all cases/100 000 pop)	37	32	42	65
Detection (new ss+ cases, %)	28	28	32	48
- DOTS detection (new ss+, %)	26	28	32	48
Treatment success countrywide (new ss+, %)	82	82	81	- -
- Treatment success under DOTS (%)	82	82	81	- -
- Est. new ss+ success under DOTS (%)	21	24	26	- -

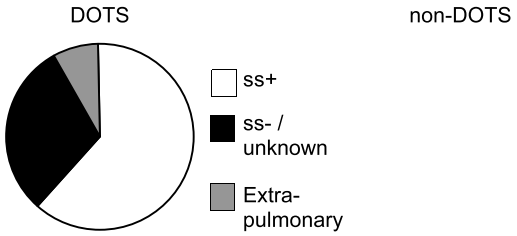
NOTIFICATION RATE (all cases per 100 000 pop)



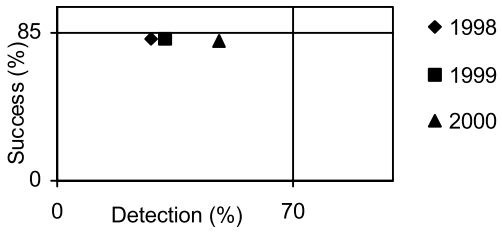
RATE BY AGE AND SEX (new ss+) *



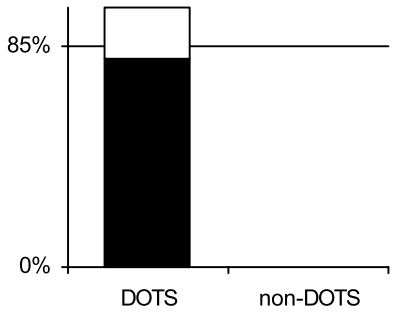
CASE TYPES NOTIFIED (new)



DOTS DETECTION AND DOTS SUCCESS RATES **

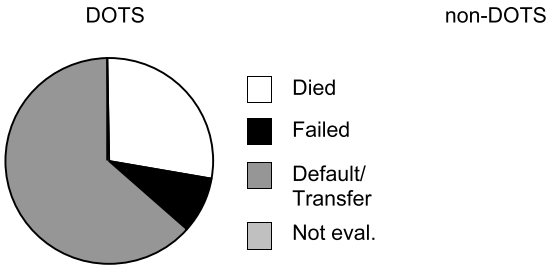


TREATMENT SUCCESS RATE (new ss+)



Nb registered: 11 641 DOTS

UNSUCCESSFUL TREATMENT OUTCOMES (new ss+)



* The age and sex rates may be based on data that do not include all smear-positive cases notified.
** DOTS treatment success rates are shown here by year of report, i.e., for the cohort registered during the previous year.
ss+ = sputum smear-positive. Est = estimated. '- -' = data not yet collected by WHO. Eval = evaluated. Pop = population.

MYANMAR: Constraints to DOTS expansion and remedial actions

	CONSTRAINTS TO DOTS EXPANSION	ACTION TAKEN IN 2001 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION	ACTION PLANNED IN 2002 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION
POLITICAL ENVIRONMENT			
Political commitment	• There is full political commitment but it needs to be sustained	• Political commitment was demonstrated through World TB Day, the guidance of the National Health Committee, the Supervisory Committee for Prevention and Control of TB, and the formation of a TB Task Force	
Financial resources	• Lack of financial support to expand TB	• Some funding was procured through government cooperation with WHO and UNDP, and through the GDF	
HEALTH SYSTEM CAPACITY			
Health services infrastructure	• Lack of staff and weak management		• Develop strategy to recruit and retain personnel
Health sector reform including private sector integration	• Little collaboration with private sector		• Provide training to personnel in private sector • Involve other sectors in TB control by developing effective TB/HIV collaboration
Access to health care services and facilities	• Cross-border management and "floating" population		• Strengthen cross-border collaboration for TB through IEC materials, capacity building, advocacy, strengthening DOTS activities, strengthening monitoring and supervision
Staffing	• Limited supervision due to lack of vehicles		
Management and communication	• Limited number of trained persons	• Human resource development through local and international training (University of Bergen)	• Continue to strengthen human resources with training and appointment of local and international consultants
Drug supply	• Lack of sustainable supply of effective anti-TB drugs	• Management system for anti-TB drugs was developed including logistic training, quality assurance, and distribution through the central facility to drug depots and zonal TB centres	• Ensure uninterrupted supply of quality drugs through the GDF
Laboratory resources	• National TB Reference Laboratory not completely established so laboratory quality control not fully operational		• Strengthen microscopy services through provision of good quality microscopes, training and retraining of laboratory technicians, and laboratory quality control
Programme monitoring and surveillance	• Surveillance, monitoring, and estimation of current epidemiological situation is a challenge		• Strengthen supervision and monitoring through quarterly reporting, use of EPI centre software, regular supervision, quarterly evaluation meeting in states and divisions, half-quarterly meeting of zonal TB officers, annual evaluation meeting
PEOPLE AND COMMUNITIES			
Community health education	• Low community awareness of TB		

Nigeria

TB control in the health system

Nigeria is engaged in health sector reforms to strengthen the primary health care infrastructure, and to build human resource and operational capacity throughout the country. The Federal Ministry of Health supports states through its normative technical and strategic planning functions. Planning and implementation of the health system, including TB services, are largely decentralized to 36 autonomous states and the Federal Capital Territory. A national sustainability workshop in October 2001 culminated in the Abuja Declaration to Stop TB in Nigeria, which was endorsed by federal and state representatives and other partners present. The federal government has also recently established a multi-sectoral committee to mount a concerted response to the worsening HIV/AIDS epidemic. The committee has embraced a partnership approach, working with the Ministry of Health to address the serious effects of AIDS, including TB, on the health system.

Partnerships

The NTBLCP depends very heavily on donors: it is estimated that only about 5% of its funding is from the federal or state governments. Overall technical collaboration for the country is led by IUATLD and WHO and complemented by NGOs. Most of the partners supporting TB activities were initially leprosy NGOs who have recently started to diversify. However, they do not have enough capacity to support the foreseen DOTS expansion. GLRA and KFW have been financially supporting DOTS implementation in 272 LGAs in 14 states, namely Ogun, Ekiti, Ondo, Edo, Delta, Bayelsa, Rivers, Akwa–Ibo, Cross River, Ebonyi, Enugu, Anambra, Imo and Abia. TB drug procurement is ensured by GLRA in these states. The Netherlands Leprosy Relief Association is involved in 100 LGAs in 4 states: Kaduna, Plateau, Bauchi and Gombe. The Damien Foundation has been fully supporting TB control in 2 states, Oyo and Osun. DFID (UK) is funding DOTS implementation in Benue, within the framework of a project developing PHC services. The IUATLD has helped to build national technical partnerships with colleges of medicine and the School of Health Technology para-professional training system. The WB and the CDC LIFE Initiative are supporters of future TB control activities.

Progress in DOTS coverage

DOTS population coverage and case detection in Nigeria rose only slightly between 1999 and 2000. Twenty of the 36 states had TB control under the DOTS strategy in 2000. Elsewhere (including the capital Abuja and the old capital Lagos) there is TB diagnosis and irregular treatment, but no case reporting to central level. In those provinces implementing DOTS, TB is not fully integrated in the health network: diagnosis and treatment are provided by the basic health facilities (which have few outpatients) but not by the general hospitals, a major reason for the low case detection. Treatment success in DOTS areas for the 1999 cohort was 75%. Some states recorded high rates of death (probably due to HIV and late diagnosis) and defaulting; others maintained success rates over 80%. The accessibility of TB diagnosis is expected to improve during 2002 because a strategic plan is now in place and more internal and external resources are available to expand DOTS coverage. Central level capacity has been strengthened and implementation of case detection and treatment by general hospitals has been noted as a major priority.

Planning for TB control

As part of the process of health sector reform, all states are presently developing strategic plans of action within which the plans for DOTS expansion will be included. A plan for TB control has been completed for 2001–2005, but there is not yet a National Interagency Coordinating Committee. Expanding DOTS to the Federal Capital Territory and the remaining 16 states of the country is the most significant challenge. The role of partners in implementing DOTS in Nigeria cannot be understated. Where DOTS is being implemented, it is due to the support of NGOs and donors. Increased state ownership (and budget allocation) for TB control will be required if DOTS is to be expanded, and this has been captured in the strategic plan.

Financial estimates

New budget estimates indicate that a total of US$ 37 million is required for the period 2001–5, with US$ 9 million needed in 2002. These totals do not include staff or building costs. The largest budget item is training, followed by diagnosis (principally equipment) and drugs. The large training budget is needed to facilitate decentralization of TB care from special hospitals into the PHC services. The budget for activities related to increasing case detection and cure rates is comparatively small.

Various aspects of the financial plan remain unclear: sources of funding and the size of the budget gap; how budget estimates are linked to the process of expanding DOTS to reach global targets; and whether any additional investments in the general health services are required.

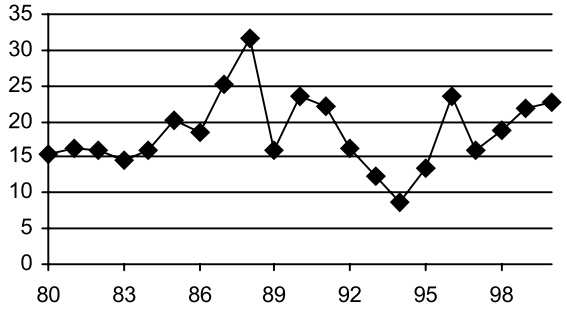
In the past, federal and state govern-

NIGERIA

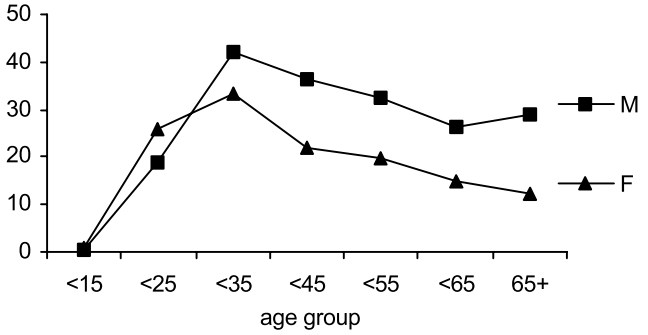
LATEST INFORMATION:	2000
Population	113 861 753
Est. incidence (all cases/100 000 pop)	305
Global rank (by est. number of cases)	4
Regional rank	1
Est. adult (15-49y) TB cases that are HIV+ (%)	24
Est. multi-drug resistance (new cases)	1.7
DOTS status (year adopted)	DOTS (1995)

TRENDS:	1997	1998	1999	2000
DOTS population coverage (%)	40	45	45	47
Notification rate (all cases/100 000 pop)	16	19	22	23
Detection (new ss+ cases, %)	9.0	9.9	11	12
- DOTS detection (new ss+, %)	9	10	11	12
Treatment success countrywide (new ss+, %)	73	73	75	- -
- Treatment success under DOTS (%)	73	73	75	- -
- Est. new ss+ success under DOTS (%)	7	7	8	- -

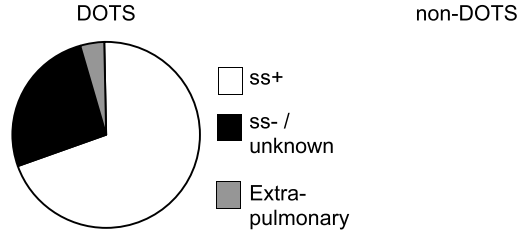
NOTIFICATION RATE (all cases per 100 000 pop)



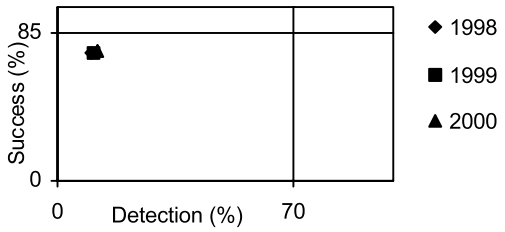
RATE BY AGE AND SEX (new ss+) *



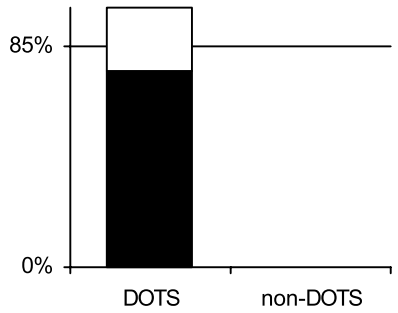
CASE TYPES NOTIFIED (new)



DOTS DETECTION AND DOTS SUCCESS RATES **

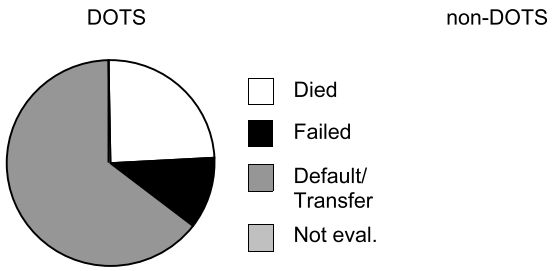


TREATMENT SUCCESS RATE (new ss+)



Nb registered: 14 868 DOTS

UNSUCCESSFUL TREATMENT OUTCOMES (new ss+)



* The age and sex rates may be based on data that do not include all smear-positive cases notified.
** DOTS treatment success rates are shown here by year of report, i.e., for the cohort registered during the previous year.
ss+ = sputum smear-positive. Est = estimated. '- -' = data not yet collected by WHO. Eval = evaluated. Pop = population.

ments have allocated small budgets for TB control. However, at the Abuja workshop, the Minister of Health announced that funding would be substantially increased in 2002 to N250 million (US$ 2.2 million) at federal level. The World Bank has recently agreed to loan the Federal Ministry of Health US$ 7.5 million for HIV/AIDS and TB control. The World Bank loan is for three years and will include funds for some of the drugs required for DOTS expansion.

NIGERIA: Budget estimates, existing funding, and budget gaps for 2002 and 2001–2005, US$ millions

COST ITEM	BUDGET 2002	FUNDING 2002			BUDGET 2001–5	FUNDING 2001–5		
		GOV'T	GRANTS	GAP		GOV'T	GRANTS	GAP
Staff	n.e.	n.e.	0	0	n.e.	n.e.	0	0
Buildings	n.e.	n.e.	0	0	n.e.	n.e.	0	0
Diagnosis	2.5				9.2			
Drugs	2.0				8.5			
Training	2.4				12.5			
Programme management and supervision	1.5				6.0			
Activities to increase case detection and cure rates*	0.2				0.7			
Miscellaneous	0	0	0	0	0	0	0	0
TOTAL	8.6				36.9			

n.e. = not estimated
* includes health education and advocacy

NIGERIA: Constraints to DOTS expansion and remedial actions

	CONSTRAINTS TO DOTS EXPANSION	ACTION TAKEN IN 2001 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION	ACTION PLANNED IN 2002 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION
POLITICAL ENVIRONMENT			
Political commitment	• Insufficient political commitment	• Sustainability workshop held in October • Strategic Plan endorsed • Abuja Declaration to Stop TB	• Phased DOTS expansion planned
Financial resources	• Central unit is underfunded • State TB coordinators have been trained and are in position in each state, but there is insufficient funding to implement their workplan		• Increase budget allocation at federal and state levels • Obtain World Bank HIV/AIDS loan for TB control
HEALTH SYSTEM CAPACITY			
Health services infrastructure	• Weak primary health care infrastructure		• Work with PHC Development Agency to integrate TB into PHC
Access to health care services and facilities	• Low DOTS coverage of health facilities		• Procure drugs and supplies, and distribute them. Procurement of TB drugs will be a federal responsibility and distribution will be by states and local governmment authorities with support of donors • Survey all LGAs to find out how many facilities are doing smear examination and giving treatment • Train staff at federal/state/LGA facilities to expand TB control activities • With support of WHO, recruit 6 Zonal National Programme Officers to strengthen TB control in states
Staffing	• Central and state levels have insufficient technical and supervisory staff		• Establish central unit in Abuja office • Request increased technical support from WHO, IUATLD, and NLR • Establish reliable communication systems ie: email and fax in the yet-to-be occupied offices in Abuja
Drug supply	• Drug procurement dependent on donors • Late funding from government for drugs	• National tender for TB drugs advertised from national budget	• Tender adjudication • Obtain GDF drugs to supplement government tender and other donors
Laboratory resources			• Proposal to use USAID funds for laboratory equipment
Quality of TB services			• National Institute of Medical Research to be upgraded to perform TB cultures • Drug Resistance Survey to be planned

COUNTRY PROFILE

Pakistan

TB control within the health care system

Pakistan consists of four provinces (Balochistan, NWFP, Punjab, Sindh), Northern Areas, and Azad Jammu Kashmir. Provinces previously assumed overall responsibility for the implementation of health care services. Through a process of decentralization initiated in August 2001, however, districts began to assume responsibility for all public activities, including health care services. Because devolution is still in the early stages, it is not fully incorporated resulting in generally weak community health services.

Pakistan adopted the DOTS strategy in 1995 and started DOTS demonstration activities in some areas. DOTS expansion began in earnest after 2000 when the government rehabilitated provincial TB programmes through the World Bank's Social Action Programme Project II (SAPP II), a social sector-wide project that includes health.

Progress in DOTS coverage

During 2000, the Federal Ministry of Health took the vital step of establishing an NTP central unit with strong leadership and allocation of sufficient resources through SAPP II and governmental funds. DOTS coverage was 15% in 2001, substantially greater than 9% in 2000 and 8% in 1999. The latest data on case notifications under DOTS appear to reflect the relatively small improvement in DOTS coverage between 1999 and 2000: the number of smear-positive cases only increased from 2 269 to 3 285, i.e. from 2.1% to 3.0% of the estimated total. (The total number of new TB cases reported increased from 4 651 to 11 050, but this total includes an unusually large proportion of pulmonary smear-negative cases (63%), raising questions about the quality of diagnosis.) Treatment success in the 2000 cohort remained low at 70%, mainly because 21% of patients defaulted. The poor and erratic performance of the NTP persisted up until 2000; it is too early to see whether the step up in DOTS coverage during 2001 has been accompanied by improved case finding, diagnosis, and treatment.

Planning for TB control

The NTP developed a strategic plan for DOTS expansion for 2001–2005, and the Ministry established a National Interagency Coordination Committee. The Government of Pakistan issued the Islamabad Declaration to announce TB as a national emergency in March 2001 in an effort to gain support for the NTP activities.

In 2000 and 2001, Federal and Provincial Ministries of Health allocated significant amounts of funds for DOTS expansion through SAPP II and regular budgets. All provinces have allocated TB budgets for the next three years. Additionally, Balochistan, Punjab, and Sindh provinces have also secured funds for drug procurement from their essential drug budgets. Using these funds, federal and provincial ministries have recruited TB managers and staff, and have started DOTS pilot activities. Balochistan, NWFP, and Sindh are planning to achieve 100% DOTS coverage by 2003. Punjab—the largest province in Pakistan—is planning to achieve 100% DOTS coverage by 2005.

Expanding DOTS in Pakistan, however, remains a daunting task because of the weak infrastructure for general health services. Furthermore, consequences in Afghanistan following the September 11 events in the U.S. are still affecting NTP activities in Pakistan, particularly DOTS expansion.

Partnerships

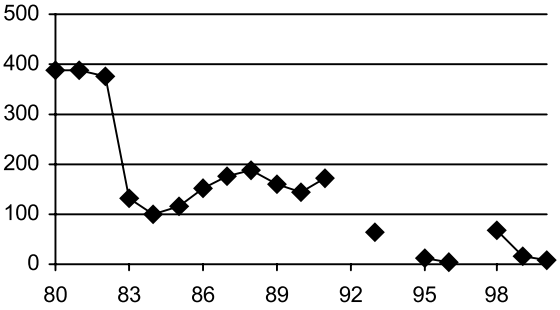
WHO and IUATLD lead overall technical collaboration for Pakistan. The GLRA, DFID, and JICA support DOTS expansion. Major international funding partners are SAPP II (WB, DFID, European Union, and other partners), GLRA, DFID, and JICA. Pakistan increased its alliance with the World Bank in strengthening the health sector to include TB services with TB drugs and other support costs. The Global Drug Facility also provides TB drugs to the NTP.

PAKISTAN

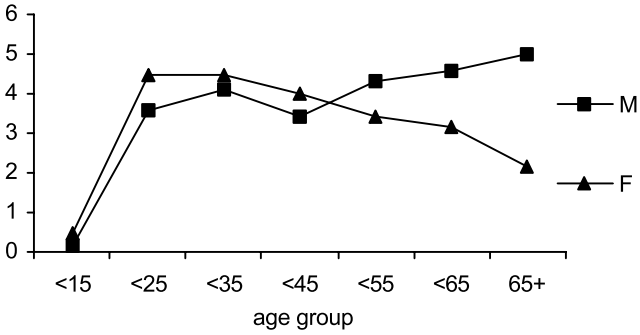
LATEST INFORMATION:	2000
Population	141 256 186
Est. incidence (all cases/100 000 pop)	175
Global rank (by est. number of cases)	8
Regional rank	1
Est. adult (15-49y) TB cases that are HIV+ (%)	0.6
Est. multi-drug resistance (new cases)	9.6
DOTS status (year adopted)	DOTS (1995)

TRENDS:	1997	1998	1999	2000
DOTS population coverage (%)		8	8	9
Notification rate (all cases/100 000 pop)		67	15	7.8
Detection (new ss+ cases, %)		14	5.7	3.0
- DOTS detection (new ss+, %)		4	2	3
Treatment success countrywide (new ss+, %)	67	23	70	- -
- Treatment success under DOTS (%)	67	66	70	- -
- Est. new ss+ success under DOTS (%)	2	1	2	- -

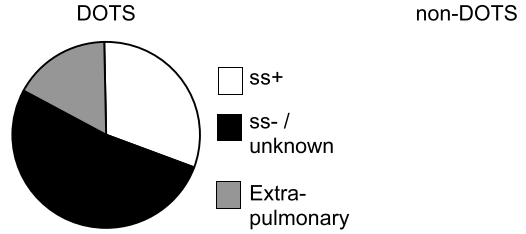
NOTIFICATION RATE (all cases per 100 000 pop)



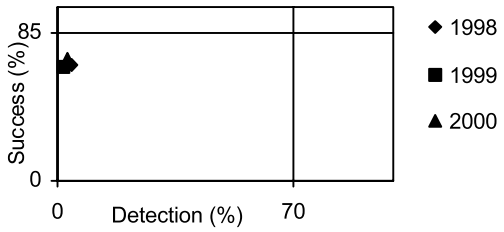
RATE BY AGE AND SEX (new ss+) *



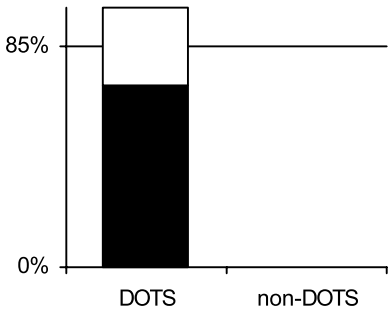
CASE TYPES NOTIFIED (new)



DOTS DETECTION AND DOTS SUCCESS RATES **

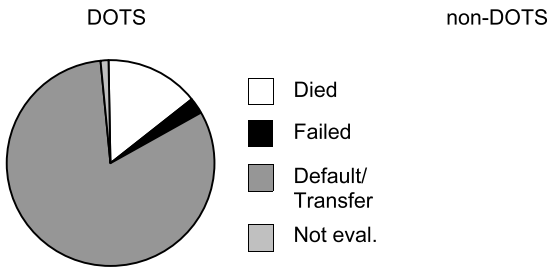


TREATMENT SUCCESS RATE (new ss+)



Nb registered: 2 967 DOTS

UNSUCCESSFUL TREATMENT OUTCOMES (new ss+)



* The age and sex rates may be based on data that do not include all smear-positive cases notified.
** DOTS treatment success rates are shown here by year of report, i.e., for the cohort registered during the previous year.
ss+ = sputum smear-positive. Est = estimated. '- -' = data not yet collected by WHO. Eval = evaluated. Pop = population.

Financial estimates

Budget estimates for national TB programme activities have been prepared for the period 2001–5. The total budget is US$ 33.6 million, of which US$21 million is for drugs. There is a budget gap of US$ 14.5 million, of which US$ 10.4 million is for drugs and US$ 2.7 million is for diagnosis.

The budget estimates shown in the table do not include the costs associated with using resources that are not TB-specific (i.e. general health services staff and general health services infrastructure). Estimates of these costs are provided in the results section of this report.

It would be useful to have an assessment of whether there is any need for investment in general health services if the number of cases to be treated expands in line with projected increases in case detection.

PAKISTAN: Budget estimates, existing funding, and budget gaps for 2002 and 2001–2005, US$ millions

COST ITEM	BUDGET 2002	FUNDING 2002			BUDGET 2001–5	FUNDING 2001–5		
		GOV'T	GRANTS	GAP		GOV'T	GRANTS	GAP
Staff	0.5	0.5	0.02	0.03	2.7	2.6	0.1	0
Buildings	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.
Diagnosis	0.6	0.2	0	0.4	3.8	1.1	0.02	2.7
Drugs	3.1	1.5	0.6	1.0	21.1	7.7	3.0	10.4
Training	0.1	0.1	0.01	0.01	0.8	0.4	0.03	0.4
Programme management and supervision	0.8	0.6	0.1	0.1	4.2	3.1	0.4	0.7
Activities to increase case detection and cure rates*	0.2	0.1	0	0.1	1.0	0.7	0	0.3
Miscellaneous	0	0	0	0	0	0	0	0
TOTAL	5.3	3.0	0.7	1.6	33.6	15.6	3.5	14.5

n.e. = not estimated
* includes health education and advocacy

PAKISTAN: Constraints to DOTS expansion and remedial actions

	CONSTRAINTS TO DOTS EXPANSION	ACTION TAKEN IN 2001 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION	ACTION PLANNED IN 2002 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION
POLITICAL ENVIRONMENT			
Political commitment	• Priorities now decided at provincial and district level. Federal TB priority may not always be reflected at these levels	• "Islamabad Declaration" by Head of State, followed by the initiation of NICC on World TB Day • Continued frequent contact & coordination with provincial & district policy-makers	• Hold quarterly NICC and other meetings with high-profile decision-makers in each province (including district heads) to ensure political commitment
Financial resources	• Under-funding in some areas of provincial and federal budgets • Restriction on procurement of specific items (e.g. vehicles)	• Approval and allocation of sufficient budget at federal and provincial levels • Initiation of NICC	• Revise budget plans according to needs • NICC to obtain donor support to cover budgetary gaps
Sustainability of existing DOTS services	• Weak ownership at district level since decentralization	• Frequent supervisory visits by the provincial teams to key districts to create ownership	• Hold inter-district workshops to ensure appropriate actions and budget allocations by districts
HEALTH SYSTEM CAPACITY			
Health services infrastructure	• Weak infrastructure of general health services at district and peripheral levels	• Discussed need to improve general health services • Developed strategic plan for DOTS expansion as means to improve general health services	• Involve newly elected district-level leaders (i.e. Nazims) • Develop strategies to improve general health services
Health sector reform including private sector integration	• Weak governance at district level in the process of devolution • Weak intersectoral collaboration with private health sector, NGOs, and other programmes	• Developed strategic plan for DOTS expansion • Started operational research on private-public mix • Developed plan to involve private sector and NGOs	• Gradual involvement of private sector in DOTS expansion. • Strengthen intrasectoral coordination with Malaria and AIDS programmes • Continue operational research
Access to health care services and facilities	• Scarce health services coverage in remote Balochistan and NWFP	• Involvement of community Lady Health Workers in DOTS activities in remote areas	• Continue involvement of Lady Health Workers and NGOs in remote areas
Staffing	• Lack of supervision due to logistical problems (i.e. shortage of vehicles and incentives)	• Nomination of district TB coordinators in DOTS areas • Continued training core groups of TB coordinators and health personnel at all levels	• Strengthen supervision arrangements with assistance from donors • Strengthen capacity of NTP and PTP staff by inducting local staff
Management and communication	• Weak governance at district level during process of devolution • Difficult communication with remote areas	• Developed strategic plan • Increased supervision to remote areas	• Continue discussions about impacts of devolution
Drug supply	• Lengthy procurement process	• Approval from GDF for drug provision	• Obtain and distribute GDF drugs
Laboratory resources	• Lack of quality control at peripheral level • No national or provincial reference laboratories	• Training at district level to improve quality control in laboratory services for diagnosis	• Establish national and provincial reference laboratories • Establish quality control system
Quality of TB services	• Low treatment success rates in some DOTS areas • Low case detection rate in general	• Supervision to areas with low treatment success rate	• Continued supervision to DOTS areas • Initiation of private-public mix
Programme monitoring and surveillance	• Delayed reporting from districts • Insufficient number of vehicles due to procurement restriction	• Expanded recruitment of national experts • Strengthened supervision to DOTS areas	• Inclusion of DOTS information in the Health Management Information System • Negotiation with partners for transport support
Emerging issues	• Lack of drug QA mechanism	• Discussions with pharmaceutical companies for bioavailability testing	• Establish QA mechanism
PEOPLE AND COMMUNITIES			
Community health education	• Lack of funds for development and dissemination of information	• Secured funds for dissemination of information through print and electronic media • Secured funds for establishing information resource centre	• Establishment of information resource centre to share all knowledge and latest information

COUNTRY PROFILE

Philippines

TB within the health system

The Philippines has been actively reforming many of its social programmes since 1992. Health sector reforms have clearly delineated the role of the central, regional, and provincial governments to draw on the comparative advantage of each in delivering quality health care. The central level of the TB control programme is responsible for overall programme management including the formulation of technical norms, providing technical support, and drug procurement. The regional level is responsible for coordination with, and technical support to, provincial governments. The central and regional levels of the TB programme have been working closely with provincial governments to ensure the successful implementation of DOTS and a regular drug supply at the lower levels. Provinces are beginning to take control of TB as a public health priority and the budget for TB drugs was recently shifted to the regional level. The overall reforms have recently focused on the Department of Health, leading to a reengineering of the department's operations and a reduction in personnel at the central level.

Progress in DOTS expansion

DOTS has continued to expand rapidly in the Philippines, reaching 90% population coverage in 2000 compared with 17% in 1998. In 2000, 45% of all estimated smear-positive cases were notified to the DOTS programme, more than double the proportion in 1999. However the total number of smear-positive cases notified (DOTS and non-DOTS) fell by over 6000. Treatment success in the 1999 cohort was 87% under DOTS—in excess of the WHO target. No treatment results were provided for cases treated outside the DOTS programme. Given that coverage is now almost complete, continued improvement in case detection will require increased case finding by existing DOTS services.

Partnerships

The Philippines has used partnerships to strengthen the programme and support DOTS expansion. Overall external technical collaboration is led by WHO. Other external technical support from JICA, USAID, World Vision (Canada), Medicos del Mundos (Spain), KNCV, and CDC/DTBE has helped to maintain technical quality during the expansion phase. The Philippines Coalition Against TB (PHILCAT), an NGO and private sector group of 30 entities, has helped to reach consensus for TB control especially among the private sector. It has also helped to mobilize local resources. The main funding partners are the World Bank, CIDA, JICA, and USAID.

Planning for TB control

The Philippines has both a strategic plan for DOTS expansion and a National Interagency Coordinating Committee. Plans for TB control focus on further expanding DOTS to the remainder of the country, increasing case detection, and maintaining quality. The TB control programme has proven to be dynamic and flexible as it continually adapts to the changing health system environment and the need to continue growing. The programme has stimulated ownership and commitment for TB control among both health workers and the community at all levels, with particular attention given to fostering ownership at the "barrangay" (i.e. peripheral) level. An advocacy campaign was launched that promotes ownership of the TB problem by all, and community participation and social mobilization programs were used to promote the allocation of local resources for TB control. As a result of these efforts, TB was named as one of the nation's five priority diseases.

Financial estimates

A detailed budget has been prepared for each year 2001–5. The total budget is US$ 109 million, and US$ 21 million for 2002. Most of the required funding is already available from the government. The most important budget items—staff and drugs—are both fully funded by the government. The existing budget gap is US$ 25 million for the period 2001–5, and US$ 4 million for 2002. The main budget gap is for activities specifically aimed at increasing case detection and cure rates, but there is also an important gap for inputs related to diagnosis.

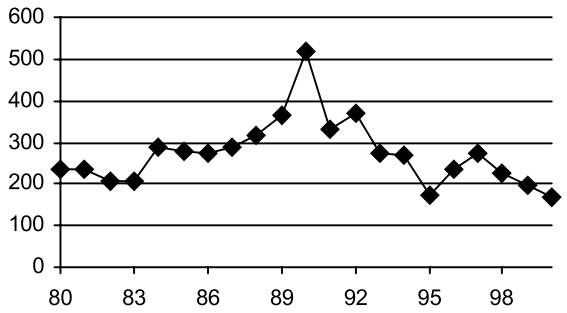
The budget estimates shown in the table cover the staff resources required for treatment of patients in general health services. It is assumed that the existing capacity of general health services is sufficient to manage an increase in the number of treated cases, given that case detection is very close to the 70% target.

PHILIPPINES

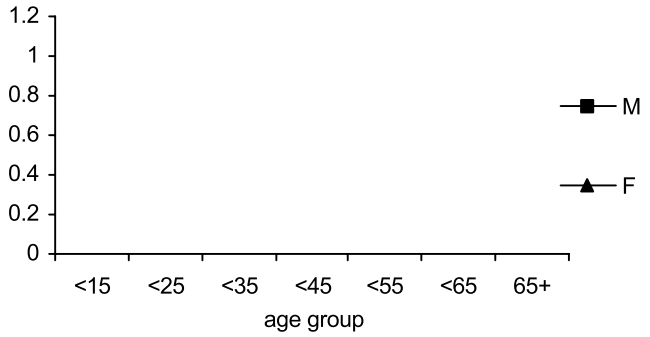
LATEST INFORMATION:	2000
Population	75 653 257
Est. incidence (all cases/100 000 pop)	330
Global rank (by est. number of cases)	7
Regional rank	2
Est. adult (15-49y) TB cases that are HIV+ (%)	0.4
Est. multi-drug resistance (new cases)	3.2
DOTS status (year adopted)	DOTS (1995)

TRENDS:	1997	1998	1999	2000
DOTS population coverage (%)	15	17	43	90
Notification rate (all cases/100 000 pop)	275	223	197	170
Detection (new ss+ cases, %)	80	67	68	60
- DOTS detection (new ss+, %)	3	10	19	45
Treatment success countrywide (new ss+, %)	78	71	87	- -
- Treatment success under DOTS (%)	83	84	87	- -
- Est. new ss+ success under DOTS (%)	3	7	30	- -

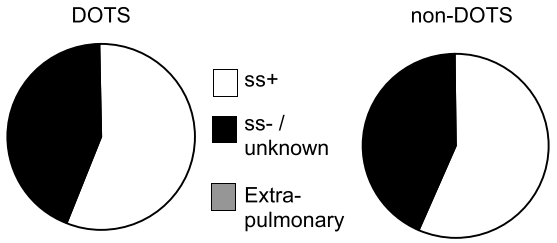
NOTIFICATION RATE (all cases per 100 000 pop)



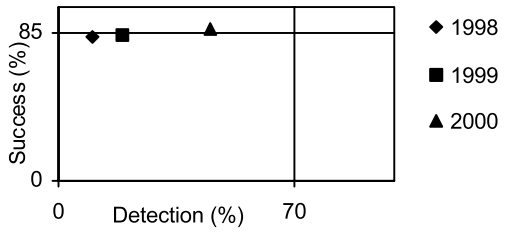
RATE BY AGE AND SEX (new ss+) *



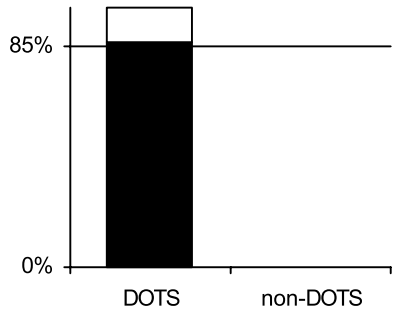
CASE TYPES NOTIFIED (new)



DOTS DETECTION AND DOTS SUCCESS RATES **

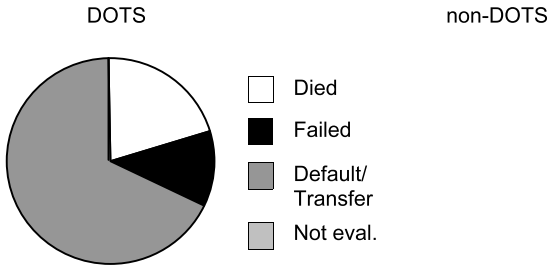


TREATMENT SUCCESS RATE (new ss+)



Nb registered: 36 923 DOTS

UNSUCCESSFUL TREATMENT OUTCOMES (new ss+)



* The age and sex rates may be based on data that do not include all smear-positive cases notified.
** DOTS treatment success rates are shown here by year of report, i.e., for the cohort registered during the previous year.
ss+ = sputum smear-positive. Est = estimated. '- -' = data not yet collected by WHO. Eval = evaluated. Pop = population.

PHILIPPINES: Budget estimates, existing funding, and budget gaps for 2002 and 2001–2005, US$ millions

COST ITEM	BUDGET 2002	FUNDING 2002			BUDGET 2001–5	FUNDING 2001–5		
		GOV'T	GRANTS	GAP		GOV'T	GRANTS	GAP
Staff	13.2	13.2	0	0	66.3	66.3	0	0
Buildings	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.
Diagnosis	1.3	0.1	0	1.2	6.9	0.5	0	6.4
Drugs	3.1	3.1	0	0	16.6	16.6	0	0
Training	0.05	0.025	0	0.025	0.3	0.2	0	0.1
Programme management and supervision	0.3	0	0	0.3	1.5	0.5	0	1.0
Activities to increase case detection and cure rates	2.9	0	0	2.9	17.7	0	0	17.7
Miscellaneous	0	0	0	0	0	0	0	0
TOTAL	20.8	16.4	0	4.4	109.3	84.1	0	25.2

n.e. = not estimated

PHILIPPINES: Constraints to DOTS expansion and remedial actions

	CONSTRAINTS TO DOTS EXPANSION	ACTION TAKEN IN 2001 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION	ACTION PLANNED IN 2002 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION
POLITICAL ENVIRONMENT			
Political commitment	• Uncertainty regarding commitment of local government units to expanding DOTS	• Strengthened regional level to provide technical assistance to local government units for expanding DOTS • Strengthened partner collaboration through NICC	• Continue the action taken in 2001 • Strengthen advocacy to mobilize human and financial resources of the local government units
HEALTH SYSTEM CAPACITY			
Health sector reform including private sector integration	• Significant proportion of patients are diagnosed and treated in the private sector	• Developed model of public-private mix for DOTS delivery, and enhanced collaboration between private physicians and the NTP	• A TB package for out-patient department is being planned by the Philippine Health Insurance Corporation for a public-private financing scheme
Access to health care services and facilities	• Significant proportion of patients are diagnosed and treated in the private sector	• Supported other NGOs and private hospitals implementing DOTS by providing TB drugs and supplies to their patients	• Establish a pilot area for public-private mix in DOTS delivery
Staffing	• Downsizing of the central level		• Increase staff at the central level to manage the NTP
Drug supply	• Delay in drug procurement due to currency exchange fluctuation	• Established multi-year budget to ensure adequate financing for TB drugs	• Introduce new logistics system for drug procurement and distribution
Programme monitoring and surveillance	• Weak programme monitoring	• Strengthened operational research capacity	• Conduct Drug Resistance Survey (DRS) • Increase monitoring and supervision for quality DOTS implementation by strengthening the role of the provinces through workshops and by providing guidelines
PEOPLE AND COMMUNITIES			
Community health education	• Community awareness is still low resulting in insufficient demand for DOTS services	• Participated in advocacy and promotion to improve demand for DOTS services (e.g. radio and TV coverage of NTP) • Talks about TB programme in special groups including children, prisoners, and indigenous populations	• Continue 2001 activities

The Russian Federation

TB control within the health care system

The Russian Federation has a network of primary health facilities that are widely spread across the whole territory. In some parts of the country, Siberia for example, access to these facilities is difficult for the rural population because of vast distances. TB control is provided by a specialized network of TB facilities that are not integrated into the general health system. In addition, TB patients are also treated in the penitentiary institutions run by the Ministry of Justice. The Ministry of Health is currently working on a reorganization to link the TB system with the primary health care network.

The Russian Federation does not have a formally established NTP. TB care is provided by the network of TB specialized dispensaries and hospitals. The role of the "central unit" is carried out by the Research Institute of Phthysiopulmonology (RIPP) in Moscow. The Director of RIPP has been nominated as Chief Phthysiologist of the Ministry of Health (equivalent to the NTP manager). A second research institute in Moscow, the Central Tuberculosis Research Institute (CTRI), is a WHO collaborating centre for DOTS implementation and expansion.

The deterioration of the TB situation in Russia became apparent in 1992 when social and economic conditions deteriorated, and poverty and homelessness increased. Migration from parts of the former Soviet Union with high TB burdens exacerbated the problem. A shrinking health budget resulted in an erratic supply of anti-TB drugs and laboratory supplies, reduced quality control in TB dispensaries and laboratories, and inadequate treatment led to drug resistance.

Progress in DOTS coverage

After a gradual decline in the TB notification rate until 1990, the trend reversed in Russia and the TB notification rate more than doubled from 34 per 100 000 population in 1990 to 95 per 100 000 population in 2000, equivalent to more than 130 000 new cases in 2000. There has been a major increase in the reported TB mortality rate, which has nearly tripled since 1990 to reach 20 per 100 000 in 2000. At the present time the Russian Federation has one of the highest TB mortality rates in Europe, and TB is first among causes of death from infectious diseases in Russia. The notification rate of children with TB has also doubled in the past ten years, from 8 per 100 000 in 1990 to 18 per 100 000 in 2000, or more than 4 500 children with TB in 2000. The TB situation is even more complex in correctional institutions where case rates and death rates among prisoners are ten times higher than in the civilian population. The case notification rate in the penitentiary system in 2000 was 3 118 per 100 000 convicts and persons under criminal investigation. This is a potential problem for TB control in the civilian sector since these infectious prisoners are released into the community.

By the end of 2001, DOTS had been implemented in 19 demonstration projects in civilian and prison populations. DOTS-Plus was implemented in one prison. This translates

Partnerships

The Russian Federation has attracted many donors and partners in TB control who have provided support to the programme for the last seven years. WHO is playing an important role in mobilizing funds for Russian TB control and in strengthening interagency coordination so as to obtain reliable and consistent results.

Major donors and partners include USAID, CDC, DFID, GTZ, IFRC, Soros Foundation, Gates Foundation, Merlin, FILHA, EPOS, PHRI, NLHA, KIL TB Consortium, Gorgas/University of Alabama, and CARE Austria. These agencies and NGOs support the government in the restructuring of the health system, revising the TB control policies and strategies, and implementing DOTS, including financial support for drugs, equipment, and social support to TB patients.

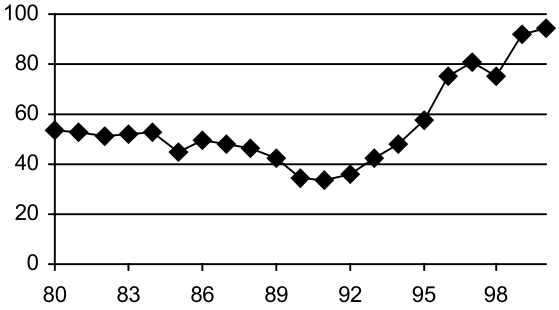
Since 1995, WHO has been assisting the Russian Federation in introducing the WHO-recommended strategy for TB control. The first pilot projects were implemented by WHO in Ivanovo oblast in October 1995, through a grant from DFID. USAID has provided financial support for the continuation of the projects in Ivanova, and for the implementation of the revised TB control strategy in Orel and Vladimir oblasts, with technical support from WHO and CDC. In April of 2000, the revised TB control strategy was expanded to Novgorod oblast, with funding from the Finnish government. SIDA recently has become a donor for organization of TB control activities in Kaliningrad Region. International agencies, such as MSF, Merlin, FILHA, NHLA, and IFRC/Russian Red Cross Society are all working in both the civilian and prison populations. Since 1999, DFID has financially supported technical activities underpinning revision of the national TB control policy and, since 2001, has funded projects in Samara and Kemerovo oblasts.

