South Africa

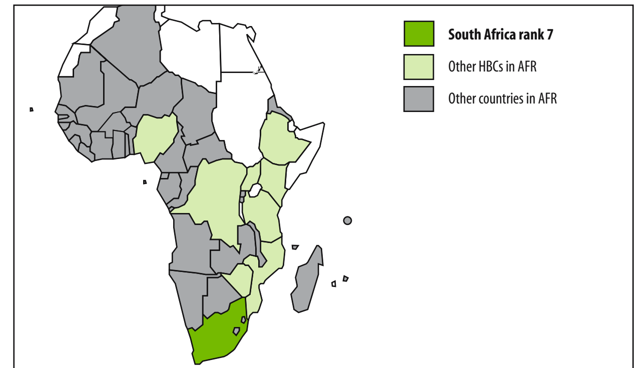
Notification rates in South Africa have continued to increase due to improved reporting and better case-finding. It is possible that TB incidence has been underestimated, and that the estimated case detection rate is therefore too high. Treatment success is increasing only slowly, and remains low at 70% for the 2004 cohort. The emergence of extensively drug-resistant tuberculosis (XDR-TB) in South Africa and the associated high mortality demands an urgent response. Better surveillance for drug resistance is urgently needed to determine the level and extent of MDR-TB and XDR-TB, especially in relation to the HIV status of TB patients. More effective patient support, especially for those patients with drug-resistant TB, plus improved infection control, are vital to avoid the further development and spread of strains resisiant to first- and second-line drugs.

SURVEILLANCE AND EPIDEMIOLOGY

Population (thousands)[a]	47 432	
TB burden, 2005 estimates (with 2.5 and 97.5 centiles)[b]		
Incidence (all cases/100 000 pop/yr)	600	501–720
Trend in incidence rate (%/yr, 2004–2005)c	**-0.1**	
Incidence (ss+/100 000 pop/yr)	245	200–302
Prevalence (all cases/100 000 pop)c	**511**	344–718
Mortality (deaths/100 000 pop/yr)c	**71**	47–107
Of new adult TB cases (15–49yrs), % HIV+d	58	49–65
New TB cases multidrug-resistant, 2002 (%)e	1.8	1.4–2.3
Previously treated TB cases multidrug-resistant, 2002 (%)e	6.7	5.5–8.1
Surveillance and DOTS implementation, 2005		
Notification rate (new and relapse/100 000 pop/yr)	570	
Notification rate (new ss+/100 000 pop/yr)	265	
DOTS case detection rate (new ss+, %)	**103**	84–126
DOTS treatment success (new ss+ cases, 2004 cohort, %)	**70**	
Of new pulmonary cases notified under DOTS, % smear-positive	62	
Of new cases notified under DOTS, % extrapulmonary	16	
Of new smear-positive cases notified under DOTS, % in women	45	
Of sub-national reports expected, % received at next reporting level[f]	100	
Laboratory services, 2005[g]		
Number of laboratories performing smear microscopy	143	
Number of laboratories performing culture	18	
Number of laboratories performing DST	18	
Of laboratories performing smear microscopy, % covered by EQA	0.0	
Management of MDR-TB, 2005		
Of new cases notified, % receiving DST at start of treatment	–	
Of new cases receiving DST at start of treatment, % MDR-TB	–	
Of re-treatment cases notified, % receiving DST	–	
Of re-treatment cases receiving DST, % MDR-TB	–	
Collaborative TB/HIV activities, 2005		
National policy of counselling and testing TB patients for HIV?	Yes	
National surveillance system for HIV-infection in TB patients?	No	
Of TB patients (new and re-treatment) notified, % tested for HIV	22	
Of TB patients tested for HIV, % HIV+	52	
Of HIV+ TB patients detected, % receiving CPT	100	
Of HIV+ TB patients detected, % receiving ART	33	
Budget and finance, 2007		
Government contribution to NTP budget (including loans, %)	93	
Government contribution to total cost of TB control (including loans, %)	97	
Government health spending used for TB control (%)	4.4	
NTP budget funded (%)	100	

