

COUNTRY PROFILE

Kenya

Kenya adopted the DOTS strategy in the early 1990s and achieved nationwide DOTS coverage in 1996. The diagnosis and treatment of TB are integrated into the Kenyan public health services. TB notification rates have increased five-fold in the past 10 years, the main explanation is probably the impact of the HIV epidemic, although improvements in programme performance may also have contributed; encouraging private physicians to provide DOTS services has increased case-finding in recent years. Furthermore, in collaboration with NGOs, DOTS services are being extended to remote areas, nomadic populations and urban slums. PPM-DOTS initiatives are succeeding but there is still scope to increase the involvement of community workers. An estimated 29% of TB patients are HIV-positive, and TB/HIV coinfection is now a significant problem. Kenya is actively promoting collaboration between the TB and HIV programmes, supported by the "3 by 5" initiative and funding from the President's Emer-

gency Plan for AIDS Relief. It is anticipated that up to 35% of those who start ART in the public sector will be TB patients.

System of TB control

The NTP (known locally as the National Leprosy and TB Programme) adopted the DOTS strategy in the early 1990s, and TB diagnosis and treatment are integrated into the public health services at all levels. At the central level, the NTP develops TB control policies and offers technical assistance to health-service providers. Other central level responsibilities include surveillance, training, advocacy and resource mobilization activities.

Kenya's laboratory system includes the Central TB Reference Laboratory based at the Kenya Medical Research Institute, which functions as an NRL, four private medical laboratories in Nairobi that are able to perform culture and susceptibility testing for first-line drugs and 619 laboratories that perform smear microscopy. All public and faith-based hospitals, health

centres and some dispensaries carry out sputum microscopy. About three quarters of all registered medical laboratories in Kenya – government, NGO and private – do smear microscopy for the NTP.

Surveillance and monitoring

The TB notification rate increased five-fold between 1980 and 2003, but the rate of increase is declining. In assessing the case detection rate, it has been assumed that the increase in case notifications reflects a real increase in incidence; it is also possible that case detection has improved in recent years. The spread of HIV infection in Kenya has almost certainly been responsible for much of the increase but also makes it difficult to estimate the true case detection rate without more detailed analysis of subnational data. The proportion of notified cases that are diagnosed as smear-positive has fallen steadily since 1995, possibly because HIV-positive people are more likely than HIV-negative people to present with smear-negative TB. A similar pattern is seen in other countries in eastern and southern Africa where the prevalence of HIV is high.

The treatment success rate in 2002 was 79%, still below the 85% target, largely because 15% of patients defaulted or were transferred to other treatment centres without follow-up, and 5% died. The loss of patients from the cohort could be associated with HIV infection but may also reflect weaknesses in programme management. For either or both of these reasons, the treatment outcomes for new smear-positive patients have not improved much since 1994. The treatment outcomes among patients registered for re-treatment following relapse were somewhat worse, and the death rate was 10%. Outcomes are not available for patients treated after failure or default.

As long as the incidence of TB remains high because of the HIV epidemic in Kenya, the epidemiological

PROGRESS IN TB CONTROL IN KENYA**Indicators**

DOTS treatment success, 2002 cohort	79%
DOTS case detection rate, 2003	46%
NTP budget available, 2004	75%
Government contribution to NTP budget, including loans, 2004	25%
Government contribution to total TB control costs, including loans, 2004	38%
Government health spending used for TB control, 2004	7%

Major achievements

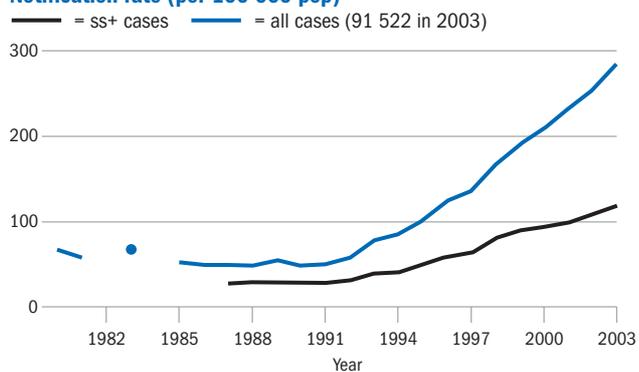
- Significant improvement in human resources capacity in the central unit
- Expansion of PPM DOTS, reinstatement of NRL, establishment of the TB/HIV coordinating body, and development of several guidelines and of the urban TB control strategy
- Secured sufficient drugs and funds for DOTS implementation and expansion
- Increased case-finding through decentralization of TB diagnostic services, coupled with improvement of diagnostic procedures
- Development and implementation of the COMBI plan that is aimed at influencing the health-seeking behaviour of the population to improve early case detection