THE RUSSIAN FEDERATION

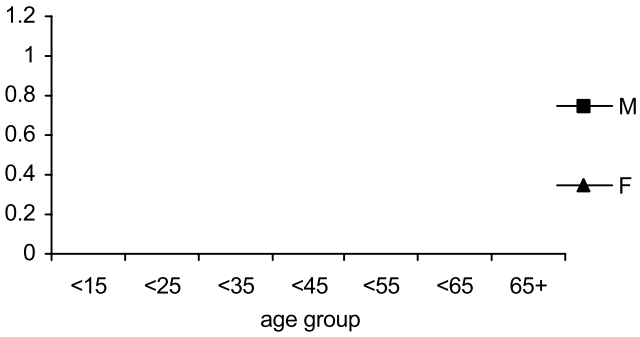
LATEST INFORMATION:	2000
Population	145 491 166
Est. incidence (all cases/100 000 pop)	132
Global rank (by est. number of cases)	10
Regional rank	1
Est. adult (15-49y) TB cases that are HIV+ (%)	1.0
Est. multi-drug resistance (new cases)	6.0
DOTS status (year adopted)	DOTS (1996)

TRENDS:	1997	1998	1999	2000
DOTS population coverage (%)	2	5	5	12
Notification rate (all cases/100 000 pop)	81	76	92	95
Detection (new ss+ cases, %)	60	56	27	30
- DOTS detection (new ss+, %)	1	1	2	3
Treatment success countrywide (new ss+, %)	67	68	65	- -
- Treatment success under DOTS (%)	67	68	65	- -
- Est. new ss+ success under DOTS (%)	1	1	1	- -

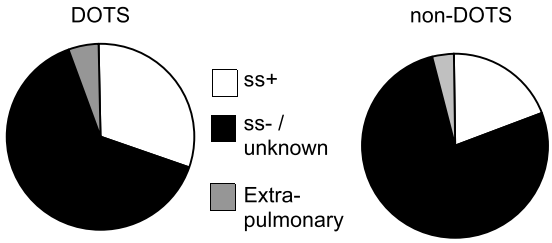
NOTIFICATION RATE (all cases per 100 000 pop)



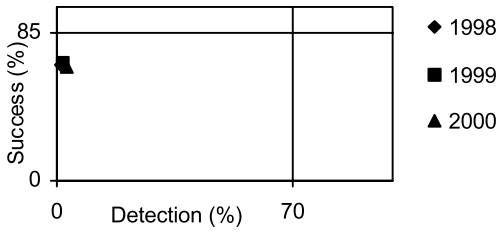
RATE BY AGE AND SEX (new ss+) *



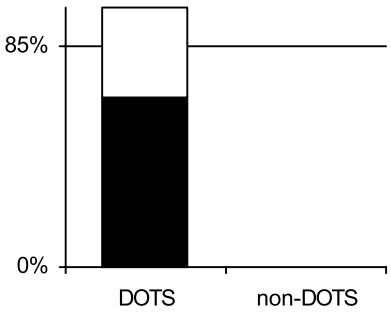
CASE TYPES NOTIFIED (new)



DOTS DETECTION AND DOTS SUCCESS RATES **

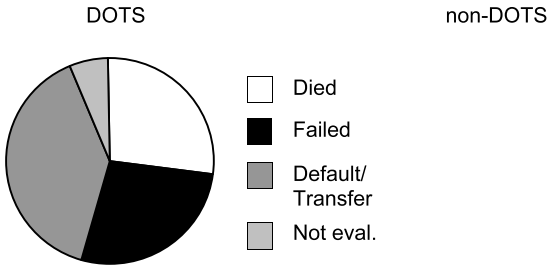


TREATMENT SUCCESS RATE (new ss+)



Nb registered: 1 542 DOTS

UNSUCCESSFUL TREATMENT OUTCOMES (new ss+)



* The age and sex rates may be based on data that do not include all smear-positive cases notified.
** DOTS treatment success rates are shown here by year of report, i.e., for the cohort registered during the previous year.
ss+ = sputum smear-positive. Est = estimated. '- -' = data not yet collected by WHO. Eval = evaluated. Pop = population.

into a population coverage of 12%. As of January 2002, 20 additional pilot projects have begun (or will begin) in 13 oblasts, 5 republics, 1 city, and 1 krai.

According to data reported from ten territories of Russia for quarters 1 and 2 of 2000, the treatment success rate was 68%. This suboptimal rate can be explained by a high death rate (8%), and by treatment failures (13%) and interruption (7%). The high death rate is related to delayed TB diagnosis and advanced forms of the disease. Failures are mainly caused by high MDR prevalence and treatment interruption. The high default rate is caused by social and economic problems such as alcoholism, homelessness, and unemployment.

Planning for TB control

A High Level Working Group on Tuberculosis in Russia (HLWG) was established for development of TB control policy and strategy, and for coordination of international partners involved in TB control in Russia. The HLWG is comprised of representatives of the Russian Ministry of Health (MoH), the Ministry of Justice (MoJ), the Russian Academy of Medical Sciences, the Council of Europe, and WHO. Functions of a National Interagency Coordinating Committee will be covered by HLWG, which is also assisting with the development of the 5-year country plan.

Financial estimates

Budget estimates are not yet available for the period 2001–5. The budget for 2001 at the federal level was US$ 30.2 million, and for 2002 is US$ 58.2 million. At the central level, local budgets in each of the country's 89 oblasts are not known, and it is therefore difficult to produce accurate estimates of the country's total budget for TB control. Ongoing costing studies indicate that the total existing budget is approximately US$ 150–200 million per year. It would be useful to develop a detailed budget of the investment required at federal and oblast levels for the period 2002–5, and to identify existing funding and budget gaps for each year.

RUSSIA: Constraints to DOTS expansion and remedial actions

	CONSTRAINTS TO DOTS EXPANSION	ACTION TAKEN IN 2001 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION	ACTION PLANNED IN 2002 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION
POLITICAL ENVIRONMENT			
Political commitment and financial resources	• The costly TB system is no longer able to cope with the TB caseload • TB not always given highest priority • Lack of funds at the federal and regional levels (on average 40–60% budget deficit) • Insufficient funds for TB drugs, supervision, training & education	• High Level Working Group (HLWG) continued to develop TB control policy • Approved HLWG Statute which will give a legal basis for the HLWG activities and decisions. The HLWG Statute also gave more responsibilities and higher authority to TWGs, recognizing their role in the process of updating the Russian TB control strategy • In June 2001, Russian Parliament (i.e. DUMA) adopted new law on TB control assigning responsibilities for TB control to Federal and Regional Governments thus increasing political commitment • New governmental and ministerial acts on TB control are under preparation • Federal budget was increased by about 40%	• Revision of the National TB Policy (based on newly issued Federal TB law) including adoption and development of TB control programme, and strengthening and development of cooperation among government bodies and institutions • Adoption of 5-year plan for TB control • Allocation of federal budget according to priorities (Federal budget plan for 2002 is about 98% higher than for 2001) • Training and education for new TB control approaches • Development of advocacy plan
HEALTH SYSTEM CAPACITY			
Health services infrastructure	• Poor integration of general health care with TB services • Lack of resources	• Federal programme significantly contributed capital investments and equipment to support development of regional TB control infrastructure • Revision of national TB control strategy to comply with WHO standards • Preparation of training and education plans for the medical personnel	• TB control policy revision (preparation of new regulations and guidelines) • Training and education • Advocacy
Access to health care services and facilities	• Insufficient social support for TB patients in marginalized groups including prisoners, ex-prisoners, and homeless persons	• TB law was adopted in June 2001 • Revision of the national TB control strategy and regulatory documents	• Revision of the national TB control strategy (preparation of new regulations and guidelines) • Preparation of recommendations for social support and patient incentives (Thematic Working Group—TB in marginalized population groups)
Drug supply	• Drug shortage as a result of insufficient funds	• New anti-TB drug supply was significantly improved by funds from the Federal TB Control Programme in 2000 and 2001	• New recommendations for TB drug supply and distribution are under preparation • Federal budget for drugs was increased compared to 2000 and 2001 (centralized procurement)
Laboratory resources	• Inappropriately trained staff, outdated equipment, lack of supplies, and poorly applied safety measures • Lack of quality control and quality assurance	• Some laboratory equipment and supplies were procured for the regions by the Federal TB Control Programme • Began reparation of new laboratory guidelines including quality control components	• Establish laboratory quality assurance system • Establish reference laboratory network • Training and education plan for laboratory personnel • Procure laboratory equipment and supplies
Quality of TB services	• Less efficient system of patient diagnosis and management (e.g. delays in diagnosis, lower cure rates) as a result of insufficient funds • Use of non-standardized and sub-optimal therapies have resulted in high numbers of patients with drug-resistant TB, including MDR, in both civilian and prison populations • Limited training for primary care and general health network staff in the areas of diagnosis and case detection		• Training and education, including improvement and development of training facilities, revision of medical school curriculum, and improvement of community health education • Capacity building of TB laboratory services • New guidelines for TB patients treatment both for civilian and prison sectors
Programme monitoring and surveillance	• Shortage of information about TB epidemiology and control		• Revise surveillance (i.e. recording and reporting forms), implement revised definitions, and conduct cohort analysis • Establish standardized drug resistance surveillance system

COUNTRY PROFILE

South Africa

TB control within the health system

The TB programme is one of the national health priorities in South Africa. The Government of South Africa has determined that diagnosis and treatment for TB should be a free service, helping to ensure access to poor people who are the most seriously affected. Many organizations provide services for TB patients, including government, NGOs, employers, and the private health sector.

Progress in DOTS coverage

DOTS coverage was extended to 77% of the country by the end of 2000, and two thirds of estimated smear positive cases were detected under DOTS, bringing South Africa close to the WHO target of 70%. Improved reporting of the number of patients who default or who were lost to follow-up after transfer was in part responsible for the apparent decrease in treatment success from 74% for the 1998 cohort to 60% for the 1999 cohort. The problems of transfer and defaulting are being addressed, along with inconsistencies in the implementation of treatment observation both in health facilities and in communities. A review of laboratory services in January 2002 will identify ways of improving the quality and number of smear examinations.

Partnerships

National technical partnerships have been established through innovative collaborations with national NGOs (SANTA, TADSA, and Life Care), the university research community, and other government departments. IUATLD and WHO provide overall technical support for TB control, supported by DFID, and CDC. DFID is assisting the programme with operational research and with strengthening services at the district level. CDC has helped to establish a standard reporting and recording system. KNCV has helped in developing the 2001–5 plan. USAID, DFID, and the Government of Belgium provide financial support for TB drug resistance surveillance, strategic planning, advocacy, and TB/HIV collaboration.

Planning for TB control

A revised national TB control programme incorporating the DOTS strategy was first established (in 1996) to expand effective and accessible TB services throughout the country by year-end 2001. TB coordinators were appointed in all provinces. A rapid increase in the detection of TB in a high HIV/AIDS environment and the emergence of MDR-TB has led the central and provincial governments to identify TB as a priority. Pilot projects on TB, HIV/AIDS, and STI collaboration in core services have been established in several districts. A strategic plan for TB control from 2001–2005 has been developed and launched by the Minister of Health in 2002. A National Interagency Coordinating Committee does not yet exist.

Financial estimates

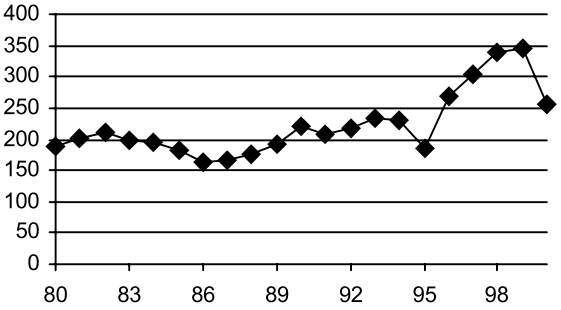
A budget for the five-year plan is under development. At present, South Africa receives some external assistance, but the government funds almost all of the costs of tuberculosis diagnosis and treatment.

SOUTH AFRICA

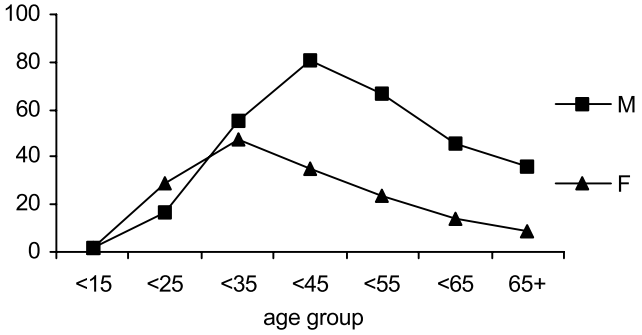
LATEST INFORMATION:	2000
Population	43 309 197
Est. incidence (all cases/100 000 pop)	526
Global rank (by est. number of cases)	9
Regional rank	3
Est. adult (15-49y) TB cases that are HIV+ (%)	60
Est. multi-drug resistance (new cases)	1.5
DOTS status (year adopted)	DOTS (1997)

TRENDS:	1997	1998	1999	2000
DOTS population coverage (%)	13	22	66	77
Notification rate (all cases/100 000 pop)	304	338	347	257
Detection (new ss+ cases, %)	77	86	85	84
- DOTS detection (new ss+, %)	6	21	64	67
Treatment success countrywide (new ss+, %)	68	72	57	- -
- Treatment success under DOTS (%)	73	74	60	- -
- Est. new ss+ success under DOTS (%)	4	33	45	- -

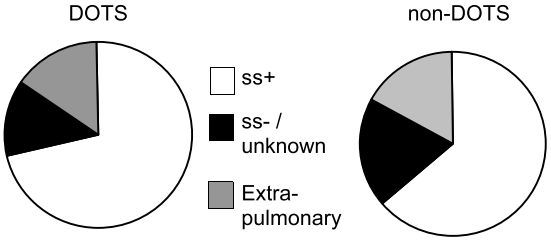
NOTIFICATION RATE (all cases per 100 000 pop)



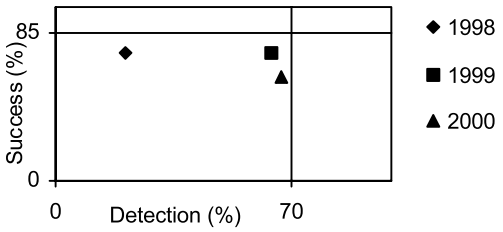
RATE BY AGE AND SEX (new ss+) *



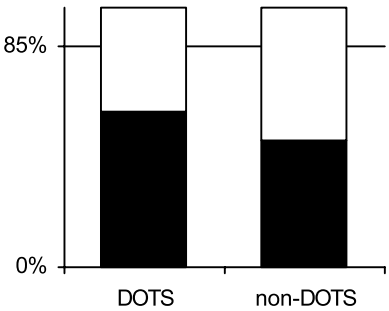
CASE TYPES NOTIFIED (new)



DOTS DETECTION AND DOTS SUCCESS RATES **

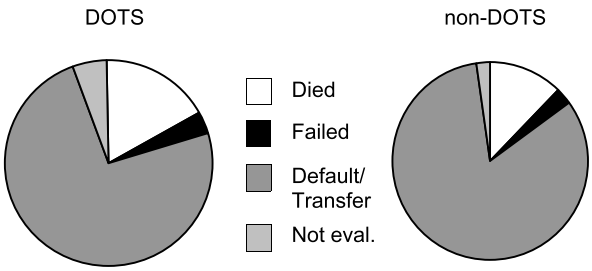


TREATMENT SUCCESS RATE (new ss+)



Nb registered: 63 304 DOTS , 18 191 non-DOTS

UNSUCCESSFUL TREATMENT OUTCOMES (new ss+)



* The age and sex rates may be based on data that do not include all smear-positive cases notified.
** DOTS treatment success rates are shown here by year of report, i.e., for the cohort registered during the previous year.
ss+ = sputum smear-positive. Est = estimated. '- -' = data not yet collected by WHO. Eval = evaluated. Pop = population.

SOUTH AFRICA: Constraints to DOTS expansion and remedial actions

	CONSTRAINTS TO DOTS EXPANSION	ACTION TAKEN IN 2001 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION	ACTION PLANNED IN 2002 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION
POLITICAL ENVIRONMENT			
Financial resources	• Lack of funding at provincial and district levels, especially for personnel deployment	• Development of costing tools and training in costing for district management teams and provincial coordinators	• Establishment of baseline budgets for TB by provinces and districts
HEALTH SYSTEM CAPACITY			
Health services infrastructure	• No effective integration between TB and HIV programmes and activities	• Acquired funding for TB/HIV training districts in each province • TB Directorate became part of HIV/AIDS, STI & TB Directorate	• Expand TB/HIV-AIDS training districts to at least one per province
	• Lack of strategic plan	• Formulation of consensus-based Medium Term Development Plan for 2001–2005	• Extend strategic plan to include formulation of provincial plans
	• Lack of administrative controls to reduce risk of nosocomial transmission	• Conducted comprehensive review of TB hospitalization practices • Developed guidelines for prevention of TB transmission in health care facilities	• Finalise and publish guidelines on prevention of nosocomial transmission
Health sector reform including private sector integration	• Insufficient success at building and sustaining commitment to DOTS at all levels of decentralized public health system	• National TB Control Programme promoted DOTS expansion through the establishment of Demonstration and Training Districts (DTDs)	• Expand DOTS coverage to all districts by end of 2002 • Monitoring is undertaken against nationally agreed indicators on a quarterly basis • Management and supervision training to be offered to weakest districts
Access to health care services and facilities	• Services not reaching special populations (e.g. workers in mines and incarcerated persons)	• Inclusion of sector-specific representatives in strategic plan formulation process	• Sector-specific adoption of national strategic plan and action steps
Staffing	• Poor outcomes at district level reflect inadequate skills and highlight need for better training and monitoring of provincial and district coordinators.	• Intensified training for district management teams	• All district management teams to be trained • Specific district team training in financial management, monitoring and evaluation
Management and communication	• Need to ensure that TB remains a health priority for all levels of the health service	• TB named as a priority by Minister of Health	• Review provincial and district management structures, supported by training workshops
Laboratory resources			• Conduct a review of laboratory services and laboratory information network
Quality of TB services	• Specialized TB facilities are often overcrowded and patients admitted for long periods • Insufficient links between different components of TB services (i.e. case finding and laboratory results) reveal managerial and organizational weaknesses	• Comprehensive review of specialized TB facilities • TB laboratory services integrated into National Health Laboratories Services	• Restructure management • Conduct comprehensive review of TB laboratory services
Programme monitoring and surveillance	• Lack of cohort analysis • Persistently high rates of treatment interruption and insufficient defaulter tracing	• Introduction of new electronic TB register in 2 provinces • Simplified recording and reporting system (paper-based) implemented in 7 of 9 provinces and is ready to expand to entire country	• Improve accuracy of data through correct classification and accounting of transferred patients • Implement electronic TB register in 3 additional provinces
Emerging issues	• MDR-TB	• Implementation of national MDR management guidelines and DOTS Plus Study	• Completion of national drug resistance surveillance • Analysis of preliminary results of MDR treatment outcomes

COUNTRY PROFILE

Thailand

TB control within the health care system

The health infrastructure of Thailand is well-developed with a strong network of more than 8000 health centres offering primary health care services, and more than 900 provincial and district hospitals offering curative services including TB treatment. Private health care providers play an important role in urban centres. Future challenges for the government health services include the development of comprehensive financing mechanisms and the decentralization of administrative responsibilities under the ongoing health care reform projects.

Progress in DOTS coverage

Population coverage with the DOTS strategy continued the rapid increase evident in previous years, reaching 70% by 2000. However, this rapid expansion was accompanied by delayed reporting at the provincial and regional levels. Therefore, the small increase in case detection rate (47% 2000 vs. 40% in 1999) may reflect underreporting as well as low passive case finding in DOTS areas. By contrast, reporting of treatment outcomes improved in 2000, with treatment results being available for 100% of the previous year's cohort (89% in 1999). This improved reporting is reflected in a higher treatment success rate (77% vs. 68%). Treatment success of more than 85% has been achieved in some parts of the country where HIV prevalence is low. The program sees relatively high death rates (10%), likely due to the influence of the TB-HIV co-infection in parts of the country. The default rate of 8% (seen in areas with a highly mobile population) indicates that patient observation and treatment can still be improved.

Planning for TB control

In response to the threat posed by TB on economic and social development, there is strong political commitment within the Ministry of Public Health to implement the DOTS strategy. As part of this commitment, Thailand is in the process of developing a draft 5-year strategic plan for DOTS expansion in 2002–2006. To better ensure coordination of TB control, a National Interagency Coordinating Committee is led by the Communicable Disease Control Department of the Ministry of Public Health.

Rapid and effective DOTS expansion has been possible due to an overall strengthening of the managerial and supervisory capacity of the programme at national, provincial, district, and village levels, combined with a comprehensive training and supervision programme. The generally high level of proficiency among staff in the public health system has further facilitated DOTS expansion.

Full DOTS coverage is expected to be reached by 2002 when TB services will be integrated into all health facilities. TB control actions are also focused on special groups such as the homeless and marginal populations. DOTS expansion in large urban areas remains a priority. A recently developed Urban TB Control Project in Bangkok will promote collaboration with private hospitals and private practitioners through innovative approaches to interaction, such as provision of TB drugs in exchange for agreement to comply with the reporting and recording requirements of the NTP.

Financial estimates

The budget for TB control was approximately US$ 10 million in 2001, excluding the costs associated with use of general health services. This was fully funded by the government. Details regarding the budget required for 2002–2005, and how this is linked to global control targets (for example, identification of the investments required to increase case detection and cure rates), are not currently available. It is assumed that there is no funding gap in Thailand.

Partnerships

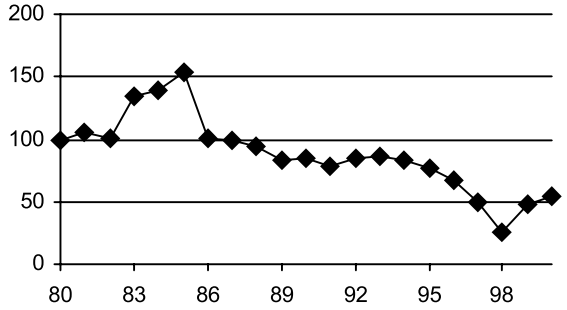
WHO leads the technical collaboration for TB control in Thailand and provides minor support for training, monitoring, and operational research. RIT has been conducting various research projects in the Northern part of the country for several years.

THAILAND

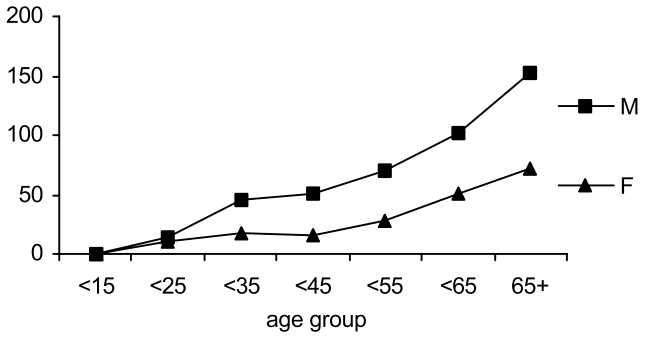
LATEST INFORMATION:	2000
Population	62 805 574
Est. incidence (all cases/100 000 pop)	140
Global rank (by est. number of cases)	16
Regional rank	4
Est. adult (15-49y) TB cases that are HIV+ (%)	12
Est. multi-drug resistance (new cases)	2.1
DOTS status (year adopted)	DOTS (1996)

TRENDS:	1997	1998	1999	2000
DOTS population coverage (%)	4	32	59	70
Notification rate (all cases/100 000 pop)	50	26	47	54
Detection (new ss+ cases, %)	35	21	39	46
- DOTS detection (new ss+, %)	5	21	39	46
Treatment success countrywide (new ss+, %)	58	68	77	- -
- Treatment success under DOTS (%)	62	68	77	- -
- Est. new ss+ success under DOTS (%)	2	14	27	- -

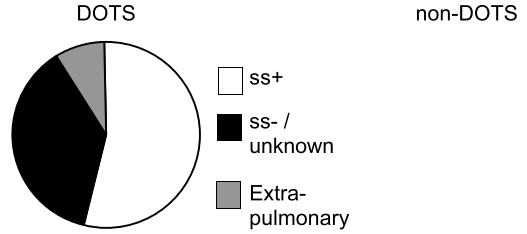
NOTIFICATION RATE (all cases per 100 000 pop)



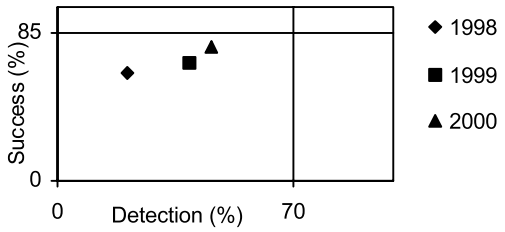
RATE BY AGE AND SEX (new ss+) *



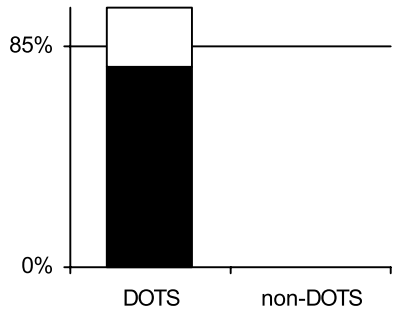
CASE TYPES NOTIFIED (new)



DOTS DETECTION AND DOTS SUCCESS RATES **

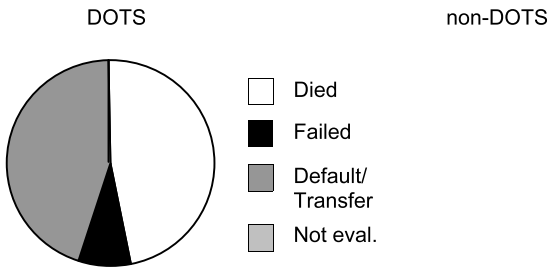


TREATMENT SUCCESS RATE (new ss+)



Nb registered: 13 650 DOTS

UNSUCCESSFUL TREATMENT OUTCOMES (new ss+)



* The age and sex rates may be based on data that do not include all smear-positive cases notified.
** DOTS treatment success rates are shown here by year of report, i.e., for the cohort registered during the previous year.
ss+ = sputum smear-positive. Est = estimated. '- -' = data not yet collected by WHO. Eval = evaluated. Pop = population.

THAILAND: Constraints to DOTS expansion and remedial actions

	CONSTRAINTS TO DOTS EXPANSION	ACTION TAKEN IN 2001 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION	ACTION PLANNED IN 2002 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION
POLITICAL ENVIRONMENT			
Political commitment	• Insufficient political commitment at provincial level	• Continued to raise political commitment through advocacy for national policy, especially at provincial levels, to ensure adequate resources for DOTS expansion	• Continue to raise political commitment especially at provincial levels, to ensure adequate resources for DOTS expansion
Sustainability of existing DOTS services	• Insufficient financial resources in areas where DOTS strategy is newly implemented		• Continue to raise political commitment especially at provincial levels, to ensure adequate resources for DOTS expansion
HEALTH SYSTEM CAPACITY			
Health sector reform including private sector integration	• Decentralized health system with new budget allocation now going to peripheral levels instead of central level	• Re-oriented funds to provincial health committees and strengthened role of health inspectors to monitor funds at peripheral levels	• Develop urban TB control programme in collaboration with private sector, local administration, and university teaching hospital
Staffing	• Frequent shift of chief medical officers and staff	• Increased training and re-orientation to ensure that new staff are trained	• Continue training and re-orientation to ensure that new staff are trained
Laboratory resources	• No country-wide QA system in place	• Implemented laboratory QA system	• Extend laboratory quality assurance system for microscopy exam to all laboratories in DOTS areas
Programme monitoring and surveillance	• Insufficient monitoring and supervision	• Increased monitoring and supervision	• Increased monitoring and supervision to ensure that recorded data are regularly reported to NTP at central level
Emerging issues	• Rising TB/AIDS epidemic • Threat of potential MDR-TB epidemic in areas with high HIV/AIDS burden	• Conducted drug resistance surveillance • Integrated TB/HIV strategies • Initiated development of network of laboratories to detect MDR-TB • Initiated re-treatment with 2nd line drugs for treatment failures	• Continue previous efforts
PEOPLE AND COMMUNITIES			
Community health education	• Limited public education activities during initial DOTS expansion phase	• Expanded public education campaign	• Continue public education campaign

COUNTRY PROFILE

Uganda

TB control within the health system

A strong central TB team has enabled the provision of technical support, supervision, managerial guidance, quality assurance, and advice to districts on the development of health policy. TB control is well integrated into the overall health care system.

Progress in DOTS coverage

Since the introduction of DOTS (with 100% coverage) in 1997, treatment success has improved from 33% for the 1996 cohort to 61% for the 1999 cohort. Defaulting, at 16% for the 1999 cohort, is a major barrier to treatment success. Furthermore, only 79% of new smear positive cases notified in 1999 were registered for treatment. Thus, fewer than half the notified cases were successfully treated. A pilot study in Kiboga district found that community-based care improved cure rates (from 59% in 1997 to 78% in 1998), lowered the frequency of treatment interruptions and reduced the costs incurred by patients and providers. On the basis of these results, community-based care has been adopted as policy by the Ministry of Health.

Planning for TB control

The Strategic Plan for Expansion of Community-based TB Care has been developed as part of the overall Health Sector Strategic Plan 2001–2004. A National Interagency Coordinating Committee is currently under development.

Flexible management approaches, combined with good analysis of reported data, have stimulated innovations such as community-based DOTS, aimed at improving equity and accessibility to essential public health interventions. Uganda was recently divided into 56 districts: 10 of those districts already have a fully functioning community-based TB care system, 15 more are about to implement community-based activities, and all others are developing district health services plans to include community-based TB care. The extensive experience within Ugandan communities for effective care and support of TB patients could be used as a model for IPT and for future ARV distribution within communities. Moreover, a number of NGOs have valuable experience in the care and support of people living with HIV/AIDS.

Partnerships

Partnerships are a key component of Uganda's success in combining international collaboration with community involvement for DOTS delivery. Uganda has successfully established partnerships with a number of international agencies and NGOs. Overall external technical support for the country is led by IUATLD and WHO, with further technical assistance provided by GLRA, Leprosy Mission International, and the Italian Government. External financial support is provided by the WHO, GLRA, ICD, CESAL for programme operating costs, and DFID and GLRA for TB drugs and training. The Government of Italy provides microscopes and support for a staff person through WHO. CDC LIFE is a potential resource to support TB activities.

Financial estimates

Budget estimates are available for the three year period 2001/2–2003/4. The total required is approximately US$ 9 million. For 2001/2, the total budget is US$ 3 million. The most important items are drugs, programme management and supervision, and inputs to diagnosis, while US$ 0.1 million

UGANDA: Budget estimates, existing funding, and budget gaps for 2001/2 and 2001/2–2003/4, US$ millions

COST ITEM	BUDGET 2001/2	FUNDING 2001/2			BUDGET 2001/2–2003/4	FUNDING 2001/2–2003/4		
		GOV'T	GRANTS	GAP		GOV'T	GRANTS	GAP
Staff[1]		fully funded	0	0		fully funded	0	0
Buildings	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.
Diagnosis	0.2	0	0.2	0	0.6	0	0.2	0.4
Drugs[2]	1.2	1.1	0.4	0	3.8	1.6	1.2	1.0
Training	0.1	0	0.1	0	0.2	0	0.1	0.1
Programme management and supervision	1.2	0.1	0.03	1.1	3.7	0.1	0.03	3.6
Activities to increase case detection and cure rates*	0.1	0	0.1	0	0.4	0	0.1	0.3
Miscellaneous**	0.1	0	0.1	0	0.4	0	0.1	0.3
TOTAL[2]	2.9	1.2***	0.9	1.1	9.1	1.7	1.7	5.7

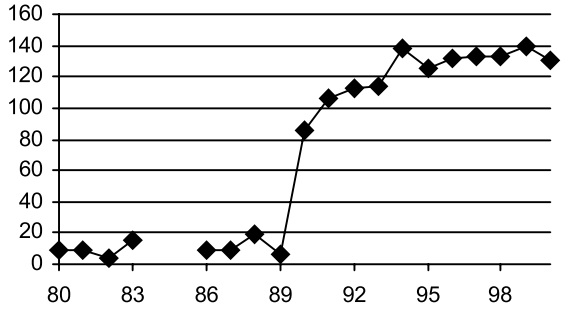
1 estimates available but not included in budget supplied to WHO
2 total funding for 2001/2 does not sum to total budget in this row because funding is in excess of the total budget required
n.e. = not estimated
* expansion of community-based care countrywide
** includes operational research
*** includes funding available through the HSSP as part of the "Minimum Health Care Package"

UGANDA

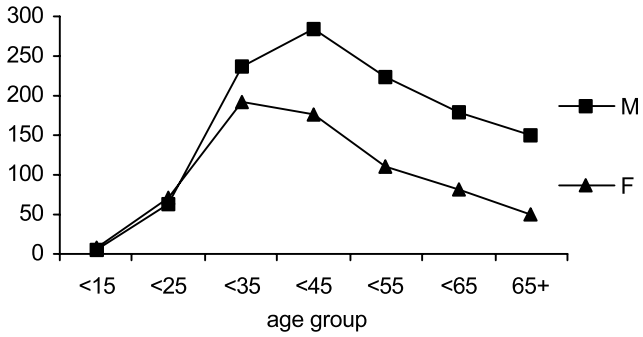
LATEST INFORMATION:	2000
Population	23 300 162
Est. incidence (all cases/100 000 pop)	351
Global rank (by est. number of cases)	17
Regional rank	7
Est. adult (15-49y) TB cases that are HIV+ (%)	35
Est. multi-drug resistance (new cases)	0.5
DOTS status (year adopted)	DOTS (1997)

TRENDS:	1997	1998	1999	2000
DOTS population coverage (%)	100	100	100	100
Notification rate (all cases/100 000 pop)	133	133	140	130
Detection (new ss+ cases, %)	61	60	57	50
- DOTS detection (new ss+, %)	61	60	56	50
Treatment success countrywide (new ss+, %)	40	62	61	- -
- Treatment success under DOTS (%)	40	62	61	- -
- Est. new ss+ success under DOTS (%)	25	27	27	- -

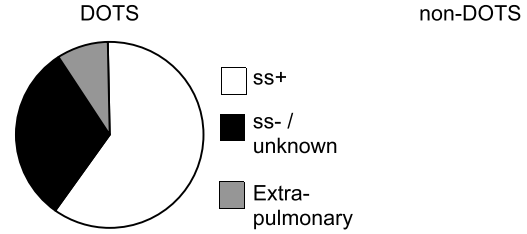
NOTIFICATION RATE (all cases per 100 000 pop)



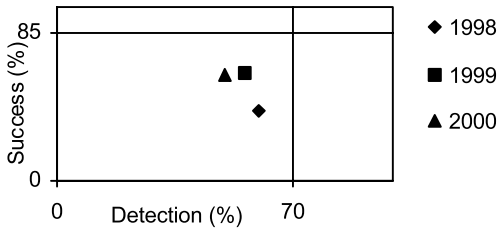
RATE BY AGE AND SEX (new ss+) *



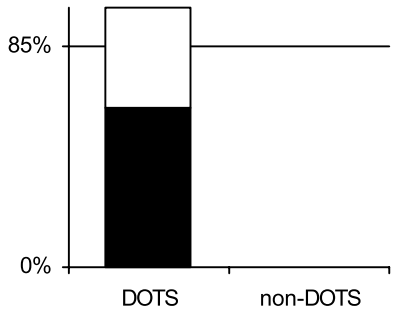
CASE TYPES NOTIFIED (new)



DOTS DETECTION AND DOTS SUCCESS RATES **

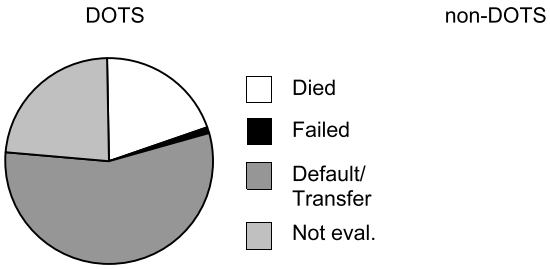


TREATMENT SUCCESS RATE (new ss+)



Nb registered: 14 250 DOTS

UNSUCCESSFUL TREATMENT OUTCOMES (new ss+)



* The age and sex rates may be based on data that do not include all smear-positive cases notified.
** DOTS treatment success rates are shown here by year of report, i.e., for the cohort registered during the previous year.
ss+ = sputum smear-positive. Est = estimated. '- -' = data not yet collected by WHO. Eval = evaluated. Pop = population.

is to be spent on the expansion of community-based care countrywide. Government funding totals around US$ 1.7 million, most of which is provided through HSSP funding of a "minimum health care package". The GLRA provides important funding for drugs and operational costs, and WHO supports community-based care expansion and operational research. The budget gap for 2002 is US$ 1.1 million, and for 2001/2–2003/4 the gap is US$ 5.7 million.

The budget estimates shown in the table do not include the costs associated with using resources that are not TB-specific (i.e. general health services staff and general health services infrastructure). Estimates of these costs are provided in the results section of this report.

Given that the NTLP plans to expand community-based care countrywide during the period 2001/2–2003/4, it is assumed that no new investment in general health services will be required to facilitate achievement of control targets.

UGANDA: Constraints to DOTS expansion and remedial actions

	CONSTRAINTS TO DOTS EXPANSION	ACTION TAKEN IN 2001 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION	ACTION PLANNED IN 2002 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION
POLITICAL ENVIRONMENT			
Political commitment	• Poorly staffed NTLP Central Unit	• One WHO NPO recruited to support • Facilitation of recruitment of another medical officer by USAID to support TB control in 10 districts	• MoH restructuring likely to create posts for PHC Officers at regional level, which will technically support TB control at district level
Financial resources	• Underfunding and late release of funds at district level	• Funds obtained from various donors to bridge gaps	• Obtain support from GDF • Apply to GFATM to bridge remaining operational gaps • Submit project proposal to CIDA (through IUATLD)
Sustainability of existing DOTS services	• Most activities still funded from central level rather than districts	• More funds obtained from district health system budget	• Solicit for planning and inclusion in district health system budget
HEALTH SYSTEM CAPACITY			
Health services infrastructure	• Lack of TB-HIV services integration • In some districts, inadequate microscopy services network and related quality assurance system	• Adopted a three year "Strategic Plan for Expansion of Community-based TB Care" • WHO gave technical and financial support to CB TB care expansion • WHO started giving technical support to coordination between HIV/AIDS and TB control services in 10 districts	• Further expansion of CB TB care to at least 15–20 more districts in 2002 • Follow up TB/HIV control collaboration at service delivery point in 10 districts and recommend similar approach at national level
Health sector reform including private sector integration	• Decentralization of health services slowed funding mechanisms at district level • Need for better integration of TB control into district health services	• Dialogue with district health teams to promote understanding and ownership of TB control activities • Expansion of CB TB care favoured better integration into district health services	• Continue same action • Start capacity building and training of sub-district health staff
Access to health care services and facilities	• Poor accessibility to services for rural based population	• Implementation of CB TB care and its expansion within the framework of district health services	• Expansion of CB TB care
Staffing	• Understaffing especially for microscopy services	• Training of laboratory microscopists in district referral hospitals	• Training of laboratory microscopists in district referral hospitals concurrently with CB TB care expansion
Drug supply	• Uncoordinated & delayed procurement of anti-TB drugs by different agencies leading to shortages or expiry	• Procurement and distribution of blister packs for TB treatment • Application to GDF submitted and approved	• Update drug estimates and new application to GDF
Laboratory resources	• Poor accessibility • Inadequate trained manpower	• Training of laboratory microscopists in district referral hospitals	• Open new diagnostic units by procuring more binocular microscopes and training microscopists
Quality of TB services	• Inadequate supervision and support to districts not immediately involved in CB TB care expansion • Low staffing of central laboratory • Poor data on treatment outcomes in capital city and no data from private sector	• Facilitate expansion of CB DOTS • 2 more laboratory technicians recruited to assist in quality control & support supervision • Medical officer recruited at the end of 2001 to supervise & facilitate implementation of NTP policy	• Continue expansion of CB TB care • Establish routine quality control in all CB TB care districts • Re-training of public and private hospital staff in Kampala, with focus on coordination of TB/HIV control
Programme monitoring and surveillance	• No follow up data from Kampala City	• Surveyed health units in Kampala City to study ways of implementing CB DOTS in urban settings	• Survey follow-up in major hospitals of Kampala City to establish coordinated HIV/TB control services
PEOPLE AND COMMUNITIES			
Community health education	• Poor economic and geographic access to TB diagnosis and treatment services	• Conducted CB DOTS training in 8 districts	• Expand CB DOTS to 15–20 more districts

COUNTRY PROFILE

United Republic of Tanzania

TB control in the health system

The health care delivery system is well-developed and emphasizes self-reliance, equal distribution, and equal access to various social services. As a result, there has been a steady expansion of health services to the rural areas to serve the majority of the population. The Government of the United Republic of Tanzania, through the Ministry of Health and the Prime Minister's Office (Regional Administration and Local Government), provides the majority of health services (approximately 60%). NGOs, other voluntary agencies, and private-for-profit organizations also play an important part in health care delivery.

A well-developed primary health care system has ensured the accessibility of TB and leprosy control activities (carried out by the NTLP) to the majority of the population. The former policy of the government to provide free health care for all is no longer sustainable. Health sector reforms aim to maintain and increase the effectiveness of the health sector through the following strategies: alternative financing options (cost-sharing and community health funds); reorganization of the structure of health services delivery (integration of vertical programmes); capacity-building at all levels (including training); and private sector participation in health service provision.

Progress in DOTS expansion

Tanzania has had 100% DOTS coverage since 1996. TB case notifications have been increasing since the early 1980s, but there are signs that the rate of increase is slowing. It is unclear whether this is due to a fall in the intensity and quality of case finding and diagnosis, or to a genuine slow-down in the rise of TB incidence, perhaps linked to the epidemiology of HIV/AIDS. If the latter, then our estimate of 45% case detection may be too low; this requires independent verification. Treatment success remains high at 78%. This is impressive in a country which has a high prevalence of HIV and where, inevitably, a substantial proportion of TB patients dies during treatment (10%).

Planning for TB control

Health sector reforms call for modification in the structure and functions of programmes including the NTLP. A strategic plan exists for 2001–2004, with the goal of reaching the global targets for case detection and cure by 2004. A National Interagency Coordinating Committee has been established.

Financial estimates

NTLP budget estimates are available for the three year period July 2001–June 2004. The total for TB control is approximately US$ 15 million, an average of US$ 5 million per year. The most important items are drugs, programme management and supervision, and inputs required for diagnosis. The budget for activities specifically related to increasing case detection and cure rates is comparatively small. A breakdown of the budget by item is available for 2001/2, but not for the whole period 2001/2–2001/4. Most funding is from grants; government funding accounts for less than 5% of the 2001/2 budget.

The budget estimates shown in the table do not include the costs associated with using resources that are not TB-specific (i.e. general health services staff and general health services infrastructure). Estimates of these costs are provided in the results section of this report.

It would be useful to have an assessment of whether there is any need for investment in general health services if the number of cases to be treated expands in line with (a) projected increases in case detection and (b) the impact of the HIV/AIDS epidemic on the TB patient caseload.

Partnerships

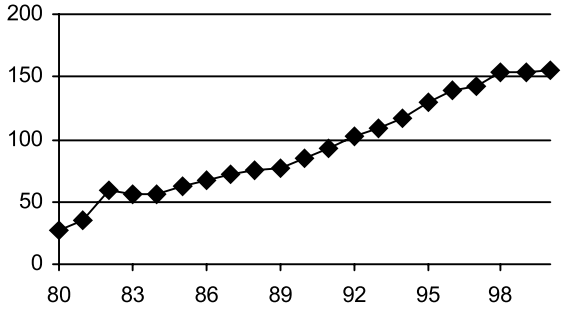
Long-term international support has underpinned Tanzania's success in TB control. Partnerships with the IUATLD, GLRA, WHO, and the current overall technical collaboration with KNCV, have helped to maintain a strong programme for more than 20 years. Principal financial supporters are the governments of the Netherlands, Switzerland, Germany, and Ireland.

UNITED REPUBLIC OF TANZANIA

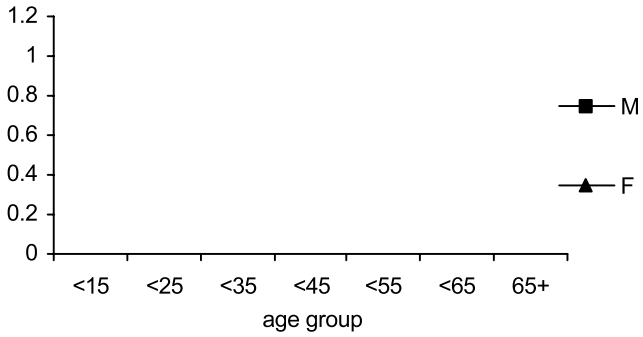
LATEST INFORMATION:	2000
Population	35 119 255
Est. incidence (all cases/100 000 pop)	359
Global rank (by est. number of cases)	14
Regional rank	6
Est. adult (15-49y) TB cases that are HIV+ (%)	35
Est. multi-drug resistance (new cases)	1.2
DOTS status (year adopted)	DOTS (1995)

TRENDS:	1997	1998	1999	2000
DOTS population coverage (%)	100	100	100	100
Notification rate (all cases/100 000 pop)	142	153	153	155
Detection (new ss+ cases, %)	55	54	50	45
- DOTS detection (new ss+, %)	55	54	50	45
Treatment success countrywide (new ss+, %)	77	76	78	- -
- Treatment success under DOTS (%)	77	76	78	- -
- Est. new ss+ success under DOTS (%)	42	41	38	- -

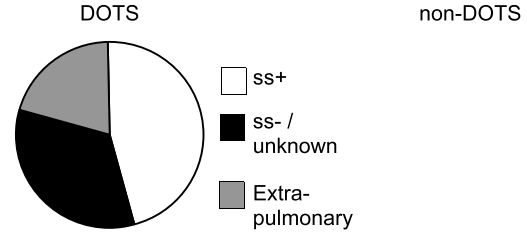
NOTIFICATION RATE (all cases per 100 000 pop)



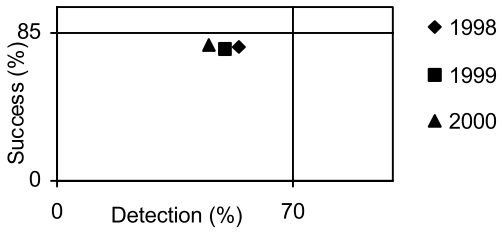
RATE BY AGE AND SEX (new ss+) *



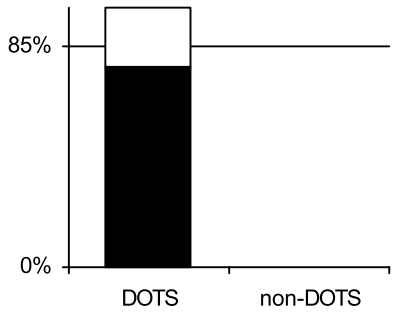
CASE TYPES NOTIFIED (new)



DOTS DETECTION AND DOTS SUCCESS RATES **

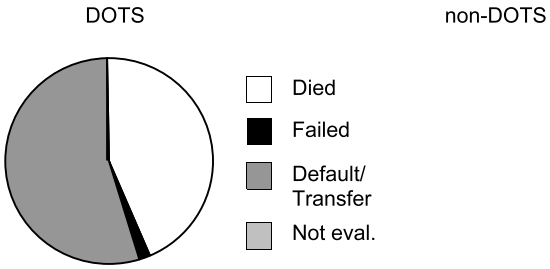


TREATMENT SUCCESS RATE (new ss+)



Nb registered: 23 994 DOTS

UNSUCCESSFUL TREATMENT OUTCOMES (new ss+)



* The age and sex rates may be based on data that do not include all smear-positive cases notified.
** DOTS treatment success rates are shown here by year of report, i.e., for the cohort registered during the previous year.
ss+ = sputum smear-positive. Est = estimated. '- -' = data not yet collected by WHO. Eval = evaluated. Pop = population.