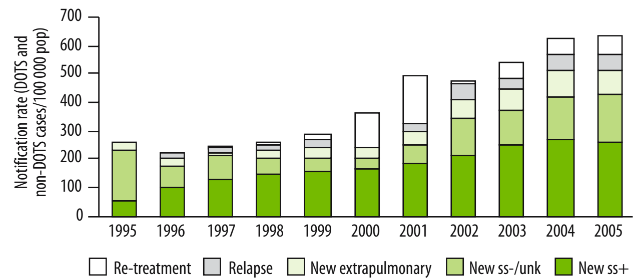
WHO African Region (AFR)

Rank based on estimated number of incident cases (all forms) in 2005



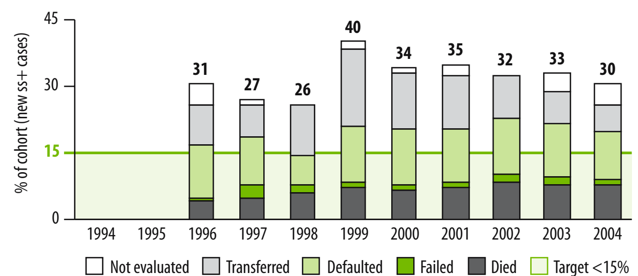
Case notifications

Notifications continue to rise as case-finding and reporting improve



Unfavourable treatment outcomes, DOTS

Treatment outcomes gradually improving; default still main barrier to reaching the target for treatment success



DOTS expansion and enhancement	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
DOTS coverage (%)	0.0	0.0	13	22	66	77	77	98	100	93	94
DOTS notification rate (new & relapse/100 000 pop)	–	–	15	50	201	193	262	457	484	546	549
DOTS notification rate (new ss+/100 000 pop)	–	–	10	37	121	137	155	210	248	256	253
DOTS case detection rate (all new cases, %)	–	–	2.9	9.4	35	36	44	70	75	82	82
DOTS case detection rate (new ss+, %)	–	–	5.0	18	57	62	67	88	101	104	103
Case detection rate within DOTS areas (new ss+, %)[h]	–	–	38	83	87	81	88	89	101	112	110
DOTS treatment success (new ss+, %)	–	69	73	74	60	66	65	68	67	70	–
DOTS re-treatment success (ss+, %)	–	67	68	71	47	52	53	53	52	56	–

IMPLEMENTING THE STOP TB STRATEGY[1]

Pursue high-quality DOTS expansion and enhancement

Budget (2006): US$ 31 million — Gap (2006): US$ 0
Budget (2007): US$ 38 million — Gap (2007): US$ 0

Achievements

- Commenced phased reintroduction of DOTS in Mpumalanga Province
- Included NTP guidelines in the curricula for basic training of doctors (in some institutions) and nurses (in some training colleges)
- Designated 2 full-time staff at central level NTP responsible for HRD activities for comprehensive TB control
- Mobilized full funding for all planned activities

Planned activities

- Develop 2007–2011 NTP strategic plan in line with *The Global Plan to Stop TB, 2006–2015*
- Continue to mobilize resources for TB control activities
- Implement the National TB Crisis Management Plan, to intensify efforts towards TB control

Challenges

- Improving treatment success rates by strengthening DOT practices in clinics for both drug-sensitive and drug-resistant TB patients; the proportions of patients who defaulted, transferred out or were not evaluated were unacceptably high in most provinces
- Establishing mechanism for exchange of data between laboratories, provinces, NTP and National Department of Health
- Strengthening the link between health facilities managing patients with TB and National Health Laboratory Services
- Reviewing and improving infection control practices
- Establishing functional NRL and EQA system; both are expected to begin operation in 2007
- Improving the quality of routinely collected data; more cases registered for treatment in 2004 than were notified in that year, but treatment outcomes provided for only 96% of those patients

Address TB/HIV, MDR-TB and other challenges

Budget (2006): US$ 42 million — Gap (2006): US$ 0
Budget (2007): US$ 50 million — Gap (2007): US$ 0

