

Summary

Background and methods

1. The 9th World Health Organization (WHO) annual report on surveillance, planning and financing for TB control includes data on case notifications and treatment outcomes from all national TB control programmes (NTPs) that have reported to WHO, together with an analysis of plans, budgets, expenditures and progress in DOTS expansion for 22 high-burden countries (HBCs).

2. Ten consecutive years of data (1994–2003) are now available to assess progress towards the Millennium Development Goals (MDGs) for TB control. The five MDG targets directly relevant to TB control are: by 2005, to detect 70% of new smear-positive cases and successfully treat 85% of these cases; by 2015, to have halted and begun to reverse incidence; between 1990 and 2015, to halve TB prevalence and deaths rates.

Improving case detection and treatment

3. A total of 199 countries reported to WHO on their strategies for TB control, and on TB case notifications and/or treatment outcomes.

4. Using surveillance and survey data to update estimates of incidence, we calculate that there were 8.8 million new cases of TB in 2003 (140/100 000 population), of which 3.9 million (62/100 000) were smear-positive and 674 000 (11/100 000) were infected with human immunodeficiency virus (HIV). There were 15.4 million prevalent cases (245/100 000), of which 6.9 million were smear-positive (109/100 000). An estimated 1.7 million people (28/100 000) died from TB in 2003, including those coinfecting with HIV (229 000).

5. A total of 182 countries were implementing the DOTS strategy during 2003, two more countries than in 2002. By the end of 2003, 77% of the world's population lived in coun-

tries, or parts of countries, covered by DOTS. DOTS programmes notified 3.7 million new and relapse TB cases, of which 1.8 million were new smear-positive. In total, 17.1 million TB patients, and 8.6 million smear-positive patients, were treated in DOTS programmes between 1995 and 2003.

6. The 1.8 million smear-positive cases notified by DOTS programmes in 2003 represent a case detection rate of 45%. The increment in smear-positive cases notified under DOTS between 2002 and 2003 (324 000) was greater than ever before (the average annual increment from 1995–2000 was 134 000). The acceleration in notifications was more pronounced for all TB cases, which increased by 693 000 between 2002 and 2003, compared with the average annual increment of 270 000 in the interval 1995–2000.

7. While the number of TB cases reported by DOTS programmes appears to have been accelerating since 2000, the total number of TB cases reported to WHO (all forms from all sources) increased very little over the period 1995–2003 (average detection rate 42%). The number of smear-positive cases reported from all sources has been increasing (50% detection rate in 2003), but much more slowly than the increases reported under DOTS.

8. Of the additional smear-positive cases reported under DOTS in 2003, 63% were in just two countries: India and China. Among those individuals who are thought to have developed smear-positive TB in 2003, but were not detected by DOTS programmes, 67% were living in just eight countries: Bangladesh, China, Ethiopia, India, Indonesia, Nigeria, Pakistan and the Russian Federation.

9. As DOTS programmes have expanded geographically, the new smear-positive case detection rate within DOTS areas has remained roughly constant since 1995 (average 52%),

although there are signs of a slow increase in the HBCs, especially in Bangladesh, India, Myanmar and the Philippines.

10. The rate of treatment success in the 2002 DOTS cohort was 82% on average, unchanged since 2000. As in previous years, the treatment success rate was substantially below average in the WHO African Region (73%) and the WHO European Region (76%). Low treatment success rates in these two regions can be attributed, in part, to the complications of TB/HIV coinfection and drug resistance, respectively. Equally important, though, is the failure of DOTS programmes in these two regions to monitor the outcome of treatment for all patients.

11. Based on case reports and WHO estimates, 22 countries had reached the targets for case detection and treatment success by the end of 2003. Viet Nam was still the only member of the current group of HBCs¹ among them, although Cambodia, Myanmar and the Philippines are within reach.

Epidemiological trends and DOTS impact

12. In 2003, the TB incidence rate was falling or stable in five out of six WHO regions, but growing at 1.0% per year globally. The exception is the African Region, where incidence has been rising more quickly in countries with higher HIV prevalence rates. In Eastern Europe the incidence rate increased during the 1990s, but peaked around 2001, and has since fallen. The rise in global incidence is slowing because HIV epidemics are slowing in Africa, but it is unclear when the global incidence rate will begin to decline.