UNITED REPUBLIC OF TANZANIA: Budget estimates, existing funding, and budget gaps for 2001/2 and 2001/2–2003/4, US$ millions

COST ITEM	BUDGET 2001/2	FUNDING 20021/				BUDGET 2001/2–2003/4	FUNDING 2001/2–2003/4			
		GOV'T	BASKET	GRANTS	GAP		GOV'T	BASKET	GRANTS	GAP
Staff	0.1	0	0	0	0.1	0.3				
Buildings	0.02	0	0	0.01	0.01	0.03				
Diagnosis	0.6	0.01	0	0.1	0.5	1.8				
Drugs	2.5	0	0	2.5	0	6.0				
Training	0.6	0.03	0.2	0.4	0	1.9				
Programme management and supervision	0.9	0.04	0	0.8	0.01	2.9				
Activities to increase case detection and cure rates*	0.1	0.01	0	0.1	0	0.4				
Miscellaneous**	0.7	0	0	0.7	0.01	2.0				
TOTAL	5.5	0.1	0.2	4.6	0.6	15.3				

* includes messages to sensitize population about early reporting, sensitizing traditional healers about early referral, sensitizing ALAT members to TB/leprosy activities, and providing NGOs and private practitioners with drugs and supplies

** includes implementing DOTS in refugee camps, conducting a needs assessment in cities and municipalities, sensitizing urban authorities on the burden of TB and leprosy in their community, and implementing a joint NTLP/Municipal Plan in TB/Leprosy control

UNITED REPUBLIC OF TANZANIA: Constraints to DOTS expansion and remedial actions

	CONSTRAINTS TO DOTS EXPANSION	ACTION TAKEN IN 2001 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION	ACTION PLANNED IN 2002 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION
POLITICAL ENVIRONMENT			
Political commitment			• Sensitize community and political leaders in large cities to the need for TB control
Financial resources	• "Basket" funding of NTP is a constraint because it is impossible to control the budget. There is a risk of funding shortages for the TB programme		
HEALTH SYSTEM CAPACITY			
Health services infrastructure	• Draft joint TB/HIV plan not yet approved • TB treatment is not yet incorporated into all district health plans	• New strategic plan for 2001–2004 was developed and approved	
Health sector reform including private sector integration	• Health sector reform movement challenges the intrinsic philosophy of vertical TB programmes because it advocates, instead, for programme integration • TB treatment guidelines not yet fully adopted by private sector		• Involve all private hospitals and practitioners in large cities in TB control
Access to health care services and facilities			• Open new TB diagnostic centers across the country starting with large cities
Staffing	• High turnover of skilled personnel	• Ministry of health dedicated personnel to TB control at national, regional, and district levels	• Train general health workers in one-third of all districts in the country to better understand TB control
Drug supply		• Anti-TB drugs were incorporated into the government drug procurement and distribution system	• Provide anti-TB drugs to all DOTS centres in public and private health facilities
Programme monitoring and surveillance	• Lack of surveillance for MDR-TB		• Introduce national drug resistance surveillance in collaboration with WHO • Expand electronic TB registration from 13 to 55 districts by end of 2002

COUNTRY PROFILE

Viet Nam

TB control in the health system

Viet Nam has a well-developed health infrastructure formed by over 10 000 commune health centres, each serving some 8 000 people. There are approximately 850 government hospitals employing 27 000 doctors and 46 000 assistant doctors. In recent years, the private sector has developed quickly in the urban centres; in 1995, Viet Nam had about 15 000 registered private practitioners. High political commitment has been translated into the allocation of government resources for TB control, backed by a World Bank loan to finance the purchase of drugs.

Progress in DOTS expansion

Following the departure of Peru from the list of high-burden countries, Viet Nam is now the sole member of that list to have reached WHO targets on case detection and cure. During the progressive implementation of the DOTS strategy from 1985 until the present day, more than half a million infectious TB cases have been removed from the community and about eight million new infections have been prevented. High coverage of DOTS has been maintained since 1996. The entire population had access to DOTS in 2000, and the estimated smear-positive case detection rate was 80%. Treatment success rates have consistently been over 85%, and were 92% in the 1999 cohort. The proportion of all incident smear-positive cases successfully treated was outstandingly high at 74%. If these statistics are correct, TB incidence should now be falling in Viet Nam, as it has fallen in Peru. Efforts to verify (or reject) that hypothesis are in progress.

The impressive results obtained under the DOTS strategy have been made possible by strengthening the managerial and supervisory capacity of the programme at national, provincial, district, and village levels, combined with a high degree of social organization and community-development mechanisms within communes. The programme uses both ambulatory care and hospitalization during the intensive phase of treatment.

Partnerships

Viet Nam has effectively, and distinctively, combined international partnerships with national political commitment. Overall external technical collaboration is led by KNCV and MCNV. WHO coordinates specific technical matters such as drug resistance surveillance. CDC (USA) has a special interest in research. Financial support from the Netherlands Government and the World Bank has helped to establish a model TB control programme in Viet Nam.

Planning for TB control

Vietnam has both a strategic plan for TB control and a National Interagency Coordinating Committee. The challenges for the Government are to expand health services to remote areas mainly inhabited by minority groups comprising some 10% of the total population, to modernize and rehabilitate the health infrastructure in the rest of the country, to regulate the fast-developing private sector, and to address the growing threats of HIV/AIDS and MDR-TB. A challenge, and an opportunity, for the future will be to maintain and develop high-quality TB control services within the context of health sector reform, taking advantage of sophisticated social organization and a highly effective TB programme.

Financial estimates

A detailed budget exists for the four-year period 2001–4. The total is US$ 27 million, or approximately US$ 7 million per year. The main budget items are drugs,

VIET NAM: Budget estimates, existing funding, and budget gaps for 2002 and 2001–2004, US$ millions

COST ITEM	BUDGET 2002	FUNDING 2002			BUDGET 2001–4	FUNDING 2001–4		
		GOV'T	GRANTS	GAP		GOV'T	GRANTS	GAP
Staff	1.4	1.4	0	0	5.6	5.6	0	0
Buildings	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.
Diagnosis	1.2	??	??	0	3.4	0.5	1.1	1.8
Drugs	3.2	3.2	0	0	11.9	11.9	0	0
Training	0.3	0.2	0.1	0	1.0	0.5	0.4	0.1
Programme management and supervision	0.4	0.3	0.1	0	1.4	1.1	0.2	0.1
Activities to increase case detection and cure rates*	0.6	0.3	0.3	0	2.6	1.1	1.4	0.1
Miscellaneous	0.2	0	0.2	0	0.7	0	0.6	0.1
TOTAL	7.3	5.6 +??	0.9 +??	0	26.6	20.7	3.7	2.2

n.e. = not estimated

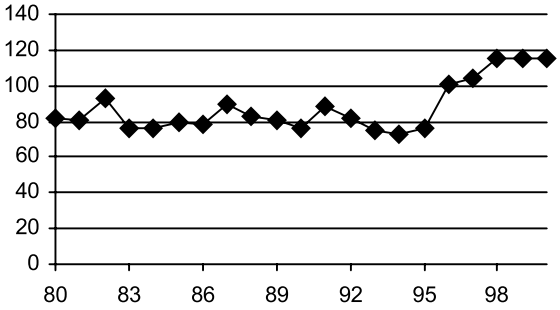
* includes health education, operational research, and development of the health network (e.g. in remote and mountainous areas, to reach homeless people and prisoners, work with private practitioners and drug sellers).

VIET NAM

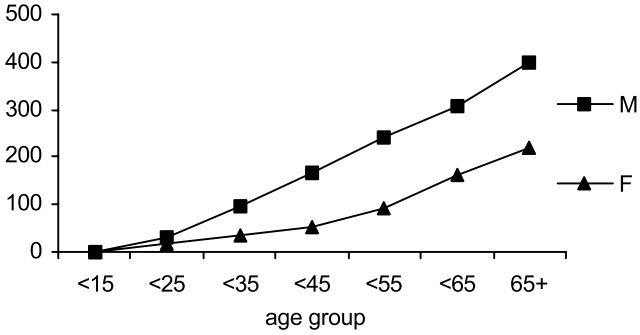
LATEST INFORMATION:	2000
Population	78 136 913
Est. incidence (all cases/100 000 pop)	189
Global rank (by est. number of cases)	13
Regional rank	3
Est. adult (15-49y) TB cases that are HIV+ (%)	1.4
Est. multi-drug resistance (new cases)	2.3
DOTS status (year adopted)	DOTS (1995)

TRENDS:	1997	1998	1999	2000
DOTS population coverage (%)	93	96	99	100
Notification rate (all cases/100 000 pop)	104	115	115	115
Detection (new ss+ cases, %)	78	85	82	80
- DOTS detection (new ss+, %)	78	82	82	80
Treatment success countrywide (new ss+, %)	85	92	92	- -
- Treatment success under DOTS (%)	85	93	92	- -
- Est. new ss+ success under DOTS (%)	67	76	75	- -

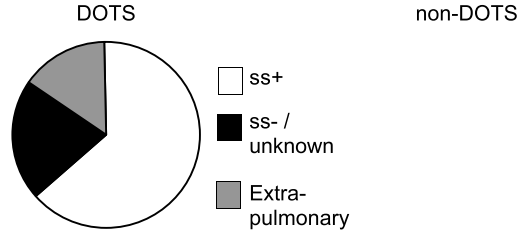
NOTIFICATION RATE (all cases per 100 000 pop)



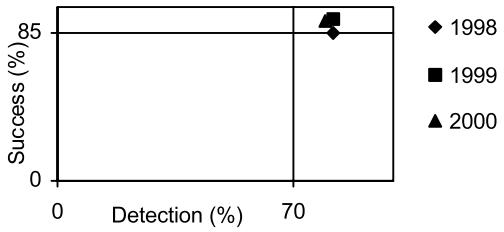
RATE BY AGE AND SEX (new ss+) *



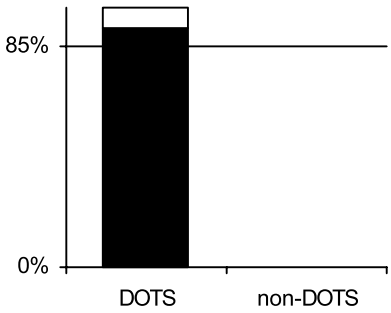
CASE TYPES NOTIFIED (new)



DOTS DETECTION AND DOTS SUCCESS RATES **

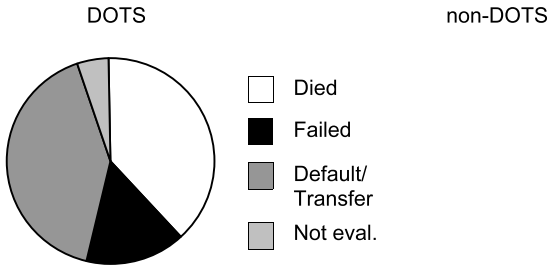


TREATMENT SUCCESS RATE (new ss+)



Nb registered: 53 227 DOTS

UNSUCCESSFUL TREATMENT OUTCOMES (new ss+)



* The age and sex rates may be based on data that do not include all smear-positive cases notified.
** DOTS treatment success rates are shown here by year of report, i.e., for the cohort registered during the previous year.
ss+ = sputum smear-positive. Est = estimated. '- -' = data not yet collected by WHO. Eval = evaluated. Pop = population.

staff, diagnosis, and activities specifically aimed at increasing case detection and cure rates. The government is providing most of the required funding, both through regular budgets and a World Bank loan. This includes full funding for drugs and staff. There is no budget gap in 2002.

VIET NAM: Constraints to DOTS expansion and remedial actions

	CONSTRAINTS TO DOTS EXPANSION	ACTION TAKEN IN 2001 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION	ACTION PLANNED IN 2002 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION
HEALTH SYSTEM CAPACITY			
Health services infrastructure	• Health infrastructure needs to be modernized and rehabilitated	• Developed a national manual for NTP's package of services • Approved a strategic plan for 2001–2004	
Health sector reform including private sector integration	• Unregulated fast-developing private sector, and the need to develop sustainable TB control services to take advantage of sophisticated social organization and highly effective TB programme	• Developed sustainable quality services for TB control within emerging health sector by integrating activities at commune and hamlet levels • Included private health sector to avoid stagnation of notification and risk of shifting activity to private sector	
Access to health care services and facilities	• Limited health services in remote areas inhabited by minority groups comprising 10% of population	• Brought effective TB control to isolated and remote communities and ethnic minority groups by implementing primary health care projects • Integrated TB and primary care in prisons, remote and highland areas	
Management and communication	• Limited managerial capacity		• Human resources development and management capacity building through training, operational research, and use of Total Quality Management
Drug supply	• Delayed procurement	• Developed buffer stock	• Sustain drug supply
Laboratory resources	• Lack of technicians in southern provinces	• Trained technicians to overcome shortage	• Sustain laboratory capacity
Programme monitoring and surveillance	• Lack of funds for supervision and monitoring		• Continue supervision, monitoring, and surveillance of TB control activities with available funds
Emerging issues	• Growing threat of HIV/AIDS • Spectre of MDR-TB	• Maintained high quality TB services in large urban populations with increased risk of HIV/AIDS and MDR-TB	
PEOPLE AND COMMUNITIES			
Community health education	• Lack of funds to organize health education campaign	• Created People's Committees and women's and peasants' unions as new local partners	

COUNTRY PROFILE

Zimbabwe

TB control within the health system

Primary health care is seen as a route to achieving affordable universal coverage. Health sector reforms undertaken in the 1990s aimed to improve equity and accessibility to essential health services, including TB care. New reforms are being directed to further decentralization, health financing schemes, regulation of the private sector, and strengthening of management. At present, TB treatment is still free to patients.

Progress in DOTS coverage

The DOTS strategy was adopted in 1997 and success rates have steadily increased since then. Zimbabwe reported 51 918 TB cases in 2000 (a notification rate of 411 per 100 000). Thirty percent of all notified cases were sputum positive, 31% were sputum negative and 22% did not have sputum examined. Extrapulmonary TB accounted for 17% of the notifications. The age grouping for Zimbabwean data is different from the WHO format making it difficult to compare with other countries. While all cases notified are notified under DOTS, only an estimated 25% of patients are observed during the intensive phase of treatment (DOT). The success rate for the 1999 cohort among sputum positive cases was 64%, with a high mortality rate (probably linked to HIV) of 9%.

Partnerships

Through national partnerships, TB and HIV/AIDS care has become more integrated. CDC LIFE is planning to support some activities to control TB. WHO leads overall external technical support for the country; and the IUATLD may contribute in the future. The Dutch Government provided financial support up to 2001, WHO provided technical support, and DANIDA contributed laboratory support. External partners have recently been withdrawing support.

Planning for TB control

A draft strategic plan for DOTS expansion now exists but has yet to be approved. A National Interagency Coordinating Committee does not yet exist. Every district now has a laboratory. Zimbabwe has a system of drug forecasting, financing, and procurement, yet in 2000 only 75% of the drugs required were available.

Financial estimates

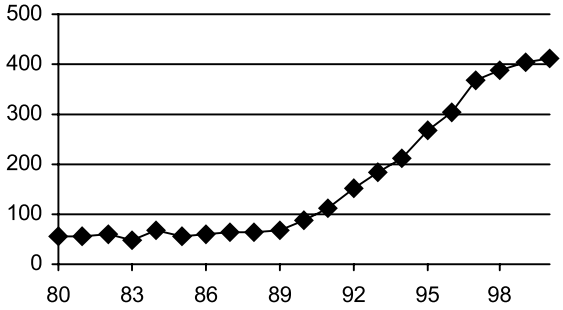
Budget estimates for 2002–2005 are not available.

ZIMBABWE

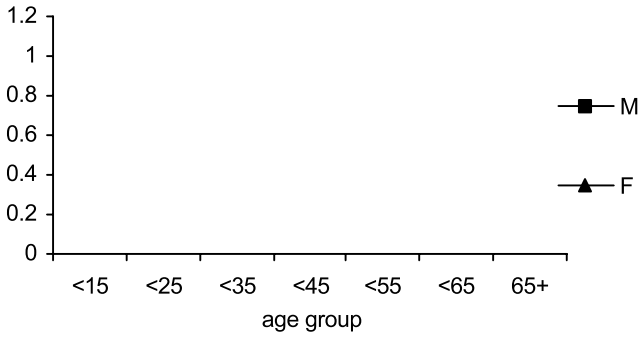
LATEST INFORMATION:	2000
Population	12 627 277
Est. incidence (all cases/100 000 pop)	584
Global rank (by est. number of cases)	21
Regional rank	9
Est. adult (15-49y) TB cases that are HIV+ (%)	67
Est. multi-drug resistance (new cases)	1.9
DOTS status (year adopted)	DOTS (1998)

TRENDS:	1997	1998	1999	2000
DOTS population coverage (%)	0	100	12	100
Notification rate (all cases/100 000 pop)	367	387	404	411
Detection (new ss+ cases, %)	61	57	52	52
- DOTS detection (new ss+, %)		57	52	52
Treatment success countrywide (new ss+, %)	59	70	73	- -
- Treatment success under DOTS (%)		70	73	- -
- Est. new ss+ success under DOTS (%)		35	34	- -

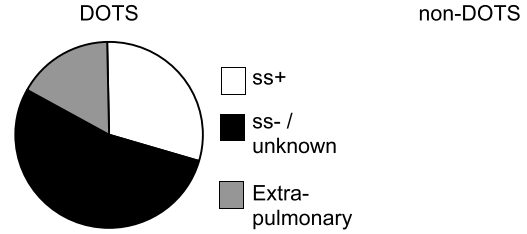
NOTIFICATION RATE (all cases per 100 000 pop)



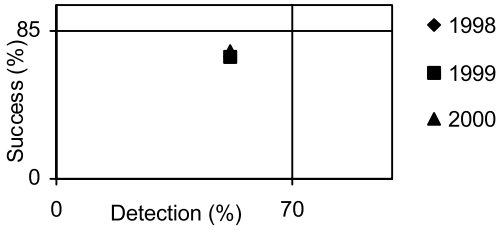
RATE BY AGE AND SEX (new ss+) *



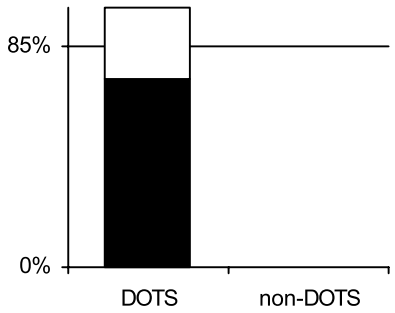
CASE TYPES NOTIFIED (new)



DOTS DETECTION AND DOTS SUCCESS RATES **

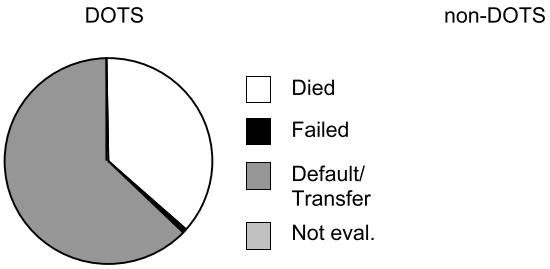


TREATMENT SUCCESS RATE (new ss+)



Nb registered: 12 791 DOTS

UNSUCCESSFUL TREATMENT OUTCOMES (new ss+)



* The age and sex rates may be based on data that do not include all smear-positive cases notified.
** DOTS treatment success rates are shown here by year of report, i.e., for the cohort registered during the previous year.
ss+ = sputum smear-positive. Est = estimated. '- -' = data not yet collected by WHO. Eval = evaluated. Pop = population.

ZIMBABWE: Constraints to DOTS expansion and remedial actions

	CONSTRAINTS TO DOTS EXPANSION	ACTION TAKEN IN 2001 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION	ACTION PLANNED IN 2002 TO OVERCOME CONSTRAINTS TO DOTS EXPANSION
POLITICAL ENVIRONMENT			
Political commitment	• No NTP manager	• Circulated advertisement for NTP manager but position not filled	
Financial resources	• Major financial partner is withdrawing at end of year leaving NTP in need of financial assistance	• Development of a 2002–2005 strategic plan • Available local resources re-distributed to cover critical services	• Strategic plan 2002–2005 to be finalized and approved • Presentation of plan to potential partners and to Global Fund to Fight AIDS, TB and Malaria
Sustainability of existing DOTS services	• Weak NTP efficiency and management		• Develop strategies to increase NTP efficiency and effective management
HEALTH SYSTEM CAPACITY			
Health services infrastructure	• No strategic plan • HIV/AIDS infrastructure for integration is undeveloped • Significant deterioration of health service infrastructure	• Developed draft strategic plan at the end of 2001 • Significant increase in the health budget in the 2002 national budget	• Implement strategic plan for DOTS expansion with assistance from WHO • Develop capacity for districts to respond to TB/HIV dual epidemic through training clinicians on HIV/TB issues, equipping laboratories with rapid HIV testing kits, and training laboratory scientists to use them. • Establish programmes for community-based management of TB/HIV in districts
Access to health care services and facilities	• TB patients living >5km from a health centre cannot come for observation of treatment	• Community-based DOTS initiatives started in 4 provinces	• Expand community-based TB care based on lessons learned from pilot districts
Staffing	• Low morale among health workers • High staff turnover • Weak programme leadership	• Provided staff training	• Management training for provincial and district supervisors and primary health care staff to improve capacity • Provide transportation for supervisors
Management and communication	• Benefits and salary package for NTP manager not attractive		• Continue efforts to recruit recent MPH graduates as district medical officers • Considering making the NTP manager's package attractive through donor support
Drug supply	• Uneven distribution of drugs and absence of buffer drugs	• Began establishment of emergency drug stock and re-distribution of drugs	• European Union to supply essential drugs beginning September 2002
Laboratory resources	• Insufficient laboratory staff and shortage of laboratory supplies	• DANIDA contributed laboratory supplies to last one year	• DANIDA supplies to cover 2002
Quality of TB services	• Low commitment of physicians to patient follow-up resulting in majority of patients still not observed in continuation phase of treatment	• TB consultant trained one-third of medical officers	
Programme monitoring and surveillance	• TB surveillance and monitoring system requires major strengthening to comply with DOTS strategy • Format of reporting not consistent with WHO reporting format	• Created new notification forms consistent with WHO format for use in 2002	• DOTS training will include surveillance and monitoring components • Use new notification forms • Use of electronic capture and analysis of data
Emerging issues	• MDR-TB	• Created draft document on the management of MDR-TB • Drug Resistance Surveillance Survey started	• Finalise document on management of MDR-TB and find funding to implement programme • Establish surveillance system for drug resistance

ANNEX 4

Regional profiles

AFRICA

THE AMERICAS

EASTERN MEDITERRANEAN

EUROPE

SOUTH-EAST ASIA

THE WESTERN PACIFIC

Explanatory notes
Regional profile

Regional profiles present country-specific data by region. Each regional profile consists of:

- The latest year's notification, detection, and coverage data—for the whole country, and for DOTS and other (non-DOTS) programmes.
- Treatment outcomes for the previous year's cohort—both treatment and retreatment outcomes from DOTS programmes, and treatment outcomes (where available) from other programmes.
- New smear-positive notification rates by age and sex for the whole country.
- New smear-positive notifications (numbers) by age and sex—from DOTS and from other programmes.
- Notification (all cases) rates and numbers, since 1980.
- Notification (new smear-positive cases) rates and numbers, over the last 5 years.
- Country notes: remarks from respondents that may help to explain data in selected countries' reports.

Notation for 1st table

a	The population of the country/territory.
b	The total number of tuberculosis cases notified to WHO.
b/a	The case notification rate (per 100 000 population).
c	The number of new smear-positive cases notified to WHO.
c/a	The new smear-positive case notification rate (per 100 000 population).
d	The estimated number of cases (all forms).
e	The estimated number of sputum smear-positive cases.
c/e	The proportion of estimated new smear-positive cases that are notified.
f	The TB control category (WHO classification based on control strategy and estimated incidence of TB. See Table 1 for definitions).
g	The percent of the population living in geographic areas serviced by health facilities implementing TB control practices consistent with WHO recommendations (DOTS strategy).
h	Notification (all cases) from DOTS programmes.
h/(g*a)	The case notification rate (all cases, per 100 000 population) from DOTS programmes.
i	The number of new smear-positive cases notified by DOTS programmes.
i/(g*a)	The new smear-positive case notification rate (per 100 000 population) from DOTS programmes.
i/e	The proportion of estimated new smear-positive cases notified from DOTS programmes.
j	The proportion of all new pulmonary cases that are smear-positive.
k–n	As for g–j, above, but for other (non-DOTS) programmes.

Notation for 2nd table

a The number of new smear-positive cases registered for treatment under DOTS in the previous year.

b The proportion of registered new smear-positive cases that were not evaluated.

c–h The proportion of registered new smear-positive cases with treatment outcomes as defined in Table 5 (cured, completed, died, failed, defaulted or transferred).

c+d Treatment success (see Table 5).

i–p See (a–h) of 2nd table, above. These outcomes are for DOTS retreatment cases (as defined in Table 3) in the previous year.

q–x See (a–h) of 2nd table, above. These outcomes are for new smear-positive cases registered in other (non-DOTS) programmes in the previous year.

Africa: Summary of TB control policies

COUNTRY	MICROSCOPY (A)	SCC (B)	DOT (C)	OUTCOME MONITORING (D)	DRUG SUPPLY (E)	CATEGORY AS OF 31/12/00*	DOTS NEWLY IMPLEMENTED IN 2000
ALGERIA						4	
ANGOLA						1	
BENIN						4	
BOTSWANA						4	
BURKINA FASO						4	
BURUNDI						0	
CAMEROON						3	
CAPE VERDE						0	
CENTRAL AFRICAN REPUBLIC						0	
CHAD						0	
COMOROS						4	
CONGO						4	
CÔTE D'IVOIRE						3	
DR CONGO						3	
EQUATORIAL GUINEA						0	
ERITREA						3	
ETHIOPIA						3	
GABON						0	
GAMBIA						0	
GHANA						3	
GUINEA						0	
GUINEA-BISSAU						4	X
KENYA						4	
LESOTHO						4	
LIBERIA						0	
MADAGASCAR						0	
MALAWI						4	
MALI						4	
MAURITANIA						1	
MAURITIUS						4	
MOZAMBIQUE						4	
NAMIBIA						4	
NIGER						3	
NIGERIA						3	
RWANDA						4	
SAO TOME AND PRINCIPE						1	
SENEGAL						0	
SEYCHELLES						4	
SIERRA LEONE						3	
SOUTH AFRICA						3	
SWAZILAND						1	
TOGO						4	
UGANDA						4	
UR TANZANIA						4	
ZAMBIA						1	
ZIMBABWE						4	

Microscopy (a)	Use of smear microscopy for diagnosis
SCC (b)	Short course chemotherapy
DOT (c)	Directly observed therapy
Outcome monitoring (d)	Monitoring of treatment outcomes by cohort analysis
Drug supply (e)	A system of TB drug forecasting, financing, and procurement
*	See table 1 for definition of categories

- implemented in all units/areas
- implemented in some units/areas
- not implemented
- unknown or not applicable (decentralized drug supply system)

Regional Profile for Africa: notification, detection and DOTS coverage, 2000

Country/Territory	Country information									WHO TB control strategy (DOTS)							Other Strategy (non-DOTS)					
	Pop	Notifications				Estimated cases		CDR	DOTS	%	Notifications				DDR	% of	%	Notifications				% of
		all cases		New ss+		all cases	New ss+		cate-	of	all cases		New ss+			pulm	of	all cases		New ss+		pulm
	thousands	number	rate	number	rate	number	number	%	gory	pop	number	rate	number	rate	%	cases ss+	pop	number	rate	number	rate	cases ss+
	a	b	b/a	c	c/a	d	e	c/e	f	g	h	h/(g*a)	i	i/(g*a)	i/e	j	k	l	l/(k*a)	m	m/(k*a)	n
Algeria	30 291	18 294	60	8 050	27	13 909	6 259	129	4	100	18 294	60	8 050	27	129	80	0					
Angola	13 134	16 062	122	9 053	69	36 083	15 860	57	1	0							100	16 062	122	9 053	69	63
Benin	6 272	2 706	43	2 286	36	16 266	7 167	32	4	100	2 706	43	2 286	36	32	95	0					
Botswana	1 541	9 292	603	3 091	201	11 661	4 597	67	4	100	9 292	603	3 091	201	67	39	0					
Burkina Faso	11 535	2 310	20	1 560	14	37 319	16 013	10	4	100	2 310	20	1 560	14	10	88	0					
Burundi	6 356					25 820	10 808		0													
Cameroon	14 876	5 251	35	3 960	27	50 685	21 594	18	3	46	4 754	32	3 522	24	16	86	54	497	3	438	3	94
Cape Verde	427					777	341		0													
Central African Republic	3 717					16 544	6 857		0													
Chad	7 885					21 571	9 487		0													
Comoros	706	120	17	87	12	447	201	43	4	100	120	17	87	12	43	86	0					
Congo	3 018	9 239	306	4 244	141	10 206	4 377	97	4	100	9 239	306	4 244	141	97	68	0					
Côte d'Ivoire	16 013	12 943	81	8 497	53	62 353	26 163	32	3	60	12 943	81	8 497	53	32	85	40					
DR Congo	50 948	60 627	119	36 123	71	162 901	70 443	51	3	70	60 627	119	36 123	71	51	82	30					
Equatorial Guinea	457					1 117	500		0													
Eritrea	3 659	6 652	182	590	16	10 559	4 636	13	3	80	6 652	182	590	16	13	10	20					
Ethiopia	62 908	91 101	145	30 510	48	249 457	104 734	29	3	85	91 101	145	30 510	48	29	50	15					
Gabon	1 230					3 606	1 569		0													
Gambia	1 303					3 436	1 520		0													
Ghana	19 306	10 933	57	7 316	38	55 147	24 094	30	3	87	10 325	53	7 042	36	29	76	13	608	3	274	1	54
Guinea	8 154					22 046	9 785		0													
Guinea-Bissau	1 199	1 273	106	526	44	3 251	1 432	37	4	95	1 273	106	526	44	37	47	5					
Kenya	30 669	64 159	209	28 773	94	148 579	61 556	47	4	100	58 067	189	26 162	85	43	54	0	6 092	20	2 611	9	55
Lesotho	2 035	9 746	479	3 041	149	11 768	4 742	64	4	100	9 746	479	3 041	149	64	52	0					
Liberia	2 913					8 012	3 521		0													
Madagascar	15 970					40 642	18 264		0													
Malawi	11 308	23 606	209	8 265	73	50 539	20 793	40	4	100	23 606	209	8 265	73	40	48	0					
Mali	11 351	4 216	37	2 527	22	30 318	13 403	19	4	95	3 845	34	2 221	20	17	74	5	371	3	306	3	94
Mauritania	2 665	3 067	115	1 583	59	6 028	2 699	59	1	0							100	3 067	115	1 583	59	70
Mauritius	1 161	160	14	115	10	803	357	32	4	100	160	14	115	10	32	89	0					
Mozambique	18 292	21 158	116	13 257	72	79 144	32 878	40	4	100	21 158	116	13 257	72	40	77	0					
Namibia	1 757	10 474	596	3 911	223	9 147	3 723	105	4	100	10 474	596	3 911	223	105	46	0					
Niger	10 832	4 292	40	2 693	25	27 701	12 315	22	3	70	4 292	40	2 693	25	22	80	30					
Nigeria	113 862	25 821	23	17 423	15	347 385	150 301	12	3	47	25 821	23	17 423	15	12	72	53					
Rwanda	7 609	6 093	80	3 681	48	30 793	12 896	29	4	100	6 093	80	3 681	48	29	81	0					
Sao Tome and Principe	138	97	70	30	22	183	82	37	1	0							100	97	70	30	22	35
Senegal	9 421					24 617	10 906		0													
Seychelles	80	20	25	11	14	34	15	73	4	100	20	25	11	14	73	61	0					
Sierra Leone	4 405	3 760	85	2 472	56	12 225	5 365	46	3	50	3 760	85	2 472	56	46	75	50					
South Africa	43 309	111 269	257	77 391	179	227 941	92 683	84	3	77	87 836	203	62 399	144	67	84	23	23 433	54	14 992	35	77
Swaziland	925	5 877	635	1 823	197	5 551	2 229	82	1	0							100	5 877	635	1 823	197	36
Togo	4 527	1 409	31	984	22	14 368	6 181	16	4	100	1 409	31	984	22	16	92	0					
Uganda	23 300	30 372	130	17 246	74	81 780	34 717	50	4	100	30 372	130	17 246	74	50	66	0					
UR Tanzania	35 119	54 442	155	24 049	68	126 103	53 589	45	4	100	54 442	155	24 049	68	45	58	0					
Zambia	10 421	49 806	478	12 927	124	55 152	22 425	58	1	0							100	49 806	478	12 927	124	34
Zimbabwe	12 627	51 918	411	15 455	122	73 701	29 603	52	4	100	51 918	411	15 455	122	52	36	0					

Regional Profile for Africa, cont'd: treatment outcomes for cases registered in 1999 - WHO TB control strategy (DOTS) and other (non-DOTS) control strategies

Country/Territory	New smear-positive cases - DOTS									Retreatment cases - DOTS									New smear-positive cases - non-DOTS								
	Regist-ered	% cured	% compl-eted	% died	% failed	% default	% trans-ferred	% not eval	% success	Regist-ered	% cured	% compl-eted	% died	% failed	% default	% trans-ferred	% not eval	% success	Regist-ered	% cured	% compl-eted	% died	% failed	% default	% trans-ferred	% not eval	% success
	a	c	d	e	f	g	h	b	c+d	i	k	l	m	n	o	p	j	k+l	q	s	t	u	v	w	x	r	s+t
Algeria	7 622	87		3	1	5	5	0	87	810	85		0	2	8	5	0	85									
Angola																											
Benin	2 192	57	20	6	2	15	1	0	77	200	45	24	8	4	21	0	0	68									
Botswana	2 746	25	46	7	0	10	11	0	71	383	21	51	9	0	12	7	0	72									
Burkina Faso	1 411	51	9	14	3	14	7	1	61	75	56	5	12	11	12	4	0	61									
Burundi																											
Cameroon	2 003	67	8	11	2	11	2	0	75	243	62	5	11	8	13	2	0	67									
Cape Verde																											
Central African Republic																											
Chad																											
Comoros	115	93	0	2	2	3	0	0	93	8	100	0	0	0	0	0	0	100									
Congo	2 222	49	12	1	0	23	2	13	61	98	43	16	2	1	38	0	0	59									
Côte d'Ivoire	6 946	53	10	4	3	16	15	0	63	691	57	9	5	7	16	6	0	66									
DR Congo	34 923	59	10	5	1	7	9	9	69	2 608	60	7	7	2	7	11	6	67									
Equatorial Guinea																											
Eritrea	465	40	4	8	2	7	6	33	44	84	60	10	6	6	7	12	0	69									
Ethiopia	15 980	60	16	7	1	10	4	3	76	846	59	15	9	3	10	4	0	74	4 531	28	39	4	1	18	5	4	68
Gabon																											
Gambia																											
Ghana	5 605	49	6	8	2	17	6	12	55										1 272	25	6	4	3	11	1	50	32
Guinea																											
Guinea-Bissau	616	19	16	7	0	20	8	30	35	65	11	14	8	0	29	8	31	25									
Kenya	24 670	64	14	6	0	9	6	0	78	1 545	62	11	11	1	10	5	0	73	2 747	82	6	5	2	4	1	0	88
Lesotho	2 831	48	21	13	1	7	6	3	69	374	50	11	19	1	6	3	8	61									
Liberia																											
Madagascar																											
Malawi	8 185	69	3	21	1	4	3	0	71	668	64	6	23	1	3	3	0	71									
Mali	2 690	50	18	3	1	26	2	0	68										309	61	15	3	2	18	2	0	76
Mauritania																											
Mauritius	122	87		4	4	5		0	87	3	67			33			0	67									
Mozambique	11 791	69	2	11	1	12	3	1	71	1 404	69	2	12	2	11	4	0	71									
Namibia	3 791	37	12	5	1	12	6	27	50	589	39	16	14	6	12	9	5	54									
Niger	1 368	37	24	12	2	17	9	0	60	1 941	27	31	12	2	18	9	0	58									
Nigeria	14 868	60	15	6	3	13	3	0	75	1 639	61	13	8	5	9	4	0	74									
Rwanda	4 652	56	11	6	1	4	6	16	67	325	39	9	10	2	6	5	31	48									
Sao Tome and Principe																			97	62	20	7	4	5	0	2	81
Senegal																											
Seychelles	21	86	5	0	0	5	5	0	90										1	100		0	0	0	0	0	100
Sierra Leone	1 904	66	9	2	16	7	1	0	75																		
South Africa	63 304	52	8	7	1	13	17	2	60	21 125	40	7	8	4	20	20	1	47	18 191	33	16	6	1	19	23	1	49
Swaziland																											
Togo	893	74	1	10	2	12	1	0	76																		
Uganda	14 250	30	31	8	0	16	5	9	61	1 111	28	20	11	1	11	5	24	48									
UR Tanzania	23 994	71	6	10	0	7	6	0	78	1 737	69	5	13	1	6	5	1	74									
Zambia																			11 645	50	19	7	3	9	5	7	69
Zimbabwe	12 791	59	14	10	0	7	11	0	73	943	50	17	16	1	8	9	0	66									

Regional profile for Africa, cont'd: smear-positive notification rates by age and sex, 2000

	MALE							FEMALE							ALL						
	0-14	15-24	25-34	35-44	45-54	55-64	65+	0-14	15-24	25-34	35-44	45-54	55-64	65+	0-14	15-24	25-34	35-44	45-54	55-64	65+
Algeria	1	28	60	34	44	40	53	1	31	53	43	29	33	45	1	29	57	38	37	36	49
Angola	6	81	126	170	133	133	117	8	91	134	151	107	76	58	7	86	130	161	120	103	84
Benin	1	44	112	124	123	108	87	2	37	69	47	41	43	29	2	41	90	82	81	74	57
Botswana	8	107	555	701	711	596	610	11	194	440	356	201	164	129	10	150	498	524	423	335	302
Burkina Faso	0	8	44	64	56	40	42	0	5	17	22	15	16	6	0	6	29	42	34	26	21
Burundi																					
Cameroon	1	34	84	91	64	43	31	2	24	53	45	30	18	11	2	29	68	68	47	30	20
Cape Verde																					
Central African Republic																					
Chad																					
Comoros	0	24	14	44	45	25	49	1	12	12	38	5	15	10	0	18	13	41	24	19	27
Congo																					
Côte d'Ivoire																					
DR Congo	4	84	189	205	190	148	97	6	92	165	159	119	83	42	5	88	177	182	154	113	65
Equatorial Guinea																					
Eritrea	1	20	30	33	28	34	43	1	28	34	40	17	15	14	1	24	32	37	23	24	26
Ethiopia	6	85	125	108	78	50	47	7	78	106	72	48	27	12	7	82	115	90	62	38	28
Gabon																					
Gambia																					
Ghana	2	27	92	121	133	130	149	2	22	58	60	53	43	52	2	24	75	91	92	85	96
Guinea																					
Guinea-Bissau	1	47	117	141	163	152	98	2	27	57	79	57	53	50	1	37	87	109	109	100	72
Kenya	4	107	311	267	205	149	101	6	112	204	138	98	74	32	5	110	258	202	149	109	65
Lesotho	2	81	320	506	559	396	208	3	111	238	184	107	62	60	2	96	279	342	322	217	123
Liberia																					
Madagascar																					
Malawi	2	57	207	241	191	123	78	3	93	206	171	114	62	34	2	75	206	205	150	90	54
Mali	1	18	58	87	104	119	73	1	16	32	33	33	32	17	1	17	45	60	67	72	41
Mauritania																					
Mauritius	1	6	9	19	29	42	27	1	5	9	9	9	18	10	1	5	9	14	19	29	17
Mozambique																					
Namibia	5	153	682	840	621	453	267	4	200	530	419	282	188	140	4	177	607	624	437	304	195
Niger	1	25	25	100	95	101	79	1	12	31	38	55	37	8	1	19	28	69	74	67	40
Nigeria	1	19	42	36	33	27	29	1	26	33	22	20	15	12	1	22	38	29	26	21	20
Rwanda	9	56	185	266	202	101	66	6	46	90	99	52	36	12	8	51	138	182	125	66	35
Sao Tome and Principe																					
Senegal																					
Seychelles																					
Sierra Leone	2	69	164	178	139	131	84	3	59	98	106	62	49	42	2	64	131	141	99	87	60
South Africa	2	16	56	81	67	46	36	2	29	47	35	24	14	8	2	22	52	58	45	28	19
Swaziland	6	138	539	574	483	205	120	5	208	447	136	201	117	28	5	173	493	350	336	158	69
Togo	0	22	55	72	83	58	61	1	23	41	24	26	26	19	1	23	48	48	53	41	38
Uganda	5	64	236	285	223	178	149	7	70	192	176	111	82	51	6	67	214	231	166	127	95
UR Tanzania	3	65	202	229	209	197	219	3	58	138	112	83	73	57	3	62	169	169	144	132	129
Zambia	14	199	372	744	161	149	127	6	87	167	331	66	56	44	10	144	272	541	112	99	81
Zimbabwe																					
Regional rate	**3**	**43**	**105**	**113**	**90**	**72**	**62**	**4**	**54**	**95**	**80**	**55**	**40**	**27**	**3**	**44**	**92**	**90**	**68**	**52**	**40**

Rates are missing where data for smear-positive cases are missing, or where age- and sex-specific population data are not available.