Achievements

- Started joint planning between the NTP and NAP for collaborative TB/HIV activities
- Conducted training for MDR-TB management, and developed, disseminated and began implementation of national guidelines on the programmatic management of MDR-TB
- Reviewed and strengthened MDR-TB treatment facilities in all 9 provinces
- Detected the outbreak of XDR-TB in KwaZulu-Natal Province
- Ongoing training of primary health-care workers to use patient-centred rather than disease-centred approach, in order to improve uptake of HIV counselling and testing by TB patients

Planned activities

- Ensure that NTP and NAP recording and reporting systems capture information about TB/HIV, and establishing mechanisms for transferring data from the databases of each programme to the District Health Information System
- Develop recording and reporting system and surveillance system for drug-resistant TB (2006–2007), and begin implementation of these systems (2007–2008)
- Carry out rapid surveys in each province to determine the extent and magnitude of XDR-TB
- Establish demonstration sites to evaluate new rapid rifampicin susceptibility tests
- Update guidelines for programmatic treatment of MDR-TB to reflect 2006 WHO guidelines

Challenges

- Improving integration at primary health-care level to ensure comprehensive management of HIV-infected TB patients
- Increasing training and number of staff for management of drug-resistant TB patients in the HRD plan
- Developing a specific plan of action for TB control in all high-risk groups (currently plans exist only for prison and mining populations)

[1] Unless otherwise specified, achievements are for financial year 2005; planned activities are for financial year 2006. Budgets and gaps are for financial years.

IMPLEMENTING THE STOP TB STRATEGY

Contribute to health system strengthening

Budget (2006): US$ 0 Gap (2006): US$ 0
Budget (2007): US$ 0 Gap (2007): US$ 0

Achievements

- Developed and field tested PALSA-Plus guidelines incorporating management of HIV-positive patients
- Implemented PALSA-Plus activities in 2 provinces (Free State and Western Cape)

Planned activities

- Implement PALSA-Plus as part of the National TB Crisis Management Plan

Challenges

- Increasing management capacity at district level
- Expanding human and financial resources for health care
- Improving access to laboratory services

Engage all care providers

Budget (2006): US$ 0 Gap (2006): US$ 0
Budget (2007): US$ 0 Gap (2007): US$ 0

Achievements

- Engaged pharmacists, private sector general medical practitioners, traditional health practitioners, community care givers and community-based organizations in referral and support of TB patients
- Collaborated with NGOs for provision of treatment and care services in communities
- Collaborated with non-NTP laboratories (private, university, military, prison), and the supranational laboratory for TB diagnosis

Planned activities

- Include the International Standards for Tuberculosis Care in the 2007–2011 NTP strategic plan

Challenges

- Including training and staffing for PPM activities in the HRD plan
- Expanding PPM activities (most PPM activities are currently limited to the mining industry)

Empower people with TB, and communities

Budget (2006): US$ 2.9 million Gap (2006): US$ 0
Budget (2007): US$ 3.0 million Gap (2007): US$ 0

Achievements

- Developed national and provincial ACSM plans, but not fully implemented in the provinces because insufficient funds were allocated for these activities

Planned activities

- Include the Patients' Charter for Tuberculosis Care in the 2007–2011 NTP strategic plan

Challenges

- Increasing awareness of TB among communities
- Empowering TB patients to take responsibility for their own health
- Encouraging communities to participate actively in TB control

Enable and promote research

Budget (2006): US$ 0.2 million Gap (2006): US$ 0
Budget (2007): US$ 0.4 million Gap (2007): US$ 0

Achievements

- Conducted research on the risk factors for default among TB patients in collaboration with the Medical Research Council