13. We calculate that, as a consequence of DOTS expansion between 1990 and 2003, the global TB preva-

¹ Peru was excluded from the original group of high-burden countries, having met the targets and successfully reduced incidence.

lence rate fell from 309 to 245 per 100 000 (including HIV-positive TB patients), and by 5% between 2002 and 2003, even though incidence continued to rise. The global mortality rate peaked during the 1990s, and fell at 2.5% (including HIV-positive TB patients) or 3.5% per year (excluding HIV-positive TB patient) between 2002 and 2003. But for the strongly adverse trends in Africa, prevalence and death rates would be falling more quickly worldwide.

Planning and DOTS implementation

14. All HBCs have a strategic plan for DOTS expansion and, during 2005, many will begin a new planning cycle, ideally working towards the MDG target year of 2015. Although the health systems of many countries are still undergoing reform and restructuring, all HBCs except the Russian Federation and Thailand reported that TB control functions are fully integrated with essential national health services.

15. Among the obstacles to DOTS expansion, five are of overriding importance: shortages of trained staff; lack of political commitment; weak laboratory services; and inadequate management of multidrug-resistant TB (MDR-TB), and of TB in people infected with HIV. Concerning drug resistance, few countries have national policies for the diagnosis and treatment of MDR-TB; even in those that do, treatment commonly fails to meet acceptable standards. Concerning TB/HIV, NTPs reported that few TB patients are tested for HIV (3% of notified cases), still fewer are assessed for anti-retroviral therapy (ART) and a very small fraction begin ART (1349 patients reported in 2003). The report discusses a wide range of remedial actions to overcome these constraints.

16. Intensified support and action in countries (ISAC) is a new initiative designed to catalyse and accelerate DOTS expansion towards 2005 targets. The goal of ISAC is to improve technical capacity so as to facilitate the spending of large grants from the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM) and other

major donors. Participants in 2004 included China, India, Indonesia, Kenya, Pakistan, Romania, the Russian Federation and Uganda.

17. The increasing contributions of nongovernmental organizations (NGOs) and community groups are clear expressions of the growing commitment of civil society to TB control. The work of these groups puts patients at the centre of the DOTS strategy, and improves access to TB services in remote areas and among disadvantaged and marginalized populations.

18. Public-private and public-public mix (PPM) projects are showing a measurable impact on case detection in several Asian countries, and may prove to be a mechanism for expanding TB control services in African cities.

Financing DOTS expansion

19. Financial data were received from 134 out of 211 (64%) countries, up from 123 in 2003. Complete budget and expenditure data were provided by 70 and 69 countries, respectively. Data were received from all 22 HBCs, except South Africa.

20. There has been a big increase in NTP budgets and a big improvement in the funding available for TB control in the HBCs since 2002, with particularly large increases between 2003 and 2004. The NTP budgets reported for 2005 total US\$ 741 million. The total estimated costs of TB control are projected to be US\$ 1.3 billion in 2005, and available funding is US\$ 1.2 billion. The large increase in available funding is almost entirely due to additional government funding in China, Indonesia and the Russian Federation, and to GFATM grants.

21. The countries with the largest NTP budgets in 2005 are China, India, Indonesia and the Russian Federation. When costs beyond those included in NTP budgets are also considered, China, India, the Russian Federation and South Africa account for US\$ 946 million (73%) of the US\$ 1.3 billion total. Eight HBCs have total costs of US\$ 20–50 million in 2005; the rest are US\$ 18 million or less.

22. Per patient treated, there is considerable variation in budgets for first-line drugs, in total NTP budgets and in total costs for each year 2002–2005. Among HBCs, the NTP budget per patient is lowest in India (US\$ 34). Most countries have budgets in the range US\$ 100–200 per patient, and costs in the region of US\$ 150–300. The Russian Federation and South Africa are notable exceptions, with costs per patient treated above US\$ 1000. Budgets per patient treated are generally stable or increasing, and as a consequence costs per patient treated are also generally stable or increasing.

23. In 2005, HBC governments are providing 62% of NTP budgets (including loans), the GFATM 15%, and grants from other sources 7%, leaving a gap equivalent to 16% of the reported budgets. HBC governments contribute more (79%) to total costs than to NTP budgets because they finance the general health services staff and infrastructure used for TB control. High average contributions to the financing of TB control by HBC governments conceal the fact that many HBCs rely extensively on grant funding.

24. Despite progress in securing additional funding, HBCs reported a funding gap of US\$ 119 million in 2005. This is higher than the gaps reported for 2003 and 2004. The largest funding gaps are those reported by China, India, Pakistan, the Russian Federation and Zimbabwe (US\$ 93 million, or 78% of the total gap). Proportional to budgets, the largest gaps are in Kenya, Nigeria, Pakistan, Uganda and Zimbabwe.