Regional profile for Africa, cont'd: age and sex distribution of smear-positive cases in DOTS areas, 2000 (absolute numbers)

	MALE							FEMALE							ALL						
	0-14	15-24	25-34	35-44	45-54	55-64	65+	0-14	15-24	25-34	35-44	45-54	55-64	65+	0-14	15-24	25-34	35-44	45-54	55-64	65+
Algeria	59	927	1 516	610	491	234	299	36	1 005	1 293	746	314	208	312	95	1 932	2 809	1 356	805	442	611
Angola																					
Benin	19	277	428	327	213	103	74	36	239	275	149	76	45	25	55	516	703	476	289	148	99
Botswana	25	185	605	488	267	135	96	37	335	469	262	98	57	36	62	520	1 074	750	365	192	132
Burkina Faso	12	91	274	252	133	68	65	7	59	128	101	45	38	14	19	150	402	353	178	106	79
Burundi																					
Cameroon	37	476	724	521	259	127	72	55	345	459	238	119	58	32	92	821	1 183	759	378	185	104
Cape Verde																					
Central African Republic																					
Chad																					
Comoros	0	18	7	14	9	3	4	1	9	6	12	1	2	1	1	27	13	26	10	5	5
Congo																					
Côte d'Ivoire																					
DR Congo	485	4 048	5 833	4 151	2 549	1 295	602	718	4 422	5 146	3 309	1 724	855	351	1 203	8 470	10 979	7 460	4 273	2 150	953
Equatorial Guinea																					
Eritrea	9	70	75	57	32	25	20	10	100	87	71	21	12	8	19	170	162	128	53	37	28
Ethiopia	915	5 095	5 187	3 082	1 495	610	397	1 037	4 699	4 424	2 105	976	366	122	1 952	9 794	9 611	5 187	2 471	976	519
Gabon																					
Gambia																					
Ghana	71	536	1 227	1 080	787	461	397	74	444	764	543	328	163	167	145	980	1 991	1 623	1 115	624	564
Guinea																					
Guinea-Bissau	2	52	92	80	64	39	19	4	30	46	47	24	15	12	6	82	138	127	88	54	31
Kenya	264	3 739	6 653	3 548	1 630	630	414	416	3 916	4 363	1 874	831	347	148	680	7 655	11 016	5 422	2 461	977	562
Lesotho	8	165	458	517	395	198	76	11	222	336	195	83	36	29	19	387	794	712	478	234	105
Liberia																					
Madagascar																					
Malawi	50	653	1 476	1 113	585	245	114	66	1 038	1 481	831	401	148	64	116	1 691	2 957	1 944	986	393	178
Mali	21	177	374	347	271	202	126	13	153	205	138	91	69	34	34	330	579	485	362	271	160
Mauritania																					
Mauritius	2	6	9	18	19	14	8	1	5	8	8	6	7	4	3	11	17	26	25	21	12
Mozambique																					
Namibia	18	266	844	647	290	143	77	16	344	641	341	156	76	52	34	610	1 485	988	446	219	129
Niger	29	270	174	441	252	151	78	31	123	206	168	151	63	9	60	393	380	609	403	214	87
Nigeria	157	2 173	3 164	1 836	1 091	566	463	239	2 934	2 434	1 110	676	344	231	396	5 107	5 598	2 946	1 767	910	694
Rwanda	155	466	974	824	393	129	56	105	396	473	309	109	52	14	260	862	1 447	1 133	502	181	70
Sao Tome and Principe																					
Senegal																					
Seychelles			2	4	1	1				1	0	1	1				3	4	2	2	
Sierra Leone	18	287	486	361	190	113	47	27	249	298	225	92	49	30	45	536	784	586	282	162	77
South Africa	87	657	1 823	1 979	1 059	405	194	103	1 142	1 552	868	384	149	66	190	1 799	3 375	2 847	1 443	554	260
Swaziland																					
Togo	4	101	168	144	109	48	39	13	107	124	50	36	24	15	17	208	292	194	145	72	54
Uganda	283	1 511	3 497	2 479	1 279	607	395	400	1 649	2 782	1 510	671	316	163	683	3 160	6 279	3 989	1 950	923	558
UR Tanzania	200	2 357	4 836	3 430	2 022	1 202	834	257	2 106	3 426	1 738	868	494	269	457	4 463	8 262	5 168	2 890	1 696	1 103
Zambia																					
Zimbabwe																					
Regional total	**2 930**	**24 603**	**40 906**	**28 350**	**15 885**	**7 754**	**4 966**	**3 713**	**26 071**	**31 427**	**16 948**	**8 282**	**3 994**	**2 208**	**6 643**	**50 674**	**72 333**	**45 298**	**24 167**	**11 748**	**7 174**

Regional profile for Africa, cont'd: age and sex distribution of smear-positive cases in non-DOTS areas, 2000 (absolute numbers)

	MALE							FEMALE							ALL						
	0-14	**15-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65+**	**0-14**	**15-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65+**	**0-14**	**15-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65+**
Algeria																					
Angola	186	999	1 003	912	482	312	194	247	1 142	1 091	844	417	200	120	433	2 141	2 094	1 756	899	512	314
Benin																					
Botswana																					
Burkina Faso																					
Burundi																					
Cameroon	4	42	118	63	25	3	3	8	23	71	55	20	2	1	12	65	189	118	45	5	4
Cape Verde																					
Central African Republic																					
Chad																					
Comoros																					
Congo																					
Côte d'Ivoire																					
DR Congo																					
Equatorial Guinea																					
Eritrea																					
Ethiopia																					
Gabon																					
Gambia																					
Ghana	2	14	39	35	24	34	29	0	12	27	23	10	16	9	2	26	66	58	34	50	38
Guinea																					
Guinea-Bissau																					
Kenya																					
Lesotho																					
Liberia																					
Madagascar																					
Malawi																					
Mali	2	29	56	49	26	33	18	1	21	27	14	15	6	9	3	50	83	63	41	39	27
Mauritania																					
Mauritius																					
Mozambique																					
Namibia																					
Niger																					
Nigeria																					
Rwanda																					
Sao Tome and Principe	1	5	11	4	7	3	10	3	7	15	5	7	4	15	4	12	26	9	14	7	25
Senegal																					
Seychelles																					
Sierra Leone																					
South Africa	29	66	176	156	87	30	18	19	141	164	65	39	18	14	48	207	340	221	126	48	32
Swaziland	11	130	352	249	138	37	17	10	198	298	62	62	24	5	21	328	650	311	200	61	22
Togo																					
Uganda																					
UR Tanzania																					
Zambia	349	2 175	2 610	3 045	435	261	174	150	932	1 118	1 305	186	112	75	499	3 107	3 728	4 350	621	373	249
Zimbabwe																					
Regional total	**584**	**3 460**	**4 365**	**4 513**	**1 224**	**713**	**463**	**438**	**2 476**	**2 811**	**2 373**	**756**	**382**	**248**	**1 022**	**5 936**	**7 176**	**6 886**	**1 980**	**1 095**	**711**

Regional profile for Africa, cont'd: number of TB cases notified, 1980-2000

Country/territory	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2 000
Algeria	2702		13916	13681	13133	13832	12917	11212	11325	11039	11607	11332	11428	13345	13345	13507	15329	16522	15324	16647	18294
Angola	10 117	7 501	7 911	6 625	10 153	8 653	9 363	8 510	8 184	9 587	10 271	11 134	11 272	8 269	7 157	5 143	15 424	15 066	14 296	12 402	16 062
Benin	1 835	1 862	1 793	1 804	1 913	2 041	2 162	1 901	2 027	1 941	2 084	2 162	2 420	2 340	2 119	2 332	2 284	2 255	2 316	2 552	2 706
Botswana	2 662	2 605	2 705	2 883	3 101	2 706	2 627	3 173	2 740	2 532	2 938	3 274	4 179	4 654	4 756	5 665	6 636	7 287	7 960	8 647	9 292
Burkina Faso	2 577	2 391	2 265	3 061	877	4 547	1 018	1 407	949	1 616	1 497	1 488		1 443	861	2 572	1 814	1 643	2 074	2 310	2 310
Burundi	789	643	951	1 053	1 904	2 317	2 569	2 739	3 745	4 608	4 575	4 883	4 464	4 677	3 840	3 326	3 796	5 335	6 546	6 365	
Cameroon	2 434	2 236	3 765	3 445	3 338	3 393	2 138	3 878	4 982	5 521	5 892	6 814	6 803	7 064	7 312	3 292	3 049	3 952	5 022	7 660	5 251
Cape Verde	516	344	393	230	285	259		285	276	210	221					303	179	196	205		
Central African Republic	651	758	1 475	1 686	468	520	779	499	814	64	2 124	2 045				3 339	3 623	4 459	4 875	5 003	
Chad	220	286	127	1 977	1 430	1 486	1 285	1 086	2 977	2 572	2 591	2 912	2 684	2 871	3 303	3 186	1 936	2 180	2 784	4 710	
Comoros									212	139	140	119	108	129	115	123	138	134	132	153	120
Congo	742	1 214	3 716	4 156	2 776	2 648	3 120	3 473	3 878	4 363	591	618	1 179	1 976	2 992	3 615	4 469	3 417	3 863	5 023	9 239
Côte d'Ivoire	4 197	4 418	5 000	6 000	6 062	5 729	6 072	6 422	6 556	6 982	7 841	8 021	9 093	9 563	14 000	11 988	13 104	13 802	14 841	15 056	12 943
DR Congo	5 122	3 051	9 905	13 021	20 415	26 082	27 665	27 096	30 272	31 321	21 131	33 782	37 660	36 647	38 477	42 819	45 999	44 783	58 917	59 531	60 627
Equatorial Guinea					181	17	1	11	20	157	260	331	262	309	356	306	319	366	416		
Eritrea											3 699		4 386	11 664	15 505	21 453	5 220	8 321	7 789	6 037	6 652
Ethiopia	40 096	42 423	52 403	56 824	65 045	71 731	80 846	85 867	95 521	80 795	88 634	60 006	60 006	0	99 329	26 034	41 889	59 105	69 472	72 095	91 101
Gabon	865	796	761	752	654	855	769	864	721	912	917	906	926	972	1 034	1 115	951	1 434	1 380	1 598	
Gambia	239	58														1 023	1 242	1 357	1 558	1 514	
Ghana	5 207	4 041	4 345	2 651	1 935	3 235	3 925	5 877	5 297	6 017	6 407	7 136	7 044	8 569	17 004	8 636	10 449	10 749	11 352	10 386	10 933
Guinea		1 884	1 469	832	1 203	1 317	1 128	1 214	1 740	1 869	1 988	2 267	2 941	3 167	3 300	3 465	4 286	4 326	4 783	5 050	
Guinea-Bissau	645	465	205	376	368	530	1 310	752	778	1 362	1 163	1 246	1 059	1 558	1 647	1 613	1 678	1 445	846	1 164	1 273
Kenya	11 049	10 027		11 966		10 460	10 022	10 515	10 957	12 592	11 788	12 320	14 599	20 451	22 930	28 142	34 980	39 738	48 936	57 266	64 159
Lesotho	4 082	3 830	4 932	3 443	2 923	2 927	21	225	2 346	2 463	2 525	2 994	3 327	3 384	4 334	5 181	5 598	6 447	7 806	8 552	9 746
Liberia	774	1 002	835	885		425	232	384	894				1 948	1 766	1 764	1 393	840		1 753		
Madagascar	9 082	7 464	3 573	3 588	8 673	3 220	3 717	4 007	4 393	5 417	6 261	6 015	8 126	9 855	10 671	21 616	12 718		14 661		
Malawi	4 758	5 033	4 411	4 707	4 404	5 334	6 301	7 581	8 247	9 431	12 364	14 322	15 183	17 105	19 496	19 155	20 630	20 676	22 764	24 396	23 606
Mali	839	933	187	532	1 872	1 621	1 851	2 534	2 578	1 626	2 933	2 631	3 113	3 204	3 075	3 087	3 655	5 022	4 142	4 466	4 216
Mauritania	7 576	9 427	2 327	2 333	3 977	4 406	2 257	3 722	3 928	4 040	5 284	3 064	4 316	3 996		3 849		3 788		3 649	3 067
Mauritius	132	157	121	152	118	111	119	117	114	129	119	134	130	159	149	131	116	121	120	154	160
Mozambique	7 457	6 984	5 787	5 937	5 204	5 645	8 263	10 996	13 863	15 958	15 899	16 609	15 085	16 588	17 158	17 882	18 443	18 842	19 672	21 329	21 158
Namibia						4 840	4 427	3 640	2 815	3 703	2 671	2 500	1 756	5 500		1 540	10 493	10 837	12 281	11 117	10 474
Niger	717	2 871	754	673	665	698	570	556	631	608	5 200			626	3 784	1 980		3 311	3 419	4 054	4 292
Nigeria	9 877	10 838	10 949	10 212	11 439	14 937	14 071	19 723	25 700	13 342	20 122	19 626	14 802	11 601	8 449	13 423	24 065	16 660	20 249	24 143	25 821
Rwanda	1 495	1 386		1 364	1 419	1 327	2 460	3 287	4 145	4 741	6 387	3 200				3 054	3 535	4 710	6 112	6 483	6 093
Sao Tome and Principe	131	37	40	59	49	40	8	55	13		17	120							106	96	97
Senegal	2 014	2 573	1 612	2 417		1 065	927	6 145	5 611	5 965	4 977	6 781	7 408	6 841	6 913	7 561	8 525	8 232	8 245	7 282	
Seychelles	16	0	16	16	10	10	24	14	10	6	41			5		8	15	18	11	21	20
Sierra Leone	750	847	889	293	816	865	358	130	120		632	1 466	1 665	2 691	2 564	1 955	3 241	3 160	3 270		3 760
South Africa	55 310	59 943	64 115	62 556	62 717	59 349	55 013	57 406	61 486	68 075	80 400	77 652	82 539	89 786	90 292	73 917	109 328	125 913	142 281	148 164	111 269
Swaziland		143	3 059	1 955				1 098	1 352	1 394		1 531		1 458		2 050	2 364	3 022	3 653	4 167	5 877
Togo	208	126	204	174	343	745	596	1 184	1 071	940	1 324	1 243	1 223	1 005	1 137	1 520	1 654	1 623	1 250	1 249	1 409
Uganda	1 058	1 170	497	2 029			1 392	1 464	3 066	1 045	14 740	19 016	20 662	21 579	26 994	25 316	27 196	28 349	29 228	31 597	30 372
UR Tanzania	5 103	6 964	11 748	11 783	12 092	13 698	15 452	16 920	18 206	19 262	22 249	25 210	28 462	31 460	34 799	39 847	44 416	46 433	51 231	52 437	54 442
Zambia	5 342	6 070	6 519	6 948	6 500	6 747	7 909	11 525	12 876	14 239	22 902	23 373	25 732	36 889	35 222	35 958	40 417			45 240	49 806
Zimbabwe	4 057	4 051	4 577	3 881	5 694	4 759	5 233	5 848	6 002	6 822	9 132	11 710	16 237	20 125	23 959	30 831	35 735	43 762	47 077	50 138	51 918
Total	213 443	218 852	240 257	258 960	264 156	295 127	300 917	335 342	373 438	365 405	424 538	411 993	434 227	425 291	550 142	504 251	591 778	598 798	685 018	749 903	728 565
number reporting	40	41	39	41	37	41	41	43	44	41	43	40	37	41	37	45	43	42	44	41	35
percent reporting	87	89	85	89	80	89	89	93	96	89	93	87	80	89	80	98	93	91	96	89	76

Regional profile for Africa, cont'd: case notification rates, 1980-2000

Country/territory	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Algeria	14		70	66	62	63	57	49	48	45	47	45	44	50	49	49	54	58	52	56	60
Angola	143	103	105	84	125	103	109	96	90	103	107	113	110	78	65	45	132	125	115	97	122
Benin	53	52	49	48	49	51	52	45	46	43	45	45	49	45	40	42	40	39	39	42	43
Botswana	294	278	280	289	301	254	239	280	235	211	237	256	318	344	342	398	457	492	529	567	603
Burkina Faso	37	34	31	41	11	58	13	17	11	18	17	16		15	9	25	17	15	19	21	20
Burundi	19	15	22	23	40	48	51	53	70	84	81	85	76	79	64	55	62	87	106	102	
Cameroon	28	25	41	36	34	34	21	36	45	49	51	57	55	56	56	25	22	28	35	53	35
Cape Verde	178	118	133	77	93	84		89	84	63	65					80	46	49	50		
Central African Republic	28	32	60	67	18	20	29	18	29	2	72	68				100	106	127	136	137	
Chad	5	6	3	41	29	29	25	20	54	45	44	49	43	45	51	47	28	30	38	62	
Comoros									43	27	27	22	19	22	19	20	22	21	20	22	17
Congo	44	71	210	229	148	138	158	170	185	202	26	27	50	81	118	139	167	124	136	171	306
Côte d'Ivoire	50	50	54	62	60	54	55	56	56	57	62	62	68	70	100	83	89	92	97	96	81
DR Congo	19	11	35	44	67	83	86	81	88	88	57	88	94	88	89	96	100	95	122	120	119
Equatorial Guinea					62	5	0	3	6	46	74	92	71	82	91	77	78	87	96		
Eritrea											119		139	371	491	673	161	251	228	171	182
Ethiopia	114	118	142	149	165	177	193	199	214	176	187	122	119	0	185	47	74	101	116	117	145
Gabon	125	112	104	99	84	106	93	101	82	101	98	94	93	95	99	103	86	126	118	133	
Gambia	37	9														92	108	114	127	120	
Ghana	47	36	37	22	15	25	29	42	37	41	42	46	44	52	101	50	59	59	61	55	57
Guinea		39	30	16	23	25	21	22	30	31	32	36	45	46	46	47	57	56	61	63	
Guinea-Bissau	85	59	26	46	44	63	152	85	86	148	123	128	106	152	157	150	152	128	74	99	106
Kenya	68	59		65		53	49	49	50	55	50	51	58	79	86	103	125	138	167	191	209
Lesotho	300	275	346	236	196	192	1	14	145	149	150	174	190	189	237	277	294	332	395	426	479
Liberia	41	51	41	42		19	10	17	41				95	88	88	68	39		70		
Madagascar	100	80	37	36	86	31	35	36	39	47	52	49	64	76	80	157	90		97		
Malawi	77	79	68	70	63	74	82	93	96	104	131	148	155	174	197	191	202	198	212	221	209
Mali	12	13	3	7	25	21	23	31	31	19	33	29	34	34	32	31	36	48	39	40	37
Mauritania	489	592	142	139	231	249	125	201	207	208	265	150	206	186		169		156		141	115
Mauritius	14	16	12	15	12	11	12	11	11	12	11	13	12	15	14	12	10	11	10	13	14
Mozambique	63	58	47	47	40	43	62	83	104	119	117	118	104	110	109	110	110	110	112	119	116
Namibia						436	383	301	223	280	194	176	120	365		97	647	654	726	645	596
Niger	13	50	13	11	10	11	8	8	9	8	67			7	43	22		34	34	39	40
Nigeria	15	16	16	15	16	20	18	25	32	16	23	22	16	12	9	14	24	16	19	22	23
Rwanda	29	26		24	25	22	40	51	62	69	94	49				61	68	82	95	91	80
Sao Tome and Principe	140	39	41	59	48	38	8	51	12		15	103							80	71	70
Senegal	36	45	28	40		17	14	91	81	84	68	90	96	87	85	91	100	94	92	79	
Seychelles	25	0	25	25	15	15	36	21	15	9	59			7		11	20	23	14	26	25
Sierra Leone	23	26	26	9	23	24	10	3	3		16	36	41	66	63	48	79	77	78		85
South Africa	190	201	210	200	196	181	164	168	176	191	221	209	218	233	230	185	268	304	338	347	257
Swaziland		25	518	322				158	187	186		195		180		245	277	347	410	458	635
Togo	8	5	8	6	12	25	19	37	33	28	38	35	34	27	30	40	42	40	29	28	31
Uganda	8	9	4	15			9	9	19	6	85	107	112	114	138	126	131	133	133	140	130
UR Tanzania	27	36	58	57	56	62	68	72	75	76	85	93	102	109	116	129	140	142	153	153	155
Zambia	91	100	104	108	97	98	111	157	170	182	285	282	302	422	392	390	427			444	478
Zimbabwe	57	55	60	49	69	55	58	63	62	69	89	111	151	183	213	269	305	367	387	404	411
Total	**58**	**58**	**62**	**65**	**64**	**69**	**69**	**74**	**80**	**76**	**86**	**81**	**83**	**79**	**100**	**89**	**102**	**101**	**113**	**120**	**114**

Regional profile for Africa, cont'd: new smear-positive cases, 1993-2000

	Number of cases								Rate (per 100 000 population)							
Country/territory	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2 000**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2 000**
Algeria		6 793	5 735	6 556	7 740	7 462	7 845	8 050		25	21	23	27	26	26	27
Angola	4 874	4 337	3 804	8 016	8 246	7 333	7 379	9 053	46	40	34	69	68	59	58	69
Benin	1 653	1 618	1 839	1 868	1 939	1 988	2 192	2 286	32	30	33	33	33	33	36	36
Botswana	1 508	1 668	1 903	2 530	2 824	3 112	2 746	3 091	111	120	134	174	191	207	180	201
Burkina Faso		561	1 028	1 381	1 126	1 331	1 411	1 560		6	10	13	10	12	13	14
Burundi	1 861	1 527	1 121	1 533	2 022	2 782	2 924		31	25	18	25	33	45	47	
Cameroon	2 316	1 883	2 896	2 312	3 548	4 374	5 832	3 960	18	15	22	17	25	31	40	27
Cape Verde			111	117	103	104					29	30	26	25		
Central African Republic			1 794	1 992	2 267	2 637	2 725				54	58	65	74	75	
Chad			2 002	870			2 920				30	13			38	
Comoros			103	107	100	99	112	87			17	17	15	15	16	12
Congo		1 691	2 013	2 505	1 984	2 044	2 222	4 244		67	77	93	72	72	76	141
Côte d'Ivoire	7 012		8 254	8 927	9 093	9 850	10 047	8 497	51		57	61	60	64	64	53
DR Congo	14 924		20 914	24 125	24 609	33 442	34 923	36 123	36		47	52	52	69	70	71
Equatorial Guinea			219	209	226	284					55	51	54	66		
Eritrea					120	135	527	590					4	4	15	16
Ethiopia		5 752	9 040	13 160	15 957	18 864	21 597	30 510		11	16	23	27	31	35	48
Gabon		395	486	263	577	889	916			38	45	24	51	76	76	
Gambia			778	743	820	900	861				70	64	69	73	68	
Ghana		5 778	2 638	6 474	7 254	7 757	6 877	7 316		34	15	37	40	42	36	38
Guinea	2 082	2 158	2 263	2 844	2 981	3 362	3 562		30	30	31	38	39	43	44	
Guinea-Bissau			956	922	855	541	704	526			89	84	76	47	60	44
Kenya	10 149	11 324	13 934	16 978	19 040	24 029	27 197	28 773	39	43	51	61	66	82	91	94
Lesotho	1 405	1 330	1 361	1 788	2 398	2 476	2 729	3 041	78	73	73	94	123	125	136	149
Liberia	1 547		1 154	668		1 190			77		56	31		48		
Madagascar	6 881	7 366	8 026	8 456		9 639			53	55	58	60		64		
Malawi		5 988	6 285	6 703	7 587	8 765	8 132	8 265		60	63	66	73	82	74	73
Mali		1 740	1 866	2 173	3 178	2 558	2 690	2 527		18	19	21	30	24	24	22
Mauritania			2 074	3 837	2 519	3 617	2 051	1 583			91	164	104	145	79	59
Mauritius			113	99	112	109	122	115			10	9	10	10	11	10
Mozambique	9 526	9 677	10 566	10 478	11 116	12 116	12 825	13 257	63	61	65	62	65	69	72	72
Namibia			697	2 849	3 223	3 593	3 751	3 911			44	176	195	212	218	223
Niger	463	1 865	1 492		1 970	2 189	2 631	2 693	5	21	16		20	22	25	25
Nigeria	1 723		9 476	15 704	11 235	13 161	15 903	17 423	2		10	15	11	12	14	15
Rwanda			1 840	2 034	2 820	4 417	4 298	3 681			37	39	49	69	61	48
Sao Tome and Principe							30	30							22	22
Senegal		4 599	5 421	5 940	5 340	5 454	5 011			57	65	70	61	61	55	
Seychelles	2		6	11	13	9	10	11	3		8	14	17	11	13	14
Sierra Leone		1 408	1 454	2 234	2 296	2 262		2 472		35	36	55	56	54		56
South Africa			23 112	42 163	54 073	66 047	72 098	77 391			58	103	130	157	169	179
Swaziland			660	2 226			1 781	1 823			79	261			196	197
Togo	545		887	913	935	904	904	984	15		23	23	23	21	21	22
Uganda	11 949	14 763	13 631	15 312	17 254	18 222	18 463	17 246	63	76	68	74	81	83	82	74
UR Tanzania			19 955	21 472	22 010	23 726	24 125	24 049			65	68	67	71	70	68
Zambia		9 620	10 038	12 072			11 645	12 927		107	109	128			114	124
Zimbabwe	5 331		8 965	11 965	14 512	14 492	14 414	15 455	48		78	102	122	119	116	122
Total	**85 751**	**103 841**	**212 910**	**273 529**	**276 022**	**328 265**	**349 132**	**353 550**	**16**	**19**	**38**	**47**	**47**	**54**	**56**	**55**

Notes

ALGERIA Treatment completions are included with cure.

BENIN The treatment outcome "default" includes 31 patients who registered but did not start treatment.

BOTSWANA Retreatment outcomes are for relapses only.

DR CONGO Retreatment outcomes are for relapses only.

ETHIOPIA Non-DOTS treatment outcomes are for nomads or refugees whose regimen was not short-course, directly observed.

GUINEA-BISSAU Under treatment outcomes, 185 new cases "not evaluated" and 20 retreatment cases "not evaluated" were defaulters.

KENYA Non-DOTS treatment outcomes are for nomads or refugees whose regimen was not short-course, directly observed.

NAMIBIA Retreatment outcomes are for relapses only.

SOUTH AFRICA Extra-pulmonary notifications include both new and retreatment cases.

ZIMBABWE Notifications include cases with a history of previous treatment.

THE AMERICAS

The Americas: Summary of TB control policies

COUNTRY	MICROSCOPY (A)	SCC (B)	DOT (C)	OUTCOME MONITORING (D)	DRUG SUPPLY (E)	CATEGORY AS OF 31/12/00*	DOTS NEWLY IMPLEMENTED IN 2000
ANGUILLA						0	
ANTIGUA AND BARBUDA						4	
ARGENTINA						3	
BAHAMAS						4	
BARBADOS						1	
BELIZE						4	
BERMUDA						4	
BOLIVIA						3	
BRAZIL						2	
BRITISH VIRGIN ISLANDS						0	
CANADA						0	
CAYMAN ISLANDS						4	
CHILE						4	
COLOMBIA						3	
COSTA RICA						3	
CUBA						4	
DOMINICA						0	
DOMINICAN REPUBLIC						2	
ECUADOR						3	
EL SALVADOR						4	
GRENADA						5	
GUATEMALA						4	
GUYANA						2	X
HAITI						3	
HONDURAS						3	
JAMAICA						4	
MEXICO						3	
MONTSERRAT						1	
NETHERLANDS ANTILLES						0	
NICARAGUA						4	
PANAMA						3	
PARAGUAY						2	X
PERU						4	
PUERTO RICO						4	
SAINT KITTS AND NEVIS						4	
SAINT LUCIA						4	
ST VINCENT & GRENADINES						4	
SURINAME						4	
TRINIDAD AND TOBAGO						1	
TURKS & CAICOS ISLANDS						0	
URUGUAY						4	
US VIRGIN ISLANDS						0	
USA						4	
VENEZUELA						4	

Microscopy (a)	Use of smear microscopy for diagnosis
SCC (b)	Short course chemotherapy
DOT (c)	Directly observed therapy
Outcome monitoring (d)	Monitoring of treatment outcomes by cohort analysis
Drug supply (e)	A system of TB drug forecasting, financing, and procurement
*	See table 1 for definition of categories

- implemented in all units/areas
- implemented in some units/areas
- not implemented
- unknown or not applicable (decentralized drug supply system)

Regional Profile for the Americas: notification, detection and DOTS coverage, 2000

Country/Territory	Country information									WHO TB control strategy (DOTS)							Other Strategy (non-DOTS)					
	Pop	Notifications all cases		Notifications New ss+		Estimated cases all cases	Estimated cases New ss+	CDR	DOTS cate-	% of	Notifications all cases		Notifications New ss+		DDR	% of pulm	% of	Notifications all cases		Notifications New ss+		% of pulm
	thousands	number	rate	number	rate	number	number	%	gory	pop	number	rate	number	rate	%	cases ss+	pop	number	rate	number	rate	cases ss+
	a	b	b/a	c	c/a	d	e	c/e	f	g	h	h/(g*a)	i	i/(g*a)	i/e	j	k	l	l/(k*a)	m	m/(k*a)	n
Anguilla	11					4	2		0													
Antigua and Barbuda	65	4	6	3	5	6	3	100	4	100	4	6	3	5	100	75	0	0	0	0	0	
Argentina	37 032	11 767	32	4 749	13	17 925	8 005	59	3	63	5 895	16	2 493	7	31	54	37	5 872	16	2 256	6	53
Bahamas	304	82	27	56	18	200	86	65	4	100	82	27	56	18	65	71	0					
Barbados	267	3	1	3	1	44	19	16	1	0							100	3	1	3	1	100
Belize	226	106	47	44	19	100	44	100	4	100	106	47	44	19	100	44	0					
Bermuda	63	0	0	0	0	4	2	0	5	0							100	0	0	0	0	
Bolivia	8 329	10 127	122	6 458	78	19 166	8 619	75	3	70	10 127	122	6 458	78	75	80	30					
Brazil	170 406	79 251	47	41 082	24	116 182	51 701	79	2	7	2 420	1	416	0	1	21	93	76 831	45	40 666	24	62
British Virgin Islands	24					5	2		0													
Canada	30 757					2 018	905		0													
Cayman Islands	38	5	13	5	13	2	1	500	5	0							100	5	13	5	13	100
Chile	15 211	3 021	20	1 290	8	3 763	1 688	76	4	100	3 021	20	1 290	8	76	59	0					
Colombia	42 105	11 630	28	8 358	20	20 913	9 369	89	3	31	4 514	11	3 141	7	34	81	69	7 116	17	5 217	12	88
Costa Rica	4 024	883	22	434	11	662	296	147	3	40	883	22	434	11	147	70	60					
Cuba	11 199	1 135	10	677	6	1 572	707	96	4	100	1 135	10	677	6	96	72	0					
Dominica	71					15	7		0													
Dominican Republic	8 373	5 291	63	2 907	35	12 290	5 408	54	2	7	380	5	243	3	4	78	93	4 911	59	2 664	32	70
Ecuador	12 646	6 908	55	5 064	40	22 212	9 962	51	3	15	3 131	25	2 260	18	23	76	85	3 777	30	2 804	22	81
El Salvador	6 278	1 485	24	1 008	16	4 029	1 801	56	4	94	1 485	24	1 008	16	56	78	6					
Grenada	94	0	0	0	0	6	3	0	5	0							100	0	0	0	0	
Guatemala	11 385	2 913	26	2 052	18	9 676	4 325	47	4	100	2 913	26	2 052	18	47	80	0					
Guyana	761	422	55	119	16	876	384	31	2	6	34	4	34	4	9	100	94	388	51	85	11	27
Haiti	8 142	10 420	128	5 887	72	28 466	11 956	49	3	68	4 824	59	2 687	33	22	69	32	5 596	69	3 200	39	65
Honduras	6 417	3 984	62	2 415	38	5 814	2 575	94	3	60	2 051	32	1 580	25	61	82	40	1 933	30	835	13	51
Jamaica	2 576	127	5	90	3	198	88	102	4	100	127	5	90	3	102	82	0					
Mexico	98 872	15 853	16	11 676	12	37 626	16 819	69	3	82	14 928	15	11 071	11	66	88	18	925	1	605	1	81
Montserrat	4	0	0	0	0	0	0		1	0							100	0	0	0	0	
Netherlands Antilles	215					0	0		0													
Nicaragua	5 071	2 402	47	1 471	29	4 292	1 927	76	4	100	2 402	47	1 471	29	76	73	0					
Panama	2 856	1 168	41	410	14	1 484	663	62	3	51	615	22	297	10	45	55	49	553	19	113	4	22
Paraguay	5 496	1 950	35	900	16	3 624	1 629	55	2	7	80	1	69	1	4	87	93	1 870	34	831	15	52
Peru	25 662	38 661	151	22 580	88	54 310	24 331	93	4	100	38 661	151	22 580	88	93	79	0					
Puerto Rico	3 915	174	4	82	2	356	142	58	4	100	174	4	82	2	58	55	0					
Saint Kitts and Nevis	38	0	0	0	0	6	2	0	4	100	0	0	0	0	0		0					
Saint Lucia	148	9	6	7	5	33	15	47	4	100	9	6	7	5	47	88	0					
St Vincent & Grenadines	113	16	14	9	8	43	20	45	4	100	14	12	9	8	45	69	0	2	2	0	0	
Suriname	417	88	21	37	9	310	138	27	4	100	88	21	37	9	27	47	0					
Trinidad and Tobago	1 294	198	15	115	9	165	74	155	1	0							100	198	15	115	9	65
Turks & Caicos Islands	17					4	2		0													
Uruguay	3 337	645	19	348	10	935	419	83	4	100	645	19	348	10	83	68	0					
US Virgin Islands	121					15	6		0													
USA	283 230	16 362	6	5 865	2	15 387	6 617	89	4	100	16 362	6	5 865	2	89	45	0					
Venezuela	24 170	6 466	27	3 525	15	10 132	4 529	78	4	100	6 466	27	3 525	15	78	69	0					

Regional Profile for the Americas, cont'd: treatment outcomes for cases registered in 1999 - WHO TB control strategy (DOTS) and other (non-DOTS) control strategies

Country/Territory	New smear-positive cases - DOTS									Retreatment cases - DOTS									New smear-positive cases - non-DOTS								
	Regist-ered	% cured	% compl-eted	% died	% failed	% default	% trans-ferred	% not eval	% success	Regist-ered	% cured	% compl-eted	% died	% failed	% default	% trans-ferred	% not eval	% success	Regist-ered	% cured	% compl-eted	% died	% failed	% default	% trans-ferred	% not eval	% success
	a	c	d	e	f	g	h	b	c+d	i	k	l	m	n	o	p	j	k+l	q	s	t	u	v	w	x	r	s+t
Anguilla																											
Antigua and Barbuda	2	50	0	0	0	0	50	0	50										0	0	0	0	0	0	0	0	0
Argentina	2 526	27	32	5	0	7	5	24	59	5 234	25	30	5	0	9	5	25	55	2 304	16	35	5	0	11	8	24	51
Bahamas	76	33	33	24	0	9	1	0	66																		
Barbados																											
Belize	58	83	5	9	0	3	0	0	88	5	100	0	0	0	0	0	0	100									
Bermuda																			0	0	0	0	0	0	0	0	0
Bolivia	6 728	65	10	4	1	14	6	0	74	733	42	9	4	3	8	5	30	50									
Brazil	2 108	10	1	1		0	1	88	11										39 326	53		4	0	8	2	32	53
British Virgin Islands																											
Canada																											
Cayman Islands																			2	100	0	0	0	0	0	0	100
Chile	1 484	83		7	0	7	3	0	83	188	21	48	7	0	22	2	0	69									
Colombia	559	78	4	3	1	7	6	0	82										388	69	8	6	3	9	5	0	77
Costa Rica	43	74	7	12	0	5	2	0	81																		
Cuba	713	91	0	7	1	1	0	0	91	71	86	0	4	4	6	0	0	86									
Dominica																											
Dominican Republic	238	71	10	5	2	11		0	81										2 333	62	13	5	2	18		0	76
Ecuador	2 020	32	43	3	3	9	10	0	75	590	43	26	2	6	16	7	0	69	1 754	16	40	3	10	14	17	0	56
El Salvador	927	75	4	6	1	9	6	0	78	122	56	4	4	7	21	8	0	60									
Grenada																			3	33	33	33				0	67
Guatemala	2 101	67	14	5	1	8	5	0	81	192	59	18	4	2	11	6	0	78									
Guyana	64	77	14	2	0	6	2	0	91	5	60	20	0	0	20	0	0	80	114	25	11	18	0	40	6	0	35
Haiti	2 933	48	22	6	2	16	6	0	70	68	53	12	3	1	24	7	0	65	3 895	44	20	6	0	24	6	0	64
Honduras	369	86	2	5	1	4	2	0	88	22	68	5	0	0	18	9	0	73	1 796	69	12	6	0	5	7	0	81
Jamaica	90	7	68	13	0	12	0	0	74	7	14	71	0	0	14	0	0	86									
Mexico	9 634	67	13	6	2	8	4	1	80	227	28	9	8	7	11	0	37	37	1 346	52	10	5	4	7	4	18	62
Montserrat																			2	50	0	50	0	0	0	0	50
Netherlands Antilles																											
Nicaragua	1 558	66	15	4	3	8	4	0	81	284	70	11	4	3	10	3	0	81	6	33	67					0	100
Panama	85	39	41	2	0	14	4	0	80	15	20	20	13	13	33	0	0	40	374	15	20	6	1	46	12	0	36
Paraguay																			957	18	52	4	0	23	2	0	71
Peru	23 681	93	0	2	2	3	1	0	93	5 630	81	0	4	6	8	1	0	81									
Puerto Rico	92		77	17			0	5	77																		
Saint Kitts and Nevis	2	0	50	0	50	0	0	0	50	3	0	0	0	33	67	0	0	0									
Saint Lucia	9	67	22	0	0	11	0	0	89	2	50	50	0	0	0	0	0	100									
St Vincent & Grenadines	4	75	25	0	0	0	0	0	100	1	0	0	0	0	100	0	0	0	4	75	0	0	0	25	0	0	75
Suriname	35	3	74	11	0	11	0	0	77																		
Trinidad and Tobago																			88	50	13	25	1	10	1	0	63
Turks & Caicos Islands																											
Uruguay	379	83	0	13	1	2	0	0	83																		
US Virgin Islands																											
USA	5 755		76	9			4	11	76																		
Venezuela	3 579	82	0	4	0	9	5	0	82																		

Regional profile for the Americas, cont'd: smear-positive notification rates by age and sex, 2000

	MALE							FEMALE							ALL						
	0-14	15-24	25-34	35-44	45-54	55-64	65+	0-14	15-24	25-34	35-44	45-54	55-64	65+	0-14	15-24	25-34	35-44	45-54	55-64	65+
Anguilla																					
Antigua and Barbuda																					
Argentina	2	8	22	18	22	27	22	2	17	18	11	12	12	10	2	12	20	15	17	19	15
Bahamas	2	7	26	41	32	36	29	5	18	26	35	14	30	11	3	13	26	38	23	33	18
Barbados				9						4							2	4			
Belize	5	20	40	17	82	68	105	0	8	6	17	59	25	83	2	14	23	17	71	47	94
Bermuda																					
Bolivia	10	144	131	126	160	183	245	12	103	95	77	81	93	126	11	124	113	101	119	135	179
Brazil	8	43	83	101	110	108	118	8	40	50	44	42	45	51	8	41	66	72	75	75	80
British Virgin Islands																					
Canada																					
Cayman Islands																					
Chile	0	6	13	18	19	26	28	0	5	8	6	7	10	13	0	6	11	12	13	18	19
Colombia	3	19	30	36	42	62	85	3	15	21	18	20	28	46	3	17	26	27	30	44	63
Costa Rica	2	8	17	22	22	27	51	2	6	11	9	11	22	22	2	7	14	16	17	24	36
Cuba	0	9	15	11	10	12	15	0	1	3	3	4	4	6	0	5	9	7	7	8	11
Dominica																					
Dominican Republic	5	48	68	65	50	59	65	5	39	50	40	33	36	40	5	44	59	52	41	47	52
Ecuador																					
El Salvador	1	15	25	40	43	43	79	3	12	15	18	26	24	27	2	13	20	28	34	33	49
Grenada																					
Guatemala	1	18	31	44	54	52	72	2	17	22	34	40	40	53	2	18	26	39	46	46	62
Guyana	3	25	29	31	25	40	55	1	14	11	13	15	27	14	2	19	20	21	20	33	32
Haiti	4	95	168	170	147	92	87	6	104	150	122	93	68	43	5	99	159	144	117	79	63
Honduras	2	18	79	80	148	182	43	2	3	58	82	140	128	33	2	11	68	81	144	154	38
Jamaica	0	2	6	9	16	9	6	0	3	4	4	2	7	1	0	3	5	6	9	8	3
Mexico	1	11	17	21	33	41	54	1	7	10	12	21	23	28	1	9	13	16	27	32	39
Montserrat																					
Netherlands Antilles																					
Nicaragua	2	36	49	63	75	78	131	3	35	47	40	49	51	71	2	35	48	51	62	64	98
Panama	0	20	31	28	23	27	30	2	13	13	15	11	21	23	1	17	22	22	17	24	27
Paraguay	1	20	25	33	42	71	89	1	13	22	13	21	26	41	1	17	24	23	32	48	61
Peru	13	200	141	106	104	121	140	15	142	117	74	57	71	93	14	171	129	89	80	95	115
Puerto Rico	0	0	1	8	4	7	8	0	1	2	1	3	1	1	0	1	1	4	4	3	4
Saint Kitts and Nevis																					
Saint Lucia	0	0	0	12	0	31	58	0	6	0	11	0	27	0	0	3	0	11	0	29	24
St Vincent & Grenadines																					
Suriname	0	13	18	7	25	0	29	3	7	11	11	0	8	8	2	10	15	9	12	5	17
Trinidad and Tobago	0	5	18	28	25	17	18	0	4	7	9	7	5	8	0	4	12	19	16	11	13
Turks & Caicos Islands																					
Uruguay	0	13	20	22	24	22	20	0	11	9	10	7	8	6	0	12	15	15	15	14	12
US Virgin Islands																					
USA	0	2	3	4	5	5	5	0	1	2	2	1	1	2	0	2	2	3	3	3	3
Venezuela	2	26	37	41	48	68	118								1	13	19	20	24	33	53
Regional rate	**3**	**26**	**35**	**35**	**36**	**38**	**36**	**3**	**23**	**25**	**19**	**18**	**19**	**17**	**2**	**15**	**25**	**23**	**23**	**21**	**19**

Rates are missing where data for smear-positive cases are missing, or where age- and sex-specific population data are not available.