Planned activities

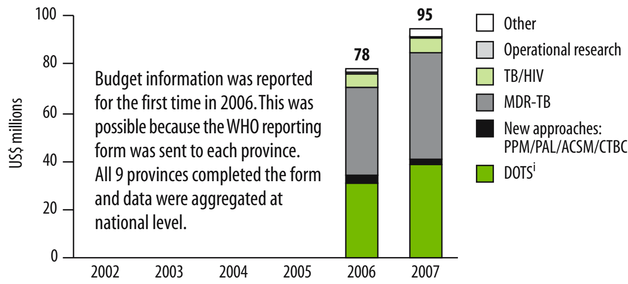
- Incorporate operational research into the 2007–2011 NTP plan
- Strengthen collaborations with academic and research institutions through the establishment of a national TB research initiative
- Perform provincial drug resistance surveys in 2007–2008, incorporating HIV testing
- Conduct a population-based TB prevalence survey in all 9 provinces in 2007–2008, incorporating HIV testing, and repeat every 3 years

Challenges

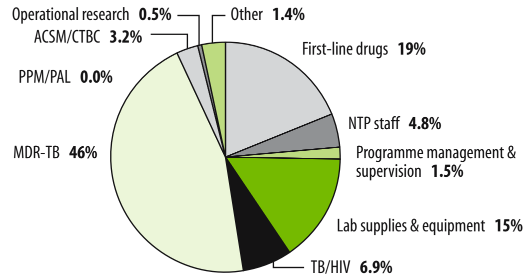
- Interpretting trends in notification data, given that the phased implementation of the new electronic TB register as a recording and reporting system in recent years has led to inconsistencies in the data
- Improving cooperation and collaboration from and among research and academic institutions conducting TB research
- Overcoming donor-driven research agendas which neither address national priorities nor inform policy
- Establishing field sites for clinical trials and evaluation of diagnostics
- Increasing funding for TB research

FINANCING THE STOP TB STRATEGY

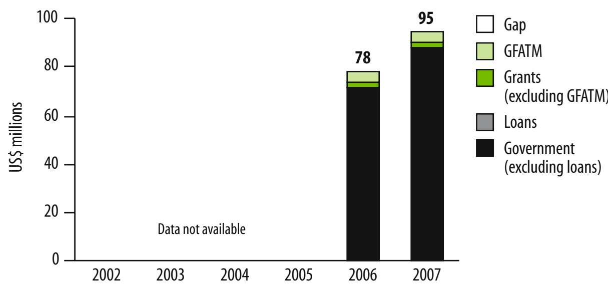
NTP budget by line item
Increased budget in 2007 mainly for MDR-TB, establishment of culture facilities in 2 provinces, and laboratory strengthening in 3 provinces



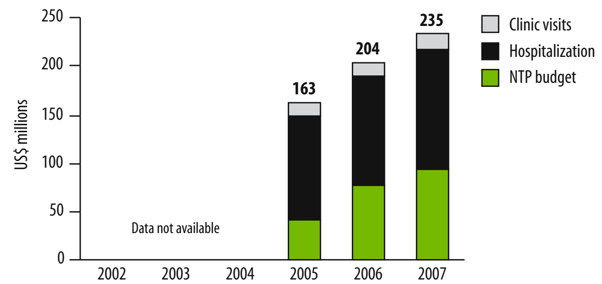
NTP budget by line item, 2007
Largest budget item is for MDR-TB treatment, equivalent to US$ 7193 per patient treated



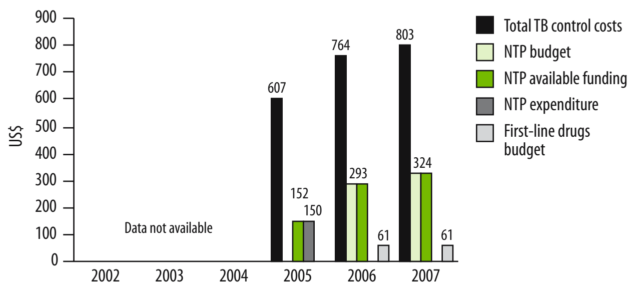
NTP budget by source of funding
Almost all of the budget is financed domestically; external funding predominantly for TB/HIV