Major planned activities

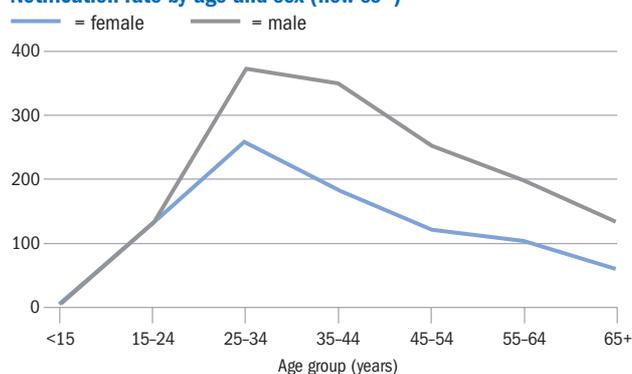
- Implement effective TB/HIV collaborative programme: VCT, co-trimoxazole preventive therapy and ART for HIV-infected TB patients
- Improve human resources by recruiting additional staff at central and peripheral levels to boost training and supervision

LATEST ESTIMATES ^a		TRENDS	2000	2001	2002	2003
Population	31 987 119	DOTS coverage (%)	100	100	100	100
Global rank (by est. number of cases)	10	Notification rate (all cases/100 000 pop)	210	235	254	286
Incidence (all cases/100 000 pop/year)	610	Notification rate (new ss+/100 000 pop)	94	101	109	119
Incidence (new ss+/100 000 pop/year)	262	Detection of all cases (%)	46	47	46	47
Prevalence (all cases/100 000 pop)	884	Case detection rate (new ss+, %)	48	47	46	46
TB mortality (all cases/100 000 pop/year)	133	DOTS case detection rate (new ss+, %)	44	47	46	46
TB cases HIV+ (adults aged 15-49, %)	29	DOTS case detection rate (new ss+)/coverage (%)	44	47	46	46
New cases multidrug resistant (%)	0.0	DOTS treatment success (new ss+, %)	80	80	79	—

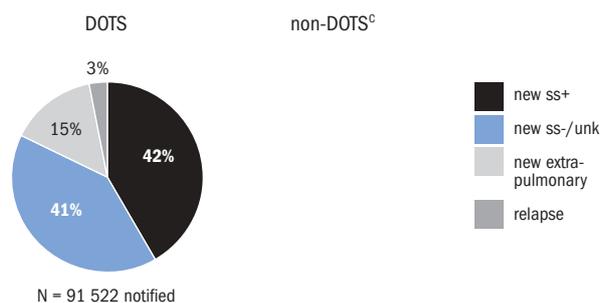
Notification rate (per 100 000 pop)



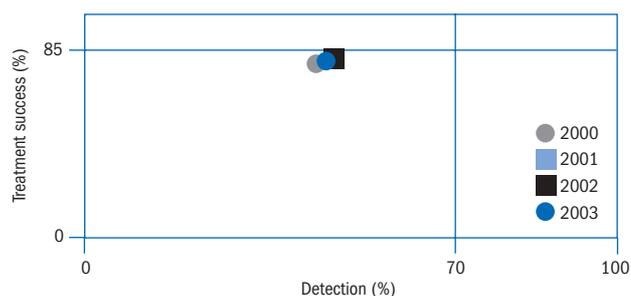
Notification rate by age and sex (new ss+)^b



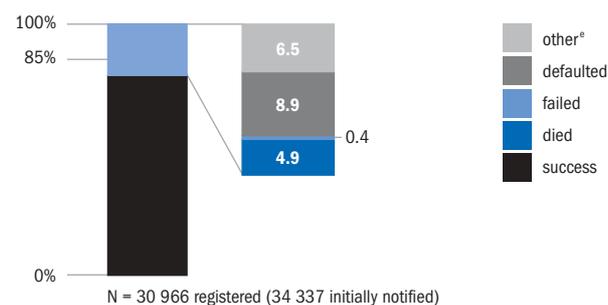
Case types notified



DOTS progress towards targets^d



DOTS treatment outcomes (new ss+)



Non-DOTS treatment outcomes (new ss+)

Notes

ss+ indicates smear-positive; ss-, smear-negative; pop, population; unk, unknown.

Absence of a graph indicates that the data were not available or applicable.

^a See Methods for data sources. Prevalence and mortality estimates include patients with HIV.

^b The sum of cases notified by age and sex is less than the number of new smear-positive cases notified for some countries.