Regional profile for the Americas, cont'd: age and sex distribution of smear-positive cases in DOTS areas, 2000 (absolute numbers)

	MALE							FEMALE							ALL						
	0-14	15-24	25-34	35-44	45-54	55-64	65+	0-14	15-24	25-34	35-44	45-54	55-64	65+	0-14	15-24	25-34	35-44	45-54	55-64	65+
Anguilla																					
Antigua and Barbuda	0	0	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	0	0	0	1
Argentina	49	252	324	219	226	183	176	61	270	261	143	124	89	116	110	522	585	362	350	272	292
Bahamas	1	2	7	9	4	3	2	2	5	7	8	2	3	1	3	7	14	17	6	6	3
Barbados																					
Belize	2	5	7	2	6	3	5	0	2	1	2	4	1	4	2	7	8	4	10	4	9
Bermuda																					
Bolivia	166	1 182	797	518	466	340	366	191	831	588	334	254	192	233	357	2 013	1 385	852	720	532	599
Brazil	10	141	189	195	143	80	62	12	114	120	83	51	33	29	22	255	309	278	194	113	91
British Virgin Islands																					
Canada																					
Cayman Islands																					
Chile	6	81	160	198	150	132	126	10	66	96	70	54	58	83	16	147	256	268	204	190	209
Colombia	61	315	412	368	324	210	295	57	224	285	181	127	108	174	118	539	697	549	451	318	469
Costa Rica	14	31	53	62	39	28	49	13	21	33	24	20	23	24	27	52	86	86	59	51	73
Cuba	0	72	161	97	67	58	77	2	10	27	23	24	23	36	2	82	188	120	91	81	113
Dominica																					
Dominican Republic	3	44	39	19	20	11	6	1	28	36	13	12	3	8	4	72	75	32	32	14	14
Ecuador																					
El Salvador	13	99	124	114	92	62	107	28	81	76	63	63	39	47	41	180	200	177	155	101	154
Grenada																					
Guatemala	36	220	236	216	177	112	140	41	199	167	175	135	87	111	77	419	403	391	312	199	251
Guyana	1	5	7	4	2	1	2	1	3	2	1	2	2	1	2	8	9	5	4	3	3
Haiti	18	371	424	291	165	62	52	43	399	394	253	122	57	36	61	770	818	544	287	119	88
Honduras	5	17	290	196	189	143	13	5	14	195	190	198	108	17	10	31	485	386	387	251	30
Jamaica	0	6	13	13	15	6	5	1	8	8	7	2	5	1	1	14	21	20	17	11	6
Mexico	202	1 037	1 320	1 087	1 158	917	1 068	171	634	782	659	786	568	682	373	1 671	2 102	1 746	1 944	1 485	1 750
Montserrat																					
Netherlands Antilles																					
Nicaragua	18	194	174	147	108	64	90	34	188	173	98	76	46	61	52	382	347	245	184	110	151
Panama	0	36	54	47	25	16	14	6	30	23	22	6	5	13	6	66	77	69	31	21	27
Paraguay	0	8	9	5	7	8	8	1	7	6	1	3	3	3	1	15	15	6	10	11	11
Peru	552	5 290	2 875	1 546	1 041	801	796	633	3 686	2 472	1 156	609	499	624	1 185	8 976	5 347	2 702	1 650	1 300	1 420
Puerto Rico	0	1	4	19	9	10	14	1	4	5	3	7	1	3	1	5	9	22	16	11	17
Saint Kitts and Nevis																					
Saint Lucia	0	0	0	1	0	1	2	0	1	0	1	0	1	0	0	1	0	2	0	2	2
St Vincent & Grenadines	0	1	0	4	2	0	1	1	0	0	0	0	0	0	1	1	0	4	2	0	1
Suriname	0	6	7	2	3	0	3	2	3	4	3	0	1	1	2	9	11	5	3	1	4
Trinidad and Tobago																					
Turks & Caicos Islands																					
Uruguay	0	36	48	45	41	30	34	2	28	22	21	13	12	16	2	64	70	66	54	42	50
US Virgin Islands																					
USA	7	365	595	895	901	577	730	15	247	370	354	256	156	394	22	612	965	1 249	1 157	733	1 124
Venezuela	75	630	706	624	512	406	572								75	630	706	624	512	406	572
Regional total	**1 239**	**35 050**	**49 941**	**35 293**	**21 777**	**12 018**	**9 782**	**5 048**	**33 175**	**37 581**	**20 836**	**11 232**	**6 117**	**4 926**	**9 217**	**68 225**	**87 522**	**56 129**	**33 009**	**18 135**	**14 708**

Regional profile for the Americas, cont'd: age and sex distribution of smear-positive cases in non-DOTS areas, 2000 (absolute numbers)

	MALE							FEMALE							ALL						
	0-14	**15-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65+**	**0-14**	**15-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65+**	**0-14**	**15-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65+**
Anguilla																					
Antigua and Barbuda																					
Argentina	48	26	270	183	193	185	154	60	274	218	119	106	90	100	108	300	488	302	299	275	254
Bahamas																					
Barbados				2						1							1	2			
Belize																					
Bermuda																					
Bolivia																					
Brazil	1 884	7 127	11 379	11 711	8 480	5 005	4 432	1 847	6 605	7 095	5 312	3 531	2 351	2 467	3 731	13 732	18 474	17 023	12 011	7 356	6 899
British Virgin Islands																					
Canada																					
Cayman Islands	0	0	3	1	0	1	0								0	0	3	1	0	1	0
Chile																					
Colombia	185	448	618	595	419	400	451	137	363	473	342	254	196	336	322	811	1 091	937	673	596	787
Costa Rica																					
Cuba																					
Dominica																					
Dominican Republic	70	366	442	325	153	114	107	64	289	289	199	103	76	67	134	655	731	524	256	190	174
Ecuador																					
El Salvador																					
Grenada																					
Guatemala																					
Guyana	3	15	12	10	5	5	7	0	8	6	6	3	3	2	3	23	18	16	8	8	9
Haiti	49	465	474	322	185	85	66	53	515	463	260	153	75	35	102	980	937	582	338	160	101
Honduras	25	106	81	50	88	71	30	20	7	74	68	72	52	21	45	113	155	118	160	123	51
Jamaica																					
Mexico	12	42	67	75	77	55	58	5	29	46	39	46	27	27	17	71	113	114	123	82	85
Montserrat																					
Netherlands Antilles																					
Nicaragua																					
Panama	0	18	22	5	4	7	9	4	4	7	7	8	12	6	4	22	29	12	12	19	15
Paraguay	16	104	94	100	79	72	63	11	62	80	40	38	27	43	27	166	174	140	117	99	106
Peru																					
Puerto Rico																					
Saint Kitts and Nevis																					
Saint Lucia																					
St Vincent & Grenadines																					
Suriname																					
Trinidad and Tobago	0	7	18	27	17	7	7	0	5	7	9	5	2	4	0	12	25	36	22	9	11
Turks & Caicos Islands																					
Uruguay																					
US Virgin Islands																					
USA																					
Venezuela																					
Regional total	**2 292**	**12 184**	**17 845**	**17 919**	**10 924**	**6 720**	**5 847**	**2 639**	**10 637**	**11 570**	**8 774**	**5 075**	**3 293**	**3 356**	**5 515**	**22 821**	**29 415**	**26 693**	**15 999**	**10 013**	**9 203**

Regional profile for the Americas, cont'd: number of TB cases notified, 1980-2000

Country/territory	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2 000
Anguilla	0	0	4	0	0	1	0	0	0	0	0	0	0			2		0			
Antigua and Barbuda	8	3	0	1	3	2	7	0	3	3	1	0	6				3	4	4	3	4
Argentina	16 406	16 693	17 292	17 305	16 359	15 987	14 681	13 368	13 267	12 636	12 309	12 185	12 606	13 887	13 683	13 450	13 397	12 621	12 276	11 871	11 767
Bahamas	70	67	54	58	53	63	52	43	51	52	46	53	63	60	78	57	59	88	75	76	82
Barbados	64	3	30	17	14	12	7	3	4	5	5	5	6			3	3	5	7	2	3
Belize	21	33	44	140	35	25	23	41	28	30	57	89	65	80	59	95	99	107	123	104	106
Bermuda	1	2	5	10	3	3	6	2	1	2	0	3	4			4	0	4	0	0	0
Bolivia	4 412	5 072	4 777	5 178	4 131	7 679	6 837	8 960	10 664	12 563	11 166	11 223	9 520	8 614	9 431	14 422	10 194	9 853	10 132	9 863	10 127
Brazil	72 608	86 411	87 822	86 617	88 365	84 310	83 731	81 826	82 395	80 048	74 570	84 990	85 955		75 759	91 013	87 254	83 309	95 009	78 870	79 251
British Virgin Islands																		3			
Canada	2 885	2 554	2 515	2 186	2 345	1 980	2 046	1 972	1 947	2 035	1 997	2 018	2 108	2 012	2 074	1 931	1 869	1 975			
Cayman Islands	0	2	0	1	1	4	1	0	0	2	2	3	3	2		2	0	0	3	0	5
Chile	8 523	7 337	6 941	6 989	6 561	6 644	6 854	6 280	6 324	6 728	6 151	5 498	5 304	4 598	4 138	4 150	4 178	3 880	3 652	3 429	3 021
Colombia	11 589	11 483	12 126	13 716	12 792	12 024	11 639	11 437	11 469	11 329	12 447	12 263	11 199	11 043	8 901	9 912	9 702	8 042	9 155	10 999	11 630
Costa Rica	396	521	459	479	393	376	418	434	442	311	230	201	118	313	325	586	636	692	730	851	883
Cuba	1 133	833	815	762	705	680	656	630	628	581	546	514	410	790	1 681	1 553	1 465	1 346	1 234	1 135	1 135
Dominica	20	26	18	16	5	8	35	27	7	13	6	14	13	7	12	8	10	6	5		
Dominican Republic	2 174	1 778	2 457	2 959	3 100	2 335	2 634	2 459	3 081	3 145	2 597	1 837	3 490	4 033	4 337	4 053	6 302	5 381	5 114	5 767	5 291
Ecuador	3 950	3 966	3 880	3 985	4 301	4 798	5 687	5 867	5 497	5 480	8 243	6 879	7 313	7 050	9 685	7 893	8 397	9 435	7 164	5 756	6 908
El Salvador	2 255	2 091	2 171	2 053	1 564	1 461	1 659	1 647	2 378	617	2 367	2 304	2 495	3 347	3 901	2 422	1 686	1 662	1 700	1 623	1 485
Grenada	17	1	1	6	4	2	1	2	0	4	0	1	3	0	3	4	0	2	2	5	0
Guatemala	5 624	6 641	7 277	6 013	6 586	6 570	4 806	5 700	5 739	4 900	3 813	2 631	2 517	2 474	2 508	3 119	3 232	2 948	2 755	2 820	2 913
Guyana	124	117	135	149	165	215	190	117	150	120	168	134	182	91	266	296	314	407	318	407	422
Haiti	8 306	6 550	3 337	6 839	5 803	4 959	8 583	8 514	8 054	8 100		10 237				6 212	6 632	10 116	9 770	9 124	10 420
Honduras	1 674	1 696	1 714	1 935	2 120	3 377	4 213	4 227	3 962	4 026	3 647	4 560	4 155	3 745	4 291	4 984	4 176	4 030	4 916	4 568	3 984
Jamaica	176	178	153	157	160	130	88	133	65	86	123	121	111	115	109	109	121	118	121	115	127
Mexico	31 247	32 572	24 853	22 795	14 531	15 017	13 180	14 631	15 371	15 489	14 437	15 216	14 446	15 145	16 353	11 329	10 852	18 262	17 170	16 668	15 853
Montserrat	1	0	0	1	7	9	5	13	6	5	1	1	0						1	2	0
Netherlands Antilles																					
Nicaragua	1 300	3 723	3 082	2 773	2 705	2 604	2 617	2 983	2 737	3 106	2 944	2 797	2 885	2 798	2 750	2 842	3 003	2 806	2 604	2 558	2 402
Panama	643	580	580	429	413	614	709	765	770	672	846	863	750	1 146	827	1 300	1 314	1 473	1 422	1 387	1 168
Paraguay	1 354	1 388	1 415	1 800	1 718	1 931	1 628	1 502	1 438	2 270	2 167	2 283	1 927	2 037	1 850	1 745	2 072	1 946	1 831	2 115	1 950
Peru	16 011	21 925	21 579	22 753	22 792	24 438	24 702	30 571	36 908	35 687	37 905	40 580	52 552	51 675	48 601	45 310	41 739	42 062	43 723	40 345	38 661
Puerto Rico	686	521	473	452	418	338	363	303	275	314	159	241		257	274	263	110	257	201	200	174
Saint Kitts and Nevis	7	4	6	2	3	0	0	0	0	0	0	1	4	6	2	5	3	12	5	3	0
Saint Lucia	41	39	37	48	55	21	34	25	32	28	13	25	26		24	11	35	22	20	16	9
St Vincent & Grenadines	78	11	14	4	23	14	9	3	6	3	2	1	4	13	0	13	6	6	8	9	16
Suriname	78	81	56	78	76	50	60	77	77	70	82	47	58				53	76	85	95	88
Trinidad and Tobago	80	82	62	112	108	112	119	122	108	124	120	141	142	112	129	166	204	260	199	159	198
Turks & Caicos Islands	2	0	2	5	0	4	2	12			0	0	0							17	
Uruguay	1 874	1 699	1 450	1 359	1 389	1 201	1 082	1 023	951	987	886	759	699	689	666	625	701	708	668	627	645
US Virgin Islands	0	1	1	2	3	1	1	2	6	4	4	4			10	4	0				
USA	27 749	27 373	25 520	23 846	22 255	22 201	22 768	22 517	22 436	23 495	25 701	26 283	26 673	25 287	24 361	22 860	21 119	17 314	18 199	17 521	16 362
Venezuela	4 233	4 093	4 159	4 266	4 737	4 822	4 974	4 954	4 557	4 524	5 457	5 216	5 444	5 169	4 877	5 578	5 650	5 984	6 273	6 598	6 466
Total	227 820	248 150	237 316	238 296	226 801	227 022	227 107	233 192	241 834	239 594	231 215	252 221	253 256	166 595	241 965	258 331	246 590	247 222	256 674	235 708	233 556
number reporting	42	42	42	42	42	42	42	42	41	41	41	42	39	31	33	38	39	40	38	38	37
percent reporting	95	95	95	95	95	95	95	95	93	93	93	95	89	70	75	86	89	91	86	86	84

Regional profile for the Americas, cont'd: case notification rates, 1980-2000

Country/territory	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Anguilla	0	0	59	0	0	14	0	0	0	0	0	0	0			20		0			
Antigua and Barbuda	13	5	0	2	5	3	11	0	5	5	2	0	10				5	6	6	5	6
Argentina	58	59	60	59	55	53	48	43	42	39	38	37	38	41	40	39	38	35	34	32	32
Bahamas	33	31	25	26	23	27	22	18	21	21	18	20	24	22	28	20	20	30	25	25	27
Barbados	26	1	12	7	6	5	3	1	2	2	2	2	2			1	1	2	3	1	1
Belize	15	22	29	91	22	15	14	24	16	17	31	47	34	41	30	47	48	51	57	47	47
Bermuda	2	4	9	18	5	5	10	3	2	3	0	5	7			7	0	6	0	0	0
Bolivia	82	93	86	91	71	130	114	146	170	196	170	167	138	122	130	195	134	127	127	121	122
Brazil	60	69	69	67	67	62	61	58	58	55	50	57	56		48	57	54	51	57	47	47
British Virgin Islands																		14			
Canada	12	10	10	9	9	8	8	7	7	7	7	7	7	7	7	7	6	7			
Cayman Islands	0	11	0	5	5	19	5	0	0	8	8	11	11	7		6	0	0	8	0	13
Chile	76	65	60	60	55	55	56	50	50	52	47	41	39	33	30	29	29	27	25	23	20
Colombia	41	39	41	45	41	38	36	35	34	33	36	34	31	30	24	26	25	20	22	27	28
Costa Rica	17	22	19	19	15	14	15	16	15	11	8	6	4	9	9	16	17	18	19	22	22
Cuba	12	9	8	8	7	7	6	6	6	6	5	5	4	7	15	14	13	12	11	10	10
Dominica	27	35	25	22	7	11	48	38	10	18	8	20	18	10	17	11	14	8	7		
Dominican Republic	38	30	41	48	49	36	40	37	45	45	37	26	48	54	57	53	80	68	63	70	63
Ecuador	50	48	46	46	49	53	61	61	56	55	80	66	68	64	86	69	72	79	59	46	55
El Salvador	49	45	46	44	33	31	34	34	48	12	46	44	47	62	70	43	29	28	28	26	24
Grenada	19	1	1	7	4	2	1	2	0	4	0	1	3	0	3	4	0	2	2	5	0
Guatemala	82	95	101	82	87	85	61	70	69	57	44	29	27	26	26	31	32	28	26	25	26
Guyana	16	15	18	20	22	29	25	16	20	16	23	18	25	12	36	40	42	54	42	54	55
Haiti	152	117	58	117	97	81	137	132	122	120		145				83	87	130	124	114	128
Honduras	47	46	45	49	52	81	98	95	86	85	75	91	80	70	78	89	72	68	81	73	62
Jamaica	8	8	7	7	7	6	4	6	3	4	5	5	5	5	4	4	5	5	5	5	5
Mexico	46	47	35	32	20	20	17	19	19	19	17	18	17	17	18	12	12	19	18	17	16
Montserrat	9	0	0	9	62	80	45	118	55	46	9	9	0						16	43	0
Netherlands Antilles																					
Nicaragua	45	124	99	86	82	77	75	84	75	83	77	71	71	67	64	64	66	60	54	52	47
Panama	33	29	28	21	19	28	32	34	33	29	35	35	30	45	32	49	49	54	51	49	41
Paraguay	43	43	43	53	49	54	44	39	36	55	51	53	43	44	39	36	42	38	35	39	35
Peru	92	123	119	122	120	125	124	150	178	169	176	185	235	227	210	193	174	173	176	160	151
Puerto Rico	21	16	14	14	12	10	11	9	8	9	5	7		7	7	7	3	7	5	5	4
Saint Kitts and Nevis	16	9	14	5	7	0	0	0	0	0	0	2	10	15	5	13	8	30	13	8	0
Saint Lucia	36	34	32	41	46	17	28	20	25	22	10	19	19		17	8	25	15	14	11	6
St Vincent & Grenadines	80	11	14	4	23	14	9	3	6	3	2	1	4	12	0	12	5	5	7	8	14
Suriname	22	23	15	21	20	13	15	20	19	18	20	12	14				13	18	21	23	21
Trinidad and Tobago	7	7	6	10	9	10	10	10	9	10	10	12	12	9	10	13	16	20	16	12	15
Turks & Caicos Islands	27	0	25	59	0	43	21	118			0	0	0							105	
Uruguay	64	58	49	46	46	40	36	34	31	32	29	24	22	22	21	19	22	22	20	19	19
US Virgin Islands	0	1	1	2	3	1	1	2	6	4	4	4			9	4	0				
USA	12	12	11	10	9	9	9	9	9	9	10	10	10	10	9	9	8	6	7	6	6
Venezuela	28	26	26	26	28	28	28	27	25	24	28	26	27	25	23	26	25	26	27	28	27
Total	**37**	**40**	**37**	**37**	**34**	**34**	**33**	**34**	**35**	**34**	**32**	**34**	**34**	**22**	**32**	**33**	**31**	**31**	**32**	**29**	**28**

Regional profile for the Americas, cont'd: new smear-positive cases, 1993-2000

	Number of cases								Rate (per 100 000 population)							
Country/territory	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2 000**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2 000**
Anguilla			0		0						0		0			
Antigua and Barbuda			0	2			1	3			0	3			2	5
Argentina	5 937	5 696	5 698	5 787	5 307	5 186	4 830	4 749	18	17	16	16	15	14	13	13
Bahamas	41	41	38	25	57	30	37	56	15	15	13	9	20	10	12	18
Barbados			3	3	5	4	2	3			1	1	2	2	1	1
Belize	50	36	36	46	32	52	48	44	26	18	18	22	15	24	22	19
Bermuda			2	0		0	0	0			3	0		0	0	0
Bolivia	6 833	6 905	7 010	6 949	6 458	6 750	6 673	6 458	97	95	95	92	83	85	82	78
Brazil		39 167	45 650	44 503	43 490	43 554	41 619	41 082		25	29	28	27	26	25	24
British Virgin Islands					0								0			
Canada	542			450					2			2				
Cayman Islands	2		0	0	0	2	2	5	7		0	0	0	6	5	13
Chile	2 629	1 951	1 561	1 562	1 582	1 576	1 497	1 290	19	14	11	11	11	11	10	8
Colombia	6 987	6 532	7 530	7 572	6 090	6 969	8 329	8 358	19	17	20	19	15	17	20	20
Costa Rica		230	245	302	320	353	458	434		7	7	8	9	9	12	11
Cuba	565	914	834	835	765	746	720	677	5	8	8	8	7	7	6	6
Dominica	6	8	5	7	5	5			8	11	7	10	7	7		
Dominican Republic	2 297	3 177	2 787	3 733	3 162	2 669	3 278	2 907	31	42	36	48	40	33	40	35
Ecuador	5 325	6 674	5 890	6 426	7 214	4 900	4 300	5 064	48	59	51	55	60	40	35	40
El Salvador	2 471	2 144		965	882	1 071	1 023	1 008	45	39		17	15	18	17	16
Grenada	0	3	2	0	1	2	3	0	0	3	2	0	1	2	3	0
Guatemala	2 128	1 994	2 368	2 224	2 218	2 255	2 264	2 052	22	21	24	22	21	21	20	18
Guyana	51	61	85	71	105	85	178	119	7	8	11	10	14	11	24	16
Haiti				3 524	5 497	6 442	6 828	5 887				46	71	82	85	72
Honduras	2 016	2 385	2 306	1 808	1 928	2 311	2 415	2 415	38	44	41	31	32	38	39	38
Jamaica	83	61	93	81	84	90	90	90	3	2	4	3	3	4	4	3
Mexico	8 164	9 726	9 220	8 495	15 440	11 473	11 968	11 676	9	11	10	9	16	12	12	12
Montserrat						1	2	0						16	43	0
Netherlands Antilles																
Nicaragua	1 714	1 615	1 568	1 722	1 670	1 648	1 564	1 471	41	38	35	38	36	34	32	29
Panama	1 046	748	1 066	904	592	1 393	432	410	41	29	41	34	22	50	15	14
Paraguay	985	873	748	894	859	850	1 041	900	21	19	15	18	17	16	19	16
Peru	35 646	33 925	32 096	26 800	27 498	27 707	24 511	22 580	157	147	136	112	113	112	97	88
Puerto Rico	117		128	110	126	106	106	82	3		3	3	3	3	3	2
Saint Kitts and Nevis	2	2	4	2		4	2	0	5	5	10	5		10	5	0
Saint Lucia		17	11	22	14	10	9	7		12	8	16	10	7	6	5
St Vincent & Grenadines	11	0	5	3	2	3	4	9	10	0	5	3	2	3	4	8
Suriname				39	31	32	36	37				10	8	8	9	9
Trinidad and Tobago		55	7	58	52	82	87	115		4	1	5	4	6	7	9
Turks & Caicos Islands							2								12	
Uruguay	388	381	349	426	423	374	392	348	12	12	11	13	13	11	12	10
US Virgin Islands			2	5							2	4				
USA	16 046	14 346	8 013	7 401	6 882	6 630	6 252	5 865	6	5	3	3	3	2	2	2
Venezuela	2 849	2 738	3 056	3 195	3 234	3 450	3 670	3 525	14	13	14	14	14	15	15	15
Total	**104 931**	**142 405**	**138 416**	**136 951**	**142 025**	**138 815**	**134 673**	**129 726**	**14**	**19**	**18**	**17**	**18**	**17**	**16**	**16**

Notes

BOLIVIA Under treatment results, the number registered exceeds the number notified in 1999 due to under-notification in La Paz.

CHILE Retreatment results include cases treated with 2nd-line drugs.

COSTA RICA Treatment results are for patients registered in the second half of the year in the Pacific Central Region (DOTS demonstration area).

ECUADOR Smear-positive notifications are stratified by sex but not by age: there were 1 431 male and 829 female smear-positive cases under DOTS, and 1 774 male and 1 030 female smear-positive cases under non-DOTS.

GUYANA Retreatment cases include patients who were smear-positive after 3 months of initial treatment with a four-drug regimen.

PUERTO RICO Notifications include cases with a history of previous treatment.

USA Notifications do not include 15 cases with site of disease not stated or unknown. Treatment outcome data are not collected at national level.

EASTERN MEDITERRANEAN

The Eastern Mediterranean: Summary of TB control policies

COUNTRY	MICROSCOPY (A)	SCC (B)	DOT (C)	OUTCOME MONITORING (D)	DRUG SUPPLY (E)	CATEGORY AS OF 31/12/00*	DOTS NEWLY IMPLEMENTED IN 2000
AFGHANISTAN						3	
BAHRAIN						4	
CYPRUS						5	
DJIBOUTI						4	
EGYPT						4	
IRAN						4	
IRAQ						4	
JORDAN						4	
KUWAIT						0	
LEBANON						4	
LIBYAN ARAB JAMAHIRIYA						4	
MOROCCO						4	
OMAN						4	
PAKISTAN						2	
QATAR						4	
SAUDI ARABIA						4	
SOMALIA						3	
SUDAN						3	
SYRIAN ARAB REPUBLIC						4	
TUNISIA						4	
UNITED ARAB EMIRATES						3	
WEST BANK AND GAZA						0	
YEMEN						3	

Microscopy (a)	Use of smear microscopy for diagnosis
SCC (b)	Short course chemotherapy
DOT (c)	Directly observed therapy
Outcome monitoring (d)	Monitoring of treatment outcomes by cohort analysis
Drug supply (e)	A system of TB drug forecasting, financing, and procurement
*	See table 1 for definition of categories

- implemented in all units/areas
- implemented in some units/areas
- not implemented
- unknown or not applicable (decentralized drug supply system)

Regional Profile for the Eastern Mediterranean: notification, detection and DOTS coverage, 2000

Country/Territory	Country information									WHO TB control strategy (DOTS)							Other Strategy (non-DOTS)					
	Pop	Notifications all cases		Notifications New ss+		Estimated cases all cases	Estimated cases New ss+	CDR	DOTS cate-	% of pop	Notifications all cases		Notifications New ss+		DDR	% of pulm	% of pop	Notifications all cases		Notifications New ss+		% of pulm
	thousands	number	rate	number	rate	number	number	%	gory		number	rate	number	rate	%	cases ss+		number	rate	number	rate	cases ss+
	a	b	b/a	c	c/a	d	e	c/e	f	g	h	h/(g*a)	i	i/(g*a)	i/e	j	k	l	l/(k*a)	m	m/(k*a)	n
Afghanistan	21 765	7 107	33	2 892	13	69 849	31 432	9	3	15	7 107	33	2 892	13	9	55	85					
Bahrain	640	23	4	23	4	337	151	15	4	100	23	4	23	4	15	100	0					
Cyprus	784	31	4	4	1	53	24	17	5	0							100	31	4	4	1	29
Djibouti	632	3 971	628	1 394	221	4 065	2 032	69	4	100	3 971	628	1 394	221	69	73	0					
Egypt	67 884	10 762	16	4 606	7	26 143	11 764	39	4	100	9 563	14	4 188	6	36	65	0	1 199	2	418	1	50
Iran	70 330	11 850	17	5 361	8	37 241	16 759	32	4	96	11 828	17	5 351	8	32	67	4	22	0	10	0	59
Iraq	22 946	9 697	42	3 194	14	30 211	13 595	23	4	100	9 697	42	3 194	14	23	50	0					
Jordan	4 913	306	6	89	2	491	221	40	4	100	306	6	89	2	40	56	0					
Kuwait	1 914					589	264		0													
Lebanon	3 496	571	16	202	6	784	353	57	4	100	571	16	202	6	57	58	0					
Libyan Arab Jamahiriya	5 290	1 341	25	607	11	1 273	573	106	4	100	1 341	25	607	11	106	88	0					
Morocco	29 878	28 852	97	12 872	43	35 310	15 836	81	4	100	28 852	97	12 872	43	81	81	0					
Oman	2 538	321	13	164	6	229	103	159	4	100	321	13	164	6	159	82	0					
Pakistan	141 256	11 050	8	3 285	2	246 524	110 689	3	2	9	11 050	8	3 285	2	3	37	91					
Qatar	565	279	49	53	9	140	63	84	4	100	279	49	53	9	84	35	0					
Saudi Arabia	20 346	3 452	17	1 595	8	9 090	4 090	39	4	100	3 452	17	1 595	8	39	69	0					
Somalia	8 778	5 686	65	3 776	43	31 633	14 200	27	3	73	5 686	65	3 776	43	27	82	27					
Sudan	31 095	24 807	80	12 311	40	59 875	26 944	46	3	80	16 479	53	9 868	32	37	80	20	8 328	27	2 443	8	38
Syrian Arab Republic	16 189	5 089	31	1 583	10	13 768	6 195	26	4	100	4 602	28	1 480	9	24	57	0	487	3	103	1	27
Tunisia	9 459	2 038	22	1 071	11	3 488	1 570	68	4	100	2 038	22	1 071	11	68	86	0					
United Arab Emirates	2 606	115	4	71	3	536	241	29	3	20	115	4	71	3	29	96	80					
West Bank and Gaza	3 191					888	399		0													
Yemen	18 349	10 648	58	5 565	30	19 628	8 833	63	3	89	3 553	19	4 455	24	50	84	11	7 095	39	1 110	6	25

Regional Profile for the Eastern Mediterranean, cont'd: treatment outcomes for cases registered in 1999 - WHO TB control strategy (DOTS) and other (non-DOTS) control strategies

Country/Territory	New smear-positive cases - DOTS									Retreatment cases - DOTS									New smear-positive cases - non-DOTS								
	Regist-ered	% cured	% compl-eted	% died	% failed	% default	% trans-ferred	% not eval	% success	Regist-ered	% cured	% compl-eted	% died	% failed	% default	% trans-ferred	% not eval	% success	Regist-ered	% cured	% compl-eted	% died	% failed	% default	% trans-ferred	% not eval	% success
	a	c	d	e	f	g	h	b	c+d	i	k	l	m	n	o	p	j	k+l	q	s	t	u	v	w	x	r	s+t
Afghanistan	1 787	80	6	4	2	5	2	0	87	152	72	11	4	5	4	4	0	84	252	54	30	2	3	10	1	0	84
Bahrain	21	95	0	5	0	0	0	0	95																		
Cyprus																											
Djibouti	1 516	51	20	2	1	25	0	0	72	255	39	20	6	0	34	1	0	59									
Egypt	2 953	76	11	3	3	5	3	0	87	660	51	11	8	15	9	5	0	62	2 092	70	12	3	3	10	3	0	81
Iran	5 093	76	6	6	2	3	7	0	82	577	55	17	8	7	6	7	1	72	78	78	9	4	0	0	9	0	87
Iraq	803	75	10	2	4	5	5	0	85	83	57	12	6	12	4	10	0	69	9 908	42	13	0	12	17	8	8	55
Jordan	102	86	2	4	5	3	0	0	88	11	73	0	0	27	0	0	0	73									
Kuwait																											
Lebanon	140	94	2	3	0	1	0	0	96	6	83			17			0	83									
Libyan Arab Jamahiriya	770	67	0	2	0	30		0	67																		
Morocco	13 420	81	7	2	1	7	0	1	88																		
Oman	120	67		2	2			30	67																		
Pakistan	2 967	56	14	4	1	21	4	0	70	2 093	19	56	1	2	20	2	0	75									
Qatar	58	71	3	5	0	0	21	0	74																		
Saudi Arabia	852	58	8	6	0	8	6	14	66	27	48	11	4	11	0	22	4	59	855	51	7	5	0	3	3	31	57
Somalia	3 051	85	2	4	2	4	2	0	88	162	78	2	8	9	2	1	0	80									
Sudan	11 546	45	36	5	2	7	4	0	81										5 340	11	5	1	1	4	2	76	16
Syrian Arab Republic	1 020	78	6	2	4	7	4	0	84										557							100	0
Tunisia	1 066	87	3	3	1	3	3	0	91	65	74	0	5	9	9	3	0	74									
United Arab Emirates																											
West Bank and Gaza																											
Yemen	3 953	76	7	3	1	9	4	0	83	417	65	5	4	5	11	4	6	70	1 333	37	21	1	1	33	6	0	58

Regional profile for the Eastern Mediterranean, cont'd: smear-positive notification rates by age and sex, 2000

	MALE							FEMALE							ALL						
	0-14	**15-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65+**	**0-14**	**15-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65+**	**0-14**	**15-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65+**
Afghanistan	1	10	12	14	17	20	26	2	20	39	33	29	21	11	2	15	25	23	23	21	19
Bahrain	0	0	5	2	9	18	41	0	2	5	0	4	9	11	0	1	5	1	8	14	27
Cyprus																					
Djibouti	12	496	1023	608	335	425	521	9	238	390	139	101	81	84	11	366	680	329	194	219	260
Egypt	0	9	16	16	17	20	13	0	7	7	6	7	7	3	0	8	12	11	12	13	7
Iran	0	6	9	10	10	23	57	1	8	8	9	12	27	52	0	7	9	9	11	25	55
Iraq	0	27	18	26	27	30	33	1	15	14	12	18	22	25	1	21	16	19	23	26	29
Jordan	0	2	3	5	7	13	3	0	2	2	0	2	2	7	0	2	3	3	4	8	5
Kuwait																					
Lebanon	1	5	8	10	12	21	14	1	10	8	4	5	4	5	1	7	8	7	8	12	9
Libyan Arab Jamahiriya	1	16	55	31	16	19	34	1	7	8	9	13	15	26	1	12	32	20	14	17	30
Morocco	2	66	98	95	76	81	105	3	51	47	36	35	55	53	3	58	73	65	55	66	77
Oman	0	3	5	8	9	16	34	0	7	3	7	7	24	19	0	5	4	7	8	19	27
Pakistan	0	4	4	3	4	5	5	0	4	4	4	3	3	2	0	4	4	4	4	4	4
Qatar	0	19	29	9	11	10	17	0	0	15	8	5	0	0	0	10	25	9	10	8	12
Saudi Arabia	0	7	22	18	14	16	35	1	9	16	10	8	13	24	0	8	19	14	12	15	29
Somalia	5	88	130	110	107	141	146	4	42	56	57	44	47	36	5	65	92	83	74	91	87
Sudan	12	33	65	85	105	92	138	13	31	49	57	71	44	56	13	32	57	71	88	67	93
Syrian Arab Republic	0	20	23	15	20	29	23	1	11	8	7	10	13	11	0	15	16	11	15	21	16
Tunisia	1	14	26	25	28	27	37	1	7	7	7	5	8	21	1	10	17	16	17	17	29
United Arab Emirates	1	2	2	2	2	9	21	1	9	1	2	0	0	17	1	5	1	2	1	7	20
West Bank and Gaza																					
Yemen	2	46	54	69	100	109	68	4	49	51	64	69	78	39	3	48	52	66	81	91	52
Regional rate	**1**	**16**	**26**	**24**	**24**	**28**	**37**	**2**	**14**	**17**	**16**	**17**	**19**	**21**	**2**	**15**	**21**	**20**	**20**	**23**	**29**

Rates are missing where data for smear-positive cases are missing, or where age- and sex-specific population data are not available.

Regional profile for the Eastern Mediterranean, cont'd: age and sex distribution of smear-positive cases in DOTS areas, 2000 (absolute numbers)

	MALE							FEMALE							ALL						
	0-14	15-24	25-34	35-44	45-54	55-64	65+	0-14	15-24	25-34	35-44	45-54	55-64	65+	0-14	15-24	25-34	35-44	45-54	55-64	65+
Afghanistan	52	228	183	149	129	94	80	93	414	565	339	205	99	36	145	642	748	488	334	193	116
Bahrain	0	0	3	2	5	3	4	0	1	2	0	1	1	1	0	1	5	2	6	4	5
Cyprus																					
Djibouti	17	302	347	139	67	60	42	12	147	156	47	31	17	10	29	449	503	186	98	77	52
Egypt	19	584	754	608	434	280	144	50	416	312	234	192	102	43	69	1000	1066	842	626	382	187
Iran	29	436	467	387	294	343	641	77	593	410	321	320	405	645	106	1029	877	708	614	748	1286
Iraq	21	627	317	297	205	135	101	37	338	241	136	134	103	87	58	965	558	433	339	238	188
Jordan	0	8	16	13	9	14	2	0	8	9	1	2	2	5	0	16	25	14	11	16	7
Kuwait																					
Lebanon	5	16	28	20	15	17	14	4	31	26	9	7	4	6	9	47	54	29	22	21	20
Libyan Arab Jamahiriya	5	101	239	86	36	29	32	6	43	35	24	24	16	22	11	144	274	110	60	45	54
Morocco	99	2 061	2 423	1 705	855	485	595	170	1 530	1 121	672	398	406	352	269	3591	3544	2377	1253	891	947
Oman	1	8	9	11	12	9	11	2	17	5	7	5	11	6	3	25	14	18	17	20	17
Pakistan	55	498	387	256	232	153	130	130	591	416	274	163	103	56	185	1089	803	530	395	256	186
Qatar	0	7	19	9	7	2	1	0	0	4	3	1	0	0	0	7	23	12	8	2	1
Saudi Arabia	0	131	268	213	158	86	107	28	172	182	79	51	50	70	28	303	450	292	209	136	177
Somalia	113	740	724	408	254	195	142	85	354	319	219	110	72	41	198	1094	1043	627	364	267	183
Sudan	587	838	1 286	1 139	884	483	572	630	715	902	735	589	218	290	1217	1553	2188	1874	1473	701	862
Syrian Arab Republic	8	359	289	125	86	76	55	23	195	101	53	46	38	28	31	554	390	178	132	114	83
Tunisia	16	139	208	156	109	65	101	7	68	59	43	21	21	58	23	207	267	199	130	86	159
United Arab Emirates	2	4	4	6	5	12	10	3	16	1	3	0	0	4	5	20	5	9	5	12	14
West Bank and Gaza																					
Yemen	76	647	577	380	242	200	98	137	650	519	415	263	186	70	213	1297	1096	795	505	386	168
Regional total	**1 105**	**7 734**	**8 548**	**6 109**	**4 038**	**2 741**	**2 882**	**1 494**	**6 299**	**5 385**	**3 614**	**2 563**	**1 854**	**1 830**	**2 599**	**14 033**	**13 933**	**9 723**	**6 601**	**4 595**	**4 712**

Regional profile for the Eastern Mediterranean, cont'd: age and sex distribution of smear-positive cases in non-DOTS areas, 2000 (absolute numbers)

	MALE							FEMALE							ALL						
	0-14	15-24	25-34	35-44	45-54	55-64	65+	0-14	15-24	25-34	35-44	45-54	55-64	65+	0-14	15-24	25-34	35-44	45-54	55-64	65+
Afghanistan																					
Bahrain																					
Cyprus																					
Djibouti																					
Egypt	2	57	73	59	42	27	14	5	41	31	23	19	10	5	7	98	104	82	61	37	19
Iran	0	2	0	0	1	1	1	0	0	0	1	0	2	2	0	2	0	1	1	3	3
Iraq																					
Jordan																					
Kuwait																					
Lebanon																					
Libyan Arab Jamahiriya																					
Morocco																					
Oman																					
Pakistan																					
Qatar																					
Saudi Arabia																					
Somalia																					
Sudan	198	190	225	212	235	155	105	187	210	232	170	182	109	33	385	400	457	382	417	264	138
Syrian Arab Republic																					
Tunisia																					
United Arab Emirates																					
West Bank and Gaza																					
Yemen	32	142	112	113	72	55	29	39	149	105	102	82	61	22	71	291	217	215	154	116	51
Regional total	**232**	**391**	**410**	**384**	**350**	**238**	**149**	**231**	**400**	**368**	**296**	**283**	**182**	**62**	**463**	**791**	**778**	**680**	**633**	**420**	**211**

Regional profile for the Eastern Mediterranean, cont'd: number of TB cases notified, 1980-2000

Country/territory	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2 000
Afghanistan	71685	71554	41752	52502	18784	10742	14351	18091	16051	14386	4332	23067						1290	3084	3314	7107
Bahrain	219	262	156	232	208	194	156	120	142	122	117	142	140	114		43	49	45	83	36	23
Cyprus	69	69	86	73	39	61	48	35	39	23	29	43	39	37	37	36	24	47	45	39	31
Djibouti		2 265	671		1 489	2 262	1 864	1 978	2 030	2 040	2 100	2 900	2 884				3 332	3 830	3 785	4 133	3 971
Egypt	1 637	1 306	1 805	1 932	1 572	1 308	1 209	22 063	1 378	1 492	2 142	3 634	8 876	3 426	3 911	11 145	12 338	13 971	12 662	11 763	10 762
Iran	42 717	11 728	9 509	8 589	10 493	8 728	8 032	10 034	9 967	12 005	9 255	14 246	14 121	20 569	13 021	15 936	14 189	12 659	11 794	12 062	11 850
Iraq	11 809	10 614	7 741	6 970	6 807	6 485	6 846	6 517	6 504	8 032	14 684			18 553	19 733	9 697	29 196	26 607	29 410	29 897	9 697
Jordan	298	646	860	856	672	769	592	537	553	484	439	390	504	427	443	498	468	397	380	373	306
Kuwait	847	819	880	855	812	717	611	540	480	468	277	330	282	217	237	336	400	528	564		
Lebanon		67	75	284	410	1 943	2 257	2 478				884	884		940	983	836	701	640	679	571
Libyan Arab Jamahiriya	718	481	512	610	357	325	276	331	416	265	442	239	1 164			1 440	1 282		1 575	1 615	1 341
Morocco	24 878	28 637	28 095	26 944	22 279	26 790	27 553	27 159	25 717	26 756	27 658	27 638	25 403	27 626	30 316	29 829	31 771	30 227	29 087	29 854	28 852
Oman	1 872	928	897	802	843	861	1 265	616	477	478	482	442	367	281	304	276	300	298	287	249	321
Pakistan	316 340	324 576	326 492	117 739	91 572	111 419	149 004	179 480	194 323	170 562	156 759	194 323		73 175		13 142	4 307		89 599	20 936	11 050
Qatar	257	213	172	206	203	250	220	248	223	191	184	195		200		304	257	212	253	259	279
Saudi Arabia	10 956	8 263	8 529	7 551	7 163	3 966	3 696	3 029	2 433	2 583	2 415	2 221	2 016					3 138	3 235	3 507	3 452
Somalia				2 838	2 719	2 722	3 079	7 322	2 728	1 323					2 023	2 504	3 920	4 450	4 320	4 802	5 686
Sudan	32 971	47 431				1 509	2 460	800	693	701	212	16 423	19 503	37 516	23 178	14 320	20 230	20 894	22 318	26 875	24 807
Syrian Arab Republic	1 689	1 908	1 838	1 867	2 111	2 163	3 942	4 290	4 952	5 504	6 018	5 651	5 437		5 127	4 404	5 200	4 972	5 417	5 447	5 089
Tunisia	2 504	2 316	2 554	3 062	2 501	2 510	2 487	2 272	2 309	2 403	2 054	2 064	2 164	2 565	2 376	2 383	2 387		2 211	2 158	2 038
United Arab Emirates	522	638	597	507	534	568	464	818	339	308	285	234	227				507		773	66	115
West Bank and Gaza	191	139	136	136	123	113	63	82	85	145	64	89	97			77	40		18		
Yemen																14 428	14 364	12 007	12 383	13 027	10 648
Total	522 179	514 860	433 357	234 555	171 691	186 405	230 475	288 840	271 839	250 271	229 948	295 155	84 108	184 706	101 646	121 781	145 397	136 273	233 923	171 091	137 996
number reporting	19	21	20	20	21	22	22	22	21	21	20	20	17	13	13	19	21	18	23	21	21
percent reporting	83	91	87	87	91	96	96	96	91	91	87	87	74	57	57	83	91	78	100	91	91

Regional profile for the Eastern Mediterranean, cont'd: case notification rates, 1980-2000

Country/territory	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Afghanistan	477	483	288	372	137	80	109	139	124	109	32	159						6	15	16	33
Bahrain	63	73	42	60	52	47	36	27	31	26	24	28	27	21		8	8	7	14	6	4
Cyprus	11	11	14	12	6	9	7	5	6	3	4	6	6	5	5	5	3	6	6	5	4
Djibouti		683	201		437	639	493	483	456	426	417	558	547				596	663	633	670	628
Egypt	4	3	4	4	3	3	2	42	3	3	4	6	15	6	6	18	20	22	19	18	16
Iran	109	29	22	19	23	18	16	19	18	21	16	24	23	33	21	25	22	19	17	17	17
Iraq	91	79	56	49	46	43	44	41	40	48	85			98	101	48	142	126	135	134	42
Jordan	13	28	36	34	26	28	21	19	18	16	13	11	14	11	11	12	11	9	8	8	6
Kuwait	62	57	59	55	50	42	34	28	23	22	13	16	14	12	13	20	24	31	32		
Lebanon		3	3	11	15	73	85	93				32	31		31	31	26	21	19	20	16
Libyan Arab Jamahiriya	24	15	15	17	10	9	7	8	10	6	10	5	26			30	26		31	31	25
Morocco	128	144	138	129	104	122	122	118	109	111	112	110	99	106	114	110	115	107	101	102	97
Oman	166	78	72	62	62	60	85	39	29	28	27	24	19	14	15	13	13	13	12	10	13
Pakistan	389	387	378	132	99	117	152	178	187	159	143	173		62		11	3		67	15	8
Qatar	112	85	62	68	61	70	58	62	53	44	41	42		41		59	49	40	46	47	49
Saudi Arabia	114	82	80	68	61	32	29	22	17	17	16	14	13					17	17	18	17
Somalia				42	41	41	46	107	39	19					28	34	52	57	53	57	65
Sudan	171	238				7	11	3	3	3	1	65	75	141	85	51	71	72	75	88	80
Syrian Arab Republic	19	21	20	19	21	21	37	38	43	46	49	44	41		37	31	36	33	35	35	31
Tunisia	39	35	38	44	35	34	33	30	29	30	25	25	25	30	27	27	26		24	23	22
United Arab Emirates	51	57	48	38	37	37	28	47	18	16	14	11	10				21		31	3	4
West Bank and Gaza	13	9	9	8	7	6	3	4	4	7	3	4	4			3	1		1		
Yemen																97	92	74	73	74	58
Total	**183**	**176**	**143**	**75**	**54**	**56**	**68**	**83**	**76**	**68**	**61**	**76**	**21**	**45**	**24**	**28**	**33**	**30**	**51**	**36**	**28**

Regional profile for the Eastern Mediterranean, cont'd: new smear-positive cases, 1993-2000

	Number of cases								Rate (per 100 000 population)							
Country/territory	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2 000**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2 000**
Afghanistan					618	1 833	1 669	2 892					3	9	8	13
Bahrain	82		17	31	22	25	21	23	15		3	5	4	4	3	4
Cyprus			6	3	19	20	9	4			1	0	2	3	1	1
Djibouti				1 744	1 904	1 690	1 564	1 394				312	330	283	254	221
Egypt		1 811	4 229	5 084	5 469	4 915	5 094	4 606		3	7	8	9	8	8	7
Iran		4 615	5 347	5 373	5 253	5 105	5 426	5 361		7	8	8	8	7	8	8
Iraq	5 240	5 781	3 194	10 320	8 164	8 933	9 908	3 194	28	30	16	50	39	41	44	14
Jordan	173	161	187	170	136	110	102	89	4	4	4	4	3	2	2	2
Kuwait	148	155	175	153	201	185			8	9	10	9	12	10		
Lebanon		148	197	198	206	224	249	202		5	6	6	6	7	7	6
Libyan Arab Jamahiriya				515			803	607				11			16	11
Morocco			14 171	14 278	14 134	13 426	13 420	12 872			52	51	50	47	46	43
Oman	123	135	135	164	165	156	120	164	6	6	6	7	7	7	5	6
Pakistan	11 020		2 578	1 849		14 974	6 248	3 285	9		2	1		11	5	2
Qatar			60	46	39	69	58	53			12	9	7	13	10	9
Saudi Arabia					1 568	1 644	1 680	1 595					9	9	9	8
Somalia		1 168	1 572	2 894	3 093	3 121	3 461	3 776		16	21	38	40	39	41	43
Sudan		3 728	8 761	8 978	10 835	10 820	11 047	12 311		14	31	31	37	36	36	40
Syrian Arab Republic			1 295	1 523	1 423	1 593	1 577	1 583			9	10	9	10	10	10
Tunisia	1 006	983	1 243	1 005		1 196	1 066	1 071	12	11	14	11		13	11	11
United Arab Emirates							31	71							1	3
West Bank and Gaza			9	24		8					0	1		0		
Yemen			3 681	4 371	4 717	4 896	5 427	5 565			25	28	29	29	31	30
Total	**17 792**	**18 685**	**46 857**	**58 723**	**57 966**	**74 943**	**68 980**	**60 718**	**4**	**4**	**11**	**13**	**13**	**16**	**15**	**13**

Notes

EGYPT Notifications include 948 cases (of which 434 were smear-positive) reported from private health insurance organizations.

JORDAN The eleven retreatment outcomes include 6 relapse patients (of whom 4 were cured) and 5 retreatment-after-failure patients (of whom 4 were cured).

LIBYAN ARAB JAMAHIRIYA Treatment outcomes were stratified by sex. The defaulter rate was 33% for male patients versus 39% for female patients. Among females, the defaulter rate was 18% among Libyan females, and 2% among foreign females.

MOROCCO Treatment outcomes are recorded and reported for transfer-in patients, and not for transfer-out patients. At the national level, the total number of transfer-in cases is then subtracted from the total number of transfer-out cases. The remainder represents cases transferred out with outcome unknown.

OMAN Under treatment outcomes, 36 cases "not evaluated" had left the country during treatment.

QATAR Under treatment outcomes, 12 of 58 cases "transferred out" had left the country during treatment.

PAKISTAN Data do not include the NW Frontier Province (NWFP).

SAUDI ARABIA Under treatment outcomes, 292 cases "not evaluated" (DOTS and non-DOTS combined) had left the country during treatment.

