

Viet Nam

Viet Nam is the only member of the current group of HBCs¹ to have reached the targets for DOTS implementation, which were achieved before 2000 and exceeded subsequently. This outstanding success was made possible by the effective integration of political commitment, international technical assistance and funding, and efficient community mobilization. Viet Nam has continued to expand the programme so as to reach remote population groups who have not had access to TB services, and to strengthen the diagnostic laboratory network. An urgent priority is the development of a national plan for improved TB/HIV coordination. A planned national TB prevalence survey will be of critical importance for measuring the impact of DOTS on the TB epidemic. Because of its success in achieving the targets, Viet Nam does not need substantial budget increases in 2005.

System of TB control

The National Hospital of Tuberculosis and Respiratory Diseases, in Hanoi,

is responsible for the activities for all of Viet Nam. Pham Ngoc Thach Hospital in Ho Chi Minh City is appointed to supervise the activities for the southern provinces. Each province has a provincial TB centre, under the direction of the provincial health service, which is responsible for the local implementation of the TB control programme. The district TB units, directed by the district health centres, coordinate the operation of peripheral TB activities. TB patients are referred to the district health centres from community health posts for sputum examination and initial treatment.

An effective national TB laboratory network operates under the supervision of the NTP. There are two reference laboratories (Hanoi and Ho Chi Minh City) that perform culture and drug susceptibility testing. Of the 64 provincial TB laboratories, nearly one quarter perform culture. Smear microscopy services are provided by more than 600 district TB laboratories.

Surveillance and monitoring

The best estimates of case detection

for 2003 (86%) and treatment success for the 2002 cohort (92%) suggest, as in previous years, that Viet Nam has comfortably exceeded the targets for DOTS implementation. Given that DOTS coverage and case detection and cure rates have been very high since 1997, a fall in the incidence rate could be expected, which should be reflected in the trend in case notifications. It is unclear why no such decline is visible in the nationally aggregated data, but analysis by province could be more illuminating. Case-notification rates are highest among elderly men and women, suggesting that TB incidence has been higher in the past. It is possible that incidence is not falling perceptibly in Viet Nam because the case detection rate may be lower, and the incidence rate higher, than the WHO estimates. In this context, Viet Nam's long-planned prevalence survey would help to establish the true burden of TB in the country, as well as providing a baseline against which to evaluate the impact of the programme on the TB epidemic.

Improving programme performance

Although all provinces maintain 100% coverage by the DOTS strategy, there are populations living in remote and mountainous areas with limited access to DOTS services. The NTP is expanding DOTS to reach these areas while maintaining excellent services. Efforts to reach these remote populations and other vulnerable groups started in 2003 and continued in 2004. Maintaining a consistent supply of high-quality anti-TB drugs for the entire country, especially in newly covered areas, is another important challenge being addressed by the NTP. A regulatory framework and enforcement mechanism have been developed to ensure the high quality of

PROGRESS IN TB CONTROL IN VIET NAM

Indicators

DOTS treatment success, 2002 cohort	92%
DOTS case detection rate, 2003	86%
NTP budget available, 2004	98%
Government contribution to NTP budget, including loans, 2004	78%
Government contribution to total TB control costs, including loans, 2004	90%
Government health spending used for TB control, 2004	6%

Major achievements

- Expansion of the TB network to cover remote and mountainous areas and increased access to DOTS for vulnerable groups
- Establishment of nationwide EQA system for smear microscopy
- Development of a regulatory framework and enforcement mechanism to ensure the high quality of anti-TB drugs
- Pilot testing of isoniazid preventive therapy for PLWHA infected with *M. tuberculosis* and co-trimoxazole preventive therapy for TB patients coinfecting with HIV in An Giang province
- Studies on FDCs for patients in remote areas and on PPM-DOTS

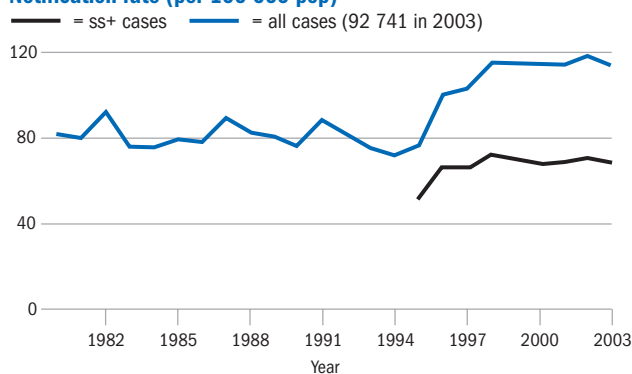
Major planned activities

- Develop five-year plan for NTP for 2006–2010
- Train staff in EQA and maintain system throughout the country
- Carry out third national drug resistance survey