^c Non-DOTS is blank for countries which are 100% DOTS, or where no non-DOTS data were reported.

^d DOTS case detection rate for given year, DOTS treatment success rate for cohort registered in previous year.

^e "Other" includes transfer out and not evaluated, still on treatment, and other unknown.

impact of the DOTS programme will be hard to evaluate from routine surveillance data alone. A population-based survey of disease prevalence would give a better estimate of the current burden of TB in Kenya and provide a baseline against which to assess the future impact of control programmes.

Improving programme performance

The Government of Kenya is committed to providing anti-TB drugs for all new patients. The NTP also receives support for drugs from the GDF. The last official data from a drug resistance survey were reported in 1995. In December 2004, the GLC approved a DOTS-Plus pilot project, with funding from the GFATM.

A national TB control plan is being developed for 2005–2010. Tuberculin surveys were carried out in 1958–1959, 1986–1990 and 1990–1995. A fourth tuberculin survey has already started, in collaboration with KNCV, and should be completed in 2006.

An urban TB control project is planned, with a focus on expanding TB services to slum populations in cities; funds from the GFATM will allow several new activities to start. Diagnostic and treatment services are expanding, and NTP activities in collaboration with the national AIDS programme, private sector representatives (physicians and pharmacies), prison authorities and selected NGOs are continuing in several districts.

The COMBI communication plan was launched in April 2004, when materials developed by several agencies were presented. A system to monitor and evaluate the implementation, distribution and impact of these materials is being established.

Three other areas in which programme performance needs to be improved are diagnostic and laboratory services, TB/HIV coordination and links with other health-care providers and the community.

Diagnostic and laboratory services

Expansion of the diagnostic services continues, with the number of laboratories that perform smear microscopy

increasing from 542 in 2003 to 619 in 2004. EQA for smear microscopy, in accordance with international guidelines, is being adopted for regional and district laboratories and its implementation started in May 2004 in some districts. Discussions on the establishment of a network of public and private laboratories and the inclusion of these laboratories in the existing EQA system are in progress. Major constraints for the laboratory services include inadequate human resources and an insufficient budget allocation for supervisory activities. Until 2003, the Central TB Reference Laboratory did not have a clear mandate to function as an NRL. At present, one of the main priorities for the NTP is to continue to improve the technical capacity of this laboratory. The NRL is currently equipped to carry out rapid liquid culture techniques and DST on all re-treatment cases from Nairobi as well as re-treatment and failure cases from other provinces. New laboratory guidelines for sputum examination by AFB microscopy have been developed and are to be published in 2005.

TB/HIV coordination

Kenya, like many other countries in sub-Saharan Africa, is severely affected by the HIV/AIDS epidemic. An estimated 29% of adult TB patients in Kenya are HIV-positive; a new survey of HIV in TB patients is planned for 2005. In 2003, a national TB/HIV coordinating body was set up, including representatives from the TB and HIV programmes, research institutions, technical agencies, donors and representatives of PLWHA. A national TB/HIV coordinator was appointed and is the secretary of the steering committee. TB/HIV activities have started in Nakuru District, and by the end of 2005, should have started in about 30 other districts.

Kenya is one of the pilot sites for the "3 by 5" initiative and is receiving funding from the President's Emergency Plan for AIDS Relief. In 2005, about 45 000 TB patients should be offered HIV testing and a package of prevention and care, including ART. It is estimated that about 35% of patients who are eligible for ART will be

identified through the TB control services. A monitoring and evaluation system for TB/HIV activities is now being developed and tested in selected districts.

Links with other health-care providers

An initiative to encourage private physicians to provide DOTS services in Nairobi was started in 2001 and is now being implemented in several other towns and settings. This has led to an increase in case notification rates, and treatment results have been satisfactory. Guidelines for PPM-DOTS have been developed and staff trained. Collaboration between the NTP, NGOs and a variety of public sector health providers and related institutions, including general hospitals, medical colleges and health services in refugee camps, prisons, military and the police, is still in progress.

Links with the community

Community-based DOTS was successfully pilot tested in Machakos District between 1998 and 2000, and 11 other districts have recently started training community volunteers. District teams, comprising nurses, social workers, health educators and public health workers, train community volunteers in increasing awareness of TB, early referral of suspects and treatment support.