EUROPE

Europe: Summary of TB control policies

COUNTRY	MICROSCOPY (A)	SCC (B)	DOT (C)	OUTCOME MONITORING (D)	DRUG SUPPLY (E)	CATEGORY AS OF 31/12/00*	DOTS NEWLY IMPLEMENTED IN 2000
ALBANIA						1	
ANDORRA						4	
ARMENIA						3	
AUSTRIA						4	X
AZERBAIJAN						3	
BELARUS						1	
BELGIUM						1	
BOSNIA & HERZEGOVINA						4	
BULGARIA						2	X
CROATIA						1	
CZECH REPUBLIC						4	
DENMARK						1	
ESTONIA						4	X
FINLAND						1	
FRANCE						1	
GEORGIA						4	
GERMANY						1	
GREECE						1	
HUNGARY						4	
ICELAND						5	
IRELAND						1	
ISRAEL						1	
ITALY						3	
KAZAKHSTAN						4	
KYRGYZSTAN						4	
LATVIA						4	
LITHUANIA						3	
LUXEMBOURG						1	
MALTA						4	
MONACO						5	
NETHERLANDS						4	
NORWAY						4	
POLAND						3	
PORTUGAL						4	
REPUBLIC OF MOLDOVA						1	
ROMANIA						3	
RUSSIAN FEDERATION						3	
SAN MARINO						4	
SLOVAKIA						4	
SLOVENIA						4	
SPAIN						1	
SWEDEN						5	
SWITZERLAND						1	
TAJIKISTAN						1	
TFYR MACEDONIA						1	
TURKEY						1	
TURKMENISTAN						3	X

Microscopy (a)	Use of smear microscopy for diagnosis
SCC (b)	Short course chemotherapy
DOT (c)	Directly observed therapy
Outcome monitoring (d)	Monitoring of treatment outcomes by cohort analysis
Drug supply (e)	A system of TB drug forecasting, financing, and procurement
*	See table 1 for definition of categories

- implemented in all units/areas
- implemented in some units/areas
- not implemented
- unknown or not applicable (decentralized drug supply system)

Europe: Summary of TB control policies (continued)

COUNTRY	MICROSCOPY (A)	SCC (B)	DOT (C)	OUTCOME MONITORING (D)	DRUG SUPPLY (E)	CATEGORY AS OF 31/12/00*	DOTS NEWLY IMPLEMENTED IN 2000
UKRAINE						1	
UNITED KINGDOM						1	
UZBEKISTAN						2	
YUGOSLAVIA						1	

Microscopy (a)	Use of smear microscopy for diagnosis
SCC (b)	Short course chemotherapy
DOT (c)	Directly observed therapy
Outcome monitoring (d)	Monitoring of treatment outcomes by cohort analysis
Drug supply (e)	A system of TB drug forecasting, financing, and procurement
*	See table 1 for definition of categories

implemented in all units/areas

implemented in some units/areas

not implemented

unknown or not applicable (decentralized drug supply system)

Regional Profile for Europe: notification, detection and DOTS coverage, 2000

Country/Territory	Country information									WHO TB control strategy (DOTS)							Other Strategy (non-DOTS)					
	Pop	Notifications all cases		Notifications New ss+		Estimated cases all cases	Estimated cases New ss+	CDR	DOTS cate-	% of	Notifications all cases		Notifications New ss+		DDR	% of pulm	% of	Notifications all cases		Notifications New ss+		% of pulm
	thousands	number	rate	number	rate	number	number	%	gory	pop	number	rate	number	rate	%	cases ss+	pop	number	rate	number	rate	cases ss+
	a	b	b/a	c	c/a	d	e	c/e	f	g	h	h/(g*a)	i	i/(g*a)	i/e	j	k	l	l/(k*a)	m	m/(k*a)	n
Albania	3 134	604	19	171	5	905	407	42	1	0							100	604	19	171	5	48
Andorra	86	12	14	1	1	20	9	11	4	100	12	14	1	1	11	10	0					
Armenia	3 787	1 333	35	621	16	2 617	1 178	53	3	80	953	25	456	12	39	61	20	380	10	165	4	43
Austria	8 080	1 185	15	324	4	1 244	558	58	4	100	1 185	15	324	4	58	33	0					
Azerbaijan	8 041	5 187	65	890	11	5 927	2 667	33	3	12	217	3	153	2	6	100	88	4 970	62	737	9	16
Belarus	10 187	6 799	67	2 547	25	8 941	4 008	64	1	0							100	6 799	67	2 547	25	46
Belgium	10 249	1 278	12	409	4	1 464	654	63	1	0							100	1 278	12	409	4	47
Bosnia & Herzegovina	3 977	2 476	62	759	19	3 600	1 619	47	4	100	2 476	62	759	19	47	37	0					
Bulgaria	7 949	3 349	42	2 524	32	3 781	1 701	148	2	3	561	7	380	5	22	100	97	2 788	35	2 144	27	100
Croatia	4 654	1 630	35		0	2 739	1 232	0	1	0							100	1 630	35		0	
Czech Republic	10 272	1 414	14	420	4	1 911	858	49	4	100	1 414	14	420	4	49	38	0					
Denmark	5 320	587	11	171	3	686	308	56	1	0							100	587	11	171	3	41
Estonia	1 393	758	54	255	18	933	420	61	4	100	758	54	255	18	61	44	0					
Finland	5 172	527	10	205	4	572	254	81	1	0							100	527	10	205	4	60
France	59 238	6 122	10	1 815	3	9 099	3 981	46	1	0							100	6 122	10	1 815	3	57
Georgia	5 262	4 397	84	601	11	3 942	1 774	34	4	96	4 397	84	601	11	34	21	4					
Germany	82 017	9 064	11		0	10 063	4 508	0	1	0							100	9 064	11		0	
Greece	10 610	703	7	235	2	2 295	1 031	23	1	0							100	703	7	235	2	41
Hungary	9 968	3 073	31	412	4	4 132	1 858	22	4	100	3 073	31	412	4	22	15	0					
Iceland	279	13	5	1	0	9	4	25	5	0							100	13	5	1	0	13
Ireland	3 803	386	10	138	4	536	237	58	1	0							100	386	10	138	4	48
Israel	6 040	557	9	17	0	636	286	6	1	0							100	557	9	17	0	27
Italy	57 530	3 501	6	687	1	5 189	2 294	30	3	21	3 501	6	687	1	30	44	79					
Kazakhstan	16 172	25 843	160	8 903	55	24 614	11 069	80	4	100	25 843	160	8 903	55	80	44	0					
Kyrgyzstan	4 921	6 205	126	1 296	26	7 552	3 398	38	4	100	6 157	125	1 257	26	37	30	0	48	1	39	1	81
Latvia	2 421	1 982	82	637	26	2 859	1 286	50	4	100	1 982	82	637	26	50	45	0					
Lithuania	3 696	2 657	72	776	21	4 087	1 839	42	3	20	87	2	24	1	1	46	80	2 570	70	752	20	42
Luxembourg	437	44	10	21	5	65	29	72	1	0							100	44	10	21	5	53
Malta	390	16	4	5	1	29	13	38	4	100	16	4	5	1	38	36	0					
Monaco	33	0	0	0	0	0	0		5	0							100	0	0	0	0	
Netherlands	15 864	1 244	8	289	2	1 413	718	40	4	100	1 244	8	289	2	40	35	0					
Norway	4 469	221	5	37	1	264	119	31	4	100	221	5	37	1	31	26	0					
Poland	38 605	10 931	28	3 180	8	14 049	6 320	50	3	12	716	2	221	1	3	36	88	10 215	26	2 959	8	33
Portugal	10 016	4 227	42	1 863	19	5 186	2 324	80	4	100	4 227	42	1 863	19	80	65	0					
Republic of Moldova	4 295	2 935	68	651	15	5 788	2 598	25	1	0							100	2 935	68	651	15	27
Romania	22 438	27 470	122	10 202	45	30 260	13 599	75	3	11	3 037	14	1 286	6	9	55	89	24 433	109	8 916	40	49
Russian Federation	145 491	137 597	95	26 123	18	192 538	86 546	30	3	12	8 288	6	2 330	2	3	32	88	129 309	89	23 793	16	20
San Marino	27	1	4	1	4	2	1	100	4	100	1	4	1	4	100	100	0					
Slovakia	5 399	1 010	19	236	4	1 359	611	39	4	100	1 010	19	236	4	39	33	0					
Slovenia	1 988	368	19	145	7	509	229	63	4	100	368	19	145	7	63	52	0					
Spain	39 910	7 993	20	3 423	9	13 410	5 752	60	1	0							100	7 993	20	3 423	9	43
Sweden	8 842	417	5	118	1	449	202	58	5	0							100	417	5	118	1	45
Switzerland	7 170	544	8	118	2	795	338	35	1	0							100	544	8	118	2	29
Tajikistan	6 087	2 779	46	434	7	9 713	4 371	10	1	0							100	2 779	46	434	7	18
TFYR Macedonia	2 034	641	32	167	8	1 055	474	35	1	0							100	641	32	167	8	35
Turkey	66 668	18 038	27	4 315	6	24 138	10 860	40	1	0							100	18 038	27	4 315	6	34
Turkmenistan	4 737	4 038	85	1 017	21	4 002	1 801	56	3	34	1 028	22	318	7	18	32	66	3 010	64	699	15	26
Ukraine	49 568	32 945	66	10 738	22	39 069	17 581	61	1	0							100	32 945	66	10 738	22	38
United Kingdom	59 415	6 220	10	1 204	2	7 016	3 143	38	1	0							100	6 220	10	1 204	2	37
Uzbekistan	24 881	15 750	63	3 825	15	25 993	11 621	33	2	7	1 088	4	430	2	4	45	93	14 662	59	3 395	14	26
Yugoslavia	10 552	2 864	27	0	0	4 732	2 125	0	1	0							100	2 864	27	0	0	0

Regional Profile for Europe, cont'd: treatment outcomes for cases registered in 1999 - WHO TB control strategy (DOTS) and other (non-DOTS) control strategies

Country/Territory	New smear-positive cases - DOTS									Retreatment cases - DOTS									New smear-positive cases - non-DOTS								
	Regist-ered	% cured	% compl-eted	% died	% failed	% default	% trans-ferred	% not eval	% success	Regist-ered	% cured	% compl-eted	% died	% failed	% default	% trans-ferred	% not eval	% success	Regist-ered	% cured	% compl-eted	% died	% failed	% default	% trans-ferred	% not eval	% success
	a	c	d	e	f	g	h	b	c+d	i	k	l	m	n	o	p	j	k+l	q	s	t	u	v	w	x	r	s+t
Albania																											
Andorra	3		67			33		0	67																		
Armenia	391	80	8	2	5	5	1	0	88	72	40	11	7	21	18	3	0	51									
Austria	307		77	10	0	7	0	6	77	27		59	11	0	19	0	11	59									
Azerbaijan	188	85	3	2	4	6	0	0	88	22	68	0	9	14	9	0	0	68	575	82	0	3	6	7	2	0	82
Belarus																											
Belgium																			312	21	38	13		2	2	24	60
Bosnia & Herzegovina	786	74	17	2	0	1	1	6	90	145	73	9	3	3	4	2	6	82									
Bulgaria																											
Croatia																											
Czech Republic	352	68	10	16	1	1	1	4	78	26	35	8	46	0	4	4	4	42									
Denmark																											
Estonia	266	57	6	12	2	9	0	14	63	39	59	3	28	3	8	0	0	62									
Finland																											
France																											
Georgia	746	47	15	5	5	22	2	5	61	653	31	11	7	18	22	1	10	43									
Germany																											
Greece																											
Hungary																											
Iceland																			2		100					0	100
Ireland																			126		48	7		1		44	48
Israel																											
Italy	261	53	18	3	0	10	11	4	71	72	35	18	7	1	6	26	7	53									
Kazakhstan	6 827	72	7	5	9	3	4	0	79	2 708	56	10	9	14	5	5	0	66									
Kyrgyzstan	1 272	78	5	3	5	4	6	0	83	164	65	3	6	8	5	2	11	68									
Latvia	588	67	7	11	1	4	1	8	74	192	41	4	17	1	13	0	24	45									
Lithuania	32	84	0	13	0	3	0	0	84										755	72	0	11	3	12	0	1	72
Luxembourg																											
Malta	8	0	75	25	0	0	0	0	75																		
Monaco																											
Netherlands	308	22	57	6		3	3	9	79	37	19	43	16	0	8	3	11	62									
Norway	31	45	32	6		16		0	77	2		100					0	100									
Poland	173	60	10	10	7	1	1	11	69	31	58	10	13	3	0	3	13	68									
Portugal	911	8	77	7	0	5	2	0	85	102	13	68	7	0	8	5	0	80									
Republic of Moldova																			764	60	0	0	0	0	0	40	60
Romania	1 300	61	17	5	9	5	2	1	78	524	39	11	11	19	14	2	4	50	73	55	5	14	4	8	14	0	60
Russian Federation	1 542	63	3	9	9	6	7	2	65	1 578	21	23	8	15	13	10	9	45									
San Marino	0	0	0	0	0	0	0	0	0																		
Slovakia	239	75	3	9	1	2		9	79	62	56	11	13	2	3		15	68									
Slovenia	162	27	61	7	0	6	0	0	88	26	31	38	15	0	15	0	0	69									
Spain																											
Sweden																											
Switzerland																											
Tajikistan																											
TFYR Macedonia																			108	68	16	3	2	10	2	0	83
Turkey																											
Turkmenistan																			964	60		8	21		10	0	60
Ukraine																											
United Kingdom																											
Uzbekistan	135	73	6	7	7	7	1	0	79	185	43	24	10	16	8	0	0	66									
Yugoslavia																											

Regional profile for Europe, cont'd: smear-positive notification rates by age and sex, 2000

	MALE							FEMALE							ALL						
	0-14	15-24	25-34	35-44	45-54	55-64	65+	0-14	15-24	25-34	35-44	45-54	55-64	65+	0-14	15-24	25-34	35-44	45-54	55-64	65+
Albania	0	7	8	6	17	17	20	1	4	4	4	6	5	11	1	5	6	5	12	11	15
Andorra																					
Armenia	0	43	46	44	34	21	15	0	7	10	7	4	5	2	0	26	28	24	18	12	8
Austria	0	4	5	9	8	5	9	0	2	4	2	2	1	3	0	3	4	5	5	3	5
Azerbaijan	0	1	4	5	14	14	0	0	0	0	1	1	0	0	0	1	2	3	7	6	0
Belarus																					
Belgium	0	3	8	5	8	6	8	1	2	2	2	1	2	3	1	3	5	4	4	4	5
Bosnia & Herzegovina	1	18	25	28	25	34	47	1	10	15	8	11	24	54	1	14	20	18	18	29	51
Bulgaria	0	2	3	4	1	2	2	0	2	3	1	1	1	1	0	2	3	2	1	1	1
Croatia																					
Czech Republic	0	1	4	7	11	12	11	0	2	2	1	1	1	7	0	1	3	4	6	6	8
Denmark	1	3	5	6	4	4	4	1	5	4	4	2	2	2	1	4	4	5	3	3	3
Estonia	0	6	31	53	65	53	23	0	9	11	13	11	5	7	0	7	21	33	36	25	12
Finland	0	1	2	6	5	10	18	0	0	2	1	1	2	10	0	1	2	3	3	6	13
France	0	3	6	6	5	5	6	0	3	3	2	1	2	3	0	3	4	4	3	3	4
Georgia	1	18	29	29	22	20	11	0	12	10	8	5	4	1	0	15	20	18	13	11	5
Germany																					
Greece	0	1	3	4	4	3	6	0	0	1	1	1	1	2	0	1	2	3	2	2	4
Hungary	0	1	3	13	15	12	5	0	1	2	3	3	2	3	0	1	3	8	9	6	4
Iceland								0		5					0		2				
Ireland	0	3	2	3	3	2	7	0	4	3	5	3	4	6	0	3	3	4	3	3	6
Israel	0	3	6	5	7	5	12	0	2	3	2	1	3	7	0	3	5	3	4	4	9
Italy	0	2	2	2	2	2	3	0	1	1	1	0	1	1	0	2	2	1	1	1	1
Kazakhstan	2	71	115	112	114	87	58	4	68	92	47	31	32	28	3	70	104	79	70	56	38
Kyrgyzstan	0	27	62	65	62	47	41	1	27	40	30	20	23	16	1	27	51	47	40	34	25
Latvia	0	30	61	70	78	52	31	1	15	25	15	17	4	6	0	23	43	42	45	25	14
Lithuania	0	14	34	51	78	43	40	0	8	14	13	14	10	15	0	11	24	32	44	24	23
Luxembourg																					
Malta	0	3	0	3	3	0	5								0	2	0	2	2	0	2
Monaco																					
Netherlands	0	4	5	3	2	1	2	0	3	2	1	1	1	1	0	3	3	2	1	1	1
Norway	0	0	3	1	2	1	1	0	1	0			1	1	0	1	1	0	1	1	1
Poland	0	3	11	28	28	24	24	0	3	6	7	6	5	15	0	3	9	18	17	13	18
Portugal	1	20	47	51	34	28	22	1	16	19	12	6	4	7	1	18	33	31	20	16	13
Republic of Moldova	0	14	11	11	5	8	4	0	4	11	13	8	7	2	0	9	11	12	7	8	3
Romania	2	45	81	125	118	86	43	3	40	43	34	23	17	18	2	42	62	79	69	49	29
Russian Federation	0	3	5	5	4	3	1	0	0	1	1	0	0	0	0	1	3	3	2	1	1
San Marino																					
Slovakia	0	1	4	8	14	8	14	0	1	2	2	1	2	14	0	1	3	5	7	4	14
Slovenia	0	2	7	23	15	14	17	0	2	6	2	3	3	11	0	2	7	13	9	8	13
Spain																					
Sweden	0	2	2	2	2	1	4	0	2	1	2	0	0	2	0	2	1	2	1	1	3
Switzerland	0	1	4	2	1	1	2	0	2	3	1	0	0	1	0	2	3	2	1	1	1
Tajikistan																					
TFYR Macedonia	2	5	9	13	15	22	16	0	9	9	12	4	5	9	1	7	9	13	10	13	12
Turkey																					
Turkmenistan	2	22	51	50	81	34	26	2	16	39	25	18	34	14	2	19	45	37	49	34	19
Ukraine	0	19	45	65	69	42	24	1	13	17	11	9	7	9	1	16	31	37	37	22	14
United Kingdom	0	2	3	2	2	2	4	0	3	3	1	1	1	1	0	3	3	2	2	2	2
Uzbekistan	0	14	40	33	42	42	23	0	11	29	18	25	21	16	0	12	34	25	33	31	19
Yugoslavia																					
Regional rate	**0**	**7**	**13**	**15**	**15**	**11**	**7**	**1**	**8**	**10**	**6**	**4**	**4**	**5**	**0**	**6**	**10**	**10**	**9**	**7**	**5**

Rates are missing where data for smear-positive cases are missing, or where age- and sex-specific population data are not available.

Regional profile for Europe, cont'd: age and sex distribution of smear-positive cases in DOTS areas, 2000 (absolute numbers)

	MALE							FEMALE							ALL						
	0-14	15-24	25-34	35-44	45-54	55-64	65+	0-14	15-24	25-34	35-44	45-54	55-64	65+	0-14	15-24	25-34	35-44	45-54	55-64	65+
Albania																					
Andorra	0	0	1	0	0	0	0								0	0	1	0	0	0	0
Armenia	1	142	77	62	57	20	9	1	24	27	18	8	7	3	2	166	104	80	65	27	12
Austria	1	17	30	59	42	23	41	1	11	22	12	11	6	22	2	28	52	71	53	29	63
Azerbaijan	0	9	24	33	42	30	0	0	3	3	6	3	0	0	0	12	27	39	45	30	0
Belarus																					
Belgium																					
Bosnia & Herzegovina	4	56	82	99	66	58	77	4	30	46	29	29	48	124	8	86	128	128	95	106	201
Bulgaria	0	13	16	20	3	9	10	0	11	14	7	3	4	6	0	24	30	27	6	13	16
Croatia																					
Czech Republic	0	7	31	52	89	61	59	0	15	13	9	10	7	57	0	22	44	61	99	68	116
Denmark																					
Estonia	0	6	31	53	56	35	15	0	9	11	14	11	4	10	0	15	42	67	67	39	25
Finland																					
France																					
Georgia	4	76	111	113	63	45	28	1	49	37	33	17	10	5	5	125	148	146	80	55	33
Germany																					
Greece	1	10	22	32	24	19	46	0	2	9	10	5	6	25	1	12	31	42	29	25	71
Hungary	0	8	24	85	104	58	27	1	7	17	19	22	10	30	1	15	41	104	126	68	57
Iceland																					
Ireland																					
Israel																					
Italy	12	63	96	75	58	54	112	6	38	58	33	13	19	39	18	101	154	108	71	73	151
Kazakhstan	36	1 057	1 409	1 379	923	439	218	84	999	1 079	599	275	202	204	120	2 056	2 488	1 978	1 198	641	422
Kyrgyzstan	4	128	227	205	115	52	46	6	128	146	100	41	30	29	10	256	373	305	156	82	75
Latvia	0	53	106	124	111	64	34	2	25	41	27	28	7	15	2	78	147	151	139	71	49
Lithuania	0	0	2	9	3	2	2	0	0	0	2	1	0	3	0	0	2	11	4	2	5
Luxembourg																					
Malta	0	1	0	1	1	0	1								0	1	0	1	1	0	1
Monaco																					
Netherlands	0	34	63	41	25	10	21	4	29	22	16	9	5	10	4	63	85	57	34	15	31
Norway	0	1	9	3	6	2	4	1	3	1			2	5	1	4	10	3	6	4	9
Poland	0	2	23	49	45	19	20	0	6	9	9	12	3	24	0	8	32	58	57	22	44
Portugal	8	147	375	349	208	140	140	5	114	154	87	41	25	64	13	261	529	436	249	165	204
Republic of Moldova																					
Romania	1	113	207	225	227	98	39	6	93	106	62	54	32	23	7	206	313	287	281	130	62
Russian Federation	1	295	526	596	402	151	54	1	43	73	74	38	31	44	2	338	599	670	440	182	98
San Marino																					
Slovakia	2	6	15	31	50	16	32	0	5	9	7	5	4	54	2	11	24	38	55	20	86
Slovenia	0	3	11	36	22	14	17	0	3	9	3	4	3	20	0	6	20	39	26	17	37
Spain																					
Sweden																					
Switzerland																					
Tajikistan																					
TFYR Macedonia																					
Turkey																					
Turkmenistan	16	35	60	34	18	4	5	15	38	32	35	10	12	4	31	73	92	69	28	16	9
Ukraine																					
United Kingdom																					
Uzbekistan	1	54	91	47	25	23	10	2	50	56	28	18	11	14	3	104	147	75	43	34	24
Yugoslavia																					
Regional total	**92**	**2 336**	**3 669**	**3 812**	**2 785**	**1 446**	**1 067**	**140**	**1 735**	**1 994**	**1 239**	**668**	**488**	**834**	**232**	**4 071**	**5 663**	**5 051**	**3 453**	**1 934**	**1 901**

Regional profile for Europe, cont'd: age and sex distribution of smear-positive cases in non-DOTS areas, 2000 (absolute numbers)

	MALE							FEMALE							ALL						
	0-14	15-24	25-34	35-44	45-54	55-64	65+	0-14	15-24	25-34	35-44	45-54	55-64	65+	0-14	15-24	25-34	35-44	45-54	55-64	65+
Albania	2	19	21	14	24	19	16	3	11	10	8	8	5	11	5	30	31	22	32	24	27
Andorra																					
Armenia	1	10	53	69	6	6	12	0	0	0	6	0	1	1	1	10	53	75	6	7	13
Austria																					
Azerbaijan																					
Belarus																					
Belgium	3	20	57	39	55	32	56	6	15	15	19	4	13	27	9	35	72	58	59	45	83
Bosnia & Herzegovina																					
Bulgaria																					
Croatia																					
Czech Republic																					
Denmark	5	10	20	24	16	11	14	5	16	15	14	6	7	8	10	26	35	38	22	18	22
Estonia																					
Finland	0	3	8	22	19	28	53	0	1	5	3	4	6	49	0	4	13	25	23	34	102
France	10	136	248	247	211	125	244	18	108	127	89	46	43	155	28	244	375	336	257	168	399
Georgia																					
Germany																					
Greece																					
Hungary																					
Iceland								0		1					0		1				
Ireland	0	10	7	7	6	4	12	0	13	8	13	6	7	15	0	23	15	20	12	11	27
Israel	0	16	28	17	24	10	31	2	11	15	7	3	7	25	2	27	43	24	27	17	56
Italy																					
Kazakhstan																					
Kyrgyzstan																					
Latvia																					
Lithuania	1	38	95	136	152	72	66	0	20	37	37	31	22	45	1	58	132	173	183	94	111
Luxembourg																					
Malta																					
Monaco																					
Netherlands																					
Norway																					
Poland	1	97	280	763	737	342	414	1	93	149	202	158	79	397	2	190	429	965	895	421	811
Portugal																					
Republic of Moldova	2	52	31	36	13	13	6	1	16	32	45	23	14	6	3	68	63	81	36	27	12
Romania	45	719	1 301	1 574	1 457	818	494	47	608	660	422	287	175	298	92	1 327	1 961	1 996	1 744	993	792
Russian Federation																					
San Marino							1														1
Slovakia																					
Slovenia																					
Spain																					
Sweden	0	9	10	12	11	4	25	1	9	8	10	2	2	15	1	18	18	22	13	6	40
Switzerland	0	5	18	10	7	5	8	1	9	12	8	2	1	6	1	14	30	18	9	6	14
Tajikistan																					
TFYR Macedonia	5	8	14	20	19	20	14	1	15	14	17	5	5	10	6	23	28	37	24	25	24
Turkey																					
Turkmenistan	0	68	125	110	109	27	16	4	35	108	41	21	22	13	4	103	233	151	130	49	29
Ukraine	21	693	1 552	2 385	2 007	1 062	532	41	487	590	447	298	218	405	62	1 180	2 142	2 832	2 305	1 280	937
United Kingdom	8	86	130	96	87	75	138	9	95	114	60	31	31	67	17	181	244	156	118	106	205
Uzbekistan	5	297	658	463	321	190	97	9	211	491	260	195	101	97	14	508	1 149	723	516	291	194
Yugoslavia																					
Regional total	**109**	**2 296**	**4 656**	**6 044**	**5 281**	**2 863**	**2 249**	**149**	**1 773**	**2 411**	**1 708**	**1 130**	**759**	**1 650**	**258**	**4 069**	**7 067**	**7 752**	**6 411**	**3 622**	**3 899**

Regional profile for Europe, cont'd: number of TB cases notified, 1980-2000

Country/territory	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2 000
Albania	1050	954	978	891	975	916	989	915	759	695	653	628			707	641	738	655	694	733	604
Andorra										12	23	24	21				17	19	98	10	12
Armenia	756	924	759	702	774	768	832	766	651	649	590	741	235	590	753	1 157	928	1 026	1 455	1 488	1 333
Austria	2 191	2 061	1 942	1 825	1 765	1 442	1 377	1 390	1 402	1 334	1 521	1 426	1 354	1 267	1 264	1 399	1 375	1 369	1 307	1 085	1 185
Azerbaijan	3 080	3 180	3 217	3 176	3 506	3 772	3 804	3 677	3 340	2 989	2 620	2 771	2 821	3 036	2 839	1 630	2 480	4 635	4 672	4 654	5 187
Belarus	5 954	6 198	5 468	5 509	5 065	4 873	4 128	3 911	3 769	3 708	3 039	3 745	2 414	4 134	4 348	4 854	5 598	5 985	6 150	7 339	6 799
Belgium	2 687	2 837	2 652	2 190	2 149	1 956	1 893	1 772	1 588	1 648	1 577	1 462	1 335	1 503	1 521	1 380	1 348	1 263	1 203	1 124	1 278
Bosnia & Herzegovina	4 421	4 376	4 678	4 468	4 691	4 666	4 605	4 522	4 093	4 176	4 073	3 546	600	680	1 595	2 132	2 220	2 869	2 711	2 923	2 476
Bulgaria	3 280	3 007	2 999	2 892	2 856	2 555	2 530	2 352	2 387	2 301	2 256	2 606	3 096	3 213	5 296	3 245	3 109	3 437	4 117	3 530	3 349
Croatia	3 999	4 021	3 718	3 632	3 612	3 605	3 355	3 326	2 973	2 861	2 576	2 158	2 189	2 279	2 217	2 114	2 174	2 054	2 118	1 765	1 630
Czech Republic	4 962	4 312	4 146	4 016	3 653	3 117	2 553	2 196	2 047	1 905	1 937	2 079	1 986	1 864	1 960	1 834	1 969	1 834	1 805	1 605	1 414
Denmark	430	394	378	348	302	312	299	322	304	328	350	334	359	411	495	448	484	554	529	587	587
Estonia	614	560	563	587	546	541	522	446	471	422	332	406	403	532	645	624	521	744	820	732	758
Finland	2 247	2 204	2 170	1 882	1 791	1 819	1 546	1 419	1 078	970	772	771	700	542	553	661	645	573	629	565	527
France	17 199	16 459	15 425	13 831	12 302	11 290	10 535	10 241	9 191	9 027	9 030	8 510	8 605	9 551	9 093	8 723	7 656	6 832		6 052	6 122
Georgia	2 098	2 124	2 168	1 881	1 855	1 822	1 833	1 810	1 598	1 609	1 537		2 130	3 741		1 625	3 522	8 446	6 302	4 793	4 397
Germany	29 991	27 083	25 397	22 977	20 243	20 074	17 906	17 102	16 282	15 385	14 653	13 474	14 113	14 161	12 982	12 198	11 814	11 163	10 440	9 974	9 064
Greece	5 412	7 334	5 193	3 880	1 956	1 556	1 566	1 193	907	1 068	877	762	920					767	1 152	936	703
Hungary	5 412	5 322	5 181	5 028	4 472	4 852	4 522	4 125	4 016	3 769	3 588	3 658	3 960	4 209	4 163	4 339	4 403	4 240	3 999	3 532	3 073
Iceland	25	23	25	24	26	13	13	12	16	18	18	15	16		18	12	11	10	17	10	13
Ireland	1 152	1 018	975	924	837	804	602	581	534	672	624	640	604				434	416	424	455	386
Israel	249	227	232	222	257	368	239	184	226	160	234	505	345				369	422	656	490	557
Italy	3 311	3 182	3 850	4 253	3 472	4 113	4 077	3 278	3 610	3 996	4 246	3 719	4 685	4 734	5 816	5 627	4 155	4 596	5 727	4 429	3 501
Kazakhstan	14 442	13 876	13 808	13 357	12 563	12 423	13 090	13 286	13 501	13 307	10 969	10 821	10 920	10 425	10 519	11 310	13 944	16 109	20 623	24 979	25 843
Kyrgyzstan	1 973	2 085	2 051	1 981	2 022	2 094	2 122	2 088	2 159	2 132	2 306	2 515	2 582	2 427	2 726	3 393	4 093	5 189	5 706	6 376	6 205
Latvia	1 194	1 140	1 077	1 072	1 054	1 223	982	948	938	857	906	943	955	994	1 131	1 541	1 761	2 003	2 182	1 891	1 982
Lithuania	1 636	1 599	1 495	1 477	1 420	1 453	1 412	1 372	1 339	1 381	1 471	1 556	1 598	1 895	2 135	2 362	2 608	2 926	3 016	2 800	2 657
Luxembourg	71	45	41	41	46	42	45	48	16	45	48	48	25				41	38	44	37	44
Malta	24	26	13	24	15	11	14	14	12	16	13	26	30	26	25	11	28	11	16	22	16
Monaco	1	0	0	0	0	1	2	2	1	1	1	0	1				0	0	0	3	0
Netherlands	1 701	1 734	1 514	1 423	1 400	1 362	1 238	1 227	1 341	1 317	1 369	1 345	1 465	1 587	1 811	1 619	1 678	1 486	1 341	1 398	1 244
Norway	499	461	448	396	373	374	343	307	294	255	285	290	288	256	242	236	217	205	244	213	221
Poland	25 807	24 087	23 685	23 411	22 527	21 650	20 603	19 757	18 537	16 185	16 136	16 496	16 551	16 828	16 653	15 958	15 358	13 967	13 302	12 168	10 931
Portugal	6 873	7 249	7 309	7 052	6 908	6 889	6 624	7 099	6 363	6 664	6 214	5 980	5 927	5 447	5 619	5 577	5 248	5 110	5 260	4 599	4 227
Republic of Moldova	2 781	2 852	3 197	2 858	2 554	2 732	3 022	2 810	2 510	2 281	1 728	1 910	1 835	2 426	2 626	2 925	2 922	2 908	2 625	2 711	2 935
Romania	13 553	13 602	13 588	13 570	12 952	12 677	12 860	13 361	14 137	14 676	16 256	15 482	18 097	20 349	21 422	23 271	24 189	23 903	25 758	26 107	27 470
Russian Federation	74 270	73 369	72 236	73 280	74 597	64 644	71 764	70 132	67 553	62 987	50 641	50 407	53 148	63 591	70 822	84 980	111 075	119 123	110 935	134 360	137 597
San Marino											1	1					0	1	0	0	1
Slovakia	2 465	2 304	2 263	2 252	2 152	1 989	2 022	1 830	1 651	1 501	1 448	1 620	1 733	1 799	1 760	1 540	1 503	1 298	1 282	1 100	1 010
Slovenia	1 085	939	982	925	896	923	816	792	760	768	722	583	640	646	526	525	563	481	449	423	368
Spain	4 853	5 552	7 961	8 987	10 078	10 749	13 755	9 468	8 497	8 058	7 600	9 007	9 703	9 441		8 764	8 331	9 347	8 927	8 393	7 993
Sweden	926	875	784	832	754	702	640	545	536	595	557	521	610	616	537	564	497	456	446	479	417
Switzerland	1 160	1 193	1 167	1 097	946	961	881	1 018	1 201	1 104	1 278	1 134	987	930	924	830	765	747	750	756	544
Tajikistan	2 647	2 631	2 628	2 509	2 427	2 485	2 610	2 727	2 474	2 621	2 460	2 116	1 671	652	892	2 029	1 647	2 143	2 448	0	2 779
TFYR Macedonia													1 602	1 712	728	786	724	693	620	557	641
Turkey	36 716	39 992	26 457	28 634	27 589	30 960	31 029	30 531	27 884	26 669	24 468	25 166	25 455			22 981	20 212	25 685	25 501	22 088	18 038
Turkmenistan	1 677	1 625	1 559	1 541	1 604	1 607	1 614	1 956	1 904	2 169	2 325	2 358	2 074	2 751		1 939	2 072	3 438	3 839	4 092	4 038
Ukraine	26 095	25 646	24 710	24 216	24 356	24 058	22 946	22 145	20 744	20 182	16 465	16 713	18 140	19 964	20 622	21 459	23 414	28 344	27 763	32 879	32 945
United Kingdom	10 488	9 290	8 436	7 814	7 026	6 666	6 841	5 732	5 793	6 059	5 908	6 088	6 411	6 481	6 196	6 176	6 238	6 355	6 176	6 183	6 220
Uzbekistan	9 163	9 682	8 697	8 817	8 544	8 717	9 427	9 794	10 134	10 632	9 414		9 370	9 774	14 890	9 866	11 919	13 352	14 558	15 080	15 750
Yugoslavia	6 232	6 381	6 274	6 443	6 454	6 246	6 126	6 042	5 583	5 045	4 194	4 502	3 771	3 843	3 606	2 798	4 017	4 062	3 028	2 646	2 864
Total	348 852	346 035	324 494	319 147	308 362	298 872	302 554	290 571	277 104	267 209	242 309	231 608	248 480	241 307	242 677	288 083	321 034	353 289	343 864	371 151	369 935
number reporting	48	48	48	48	48	48	48	48	48	49	50	48	49	41	40	44	50	51	50	51	51
percent reporting	94	94	94	94	94	94	94	94	94	96	98	94	96	80	78	86	98	100	98	100	100

Regional profile for Europe, cont'd: case notification rates, 1980-2000

Country/territory	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Albania	39	35	35	31	34	31	33	29	24	21	20	19			22	20	23	21	22	23	19
Andorra										24	44	43	36				24	25	125	12	14
Armenia	24	29	24	22	23	23	25	22	19	19	17	21	6	16	20	31	25	27	38	39	35
Austria	29	27	26	24	23	19	18	18	18	17	20	18	17	16	16	17	17	17	16	13	15
Azerbaijan	50	51	51	49	53	57	56	54	48	42	37	38	38	41	37	21	32	59	59	58	65
Belarus	62	64	56	56	51	49	41	39	37	36	30	36	23	40	42	47	54	58	60	72	67
Belgium	27	29	27	22	22	20	19	18	16	17	16	15	13	15	15	14	13	12	12	11	12
Bosnia & Herzegovina	113	111	117	111	115	113	110	106	94	96	95	85	15	18	45	62	65	81	74	76	62
Bulgaria	37	34	34	32	32	29	28	26	27	26	26	30	36	38	62	39	37	42	51	44	42
Croatia	91	91	84	82	81	81	75	74	66	64	57	48	48	50	48	46	47	44	46	38	35
Czech Republic	48	42	40	39	35	30	25	21	20	18	19	20	19	18	19	18	19	18	18	16	14
Denmark	8	8	7	7	6	6	6	6	6	6	7	6	7	8	10	9	9	11	10	11	11
Estonia	42	38	38	39	36	36	34	29	30	27	21	26	26	35	43	42	36	51	57	52	54
Finland	47	46	45	39	37	37	31	29	22	20	15	15	14	11	11	13	13	11	12	11	10
France	32	30	28	25	22	20	19	18	16	16	16	15	15	17	16	15	13	12		10	10
Georgia	41	42	42	36	35	34	34	34	29	30	28		39	69		30	66	159	119	91	84
Germany	38	35	33	30	26	26	23	22	21	19	18	17	18	18	16	15	14	14	13	12	11
Greece	56	75	53	39	20	16	16	12	9	11	9	7	9					7	11	9	7
Hungary	51	50	48	47	42	46	43	39	38	36	35	35	38	41	41	42	43	42	40	35	31
Iceland	11	10	11	10	11	5	5	5	6	7	7	6	6		7	4	4	4	6	4	5
Ireland	34	30	28	26	24	23	17	16	15	19	18	18	17				12	11	11	12	10
Israel	7	6	6	6	6	9	6	4	5	4	5	11	7				7	7	11	8	9
Italy	6	6	7	8	6	7	7	6	6	7	7	7	8	8	10	10	7	8	10	8	6
Kazakhstan	97	92	90	87	80	78	82	82	82	80	66	64	65	62	63	68	84	98	126	154	160
Kyrgyzstan	54	56	54	51	51	52	52	50	51	49	52	57	58	54	60	74	89	111	120	132	126
Latvia	48	45	43	42	41	47	38	36	35	32	34	36	36	38	44	61	71	81	89	78	82
Lithuania	48	47	43	42	40	41	39	38	37	37	40	42	43	51	57	64	70	79	81	76	72
Luxembourg	20	12	11	11	13	11	12	13	4	12	13	12	6				10	9	10	9	10
Malta	7	8	4	7	4	3	4	4	3	4	4	7	8	7	7	3	7	3	4	6	4
Monaco	4	0	0	0	0	4	7	7	3	3	3	0	3				0	0	0	9	0
Netherlands	12	12	11	10	10	9	8	8	9	9	9	9	10	10	12	10	11	10	9	9	8
Norway	12	11	11	10	9	9	8	7	7	6	7	7	7	6	6	5	5	5	6	5	5
Poland	73	67	65	64	61	58	55	52	49	43	42	43	43	44	43	41	40	36	34	32	28
Portugal	70	74	74	71	69	69	66	71	64	67	63	60	60	55	57	56	53	51	53	46	42
Republic of Moldova	69	70	78	69	61	65	71	66	58	52	40	44	42	56	60	67	67	67	61	63	68
Romania	61	61	61	60	57	56	56	58	61	63	70	67	78	89	94	103	107	106	114	116	122
Russian Federation	54	53	51	52	52	45	50	48	46	43	34	34	36	43	48	57	75	81	76	92	95
San Marino											4	4					0	4	0	0	4
Slovakia	50	46	45	44	42	39	39	35	32	29	28	31	33	34	33	29	28	24	24	20	19
Slovenia	59	51	53	50	48	49	43	42	40	40	38	30	33	33	27	26	28	24	23	21	19
Spain	13	15	21	24	26	28	36	24	22	21	19	23	25	24		22	21	23	22	21	20
Sweden	11	11	9	10	9	8	8	6	6	7	7	6	7	7	6	6	6	5	5	5	5
Switzerland	18	19	18	17	15	15	13	15	18	16	19	16	14	13	13	12	11	10	10	11	8
Tajikistan	67	65	63	58	55	54	55	56	49	51	46	39	30	12	16	35	28	36	41	0	46
TFYR Macedonia													83	88	37	40	37	35	31	28	32
Turkey	82	87	56	60	56	61	60	58	52	49	44	44	44			37	32	40	39	34	27
Turkmenistan	59	55	52	50	51	50	49	58	55	61	63	63	53	69		46	48	78	85	88	85
Ukraine	52	51	49	48	48	47	45	43	40	39	32	32	35	38	40	42	46	56	55	66	66
United Kingdom	19	16	15	14	12	12	12	10	10	11	10	11	11	11	11	11	11	11	10	10	10
Uzbekistan	57	59	52	51	48	48	51	51	52	53	46		44	45	67	43	51	56	60	62	63
Yugoslavia	65	66	65	66	66	63	62	61	56	50	41	44	37	37	34	27	38	38	29	25	27
Total	**44**	**43**	**40**	**39**	**38**	**36**	**37**	**35**	**33**	**32**	**29**	**27**	**29**	**28**	**28**	**33**	**37**	**41**	**39**	**43**	**42**

Regional profile for Europe, cont'd: new smear-positive cases, 1993-2000

	Number of cases								Rate (per 100 000 population)							
Country/territory	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2 000**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2 000**
Albania		250	139	173	241	212	168	171		8	4	5	8	7	5	5
Andorra				8	17	98	4	1				11	23	125	5	1
Armenia		319	436	327	400	475	576	621		9	12	9	11	13	15	16
Austria			662	580	370		323	324			8	7	5		4	4
Azerbaijan	499	513	669	990	981	727	763	890	7	7	9	13	13	9	10	11
Belarus	1 493	1 775	1 845	2 117	2 273	5 047	2 769	2 547	14	17	18	21	22	49	27	25
Belgium	484	427	400	364	434	418	403	409	5	4	4	4	4	4	4	4
Bosnia & Herzegovina			865	927	803	640	786	759			25	27	23	17	20	19
Bulgaria		3 096	1 087	903	1 037	1 325	1 697	2 524		37	13	11	13	16	21	32
Croatia			1 204	1 228	1 073	1 129	748	0			26	26	23	24	16	0
Czech Republic	548	524	487	586	481	545	449	420	5	5	5	6	5	5	4	4
Denmark	243	120	128	97	114	132	172	171	5	2	2	2	2	2	3	3
Estonia	303	347	369	240	269	299	274	255	20	23	25	16	19	21	19	18
Finland			244	240	186	188	179	205			5	5	4	4	3	4
France	4 455	3 196	3 449	3 002	2 430		2 325	1 815	8	6	6	5	4		4	3
Georgia			221	482	595	547	746	601			4	9	11	10	14	11
Germany	4 730	4 177	3 852	3 689	3 346	3 124	0	0	6	5	5	5	4	4	0	0
Greece					285	313	143	235					3	3	1	2
Hungary	1 905	1 357	796	1 066	702	667	660	412	19	13	8	10	7	7	7	4
Iceland		6	2	1	4	2	2	1		2	1	0	1	1	1	0
Ireland				339	123	116	117	138				9	3	3	3	4
Israel				147	207	221	170	17				3	4	4	3	0
Italy		1 441	1 413	1 738	1 903	2 361	1 277	687		3	2	3	3	4	2	1
Kazakhstan			3 022	4 290	4 332	6 180	6 977	8 903			18	26	26	38	43	55
Kyrgyzstan		681	832	991	1 536	830	1 642	1 296		15	18	21	33	17	34	26
Latvia	470		504	575	634	668	588	637	18		20	23	26	27	24	26
Lithuania	688		979	1 121	1 200	787	787	776	18		26	30	32	21	21	21
Luxembourg				29	31	24		21				7	7	6		5
Malta	13	6	5	5	3	6	9	5	4	2	1	1	1	2	2	1
Monaco				0	0	0	2	0				0	0	0	6	0
Netherlands	1 063		575	358	312	254	308	289	7		4	2	2	2	2	2
Norway		86	62	103	100	49	21	37		2	1	2	2	1	0	1
Poland	7 606	4 000	6 955	6 819	3 497	3 502	3 177	3 180	20	10	18	18	9	9	8	8
Portugal		2 072	2 019	1 938	1 628	2 016	1 801	1 863		21	20	20	16	20	18	19
Republic of Moldova	615	704	665	219	397	477	609	651	14	16	15	5	9	11	14	15
Romania	9 339	10 385	10 469	10 359	11 666	10 841	10 317	10 202	41	46	46	46	52	48	46	45
Russian Federation		30 389	37 512	42 534	42 094	42 219	21 744	26 123		20	25	29	29	29	15	18
San Marino				0	1	0	0	1				0	4	0	0	4
Slovakia	882	409	788	760	283	303	246	236	17	8	15	14	5	6	5	4
Slovenia	361	294	303	221	156	157	165	145	18	15	15	11	8	8	8	7
Spain			2 605			1 906		3 423			7			5		9
Sweden	312	106	102	90	94	97	117	118	4	1	1	1	1	1	1	1
Switzerland	528	507	185	172	144	165	98	118	8	7	3	2	2	2	1	2
Tajikistan			1 042	232	373	435	0	434			18	4	6	7	0	7
TFYR Macedonia			319	209	192	179	122	167			16	11	10	9	6	8
Turkey			4 383	2 816	3 439	3 692	4 124	4 315			7	5	5	6	6	6
Turkmenistan	472		544	557	764	790	964	1 017	12		13	13	17	17	21	21
Ukraine	8 314	8 471	8 263	7 827	9 533	10 586	10 412	10 738	16	16	16	15	19	21	21	22
United Kingdom	283	270		4 147	844	1 342	797	1 204	0	0		7	1	2	1	2
Uzbekistan		7 487	2 735	3 350	3 388	3 504	3 977	3 825		34	12	14	14	15	16	15
Yugoslavia			1 497	1 783	1 702	1 873	2 517	0			14	17	16	18	24	0
Total	**45 606**	**83 415**	**104 633**	**110 749**	**106 617**	**111 468**	**86 272**	**92 927**	**5**	**10**	**12**	**13**	**12**	**13**	**10**	**11**

Notes

ALBANIA The DOTS strategy was implemented during 2001.

AUSTRIA Notifications include 79 cases reported under DOTS (of which 26 were smear-positive) with previous history unknown.

BELGIUM Notifications include 180 cases reported under non-DOTS (of which 48 were smear-positive) with previous history unknown. Collection of treatment outcomes for individual TB patients began in 2000.

BOSNIA & HERZEGOVINA Notifications include 16 cases reported under DOTS with previous history unknown (of which 3 were smear-positive).

CROATIA Notifications include 1,630 cases with previous history unknown (smear status also unknown).