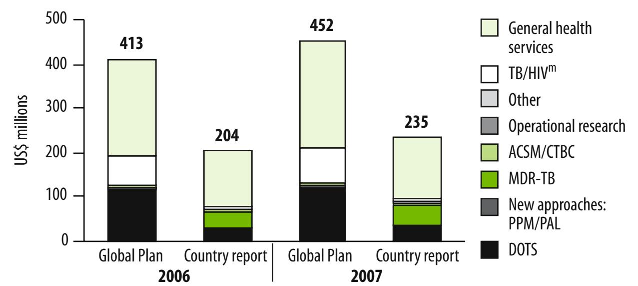
Total TB control costs by line item[j]
Hospitalization costs based on estimates that 60% of ss-/EP patients are hospitalized for an average of 74 days and 15% of ss+ are hospitalized for an average of 3 days



Per patient costs, budgets and expenditures[k]
Data reported by NTP in 2006 show much lower use of hospitalization compared to assumptions used in earlier WHO reports; as a consequence the cost per patient treated is lower than previously estimated



Comparison of country report and Global Plan:[l] total TB control costs, 2006–2007
Global Plan estimates were made prior to downward revision in the use of hospitalization for ss+ patients; also, projected number of patients to be treated is higher in Global Plan



SOURCES, METHODS AND ABBREVIATIONS

[a] *World population prospects – the 2004 revision*. New York, United Nations Population Division, 2005.
[b] Incidence, prevalence and mortality estimates include patients infected with HIV. Estimates of TB burden revised in 2005 following analysis of vital registration data for year 2001. Trend in incidence estimated from 3-year moving average of notification rate (new and relapse, non-DOTS and DOTS combined, years 1999–2001 interpolated).
[c] MDG and STB Partnership indicators shown in bold. Targets are 70% case detection of smear-positive cases under DOTS, 85% treatment success, to ensure that the incidence rate is falling by 2015, and to reduce incidence rates and halve 1990 prevalence and mortality rates by 2015. Estimates for 1990 are prevalence 579/100 000 pop and mortality 64/100 000 pop/yr.
[d] Estimate of HIV prevalence in incident TB cases (15–49 yo) derived from UNAIDS estimate of HIV prevalence in the general population, using assumed incidence rate ratio of 6.
[e] MDR-TB figures shown in regular type are survey data from the database of the WHO/IUATLD Global Project on Anti-Tuberculosis Drug Resistance Surveillance. Figures in italics are estimates from the following source: Zignol M et al. Global incidence of multidrug-resistant tuberculosis. *Journal of Infectious Diseases*, 2006, 194:479–485.
[f] Completeness of reporting assessed at lowest level in reporting hierarchy for which information is available.
[g] To ensure adequate laboratory services coverage there should be at least one laboratory providing smear microscopy per 100 000 population, one culture facility per 5 million population and one DST facility per 10 million population.
[h] Case detection within DOTS areas calculated by dividing national case detection rate (new ss+) by DOTS coverage.
[i] DOTS includes the following components shown in the pie chart at right: first-line drugs, NTP staff, programme management and supervision, and laboratory supplies and equipment.
[j] Total TB control costs for 2005 are based on expenditure and those for 2006–2007 are based on budgets. Estimates of the costs of clinic visits and hospitalization are WHO estimates based on data provided by the NTP and from other sources. See Methods for further details.
[k] NTP available funding for 2005 is based on the amount of funding actually received, using retrospective data; available funding for 2006–2007 is based on prospectively reported budget data, and estimated as the total budget minus any reported funding gap.
[l] Estimates in the Global Plan were presented for regions rather than countries. See Methods for explanation of calculation of individual country estimates from regional estimates.
[m] Global Plan estimates cover the full costs of collaborative TB/HIV activities, but these costs may be budgeted for by either th e NTP or the National AIDS Programme. In this graph, country reports include only the NTP budget. This may explain the apparent discrepancy between the Global Plan and country reports.

– indicates not available; pop, population; ss+, sputum smear-positive; ss-, sputum smear-negative pulmonary; unk, pulmonary – sputum smear not done or result unknown; yr, year.