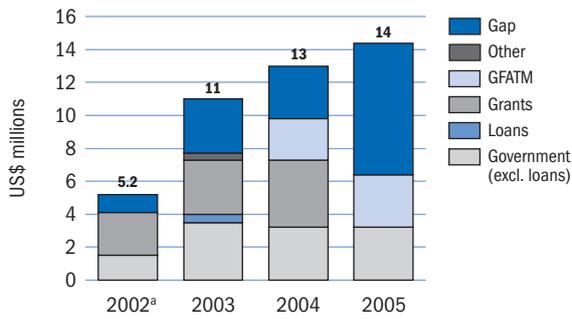
Partnerships

Financial support to the NTP in Kenya is mostly provided by CIDA, CDC and USAID. The NTP has a three-year agreement with the GDF for anti-TB drugs, which expired at the end of 2004. The World Bank supported the NTP through a loan for the purchase of anti-TB drugs. A GFATM grant agreement was signed in round 2 and will provide significant funding for DOTS expansion activities. KNCV and WHO are the main technical partners.

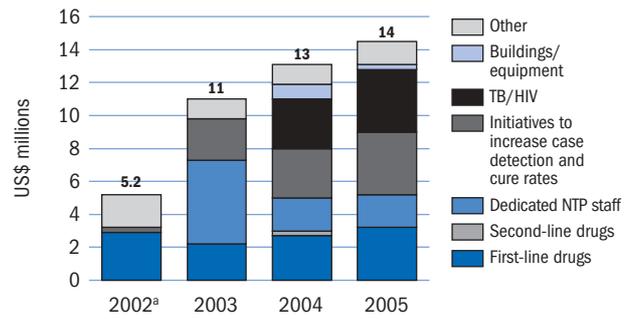
Budgets and expenditures

The NTP budget has increased steadily from US\$ 5.2 million in 2002 to US\$ 14 million in 2005; the budget per patient has increased from about US\$ 67 per patient in 2002 (for about 60 000 patients) to US\$ 142 per

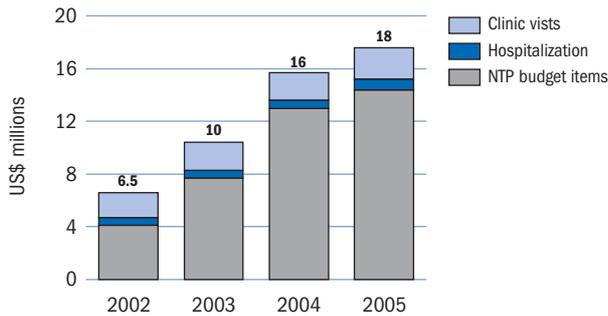
(a) NTP budget by source of funding



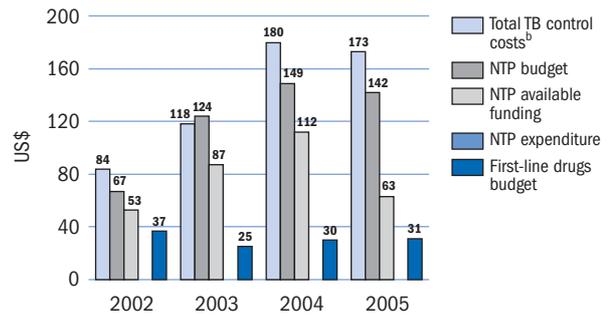
(b) NTP budget by line item



(c) Total TB control costs by line item^b



(d) Per patient costs, budgets, available funding and expenditures



^a Does not include budget for buildings/equipment and dedicated NTP staff.

^b Total TB control costs for 2002 and 2003 are based on available funding, whereas those for 2004 and 2005 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.

patient in 2005 (based on a projection by the NTP that about 100 000 patients will be treated in 2005). The government contribution to the NTP budget has been fairly constant at about US\$ 3.5 million per year (although this is underestimated to some extent because funds budgeted for investment in buildings and equipment are not reflected in the NTP budget). All grants, except the GFATM grant, end in June 2005 and need to be renegotiated. This explains why a funding gap of US\$ 8 million, equivalent

to about 50% of the NTP budget, is reported for 2005. It is anticipated that external funding will be secured to reduce this gap.

The increased budgets in 2004 and 2005 are to allow increased spending on collaborative TB/HIV activities and initiatives aimed at improving case detection and cure rates. Implementation of these activities will depend on closing the funding gap. No expenditure data are available for the years 2002 or 2003.

If the NTP budget is fully funded

and the money is spent, total TB control costs (which include visits to health clinics and expenditures related to hospitalization in addition to NTP budget items) will be about US\$ 16–18 million in 2004 and 2005, or about US\$ 180 per patient treated (compared with about US\$ 120 in 2003). The increase in total costs per patient is almost entirely due to changes in costs included in the NTP budget.