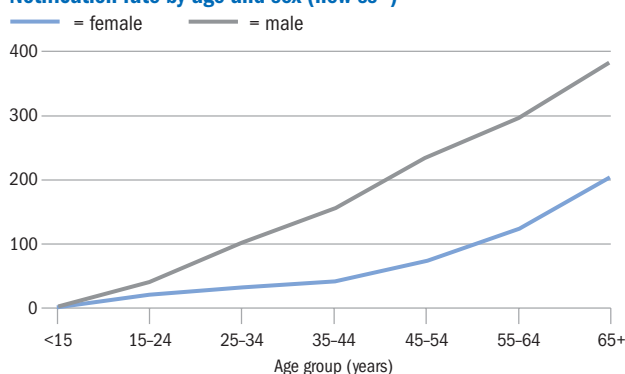
¹ Peru was excluded from the original group of HBCs, having met the targets and successfully reduced incidence.

LATEST ESTIMATES ^a		TRENDS	2000	2001	2002	2003
Population	81 376 724	DOTS coverage (%)	99.8	99.8	100	100
Global rank (by est. number of cases)	13	Notification rate (all cases/100 000 pop)	115	115	118	114
Incidence (all cases/100 000 pop/year)	178	Notification rate (new ss+/100 000 pop)	68	68	71	69
Incidence (new ss+/100 000 pop/year)	80	Detection of all cases (%)	63	63	66	64
Prevalence (all cases/100 000 pop)	240	Case detection rate (new ss+, %)	83	84	88	86
TB mortality (all cases/100 000 pop/year)	23	DOTS case detection rate (new ss+, %)	83	84	88	86
TB cases HIV+ (adults aged 15-49, %)	2.8	DOTS case detection rate (new ss+)/coverage (%)	83	84	88	86
New cases multidrug resistant (%)	2.3	DOTS treatment success (new ss+, %)	92	93	92	-

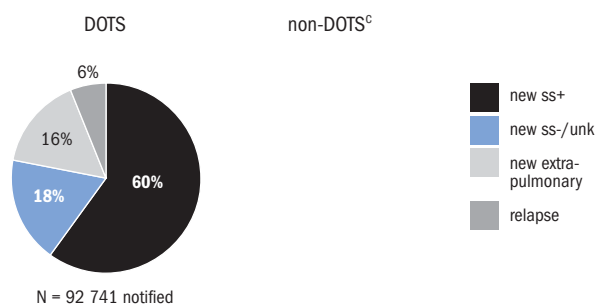
Notification rate (per 100 000 pop)



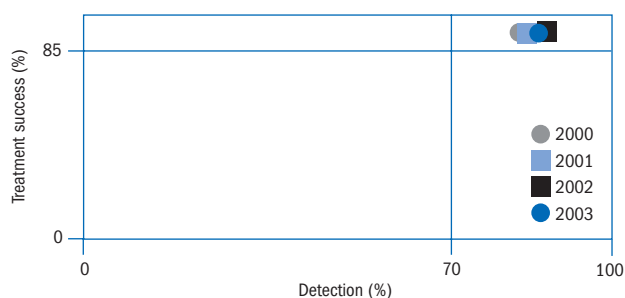
Notification rate by age and sex (new ss+)^b



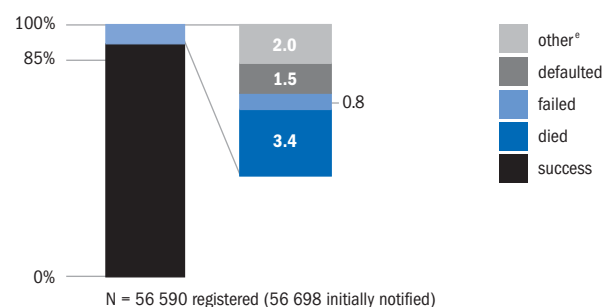
Case types notified



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.

anti-TB drugs for TB services both within and outside the NTP. The feasibility of using FDCs for patients living in areas which are difficult to access is being explored. The last drug resistance survey was carried out in 1996 and estimated the prevalence of MDR-TB at 2.3% among new cases. A new survey is scheduled for 2005.