DENMARK Notifications include data from Denmark, Greenland and Faroe Islands. There were 548 cases in Denmark (509 new and 39 relapses), 44 cases in Greenland (all new) and 6 cases in Faroe Islands (all new).

ESTONIA Under treatment outcomes, the 36 cases "not evaluated" were multi-drug resistant cases treated with second-line anti-TB drugs. The success rate for these MDR cases was 52.8%.

FINLAND Notifications include 37 cases reported under non-DOTS (of which 4 were smear-positive) with previous history unknown.

FRANCE Notifications include 1 768 cases reported under non-DOTS with previous history and smear status unknown.

GERMANY Notifications include 9 064 cases reported under non-DOTS with previous history and smear status unknown.

IRELAND Notifications include 28 cases reported under DOTS (of which 12 were smear-positive) with previous history unknown. Four new cases with unknown site have been reported in total notifications.

ISRAEL Notifications include 457 cases (of which 179 were smear-positive) with previous treatment unknown.

ITALY Notifications include 1 132 cases (of which 313 were smear-positive) with previous treatment unknown.

LATVIA Under treatment outcomes, the 49 cases "not evaluated" were multi-drug resistant cases treated with second-line anti-TB drugs. The success rate for these MDR cases separately was 57.1% (with 7 cases still on treatment as of late 2001).

MALTA Notifications include 1 case reported under DOTS with previous history unknown (a smear-positive case).

PORTUGAL Notifications include 4 new cases with site unknown.

REPUBLIC OF MOLDOVA The DOTS strategy was implemented during 2001.

SLOVENIA Notifications include 1 case reported under DOTS with previous history unknown.

SPAIN Notifications include 1 838 non-DOTS cases (of which 419 were smear-positive) with previous history unknown.

SWEDEN The DOTS strategy was implemented during 2001. Nine cases without information on the site of the disease have been reported in the total notifications. New cases are defined as having no previous history of TB or a history of TB before 1950.

SWITZERLAND Notifications include 119 non-DOTS cases (of which 26 were smear-positive) with previous history unknown.

TAJIKISTAN Relapses have been included in the reported number of new smear-positive cases.

TFYR MACEDONIA The DOTS strategy has been implemented during 2001.

UNITED KINGDOM Notifications include 955 non-DOTS cases (of which 170 were smear-positive) with previous history unknown, and 30 new cases with site unknown. Relapse cases were not included as they cannot be separated from data on retreatment cases.

YUGOSLAVIA Data from Kosovo and Metohija not available. Data do not allow distinction between smear and culture results among bacteriologically confirmed cases.

SOUTH-EAST ASIA

South-East Asia: Summary of TB control policies

COUNTRY	MICROSCOPY (A)	SCC (B)	DOT (C)	OUTCOME MONITORING (D)	DRUG SUPPLY (E)	CATEGORY AS OF 31/12/00*	DOTS NEWLY IMPLEMENTED IN 2000
BANGLADESH						4	
BHUTAN						4	
DPR KOREA						3	
INDIA						3	
INDONESIA						4	
MALDIVES						4	
MYANMAR						3	
NEPAL						3	
SRI LANKA						3	
THAILAND						3	

Microscopy (a)	Use of smear microscopy for diagnosis
SCC (b)	Short course chemotherapy
DOT (c)	Directly observed therapy
Outcome monitoring (d)	Monitoring of treatment outcomes by cohort analysis
Drug supply (e)	A system of TB drug forecasting, financing, and procurement
*	See table 1 for definition of categories

implemented in all units/areas

implemented in some units/areas

not implemented

unknown or not applicable (decentralized drug supply system)

Regional Profile for South-East Asia: notification, detection and DOTS coverage, 2000

Country/Territory	Country information									WHO TB control strategy (DOTS)							Other Strategy (non-DOTS)					
	Pop	Notifications				Estimated cases		CDR	DOTS	%	Notifications				DDR	% of	%	Notifications				% of
		all cases		New ss+		all cases	New ss+		cate-	of	all cases		New ss+			pulm	of	all cases		New ss+		pulm
	thousands	number	rate	number	rate	number	number	%	gory	pop	number	rate	number	rate	%	cases ss+	pop	number	rate	number	rate	cases ss+
	a	b	b/a	c	c/a	d	e	c/e	f	g	h	h/(g*a)	i	i/(g*a)	i/e	j	k	l	l/(k*a)	m	m/(k*a)	n
Bangladesh	137 439	75 358	55	38 285	28	332 247	149 445	26	4	92	59 669	43	35 644	26	24	65	8	15 689	11	2 641	2	20
Bhutan	2 085	1 140	55	347	17	2 847	1 281	27	4	100	1 140	55	347	17	27	45	0					
DPR Korea	22 268	34 131	153	16 440	74	38 910	17 510	94	3	33	9 538	43	4 572	21	26	53	67	24 593	110	11 868	53	55
India	1 008 937	1 115 718	111	349 374	35	1 856 238	830 667	42	3	30	211 751	21	95 012	9	11	56	70	903 967	90	254 362	25	31
Indonesia	212 092	67 949	32	50 633	24	594 693	267 017	19	4	98	67 949	32	50 633	24	19	77	2					
Maldives	291	132	45	65	22	169	76	86	4	100	132	45	65	22	86	68	0					
Myanmar	47 749	30 840	65	17 254	36	80 212	36 096	48	3	77	30 840	65	17 254	36	48	67	23					
Nepal	23 043	29 519	128	13 683	59	47 843	21 482	64	3	84	26 784	116	12 472	54	58	60	16	2 735	12	1 211	5	57
Sri Lanka	18 924	8 415	44	4 316	23	11 061	4 973	87	3	64	3 306	17	1 758	9	35	69	36	5 109	27	2 558	14	63
Thailand	62 806	34 187	54	17 754	28	87 815	38 638	46	3	70	34 187	54	17 754	28	46	59	30					

Regional Profile for South-East Asia, cont'd: treatment outcomes for cases registered in 1999 - WHO TB control strategy (DOTS) and other (non-DOTS) control strategies

Country/Territory	New smear-positive cases - DOTS									Retreatment cases - DOTS									New smear-positive cases - non-DOTS								
	Regist-ered	% cured	% compl-eted	% died	% failed	% default	% trans-ferred	% not eval	% success	Regist-ered	% cured	% compl-eted	% died	% failed	% default	% trans-ferred	% not eval	% success	Regist-ered	% cured	% compl-eted	% died	% failed	% default	% trans-ferred	% not eval	% success
	a	c	d	e	f	g	h	b	c+d	i	k	l	m	n	o	p	j	k+l	q	s	t	u	v	w	x	r	s+t
Bangladesh	34 047	78	3	5	1	8	3	3	81	1 459	68	4	3	2	9	4	10	72	3 774	44	12	1	0	25	6	13	56
Bhutan	335	68	17	7	5	2	0	0	85	15	73	13	0	0	13	0	0	87									
DPR Korea	253	87	8	0	2	1	2	1	94	69	62	12	3	13	3	4	3	74	852	67	26	1	2	2	1	1	93
India	53 086	80	2	5	3	9	1	0	82	23 204	54	16	7	5	17	1	0	69	291 932	7	3	0	0	5	2	82	10
Indonesia	46 187	42	8	1	1	2	1	45	50	1 374	46	24	3	3	4	2	17	70									
Maldives	88	94	0	1	0	3	1	0	94																		
Myanmar	11 641	70	11	5	2	10	2	0	81	2 292	61	10	7	4	14	4	0	71									
Nepal	9 673	83	4	5	1	6	1	0	87	2 146	75	3	7	4	7	3	1	78	3 737	62	7	4	1	10	6	12	68
Sri Lanka	1 266	83	1	4	0	9	2	0	84	133	55	17	6	0	20	2	1	71	2 484	68	8	5	0	15	2	0	77
Thailand	13 650	73	4	11	2	8	2	0	77	716	60	7	13	6	10	4	0	68									

Regional profile for South-East Asia, cont'd: smear-positive notification rates by age and sex, 2000

	MALE							FEMALE							ALL						
	0-14	**15-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65+**	**0-14**	**15-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65+**	**0-14**	**15-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65+**
Bangladesh	1	25	51	71	97	129	131	2	22	31	31	29	27	17	1	24	41	52	65	78	75
Bhutan	1	31	30	31	34	24	5	2	28	26	33	33	6	4	1	30	28	32	33	15	5
DPR Korea	10	53	70	180	231	117	117	6	41	54	128	142	55	47	8	47	62	154	187	85	77
India	1	21	37	47	54	53	36	1	16	23	20	18	15	10	1	19	30	34	36	34	22
Indonesia																					
Maldives	0	30	50	14	59	83	56	0	38	22	38	46	99	41	0	34	36	26	52	91	49
Myanmar	1	31	67	98	107	104	83	1	22	40	48	47	46	32	1	26	54	73	76	74	55
Nepal	3	83	106	147	180	226	185	4	60	68	73	71	74	52	4	72	88	110	126	151	116
Sri Lanka	1	14	29	48	74	71	60	1	17	18	13	22	24	19	1	16	24	31	50	49	40
Thailand	0	15	45	51	70	101	153	0	11	18	16	28	50	72	0	13	31	33	48	75	108
Regional rate	**1**	**20**	**36**	**48**	**57**	**58**	**47**	**2**	**18**	**25**	**24**	**24**	**21**	**16**	**1**	**18**	**29**	**35**	**39**	**38**	**30**

Rates are missing where data for smear-positive cases are missing, or where age- and sex-specific population data are not available.

Regional profile for South-East Asia, cont'd: age and sex distribution of smear-positive cases in DOTS areas, 2000 (absolute numbers)

	MALE							FEMALE							ALL						
	0-14	15-24	25-34	35-44	45-54	55-64	65+	0-14	15-24	25-34	35-44	45-54	55-64	65+	0-14	15-24	25-34	35-44	45-54	55-64	65+
Bangladesh	231	3 358	5 251	5 391	4 386	3 434	2 665	455	2 838	3 040	2 082	1 223	713	347	686	6 196	8 291	7 473	5 609	4 147	3 012
Bhutan	6	65	41	30	24	12	2	7	57	34	31	23	3	2	13	122	75	61	47	15	4
DPR Korea	77	266	426	802	715	334	168	51	182	305	569	421	155	101	128	448	731	1 371	1 136	489	269
India	586	12 364	15 780	14 911	11 481	7 096	3 732	1 211	9 039	8 686	4 936	2 815	1 601	764	1 797	21 403	24 466	19 847	14 296	8 697	4 496
Indonesia																					
Maldives	0	9	10	2	5	5	3	0	11	4	5	4	5	2	0	20	14	7	9	10	5
Myanmar	88	1 459	2 636	2 781	2 161	1 235	836	72	1 040	1 592	1 397	987	592	378	160	2 499	4 228	4 178	3 148	1 827	1 214
Nepal	134	1 795	1 569	1 564	1 371	1 191	696	156	1 208	977	746	508	351	206	290	3 003	2 546	2 310	1 879	1 542	902
Sri Lanka	11	119	197	313	329	196	117	6	129	94	72	76	57	43	17	248	291	385	405	253	160
Thailand	27	859	2 570	2 380	2 117	1 908	2 213	32	624	1 035	780	873	1 016	1 321	59	1 483	3 605	3 160	2 990	2 924	3 534
Regional total	**1 160**	**20 294**	**28 480**	**28 174**	**22 589**	**15 411**	**10 432**	**1 990**	**15 128**	**15 767**	**10 618**	**6 930**	**4 493**	**3 164**	**3 150**	**35 422**	**44 247**	**38 792**	**29 519**	**19 904**	**13 596**

Regional profile for South-East Asia, cont'd: age and sex distribution of smear-positive cases in non-DOTS areas, 2000 (absolute numbers)

	MALE							FEMALE							ALL						
	0-14	**15-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65+**	**0-14**	**15-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65+**	**0-14**	**15-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65+**
Bangladesh	25	282	392	359	332	233	172	40	191	198	165	92	65	23	65	473	590	524	424	298	195
Bhutan																					
DPR Korea	216	662	1 082	2 125	1 804	833	483	116	501	816	1 435	1 103	436	256	332	1 163	1 898	3 560	2 907	1 269	739
India	1 002	8 599	15 310	15 918	12 749	8 212	4 802	1 039	5 456	8 601	6 832	4 701	2 993	1 933	2 041	14 055	23 911	22 750	17 450	11 205	6 735
Indonesia																					
Maldives																					
Myanmar																					
Nepal	36	109	194	149	120	103	76	20	59	101	87	67	68	22	56	168	295	236	187	171	98
Sri Lanka	14	147	262	382	464	288	243	17	183	170	104	126	87	70	31	330	432	486	590	375	313
Thailand																					
Regional total	**1 293**	**9 799**	**17 240**	**18 933**	**15 469**	**9 669**	**5 776**	**1 232**	**6 390**	**9 886**	**8 623**	**6 089**	**3 649**	**2 304**	**2 525**	**16 189**	**27 126**	**27 556**	**21 558**	**13 318**	**8 080**

Regional profile for South-East Asia, cont'd: number of TB cases notified, 1980-2000

Country/territory	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2 000
Bangladesh	39774	42644	49870	52961	45679	41802	45599	45355	44280	45191	48673	56052	31400	54001	48276	56437	63471	63420	72256	79339	75358
Bhutan	1 539	2 657	720	1 017	904	1 073	1 582	608	1 126	1 525	1 154	996	140	108	1 159	1 299	1 271	1 211	1 292	1 174	1 140
DPR Korea									0									11 050	1 152	12 287	34 131
India	705 600	769 540	923 095	1 075 098	1 109 310	1 168 804	1 279 536	1 403 122	1 457 288	1 510 500	1 519 182	1 555 353	1 121 120	1 081 279	1 114 374	1 218 183	1 290 343	1 132 859	1 102 002	1 218 743	1 115 718
Indonesia	25 235	32 461	33 000	31 809	32 432	17 681	16 750		97 505	105 516	74 470	60 808	98 458	62 966	49 647	35 529	24 647	22 184	40 497	69 064	67 949
Maldives	73	112	111	143	123	91	111	115	85	203	152	123	92	175	249	114	106	95	88	88	132
Myanmar	12 744	12 461	12 069	11 012	11 045	10 506	10 840	11 986	9 348	10 940	12 416	14 905	17 000	19 009	15 583	18 229	22 201	17 122	14 756	19 626	30 840
Nepal	1 020	337	1 459	700	190	52	252	1 012	1 603	11 003	10 142	8 983		13 161	15 572	19 804	22 970	24 158	24 135	27 356	29 519
Sri Lanka	6 212	6 288	7 334	6 666	6 376	5 889	6 596	6 411	6 092	6 429	6 666	6 174	6 802	6 809	6 132	5 710	5 366	6 542	6 925	7 157	8 415
Thailand	45 704	49 452	48 553	65 413	69 240	77 611	52 152	51 835	50 021	44 553	46 510	43 858	47 697	49 668	47 767	45 428	39 871	30 262	15 850	29 413	34 187
Total	837 901	915 952	1 076 211	1 244 819	1 275 299	1 323 509	1 413 418	1 520 444	1 667 348	1 735 860	1 719 365	1 747 252	1 322 709	1 287 176	1 298 759	1 400 733	1 470 246	1 308 903	1 278 953	1 464 247	1 397 389
number reporting	9	9	9	9	9	9	9	8	10	9	9	9	8	9	9	9	9	10	10	10	10
percent reporting	90	90	90	90	90	90	90	80	100	90	90	90	80	90	90	90	90	100	100	100	100

Regional profile for South-East Asia, cont'd: case notification rates, 1980-2000

Country/territory	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Bangladesh	47	49	55	57	48	43	46	44	42	42	44	50	27	46	40	46	50	49	55	59	55
Bhutan	117	197	52	72	62	72	104	39	70	92	68	58	8	6	64	71	68	63	65	58	55
DPR Korea									0									51	5	56	153
India	102	109	129	147	148	153	164	176	179	182	180	181	128	121	122	131	137	118	113	123	111
Indonesia	17	21	21	20	20	11	10		55	59	41	33	52	33	26	18	12	11	20	33	32
Maldives	46	69	66	83	69	50	59	59	42	97	70	55	40	74	102	46	41	36	32	31	45
Myanmar	38	36	34	31	30	28	29	31	24	27	31	36	40	44	36	41	49	37	32	42	65
Nepal	7	2	10	5	1	0	2	6	9	62	56	48		68	78	97	110	113	110	122	128
Sri Lanka	43	42	49	44	41	37	41	39	37	38	39	36	39	39	34	32	29	36	37	38	44
Thailand	99	105	101	134	139	154	101	99	94	83	85	79	85	87	82	77	67	50	26	47	54
Total	**80**	**85**	**98**	**111**	**111**	**113**	**119**	**125**	**134**	**137**	**133**	**133**	**99**	**94**	**94**	**99**	**102**	**89**	**86**	**97**	**91**

Regional profile for South-East Asia, cont'd: new smear-positive cases, 1993-2000

	Number of cases								Rate (per 100 000 population)							
Country/territory	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2 000**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2 000**
Bangladesh	18 993	1 710	20 524	29 674	33 117	37 737	37 821	38 285	16	1	17	23	26	29	28	28
Bhutan		352	367	308	284	270	315	347		20	20	16	15	14	16	17
DPR Korea					3 980	403	5 073	16 440					18	2	23	74
India	225 256	226 543	264 515	290 953	274 877	278 275	345 150	349 374	25	25	29	31	29	29	35	35
Indonesia	62 966	49 647	31 768	11 790	19 492	32 280	49 172	50 633	33	26	16	6	10	16	23	24
Maldives	126	125	114	106	95	88	88	65	53	51	46	41	36	32	31	22
Myanmar			8 681	9 716	9 695	10 089	11 458	17 254			20	22	21	22	24	36
Nepal	6 679	10 442	8 591	10 365	11 323	11 306	13 410	13 683	34	52	42	50	53	51	60	59
Sri Lanka	3 335	3 405	3 049	2 958	3 506	3 761	3 911	4 316	19	19	17	16	19	20	21	23
Thailand		20 260	20 273	16 997	13 214	7 962	14 934	17 754		35	35	29	22	13	24	28
Total	**317 355**	**312 484**	**357 882**	**372 867**	**369 583**	**382 171**	**481 332**	**508 151**	**23**	**23**	**25**	**26**	**25**	**26**	**32**	**33**

Notes

BANGLADESH Retreatment outcomes are for relapses only.

MYANMAR Notifications reflect reporting from all 231 DOTS townships. Treatment outcomes reflect reporting from 180 DOTS townships.

NEPAL All information is based on the Nepalese calendar year which is July 2000 to July 2001. Under treatment outcomes, 445 patients "not evaluated" were still on treatment (12-month regimen).

THE WESTERN PACIFIC

The Western Pacific: Summary of TB control policies

COUNTRY	MICROSCOPY (A)	SCC (B)	DOT (C)	OUTCOME MONITORING (D)	DRUG SUPPLY (E)	CATEGORY AS OF 31/12/00*	DOTS NEWLY IMPLEMENTED IN 2000
AMERICAN SAMOA						4	
AUSTRALIA						3	
BRUNEI DARUSSALAM						4	
CAMBODIA						4	
CHINA						3	
CHINA, HONG KONG SAR						4	
CHINA, MACAO SAR						4	
COOK ISLANDS						4	
FIJI						4	
FRENCH POLYNESIA						4	
GUAM						4	X
JAPAN						3	X
KIRIBATI						4	
LAO PDR						3	
MALAYSIA						4	
MARSHALL ISLANDS						4	
MICRONESIA						4	
MONGOLIA						4	
NAURU						4	X
NEW CALEDONIA						1	
NEW ZEALAND						4	X
NIUE						1	
NORTHERN MARIANA IS						4	X
PALAU						0	
PAPUA NEW GUINEA						2	
PHILIPPINES						3	
REP. KOREA						1	
SAMOA						4	
SINGAPORE						4	X
SOLOMON ISLANDS						4	
TOKELAU						1	
TONGA						4	
TUVALU						0	
VANUATU						3	
VIET NAM						4	
WALLIS & FUTUNA IS						0	

Microscopy (a)	Use of smear microscopy for diagnosis
SCC (b)	Short course chemotherapy
DOT (c)	Directly observed therapy
Outcome monitoring (d)	Monitoring of treatment outcomes by cohort analysis
Drug supply (e)	A system of TB drug forecasting, financing, and procurement
*	See table 1 for definition of categories

- implemented in all units/areas
- implemented in some units/areas
- not implemented
- unknown or not applicable (decentralized drug supply system)

Regional Profile for the Western Pacific: notification, detection and DOTS coverage, 2000

Country/Territory	Country information									WHO TB control strategy (DOTS)							Other Strategy (non-DOTS)					
	Pop	Notifications all cases		Notifications New ss+		Estimated cases all cases	Estimated cases New ss+	CDR	DOTS cate-	% of	Notifications all cases		Notifications New ss+		DDR	% of pulm	% of	Notifications all cases		Notifications New ss+		% of pulm
	thousands	number	rate	number	rate	number	number	%	gory	pop	number	rate	number	rate	%	cases ss+	pop	number	rate	number	rate	cases ss+
	a	b	b/a	c	c/a	d	e	c/e	f	g	h	h/(g*a)	i	i/(g*a)	i/e	j	k	l	l/(k*a)	m	m/(k*a)	n
American Samoa	68	3	4	2	3	23	11	18	4	100	3	4	2	3	18	100	0					
Australia	19 138	1 043	5	251	1	1 525	685	37	3	54	490	3	122	1	18	41	46	553	3	129	1	41
Brunei Darussalam	328	307	94	84	26	199	89	94	4	100	307	94	84	26	94	34	0					
Cambodia	13 104	18 891	144	14 822	113	74 921	33 490	44	4	99	18 891	144	14 822	113	44	93	1					
China	1 275 133	463 373	36	213 766	17	1 364 851	588 316	36	3	68	348 436	27	191 280	15	33	58	32	114 937	9	22 486	2	20
China, Hong Kong SAR	6 860	5 141	75	1 240	18	6 250	2 809	44	4	100	3 685	54	915	13	33	32	0	1 456	21	325	5	100
China, Macao SAR	444	449	101	133	30	972	437	30	4	100	449	101	133	30	30	42	0					
Cook Islands	20	1	5	0	0	7	3	0	4	100	1	5	0	0	0	0	0	0	0	0	0	
Fiji	814	144	18	62	8	281	126	49	4	100	144	18	62	8	49	60	0					
French Polynesia	233	59	25	29	12	81	36	81	4	100	59	25	29	12	81	60	0					
Guam	155	54	35	42	27	135	61	69	4	100	54	35	42	27	69	89	0					
Japan	127 096	39 384	31	11 853	9	45 927	20 665	57	3	36	15 397	12	4 415	3	21	36	64	23 987	19	7 438	6	39
Kiribati	83	210	253	54	65	72	32	169	4	100	210	253	54	65	169	53	0					
Lao PDR	5 279	2 234	42	1 526	29	8 457	3 806	40	3	70	1 617	31	1 526	29	40	100	30	617	12		0	0
Malaysia	22 218	15 057	68	8 156	37	24 719	11 074	74	4	100	15 057	68	8 156	37	74	60	0					
Marshall Islands	51	34	66	11	22	44	20	55	4	100	34	66	11	22	55	31	0					
Micronesia	123	91	74	15	12	106	48	31	4	100	91	74	15	12	31	18	0					
Mongolia	2 533	3 109	123	1 389	55	5 463	2 458	57	4	100	3 109	123	1 389	55	57	65	0					
Nauru	12	4	33	4	33	4	2	200	4	100	4	33	4	33	200	100	0					
New Caledonia	215	86	40	38	18	187	84	45	1	0							100	86	40	38	18	72
New Zealand	3 778	344	9	74	2	403	181	41	4	100	344	9	74	2	41	36	0					
Niue	2	0	0	0	0	1	0		1	0							100	0	0	0	0	
Northern Mariana Is	73	75	103	27	37	63	28	96	4	100	75	103	27	37	96	42	0	0	0	0	0	
Palau	19					17	7		0													
Papua New Guinea	4 809	12 121	252	2 267	47	12 597	5 656	40	2	8	2 534	53	403	8	7	27	92	9 587	199	1 864	39	31
Philippines	75 653	128 495	170	67 056	89	249 404	112 145	60	3	90	96 371	127	49 991	66	45	56	10	32 124	42	17 065	23	56
Rep. Korea	46 740	21 782	47	8 216	18	28 887	12 970	63	1	0							100	21 782	47	8 216	18	42
Samoa	159	43	27	13	8	55	25	52	4	100	43	27	13	8	52	42	0	0	0	0	0	
Singapore	4 018	1 728	43	248	6	1 920	862	29	4	100	590	15	105	3	12	23	0	1 138	28	143	4	22
Solomon Islands	447	302	67	109	24	388	175	62	4	100	302	67	109	24	62	46	0					
Tokelau	1	0	0	0	0	1	0		1	0							100	0	0	0	0	
Tonga	99	24	24	15	15	34	15	100	4	98	24	24	15	15	100	75	2					
Tuvalu	10					4	2		0													
Vanuatu	197	152	77	63	32	171	77	82	3	50	105	53	26	13	34	35	50	47	24	37	19	84
Viet Nam	78 137	89 792	115	53 169	68	147 725	66 476	80	4	100	89 792	115	53 169	68	80	75	0					

Regional Profile for the Western Pacific, cont'd: treatment outcomes for cases registered in 1999 - WHO TB control strategy (DOTS) and other (non-DOTS) control strategies

Country/Territory	New smear-positive cases - DOTS									Retreatment cases - DOTS									New smear-positive cases - non-DOTS								
	Regist-ered	% cured	% compl-eted	% died	% failed	% default	% trans-ferred	% not eval	% success	Regist-ered	% cured	% compl-eted	% died	% failed	% default	% trans-ferred	% not eval	% success	Regist-ered	% cured	% compl-eted	% died	% failed	% default	% trans-ferred	% not eval	% success
	a	c	d	e	f	g	h	b	c+d	i	k	l	m	n	o	p	j	k+l	q	s	t	u	v	w	x	r	s+t
American Samoa	3	100	0	0	0	0	0	0	100																		
Australia	161	16	68	9	0	1	4	2	84	27	19	63	7	4	4	4	0	81	131	19	58	10	0	5	2	7	77
Brunei Darussalam	100	56	20	2	1	6	15	0	76	1	100	0	0	0	0	0	0	100									
Cambodia	15 744	91	3	3	0	3	1	0	93	792	87	3	4	1	3	1	2	90									
China	188 112	96		1	1	1	0	1	96	43 638	93	2	2	1	1	0	0	95	19 878	84		1	8	4	1	1	84
China, Hong Kong SAR	1 536	71	7	5	7	5	4	0	78	189	63	8	8	13	4	4	0	71	484	2	6	9	0	1	2	80	8
China, Macao SAR	266	78	0	7	5	6	3	0	78	32	78	9	9	3			0	88									
Cook Islands	5	40	40	0	0	0	20	0	80										0	0	0	0	0	0	0	0	0
Fiji	65	83	9	5	0	3	0	0	92	65	83	9	5	0	3	0	0	92									
French Polynesia	40	85		13	0	3		0	85	6	83	0	0	0	17	0	0	83									
Guam	69	67	28	4	0	0	1	0	94	1	0	100	0	0	0	0	0	100									
Japan	4 218	45	31	11	6	3	0	4	76	539	41	27	12	10	4	0	5	68	7 196	9	9	1	2	0	0	80	18
Kiribati	52	88	0	6	4	2	0	0	88	12	58	17	0	17	8	0	0	75									
Lao PDR	1 603	80	4	0	7	7	1	1	84	60	50	5	10	10	25	0	0	55	77		69	1	5	23	1	0	69
Malaysia	13 705	47	43	4	0	6	0	0	90																		
Marshall Islands	17	82	0	0	0	18	0	0	82																		
Micronesia	19	74	21	5	0	0	0	0	95	18	28	72	0	0	0	0	0	100									
Mongolia	1 513	81	5	4	4	3	3	0	86	127	65	16	6	3	5	5	0	81									
Nauru	2	50			50			0	50	1	0	0	100	0	0	0	0	0									
New Caledonia																			30	77		7		17		0	77
New Zealand																											
Niue																			1	100	0	0	0	0	0	0	100
Northern Mariana Is	15	80		7			13	0	80																		
Palau																											
Papua New Guinea	480	41	24	1	0	24	3	5	66	103	29	31	4	0	27	3	6	60	5 268		53	5	14	17	11	0	53
Philippines	36 923	70	17	3	2	6	3	0	87																		
Rep. Korea																			1 804	80	2	1	3	3	11	0	82
Samoa	17	82	12	6	0	0	0	0	94																		
Singapore	130	95	0	2		2	2	0	95										25	80	0	4		4	12	0	80
Solomon Islands	109	73	7	5	0	4	4	7	81																		
Tokelau																			0	0	0	0	0	0	0	0	0
Tonga	10	50	30	20	0	0	0	0	80	1	100						0	100									
Tuvalu																											
Vanuatu	24	71	17	8	0	4	0	0	88	2	100	0	0	0	0	0	0	100	19	0	0	0	0	0	0	100	0
Viet Nam	53 227	90	2	3	1	2	1	0	92	5 283	83	4	5	4	2	3	0	87	46	85	9	4	0	2	0	0	93

Regional profile for South-East Asia, cont'd: smear-positive notification rates by age and sex, 2000

	MALE							FEMALE							ALL						
	0-14	**15-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65+**	**0-14**	**15-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65+**	**0-14**	**15-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65+**
Bangladesh	1	25	51	71	97	129	131	2	22	31	31	29	27	17	1	24	41	52	65	78	75
Bhutan	1	31	30	31	34	24	5	2	28	26	33	33	6	4	1	30	28	32	33	15	5
DPR Korea	10	53	70	180	231	117	117	6	41	54	128	142	55	47	8	47	62	154	187	85	77
India	1	21	37	47	54	53	36	1	16	23	20	18	15	10	1	19	30	34	36	34	22
Indonesia																					
Maldives	0	30	50	14	59	83	56	0	38	22	38	46	99	41	0	34	36	26	52	91	49
Myanmar	1	31	67	98	107	104	83	1	22	40	48	47	46	32	1	26	54	73	76	74	55
Nepal	3	83	106	147	180	226	185	4	60	68	73	71	74	52	4	72	88	110	126	151	116
Sri Lanka	1	14	29	48	74	71	60	1	17	18	13	22	24	19	1	16	24	31	50	49	40
Thailand	0	15	45	51	70	101	153	0	11	18	16	28	50	72	0	13	31	33	48	75	108
Regional rate	**1**	**20**	**36**	**48**	**57**	**58**	**47**	**2**	**18**	**25**	**24**	**24**	**21**	**16**	**1**	**18**	**29**	**35**	**39**	**38**	**30**

Rates are missing where data for smear-positive cases are missing, or where age- and sex-specific population data are not available.

Regional profile for the Western Pacific, cont'd: age and sex distribution of smear-positive cases in DOTS areas, 2000 (absolute numbers)

	MALE							FEMALE							ALL						
	0-14	15-24	25-34	35-44	45-54	55-64	65+	0-14	15-24	25-34	35-44	45-54	55-64	65+	0-14	15-24	25-34	35-44	45-54	55-64	65+
American Samoa					1	1						1							2	1	
Australia	1	8	19	13	11	8	22	0	9	5	8	7	4	7	1	17	24	21	18	12	29
Brunei Darussalam	0	6	4	15	5	7	15	0	4	6	9	6	3	4	0	10	10	24	11	10	19
Cambodia	26	519	1 323	1 618	1 456	1 373	1 058	38	457	1 157	1 649	1 798	1 459	892	64	976	2 480	3 267	3 254	2 832	1 950
China	984	17 176	26 108	22 338	23 071	19 403	19 535	1 293	13 073	16 493	10 874	8 835	6 404	5 693	2 277	30 249	42 601	33 212	31 906	25 807	25 228
China, Hong Kong SAR	2	45	63	98	120	105	209	1	35	62	54	23	21	77	3	80	125	152	143	126	286
China, Macao SAR	0	10	8	25	22	9	17	0	10	4	6	6	3	13	0	20	12	31	28	12	30
Cook Islands								0	0	0	0	1	0	0	0	0	0	0	1	0	0
Fiji	0	8	6	13	5	4	2	0	7	5	7	1	4	0	0	15	11	20	6	8	2
French Polynesia	1	3	3	4	4	4	3	1	4	1	0	1	0	0	2	7	4	4	5	4	3
Guam	1	1	5	5	8	4	9	0	2	0	2	3	1	2	1	3	5	7	11	5	11
Japan	0	88	193	260	568	570	1 433	1	85	160	74	111	156	716	1	173	353	334	679	726	2 149
Kiribati	2	9	3	3	3	8	2	2	5	6	3	4	1	3	4	14	9	6	7	9	5
Lao PDR	7	92	128	166	201	177	176	10	59	95	131	122	91	71	17	151	223	297	323	268	247
Malaysia	32	694	1 138	1 177	908	814	891	41	464	564	424	367	356	286	73	1 158	1 702	1 601	1 275	1 170	1 177
Marshall Islands	0	0	0	1	0	3	0	0	3	1	0	2	1	0	0	3	1	1	2	4	0
Micronesia	0	2	0	1	0	0	1	4	3	1	1	0	1	1	4	5	1	2	0	1	2
Mongolia	6	181	260	171	68	38	23	32	200	213	113	41	26	17	38	381	473	284	109	64	40
Nauru					1							1	1						2	1	
New Caledonia																					
New Zealand	0	6	5	6	8	10	7	1	6	6	5	0	4	10	1	12	11	11	8	14	17
Niue																					
Northern Mariana Is	1	4	8	9	9	3	2	0	10	17	7	3	1	1	1	14	25	16	12	4	3
Palau																					
Papua New Guinea	8	87	70	30	21	12	5	6	77	45	21	15	5	1	14	164	115	51	36	17	6
Philippines																					
Rep. Korea																					
Samoa	0	3	1	1	1	2	1	0	2	1	1	0	0	0	0	5	2	2	1	2	1
Singapore		4	3	18	27	14	15	1	5	2	4	5	3	4	1	9	5	22	32	17	19
Solomon Islands	3	13	4	8	8	10	6	8	15	13	7	7	5	2	11	28	17	15	15	15	8
Tokelau																					
Tonga		2	1	1		1	5		1	1	1		1	1		3	2	2		2	6
Tuvalu																					
Vanuatu	2	7	5	1	10	5	2	5	3	15	7	3	3	1	7	10	20	8	13	8	3
Viet Nam	51	2 367	6 147	8 209	6 713	5 150	7 712	64	1 334	2 320	2 754	2 594	2 847	4 907	115	3 701	8 467	10 963	9 307	7 997	12 619
Wallis & Futuna Is																					
Regional total	**1 127**	**21 335**	**35 505**	**34 191**	**33 249**	**27 735**	**31 151**	**1 508**	**15 873**	**21 193**	**16 162**	**13 957**	**11 401**	**12 709**	**2 635**	**37 208**	**56 698**	**50 353**	**47 206**	**39 136**	**43 860**

Regional profile for the Western Pacific, cont'd: age and sex distribution of smear-positive cases in non-DOTS areas, 2000 (absolute numbers)

	MALE							FEMALE							ALL						
	0-14	15-24	25-34	35-44	45-54	55-64	65+	0-14	15-24	25-34	35-44	45-54	55-64	65+	0-14	15-24	25-34	35-44	45-54	55-64	65+
American Samoa																					
Australia	2	8	16	12	13	11	27	0	6	14	4	8	1	7	2	14	30	16	21	12	34
Brunei Darussalam																					
Cambodia																					
China	147	1 935	3 291	2 868	2 522	2 026	2 236	127	1 463	2 003	1 503	1 064	698	603	274	3 398	5 294	4 371	3 586	2 724	2 839
China, Hong Kong SAR	1	2	8	16	31	42	154	3	2	11	6	1	7	41	4	4	19	22	32	49	195
China, Macao SAR																					
Cook Islands																					
Fiji																					
French Polynesia																					
Guam	1	0	1	1	1	2	0	0	1	1	0	2	1	0	1	1	2	1	3	3	0
Japan	2	158	379	416	926	939	2 383	4	137	304	139	181	228	1 242	6	295	683	555	1 107	1 167	3 625
Kiribati																					
Lao PDR																					
Malaysia																					
Marshall Islands	3	5	4	0	3	2	3	7	4	2	0	0	1	0	10	9	6	0	3	3	3
Micronesia																					
Mongolia																					
Nauru																					
New Caledonia	1	1	3	4	2	3	4	1	8	1	1	3	2	4	2	9	4	5	5	5	8
New Zealand																					
Niue																					
Northern Mariana Is																					
Palau																					
Papua New Guinea																					
Philippines																					
Rep. Korea	19	821	1 085	988	853	731	901	25	546	544	393	220	295	795	44	1 367	1 629	1 381	1 073	1 026	1 696
Samoa																					
Singapore	1	4	6	16	24	12	49		4	6	3	4	2	12	1	8	12	19	28	14	61
Solomon Islands																					
Tokelau																					
Tonga																					
Tuvalu																					
Vanuatu																					
Viet Nam																					
Wallis & Futuna Is																					
Regional total	**177**	**2 934**	**4 793**	**4 321**	**4 375**	**3 768**	**5 757**	**167**	**2 171**	**2 886**	**2 049**	**1 483**	**1 235**	**2 704**	**344**	**5 105**	**7 679**	**6 370**	**5 858**	**5 003**	**8 461**

Regional profile for the Western Pacific, cont'd: number of TB cases notified, 1980-2000

Country/territory	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2 000
American Samoa	2	6	6	8	12	5	8	9	13	5	9	3	1				0	6		4	3
Australia	1 457	1 386	1 270	1 219	1 299	1 088	906	907	954	952	1 016	950	1 011	991	1 057	1 073		1 145	899	1 073	1 043
Brunei Darussalam	196	285	245	276	256	238	212	189	126	128	143		180					160		272	307
Cambodia	2 576	1 980	8 158	7 572	10 241	10 145	10 325	9 106	10 691	7 906	6 501	10 903	16 148	13 270	15 172	14 603	14 857	15 629	16 946	19 266	18 891
China			98 654	117 557	151 564	226 899	265 095	251 600	304 639	310 607	375 481	345 000	320 426	344 218	363 804	515 764	469 358	418 903	457 349	460 169	463 373
China, Hong Kong SAR	8 065	7 729	7 527	7 301	7 843	7 545	7 432	7 269	7 021	6 704	6 510	6 283	6 545	6 537	6 319	0	6 501	7 072	7 673	7 512	5 141
China, Macao SAR	1 101	585	233	455	671	571	420	389	320	274	343	329	294	285		402	570	575	465		449
Cook Islands	37	10	19	29	20	36	17	16	20	1	1	8	12				0	0	1	3	1
Fiji	210	180	163	185	165	230	199	173	162	218	226	247	240	183	280	203	200	171	166	192	144
French Polynesia	76	66	65	78	80	78	85	80	63	73	59	49	83				86	91	105	93	59
Guam	55	41	49	48	54	37	49	34	41	75			60								54
Japan	70 916	65 867	63 940	62 021	61 521	58 567	56 690	56 496	54 357	53 112	51 821	50 612	48 956	48 461	44 425	43 078	42 122	42 190	44 016	40 800	39 384
Kiribati	146	187	193	127	111	103	129	110	208	121	68	91	100				327	32	276	253	210
Lao PDR	7 630		4 706	4 700	6 528	4 258	1 514	3 468	7 279	2 952	1 826	1 951	994	2 093	1 135	830	1 440	1 923	2 153	2 434	2 234
Malaysia	11 218	10 970	11 944	11 634	10 577	10 569	10 735	11 068	10 944	10 686	11 702	11 059	11 420	12 285	11 708	11 778	12 691	13 539	14 115	14 908	15 057
Marshall Islands	6	7	12	15	12	15	37	32	11	7		26	52				59		49	41	34
Micronesia			67	73	75	66	60	98	77	68	367	350	111	151	173	172	126	107	123		91
Mongolia	1 161	1 094	1 340	1 512	1 651	2 992	2 818	2 432	2 541	2 237	1 577	1 611	1 502	1 433	1 730	2 780	3 457	2 987	2 915	3 348	3 109
Nauru	0	2	8	0	0	0	8	6	8	0	7									2	4
New Caledonia	108	128	120	171	144	104	98	74	111	128	143	140	140	149	132	111	127			83	86
New Zealand	474	448	437	415	404	359	320	296	295	303	348	335	317	274	352	391	352	321	365	447	344
Niue	1	0	2	3	1	0	5	0	3		0		2	1	2	0	2	0	0	1	0
Northern Mariana Is		26	75	74	58	64	16	56	27	28	28		67		46	48	51	93	97	66	75
Palau	17	10	17	14	20	26	13	38	17	3		6	4	25	41	19	5	15		32	
Papua New Guinea	2 525	2 508	2 742	2 955	3 505	3 453	2 877	2 251	4 261	3 396	2 497	3 401	2 540	7 451	5 335	8 041	5 097	7 977	11 291	13 067	12 121
Philippines	112 307	116 821	104 715	106 300	151 863	151 028	153 129	163 740	183 113	217 272	317 008	207 371	236 172	178 134	180 044	119 186	165 453	195 767	162 360	145 807	128 495
Rep. Korea	89 803	98 532	100 878	91 572	85 669	87 169	88 789	87 419	74 460	70 012	63 904	57 864	48 070	46 999	38 155	42 117	39 315	33 215	34 661	32 075	21 782
Samoa	59	49	43	41	37	43	65	29	29	37	44	44	26	49	45	45	31	32	22	31	43
Singapore	2 710	2 425	2 179	2 065	2 143	1 952	1 760	1 616	1 666	1 617	1 591	1 841	1 778	1 830	1 677	1 889	1 951	1 977	2 120	1 805	1 728
Solomon Islands	266	313	324	302	337	377	292	334	372	488	382	309	364	367	332	352	299	318	295	289	302
Tokelau	0	1	0	0	0	2	0	9	1	0	1	1	1		0	2	0			0	0
Tonga	64	49	45	50	54	49	35	24	14	36	23	20	29	33	23	20	22	21	30	22	24
Tuvalu	33	18	12	23	9	32	27	22	24	26	23	30	30	28	19	36			18		
Vanuatu	178	92	173	196	188	124	131	90	118	144	140	230	193	114	152	79	126	184	178	120	152
Viet Nam	43 062	43 506	51 206	43 185	43 875	46 941	47 557	55 505	52 463	52 270	50 203	59 784	56 594	52 994	51 763	55 739	74 711	77 838	87 468	88 879	89 792
Wallis & Futuna Is	23	24	5	17	14	14		34	1	30		22	4	11	11	6	8	14			
Total	356 482	355 345	461 572	462 193	541 001	615 179	651 853	655 019	716 450	741 916	893 992	760 870	754 466	718 366	723 932	818 764	839 344	822 302	846 156	833 094	804 532
number reporting	33	33	36	36	36	36	35	36	36	35	32	31	35	26	27	28	31	30	28	31	33
percent reporting	92	92	100	100	100	100	97	100	100	97	89	86	97	72	75	78	86	83	78	86	92

Regional profile for the Western Pacific, cont'd: case notification rates, 1980-2000

Country/territory	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
American Samoa	6	18	17	22	32	13	20	21	30	11	19	6	2				0	10		6	4
Australia	10	9	8	8	8	7	6	6	6	6	6	6	6	6	6	6		6	5	6	5
Brunei Darussalam	102	143	120	131	118	107	92	80	52	51	56		66					52		85	94
Cambodia	39	29	117	103	133	126	124	105	119	85	68	109	156	124	137	128	127	129	136	151	144
China			10	11	14	21	24	23	27	27	33	29	27	29	30	42	38	34	36	36	36
China, Hong Kong SAR	160	150	144	137	145	138	135	131	126	119	114	109	111	109	104	0	103	109	116	111	75
China, Macao SAR	437	226	87	163	229	186	131	117	92	76	92	86	75	71		97	135	134	107		101
Cook Islands	207	56	108	165	114	204	96	90	111	6	5	43	65				0	0	5	15	5
Fiji	33	28	24	27	24	32	28	24	23	30	31	34	33	24	37	26	26	22	21	24	18
French Polynesia	50	42	41	47	47	45	48	44	34	38	30	25	41				39	41	46	41	25
Guam	52	38	44	42	46	31	40	27	32	57			43								35
Japan	61	56	54	52	51	48	47	46	44	43	42	41	39	39	36	34	33	33	35	32	31
Kiribati	239	301	305	197	169	154	190	160	298	171	95	125	135				417	40	342	309	253
Lao PDR	238		141	137	185	118	41	91	186	73	44	46	23	47	25	18	30	39	43	47	42
Malaysia	82	78	82	78	69	67	67	67	65	61	66	60	61	64	60	59	62	65	66	68	68
Marshall Islands	19	22	36	43	33	39	94	78	26	16		57	113				122		99	81	66
Micronesia			88	93	93	80	70	112	86	74	388	361	111	148	165	160	114	94	106		74
Mongolia	70	64	76	84	89	157	143	120	121	104	71	71	65	61	73	115	142	121	117	133	123
Nauru	0	27	105	0	0	0	95	70	90	0	74									17	33
New Caledonia	76	88	81	114	94	67	62	46	68	76	84	80	78	81	70	57	64			39	40
New Zealand	15	14	14	13	13	11	10	9	9	9	10	10	9	8	10	11	10	9	10	12	9
Niue	29	0	66	106	38	0	206	0	128		0		89	45	92	0	95	0	0	49	0
Northern Mariana Is		158	463	458	340	333	70	200	80	71	64		132		83	83	84	146	145	95	103
Palau	139	80	133	107	149	190	93	266	117	20		39	25	153	245	111	28	84		171	
Papua New Guinea	86	83	88	93	108	104	84	64	119	93	66	88	64	183	128	188	116	178	246	278	252
Philippines	234	237	207	206	287	278	276	288	314	364	519	332	369	272	269	174	237	275	223	197	170
Rep. Korea	236	255	257	230	212	214	215	210	177	165	149	134	110	106	86	94	87	73	75	69	47
Samoa	38	32	28	26	24	27	41	18	18	23	27	27	16	31	28	28	20	20	14	20	27
Singapore	112	98	86	80	81	72	64	57	58	55	53	59	56	56	50	54	54	53	56	46	43
Solomon Islands	116	132	132	119	128	139	104	115	124	158	120	94	107	104	91	93	77	79	71	67	67
Tokelau	0	63	0	0	0	120	0	545	61	0	62	63	64		0	131	0			0	0
Tonga	70	53	49	54	58	52	37	25	15	38	24	21	30	34	24	21	23	21	31	22	24
Tuvalu	441	235	154	291	112	393	327	262	281	300	261	336	331	304	203	380			182		
Vanuatu	152	77	141	156	146	94	97	65	83	99	94	150	122	70	91	46	71	101	95	63	77
Viet Nam	81	80	93	76	76	79	79	90	83	81	76	89	82	75	72	77	101	104	115	115	115
Wallis & Futuna Is	208	209	42	139	112	109		257	7	221		160	29	79	79	43	57	98			
Total	**27**	**27**	**34**	**34**	**39**	**44**	**46**	**45**	**49**	**50**	**59**	**49**	**48**	**46**	**45**	**51**	**52**	**50**	**51**	**50**	**48**

Regional profile for the Western Pacific, cont'd: new smear-positive cases, 1993-2000

	Number of cases								Rate (per 100 000 population)							
Country/territory	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2 000**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2 000**
American Samoa				0	6		3	2				0	10		5	3
Australia	557				226	203	285	251	3				1	1	2	1
Brunei Darussalam					0		102	84					0		32	26
Cambodia		11 058	11 101	12 065	12 686	13 865	15 744	14 822		100	97	103	105	112	123	113
China	84 898	104 729	134 488	168 270	188 530	214 462	212 426	213 766	7	9	11	14	15	17	17	17
China, Hong Kong SAR	2 429		1 677	1 774	1 943	2 091	2 020	1 240	41		27	28	30	32	30	18
China, Macao SAR	108		141	258	325	276		133	27		34	61	76	64		30
Cook Islands				0	0	1	0	0				0	0	5	0	0
Fiji	58	60	68	69	66	74	65	62	8	8	9	9	8	9	8	8
French Polynesia				37	41	34	33	29				17	18	15	14	12
Guam								42								27
Japan	17 890	16 770	14 367	12 867	13 571	11 935	12 909	11 853	14	13	11	10	11	9	10	9
Kiribati				144	50	52	59	54				184	63	64	72	65
Lao PDR			478	886	1 234	1 494	1 719	1 526			10	18	25	30	33	29
Malaysia	6 954	6 861	6 688	7 271	7 496	7 802	8 207	8 156	36	35	33	36	36	37	38	37
Marshall Islands				12		11	17	11				25		22	34	22
Micronesia			9	14	9	14		15			8	13	8	12		12
Mongolia	86	145	455	769	1 171	1 356	1 513	1 389	4	6	19	32	48	55	60	55
Nauru							2	4							17	33
New Caledonia		42	33	35			30	38		22	17	18			14	18
New Zealand	91	61	78	90	83	106	94	74	3	2	2	2	2	3	3	2
Niue	0	0	0	1	0	0	1	0	0	0	0	47	0	0	49	0
Northern Mariana Is			14	26	21	26	15	27			24	43	33	39	22	37
Palau	8	11	9	4	7		20		49	66	52	23	39		107	
Papua New Guinea			1 652	652	1 195	2 107	1 914	2 267			39	15	27	46	41	47
Philippines	92 279	87 401	94 768	86 695	80 163	69 476	73 373	67 056	141	131	139	124	112	96	99	89
Rep. Korea	16 630	13 266	11 754	11 420	9 957	10 359	9 559	8 216	38	30	26	25	22	22	21	18
Samoa	21	18	15	9	14	7	17	13	13	11	9	6	9	4	11	8
Singapore	513	861	455	519	436	482	465	248	16	26	13	14	12	13	12	6
Solomon Islands	155	114	109	90	113	140	93	109	44	31	29	23	28	34	22	24
Tokelau		0	1	0			0	0		0	66	0			0	0
Tonga	16	17	9	14	11	16	10	15	17	18	9	14	11	16	10	15
Tuvalu	2	1	6						22	11	63					
Vanuatu		62	30	50	66	38	43	63		37	17	28	36	20	22	32
Viet Nam			37 550	48 911	50 016	54 889	53 805	53 169			52	66	67	72	70	68
Wallis & Futuna Is			3	3	1						21	21	7			
Total	**222 695**	**241 477**	**315 958**	**352 955**	**369 437**	**391 316**	**394 543**	**384 734**	**14**	**15**	**20**	**22**	**23**	**24**	**24**	**23**

Notes

AUSTRALIA Notifications include 31 cases with site or smear status unknown.