25. Planned activities are not in line with meeting the case detection target in 2005 in 12 countries. In addition, the budgets for collaborative TB/HIV activities and for second-line drugs to treat MDR-TB are currently small. This means that the gaps currently reported by NTPs could be regarded as underestimates, and that the total resources required for TB will be higher than US\$ 1.3 billion in future.

26. Absorption capacity is a major issue for HBCs that have secured substantial amounts of additional funding. Expenditures were lower than available funding in 2003; it remains to be seen whether NTPs can effectively spend the extra money available in 2004 and 2005.

27. In financing terms, the HBCs fall into four categories: (a) four countries (India, Myanmar, the Philippines and Viet Nam) that have budgets consistent with reaching the 2005 targets, and which are likely to have minimal or no funding shortfall; (b) four countries that have adequate budgets, but which need to make up funding shortfalls (Cambodia, China), or where it is unclear how many more cases will be detected and successfully treated as a result of the substantial additional funds now available (Bangladesh, Indonesia); (c) five countries whose plans are not in line with meeting the 2005 targets, but which report mini-

mal or no funding gaps; (d) nine countries that report large funding gaps and whose plans are less than required to meet the targets for case detection (eight countries) and/or it is not clear if they are sufficient to meet the target for treatment success. These nine countries merit particular attention from donors and other support agencies.

Progress towards the Millennium Development Goals

28. If the improvement in case-finding between 2002 and 2003 can be maintained, the case detection rate will be 60% in 2005. To reach the 70% target, DOTS programmes must recruit TB patients from non-participating clinics and hospitals, especially in the private sector in Asia, and from beyond the present limits of public health systems in Africa. To reach the target of 85% treatment success, a special effort must be made to improve cure rates in Africa and Eastern Europe.

29. Our analysis of epidemiological trends suggests that the TB incidence rate is still slowly rising globally, but prevalence and death rates are falling. Whether the burden of TB can be reduced sufficiently to reach the MDGs by 2015 depends on how rapidly DOTS programmes can be implemented by a diversity of health-care providers, and how effectively they can be adapted to meet the challenges presented by HIV coinfection (especially in Africa) and drug resistance (especially in eastern Europe).

30. Financing for global TB control has improved since 2002, dramatically in some countries. Some HBCs now have sufficient funds to meet targets, but must show that they can spend them effectively; some have no apparent shortfall, but should verify that their budgets are sufficient; some have an obvious funding gap, and must focus on raising the money needed to improve programme performance.

Key epidemiological and financial indicators

EPIDEMIOLOGICAL INDICATORS (WORLD)	MDG TARGET	TARGET YEAR	ESTIMATE 2003	CHANGE, REFERENCE YEAR TO 2003 (%)	REFERENCE YEAR
DOTS case detection (%)	70	2005	45	+7.5	2002
DOTS treatment success (%)	85	2005	82 (2002 cohort)	0.0	2001 cohort
Incidence rate (per 100 000 per year exc HIV)	falling	2015	129	+0.6	2002
Incidence rate (per 100 000 per year inc HIV)*			140	+1.0	2002
Prevalence rate (per 100 000 exc HIV)	half 1990 level	2015	240	-22	1990
Prevalence rate (per 100 000 inc HIV)			245	-21	1990
Mortality rate (per 100 000 per year exc HIV)	half 1990 level	2015	24	-12	1990
Mortality rate (per 100 000 per year inc HIV)			28	-1.6	1990

FINANCIAL INDICATORS (HIGH-BURDEN COUNTRIES)	ESTIMATE 2005	CHANGE, 2002-2005 (%)	REFERENCE YEAR
Total costs of TB control (US\$ millions)	1321	+49	2002
NTP budgets for TB control (US\$ millions)	741	+79	2002
Total funding available for TB control (US\$ millions):	1202	+36	2002
Government (excl. loans)	982	+26	2002
Loans	56	+102	2002
Grants (excl. GFATM)	55	+29	2002
GFATM	109	NA	2002
Funding gap as reported by NTPs (US\$ millions)	119	+34	2002
Costs per patient (US\$) (median values)			
Total cost	213	+22	2002
NTP budget	133	+45	2002
First-line drugs budget	28	-12	2002

* inc HIV: including HIV+ TB patients; MDG indicators for TB exclude HIV+ patients, but these statistics are also useful in TB control.

NA: not applicable; funds first distributed in 2003.