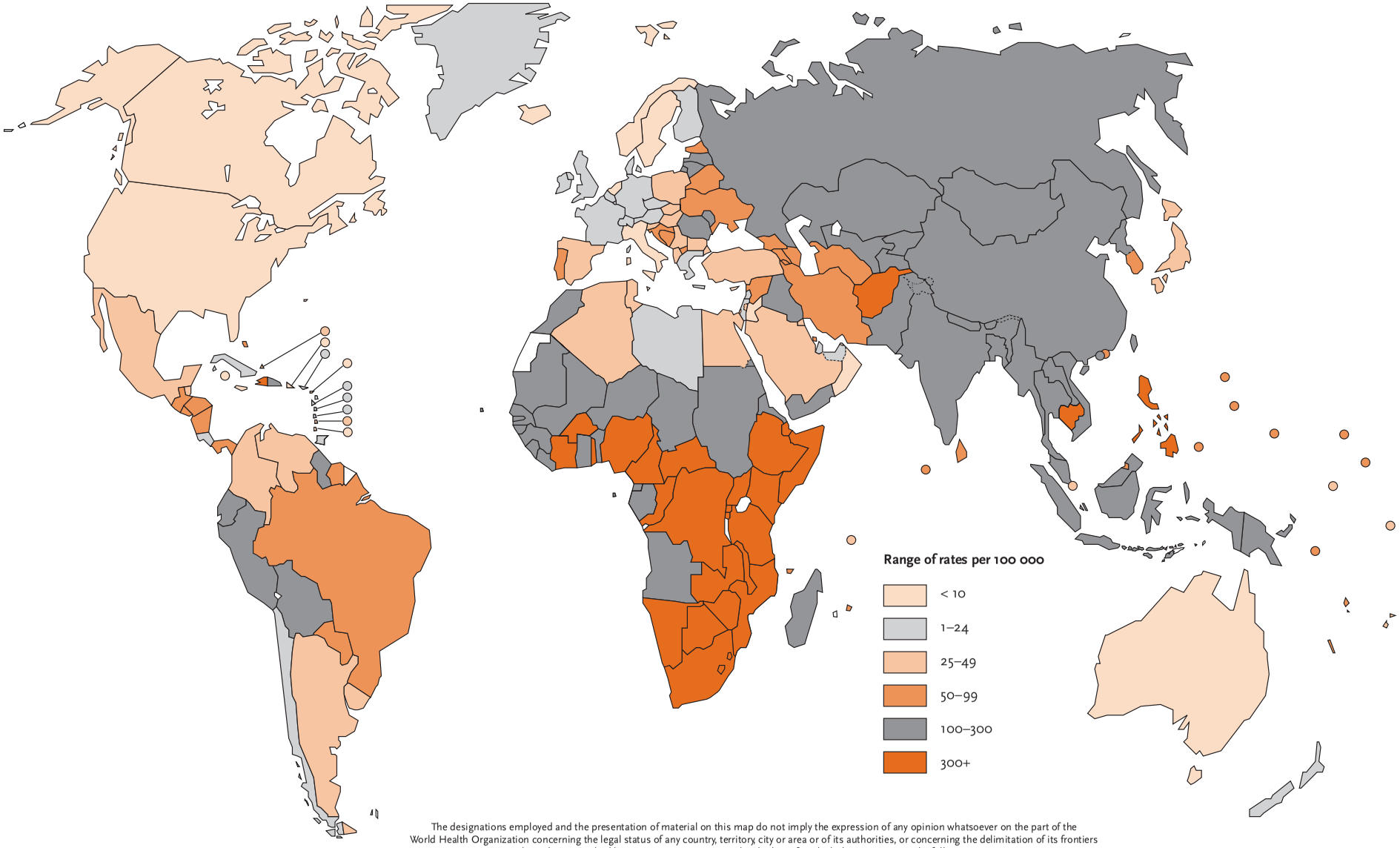
CHINA, HONG KONG SAR Under treatment outcomes, "failures" include patients still on treatment at 12 months and having a negative or unknown smear result after 5 months of treatment.

ANNEX 5

World maps

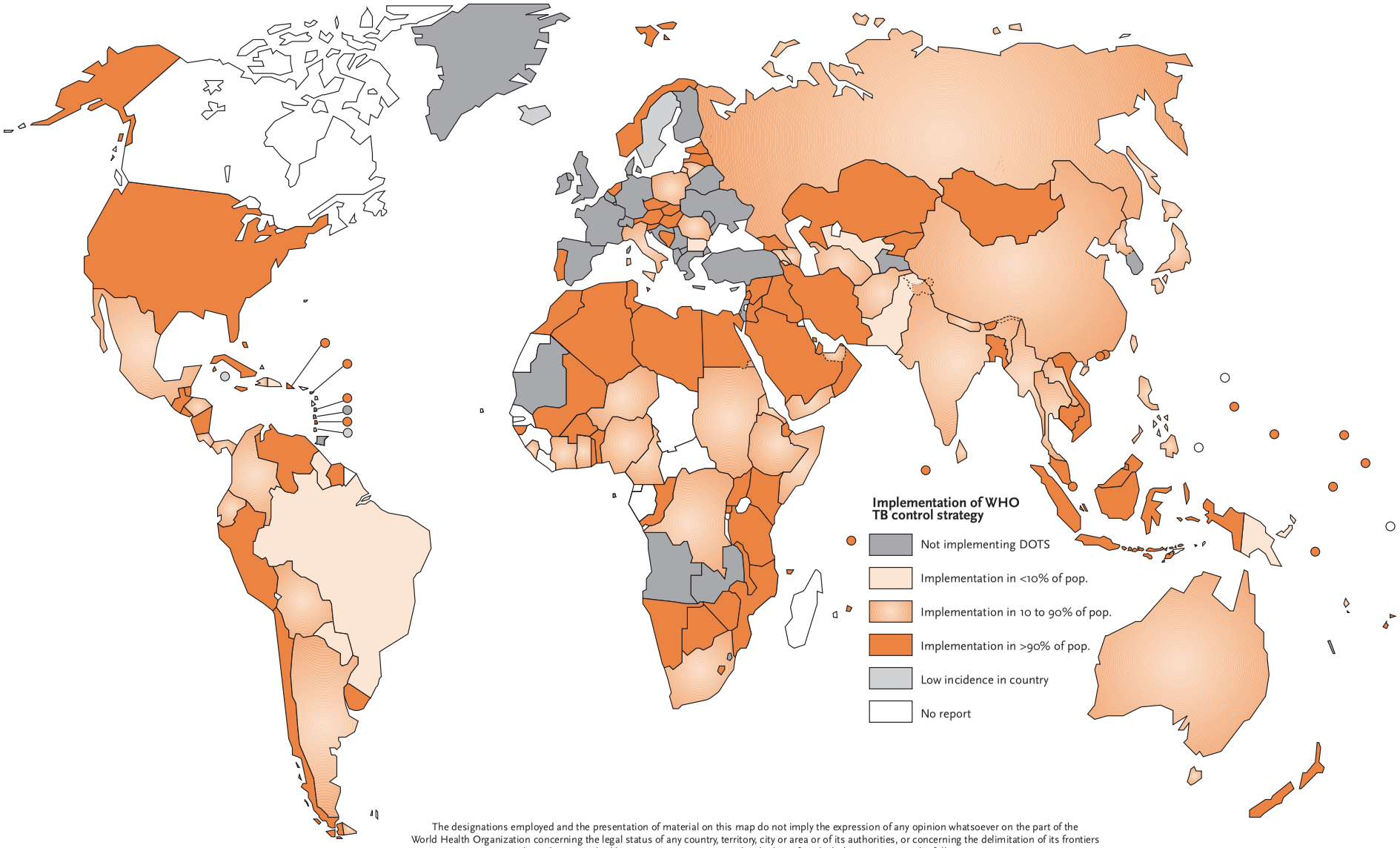
1. ESTIMATED TB INCIDENCE RATES, 2000
2. IMPLEMENTATION OF DOTS, 2000
3. TUBERCULOSIS NOTIFICATION RATES, 2000
4. TECHNICAL AND FINANCIAL PARTNERS

1. ESTIMATED TB INCIDENCE RATES, 2000



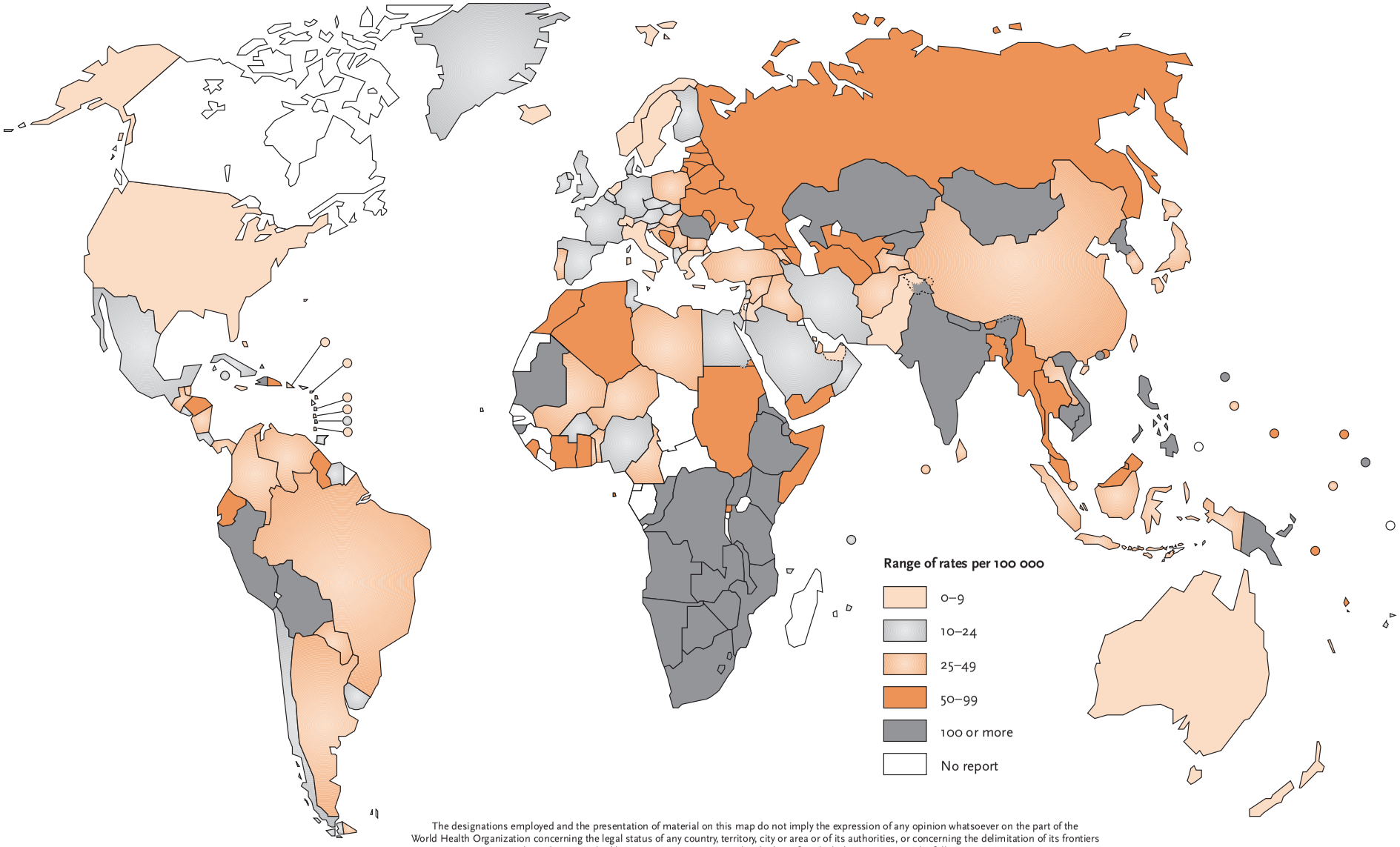
The designations employed and the presentation of material on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dashed lines represent approximate border lines for which there may not yet be full agreement.

2. IMPLEMENTATION OF DOTS, 2000



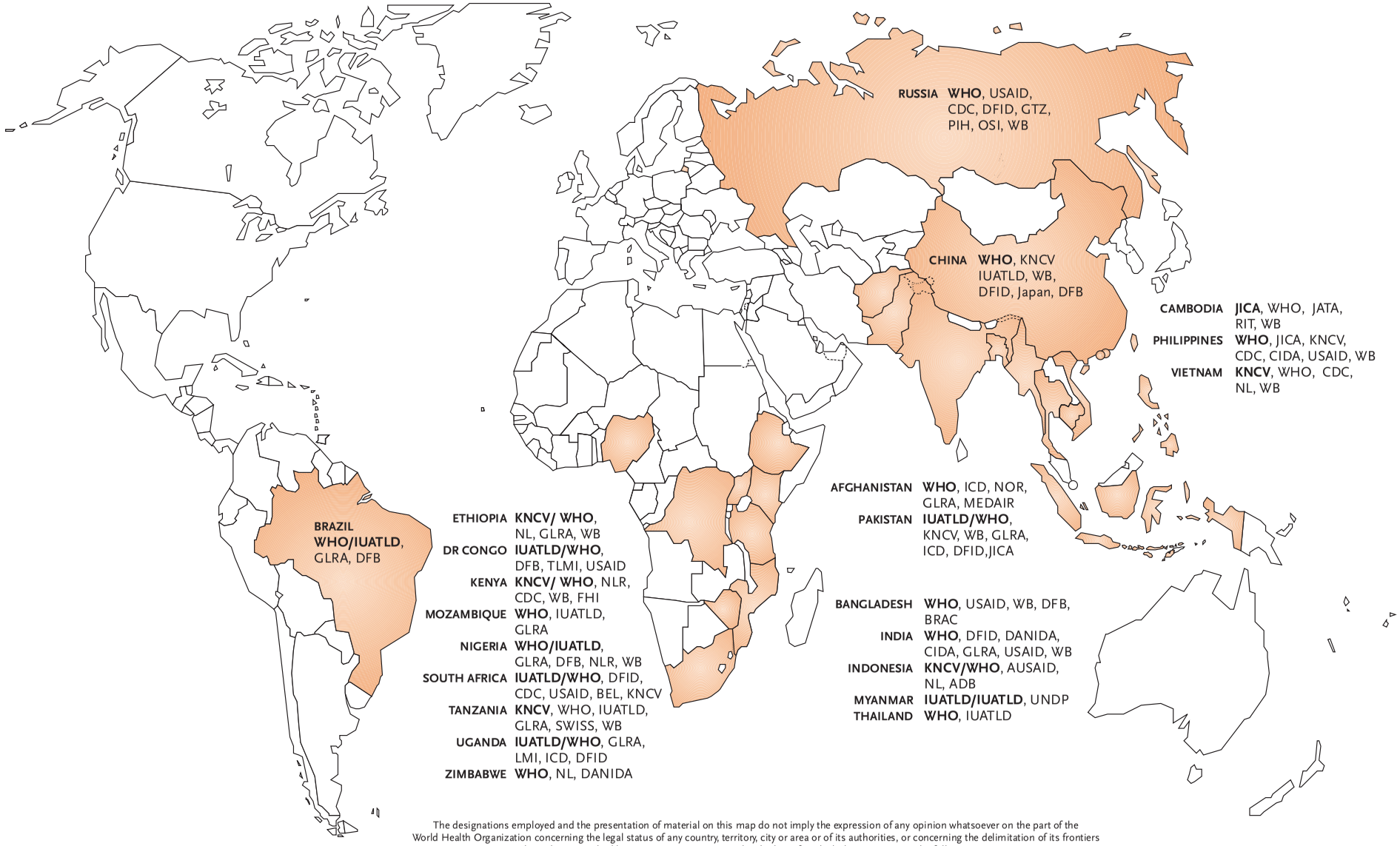
The designations employed and the presentation of material on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dashed lines represent approximate border lines for which there may not yet be full agreement.

3. TUBERCULOSIS NOTIFICATION RATES, 2000



The designations employed and the presentation of material on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dashed lines represent approximate border lines for which there may not yet be full agreement.

4. TECHNICAL AND FINANCIAL PARTNERS: 22 HIGH-BURDEN COUNTRIES



The designations employed and the presentation of material on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dashed lines represent approximate border lines for which there may not yet be full agreement.

ANNEX 6

Comparison of cases notified and registered for treatment in 1999

Comparison of smear-positive cases notified in 1999 and registered for treatment in 1999

	Number of cases		% of notif
	notified	registered	registered
Afghanistan	1 669		
Albania	168		
Algeria	7 845	7 622	97
American Samoa	3	3	100
Andorra	4	3	75
Angola	7 379		
Anguilla			
Antigua and Barbuda	1		
Argentina	4 830	4 830	100
Armenia	576	391	68
Australia	285	292	102
Austria	323	307	95
Azerbaijan	763	763	100
Bahamas	37	76	205
Bahrain	21	21	100
Bangladesh	37 821	37 821	100
Barbados	2		
Belarus	2 769		
Belgium	403		
Belize	48	58	121
Benin	2 192	2 192	100
Bermuda	0		
Bhutan	315	315	100
Bolivia	6 673	6 728	101
Bosnia & Herzegovina	786	786	100
Botswana	2 746	2 746	100
Brazil	41 619		
British Virgin Islands			
Brunei Darussalam	102	100	98
Bulgaria	1 697		
Burkina Faso	1 411		
Burundi	2 924		
Cambodia	15 744	15 744	100
Cameroon	5 832	2 003	34
Canada			
Cape Verde			
Cayman Islands	2		
Central African Republic	2 725		
Chad	2 920		
Chile	1 497	1 484	99
China	212 426	207 990	98
China, Hong Kong SAR	2 020	2 020	100
China, Macao SAR		266	16
Colombia	8 329	947	11
Comoros	112	115	103
Congo	2 222	2 222	100
Cook Islands	0		
Costa Rica	458	43	9
Côte d'Ivoire	10 047	6 946	69
Croatia	748		
Cuba	720	713	99
Cyprus	9		
Czech Republic	449	352	78
Denmark	172		

	Number of cases		% of notif
	notified	registered	registered
Djibouti	1 564	1 516	97
Dominica			
Dominican Republic	3 278	2 571	78
DPR Korea	5 073	1 105	22
DR Congo	34 923	34 923	100
Ecuador	4 300	3 774	88
Egypt	5 094	5 045	99
El Salvador	1 023	927	91
Equatorial Guinea			
Eritrea	527	465	88
Estonia	274	266	97
Ethiopia	21 597	20 511	95
Fiji	65	65	100
Finland	179		
France	2 325		
French Polynesia	33	40	121
Gabon	916		
Gambia	861		
Georgia	746	746	100
Germany	0		
Ghana	6 877	6 877	100
Greece	143		
Grenada	3		
Guam		69	4
Guatemala	2 264	2 101	93
Guinea	3 562		
Guinea-Bissau	704	616	88
Guyana	178	178	100
Haiti	6 828	6 828	100
Honduras	2 415	2 165	90
Hungary	660		
Iceland	2		
India	345 150	345 018	100
Indonesia	49 172	46 187	94
Iran	5 426	5 171	95
Iraq	9 908		
Ireland	117		
Israel	170		
Italy	1 277	261	20
Jamaica	90	90	100
Japan	12 909	11 414	88
Jordan	102	102	100
Kazakhstan	6 977	6 827	98
Kenya	27 197	27 417	101
Kiribati	59	52	88
Kuwait			
Kyrgyzstan	1 642	1 272	77
Lao PDR	1 719	1 680	98
Latvia	588	588	100
Lebanon	249	140	56
Lesotho	2 729	2 831	104
Liberia			
Libyan Arab Jamahiriya	803	770	96
Lithuania	787	787	100

continued…

Comparison of smear-positive cases notified in 1999 and registered for treatment in 1999, cont'd

	Number of cases		% of notif
	notified	registered	registered
Luxembourg			
Madagascar			
Malawi	8 132	8 185	101
Malaysia	8 207	7 602	93
Maldives	88	88	100
Mali	2 690	2 999	111
Malta	9	8	89
Marshall Islands	17	17	100
Mauritania	2 051		
Mauritius	122	122	100
Mexico	11 968	10 980	92
Micronesia		19	1
Monaco	2		
Mongolia	1 513	1 513	100
Montserrat	2		
Morocco	13 420	13 420	100
Mozambique	12 825	11 791	92
Myanmar	11 458	11 641	102
Namibia	3 751	3 791	101
Nauru	2	2	100
Nepal	13 410	13 410	100
Netherlands	308	308	100
Netherlands Antilles			
New Caledonia	30		
New Zealand	94		
Nicaragua	1 564	1 564	100
Niger	2 631	1 368	52
Nigeria	15 903	14 868	93
Niue	1		
Northern Mariana Is	15	15	100
Norway	21	31	148
Oman	120	120	100
Pakistan	6 248	2 967	47
Palau	20		
Panama	432	459	106
Papua New Guinea	1 914		
Paraguay	1 041		
Peru	24 511	23 681	97
Philippines	73 373	36 913	50
Poland	3 177	173	5
Portugal	1 801	911	51
Puerto Rico	106	92	87
Qatar	58	58	100
Rep. Korea	9 559		
Republic of Moldova	609		
Romania	10 317	1 373	13
Russian Federation	21 744	1 542	7
Rwanda	4 298	4 652	108
Saint Kitts and Nevis	2		
Saint Lucia	9	9	100
Samoa	17	13	76

	Number of cases		% of notif
	notified	registered	registered
San Marino	0		
Sao Tome and Principe	30		
Saudi Arabia	1 680		
Senegal	5 011		
Seychelles	10		
Sierra Leone		1 904	114
Singapore	465	155	33
Slovakia	246	239	97
Slovenia	165	162	98
Solomon Islands	93	109	117
Somalia	3 461	3 051	88
South Africa	72 098	81 495	113
Spain			
Sri Lanka	3 911	3 750	96
St Vincent & Grenadines	4	8	200
Sudan	11 047		
Suriname	36	35	97
Swaziland	1 781		
Sweden	117		
Switzerland	98		
Syrian Arab Republic	1 577	1 577	100
Tajikistan	0		
TFYR Macedonia	122		
Thailand	14 934	13 650	91
Togo	904	893	99
Tokelau	0		
Tonga	10	10	100
Trinidad and Tobago	87		
Tunisia	1 066	1 066	100
Turkey	4 124		
Turkmenistan	964		
Turks & Caicos Islands	2		
Tuvalu			
Uganda	18 463	14 250	77
Ukraine	10 412		
United Arab Emirates	31		
United Kingdom	797		
UR Tanzania	24 125	23 994	99
Uruguay	392	379	97
US Virgin Islands			
USA	6 252	5 755	92
Uzbekistan	3 977	135	3
Vanuatu	43	43	100
Venezuela	3 670	3 579	98
Viet Nam	53 805	53 273	99
Wallis & Futuna Is			
West Bank and Gaza			
Yemen	5 427	5 281	97
Yugoslavia	2 517		
Zambia	11 645		
Zimbabwe	14 414	12 791	89

ANNEX 7

Changes in treatment success and DOTS detection rate, 1995–2000

DOTS treatment success and detection rates reported during 1995-2000

	DOTS treatment success (%)						DOTS detection rate (%)					
	1994	1995	1996	1997	1998	1999	1995	1996	1997	1998	1999	2000
Afghanistan				45	33	87			2	6	5	9
Albania												
Algeria			86			87			135			129
American Samoa		100			50	100		0	59		29	19
Andorra					100	67			197	11	34	11
Angola				15	68				62	39	62	
Anguilla												
Antigua and Barbuda					50	50					41	116
Argentina					55	59			4	7	20	31
Armenia		83	77	82	81	88	8	19	34	35	34	39
Australia				66	75	84				17	22	18
Austria						77						58
Azerbaijan			86	87	86	88	4	8	6	7	7	6
Bahamas					72	66					43	65
Bahrain					13	95					62	15
Bangladesh	73	71	72	78	80	81	7	14	18	23	23	24
Barbados												
Belarus												
Belgium												
Belize		52				88		44	106			100
Benin	76	73	72	73	77	77	28	28	29	29	31	32
Bermuda												
Bhutan	71	97	96	85	90	85	29	24	22	21	25	27
Bolivia	66	62	71	77	62	74	39	78	73	77	77	75
Bosnia & Herzegovina				93	88	90				34	52	47
Botswana	72	67	70	70	47	71	70	79	73	75	69	67
Brazil					91	11				4	4	1
British Virgin Islands									0			
Brunei Darussalam					85	76					118	94
Bulgaria												22
Burkina Faso		25	29	61	59	61	6	11	8	9	9	10
Burundi	44	45		67	74		16	20	24	15	30	
Cambodia	84	91	94	91	91	93	42	35	44	45	49	44
Cameroon				80	75	75		2		5	10	16
Canada												
Cape Verde												
Cayman Islands												
Central African Republic		37						45				
Chad	63	47			64		29	12			33	
Chile	83	79	80	77	83	83	79	75	80	86	85	76
China	94	96	96	96	97	96	16	24	26	33	32	33
China, Hong Kong SAR					85	78					57	33
China, Macao SAR	75			81		78	34	48	71	53		30
Colombia					74	82				72	30	34
Comoros	94	90		85		93	60	62		49		43
Congo	69					61	79			58		97
Cook Islands				50		80		0	0	32	0	0
Costa Rica						81					30	146
Côte d'Ivoire	17	68	56	61	62	63	46	46	44	44	41	32
Croatia												
Cuba	86	90	92	90	94	91	82	89	87	91	95	96
Cyprus					42					26	85	
Czech Republic	73	60	66	69	65	78	51	63	53	61	51	49
Denmark												
Djibouti		75	77	76	79	72		95	99	86	78	69
Dominica			100						91	51		
Dominican Republic						81					7	4
DPR Korea					91	94					2	26
DR Congo	71	80	48	64	70	69	46	52	49	59	55	51
Ecuador				43		75			1	18	26	23

continued…

DOTS treatment success and detection rates reported during 1995-2000, cont'd

	DOTS treatment success (%)						DOTS detection rate (%)					
	1994	1995	1996	1997	1998	1999	1995	1996	1997	1998	1999	2000
Egypt	52		81	82	87	87	38	0	9	14	25	36
El Salvador					77	78			45	52	55	56
Equatorial Guinea	89	89	77	82			59	53	54	64		
Eritrea				83	73	44			3	6	13	13
Estonia						63						61
Ethiopia	74	61	73	72	74	76	14	19	21	22	23	29
Fiji	90	86		87	90	92	51	52	51	57	51	49
Finland												
France												
French Polynesia		67	95	100	74	85		100	111	93	91	80
Gabon												
Gambia	74	76	80	70			71	63	65	67		
Georgia		58		65	78	61	15	31		33	43	34
Germany												
Ghana		54	51	48	59	55	14	13	27	27	25	29
Greece												
Grenada												
Guam						94						69
Guatemala	62	61	81	73	79	81	44	59	56	55	54	47
Guinea	78	78	75	74	73		38	43	41	42	40	
Guinea-Bissau						35						37
Guyana						91						9
Haiti				73	79	70			2	12	24	22
Honduras					93	88				2	15	61
Hungary					80						37	22
Iceland												
India	83	79	79	82	84	82	0	1	1	2	6	11
Indonesia	94	91	81	54	58	50	1	5	7	12	19	19
Iran			87	84	83	82	29		7	20	30	32
Iraq					83	85				2	6	23
Ireland												
Israel												
Italy		80	82	69	72	71		14	9	13	54	30
Jamaica		67	72	79	89	74		85	81	91	105	102
Japan						76						21
Jordan	90				92	88	76			47	45	40
Kazakhstan					79	79				4	73	80
Kenya	73	75	77	65	70	78	59	59	55	57	53	43
Kiribati					83	88			35	156	183	167
Kuwait												
Kyrgyzstan			88	76	82	83		3	4	35	58	37
Lao PDR		70	55	62	75	84		24	33	40	46	40
Latvia		61	64	65	71	74		70	69	65	51	50
Lebanon	89				73	96	45				67	57
Lesotho	56	47	71	63		69	47	56	67	63		64
Liberia		79		75				29		42		
Libyan Arab Jamahiriya					68	67					141	106
Lithuania					79	84					2	1
Luxembourg												
Madagascar	51	55		64			65	76		67		
Malawi	22	71	68	71	69	71	39	40	43	47	41	40
Malaysia		69				90	66	71				74
Maldives	95	97	93	95	94	94	92	95	93	95	105	86
Mali	68	59	65	62	70	68	20	21	23	21	19	17
Malta		100	100	100	100	75		35	22	44	68	39
Marshall Islands					83	82				56	86	55
Mauritania												
Mauritius	96				91	87	42			32	34	32
Mexico			75	65	78	80			15	29	38	66
Micronesia	64	80				95	16	22				31

continued…

DOTS treatment success and detection rates reported during 1995-2000, cont'd

	DOTS treatment success (%)						DOTS detection rate (%)					
	1994	1995	1996	1997	1998	1999	1995	1996	1997	1998	1999	2000
Monaco												
Mongolia	59	78	78	86	84	86	8	32	31	52	63	57
Montserrat												
Morocco	86	90	88	89	88	88	93	93	91	86	85	81
Mozambique	67	39	54	67		71	53	47	45	45		40
Myanmar		66	79	82	82	81		25	26	28	32	48
Namibia			54	58	60	50	31	112	96	114	105	105
Nauru						50						211
Nepal			85	87	89	87		6	11	17	46	58
Netherlands	81	72	81	80	65	79	58	38	36	31	40	40
Netherlands Antilles												
New Caledonia	62	75			70		33	33			33	
New Zealand												41
Nicaragua	81	80	79	81	82	81	77	85	84	83	80	76
Niger			57	66		60			13	10		22
Nigeria	65	49	32	73	73	75	9	13	9	10	11	12
Niue												
Northern Mariana Is						80						95
Norway		77	80	44	69	77		74	75	38	17	31
Oman		84	87	91	86	67		71	87	87	106	159
Pakistan	74	70		67	66	70	1	2		4	2	3
Palau	64	67	75				129	57	97			
Panama				51	51	80				13	9	45
Papua New Guinea		60		93	44	66		4	1	8	5	7
Paraguay	46	51					13	54				4
Peru	81	83	89	90	92	93	99	87	95	101	95	93
Philippines	80		82	83	84	87	0	0	3	10	19	45
Poland					75	69				2	3	3
Portugal	48	69	74	78	74	85	79	77	66	83	76	80
Puerto Rico		65	68	68	68	77		68	80	69	73	58
Qatar	83	81	72	79	84	74	112	79	69	116	94	84
Rep. Korea	71	76	71	82			27	58	56	65		
Republic of Moldova												
Romania				72	85	78				85	4	9
Russian Federation		65	62	67	68	65		0	1	1	2	3
Rwanda			61	68	72	67	32	31	37	47	39	29
Saint Kitts and Nevis					25	50				133	42	0
Saint Lucia				67	82	89			92	94	66	48
Samoa	50	80	100		86	94	55	37	53		68	53
San Marino				100				0	103	0	0	110
Sao Tome and Principe												
Saudi Arabia					57	66					23	39
Senegal	35	39	41	52	48		67	69	58	56	49	
Seychelles		89	100	100		90		70	82	71		72
Sierra Leone	75	69	74	79		75	35	51	50	47		46
Singapore	88	86				95	60	27				12
Slovakia	96	64	73	67	85	79	76	82	34	40	36	39
Slovenia		90	87	82	78	88		78	58	62	68	63
Solomon Islands		65	73	92	92	81		57	70	84	55	62
Somalia		86	84	90	88	88		18	24	23	25	27
South Africa			69	73	74	60			6	21	64	67
Spain												
Sri Lanka	77	79	80	76	76	84	61	59	70	75	75	35
St Vincent & Grenadines				86		100				18		46
Sudan				70	65	81		2	1	29	31	37
Suriname						77			18			27
Swaziland												
Sweden												
Switzerland												
Syrian Arab Republic			92	88	88	84			5	13	17	24

continued…

DOTS treatment success and detection rates reported during 1995-2000, cont'd

	DOTS treatment success (%)						DOTS detection rate (%)					
	1994	1995	1996	1997	1998	1999	1995	1996	1997	1998	1999	2000
Tajikistan												
TFYR Macedonia												
Thailand			78	62	68	77		0	5	21	39	46
Togo	45	60	65	66	69	76	20	19		17	16	16
Tokelau												
Tonga	89	75	82	75	94	80	54	97	74	100	64	98
Trinidad and Tobago												
Tunisia					91	91					77	68
Turkey												
Turkmenistan												18
Turks & Caicos Islands					71						109	
Tuvalu												
Uganda			33	40	62	61			61	60	56	50
Ukraine												
United Arab Emirates												29
United Kingdom												
UR Tanzania	80	73	76	77	76	78	61	59	55	54	50	45
Uruguay	83	68	80	77	84	83	74	92	94	85	91	83
US Virgin Islands		50						80				
USA		72	71	72	72	76		86	85	88	88	89
Uzbekistan					78	79				0	2	4
Vanuatu						88					32	34
Venezuela	68	74	80	72	81	82	73	75	75	79	82	78
Viet Nam	91	91	90	85	93	92	30	60	78	82	82	80
Wallis & Futuna Is												
West Bank and Gaza												
Yemen			76	81		83		9	30	36		50
Yugoslavia												
Zambia												
Zimbabwe					70	73				57	52	52

ANNEX 8

Global profile (updated)

This is an updated version of the global profile published in *Global TB Control WHO Report 2001*.

The most recent case notifications and treatment outcomes data on TB are in Annex 2.

Global profile: case notification and detection rates, 1999

		Population		All cases			New smear-positive cases (ss+)				
				Notified			Notified			Estimated	
		Number	%	Number	rate	%	Number	rate	% pulm cases	Number	% of est detected
Region*		a	a/sum(a)	b	b/a	b/sum(b)	c	c/a	d	e	c/e
AFR	**DOTS**	**347 470 556**	**56**	**569 878**	**164**	**88**	**278 240**	**80**	**63**		
	non-DOTS	209 752 926	34	77 507	37	12	44 785	21	77		
	No Report	66 787 635	11								
		616 441 115	101	647 385	105	100	323 025	52		863 664	37
AMR	**DOTS**	**515 267 729**	**63**	**117 088**	**23**	**50**	**68 154**	**13**	**73**		
	non-DOTS	273 626 051	33	116 739	43	50	65 212	24	65		
	No Report	32 083 890	4								
		820 977 670	100	233 827	28	100	133 366	16		177 969	75
EMR	**DOTS**	**242 782 921**	**51**	**88 606**	**36**	**57**	**43 906**	**18**	**74**		
	non-DOTS	208 194 134	44	67 822	33	43	23 260	11	41		
	No Report	22 541 602	5								
		473 518 657	100	156 428	33	100	67 166	14		262 827	26
EUR	**DOTS**	**120 010 757**	**14**	**65 753**	**55**	**18**	**18 426**	**15**	**38**		
	non-DOTS	752 635 708	86	297 004	39	82	67 845	9	29		
	No Report	0									
		872 646 465	100	362 757	42	100	86 271	10		210 000	41
SEAR	**DOTS**	**548 580 155**	**36**	**338 224**	**62**	**23**	**176 793**	**32**	**61**		
	non-DOTS	962 768 969	64	1 130 448	117	77	308 997	32	29		
	No Report	0									
		1 511 349 124	100	1 468 672	97	100	485 790	32		1 353 509	36
WPR	**DOTS**	**951 898 496**	**57**	**501 010**	**53**	**61**	**283 961**	**30**	**62**		
	non-DOTS	720 432 451	43	322 705	45	39	109 855	15	38		
	No Report	736 272	0.0								
		1 673 067 219	100	823 715	49	100	393 816	24		852 812	46
Global	**DOTS**	**2 726 010 615**	**46**	**1 680 559**	**62**	**46**	**869 480**	**32**	**62**		
	non-DOTS	3 127 410 238	52	2 012 225	64	54	619 954	20	35		
	No Report	122 149 399	2								
		5 975 570 252	100	3 692 784	62	100	1 489 434	25		3 720 781	40

* WHO Regions (see Regional profiles for countries/territories in each region): AFR - Africa, AMR - the Americas, EMR - the Eastern Mediterranean, EUR - Europe, SEAR - South-East Asia, WPR - the Western Pacific

Global profile, cont'd: treatment success for the 1998 cohort

		New smear-positive cases									Re-treatment cases								
Region*		Registered	% cured	% compl-eted	% died	% failed	% default	% trans-ferred	% not eval	% succ-ess	Registered	% cured	% compl-eted	% died	% failed	% default	% trans-ferred	% not eval	% succ-ess
AFR	DOTS	230 278	56.5	13.1	5.9	1.1	10.6	6.8	5.9	69.6	19 958	43.8	11.8	9.8	2.4	11.7	6.8	13.7	55.7
	non-DOTS	6 951	43.7	8.4	4.0	2.9	10.5	15.6	14.8	52.2									
AMR	DOTS	63 095	65.5	14.9	4.4	1.0	6.0	2.6	5.6	80.4	6 294	78.6	2.5	4.5	3.5	8.9	1.6	0.3	81.2
	non-DOTS	47 059	25.2	23.7	3.3	0.5	10.5	4.2	32.6	48.9	8	75.0	0.0	25.0	0.0	0.0	0.0	0.0	75.0
EMR	DOTS	39 311	65.8	10.5	3.6	2.2	10.6	2.3	5.1	76.2	30 674	35.5	46.6	2.5	1.2	6.1	7.6	0.5	82.1
	non-DOTS	44 133	32.3	5.7	1.1	2.0	41.0	2.6	15.3	38.0									
EUR	DOTS	12 487	61.8	15.4	5.8	4.5	4.9	3.2	4.4	77.2	6 940	57.5	19.4	8.5	2.7	5.6	2.1	4.2	76.9
	non-DOTS	34 848	12.3	45.8	2.7	11.7	6.0	3.9	17.6	58.1									
SEAR	DOTS	114 355	66.3	6.0	3.9	1.2	6.4	1.7	14.6	72.3	12 261	60.9	11.5	5.8	4.2	12.4	2.2	2.9	72.4
	non-DOTS	284 667	4.6	21.9	0.2	0.2	2.6	0.4	70.1	26.5									
WPR	DOTS	271 082	93.7	1.1	1.7	0.9	1.3	0.7	0.7	94.8	56 198	93.3	0.7	2.1	2.2	1.0	0.4	0.3	93.9
	non-DOTS	42 726	58.3	16.8	3.0	4.9	5.1	2.6	9.3	75.1	159	81.8	0.0	5.0		4.4	5.7	3.1	81.8
Global	**DOTS**	**730 608**	**73.2**	**7.6**	**3.8**	**1.2**	**6.0**	**3.1**	**5.2**	**80.8**	**132 325**	**66.8**	**15.1**	**4.1**	**2.3**	**5.5**	**3.4**	**2.8**	**81.9**
	non-DOTS	**460 384**	**15.5**	**21.7**	**1.1**	**1.7**	**7.7**	**1.7**	**50.6**	**37.2**	**167**	**81.4**	**0.0**	**6.0**	**0.0**	**4.2**	**5.4**	**3.0**	**81.4**

* WHO Regions (see Regional profiles for countries/territories in each region): AFR - Africa, AMR - the Americas, EMR - the Eastern Mediterranean, EUR - Europe, SEAR - South-East Asia, WPR - the Western Pacific

Global profile, cont'd: WHO TB control categories, 1999

	Number		Number of countries in each category						% regional population in each category**					
Region*	Countries	Reports	0	1	2	3	4	5	0	1	2	3	4	5
AFR	46	33	13	7	0	11	15	0	11	7	0	57	26	0
AMR	44	34	10	5	1	11	15	2	4	1	21	29	46	0
EMR	23	20	3	1	1	7	11	0	5	1	29	39	27	0
EUR	51	51	0	25	4	4	15	3	0	54	23	12	10	1
SEAR	10	10	0	0	1	6	3	0	0	0	2	97	1	0
WPR	36	31	5	10	1	8	12	0	0	12	0	82	6	0
Global	210	179	31	48	8	47	71	5	2	12	9	62	15	0

* WHO Regions (see Regional profiles for countries/territories in each region): AFR - Africa, AMR - the Americas, EMR - the Eastern Mediterranean, EUR - Europe, SEAR - South-East Asia, WPR - the Western Pacific

** Percent of regional population in each category: each country is assigned to only one of the above categories. This is in contrast to the case notification and dectection rates table (page 225), where the population of any country can be divided into DOTS and non-DOTS areas.

The global tuberculosis epidemic is growing larger and more dangerous each year. The World Health Organization's programme on Communicable Diseases monitors the epidemic, evaluating surveillance, planning, and financing data in support of national TB control programmes.

For further information about tuberculosis or other communicable diseases, please contact

Information Resource Centre
Communicable Diseases
World Health Organization
20 avenue Appia
CH–1211 Geneva 27, Switzerland
cdsdoc@who.int
fax +41 22 791 4285
tel +41 22 791 3504

You can also visit our website at

http://www.who.int/gtb