The NTP is developing the next five-year plan for TB control (2006–2010). Human resource capacity development will continue to be a priority, and the NTP will work with local authorities to recruit and maintain existing staff and to develop intensified training activities for staff at all levels.

Three other areas where 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

As DOTS services are expanded to remote and mountainous regions, diagnostic services also need to be provided to these areas. An EQA system for sputum microscopy based on new international guidelines is being

established in laboratories at district level throughout Viet Nam. In 2004 and 2005, staff in 20 of 64 provinces will be trained on the EQA system, and methods will be developed to implement and maintain EQA throughout the country.

TB/HIV coordination

In 2002, the prevalence of HIV in new TB patients was estimated to be 3% based on HIV sentinel surveillance among TB patients. This is somewhat higher than the WHO national estimate of 1.8%. In 10 provinces HIV prevalence exceeded 3%, and in two provinces (Binh Duong and Haiphong) the prevalence was more than 10%. In An Giang Province a pilot project included the use of isoniazid preventive therapy for PLWHA infected with *M. tuberculosis*, and co-trimoxazole preventive therapy for TB patients with HIV coinfection. ART for HIV-infected TB patients is not yet available. There is an urgent need for a well-defined national plan for TB/HIV coordination, including strategies for TB prevention and control for PLWHA, HIV/AIDS prevention, and health promotion and treatment for TB patients.

Links with other health-care providers

Private providers treat a considerable proportion of patients in metropolitan Ho Chi Minh City, but the situation is uncertain in other parts of the country. A project aimed at involving private providers in TB control in Ho Chi Minh was implemented from 2001 to 2004 with mixed results. Case notification increased, but the treatment success rate was poor in the private clinics involved, probably because anti-TB drugs were not provided free of charge. No other private sector initiatives have been undertaken.

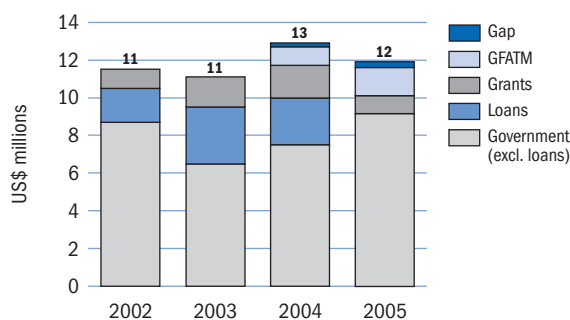
Links with the community

The community (i.e. villages, Women’s Union, Farmer’s Union) is involved in a successful IEC campaign for TB control activities, and there are plans to scale up these activities.

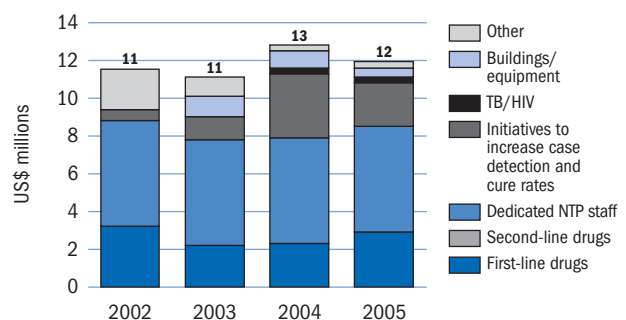
Partnerships

Effective international partnerships are a major feature of Viet Nam’s TB control programme. Viet Nam’s longstanding relationship with the Medical Committee Netherlands Viet Nam and, more recently, technical and funding partnerships with KNCV and

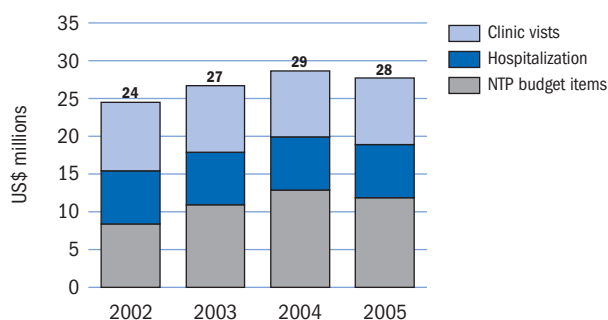
(a) NTP budget by source of funding



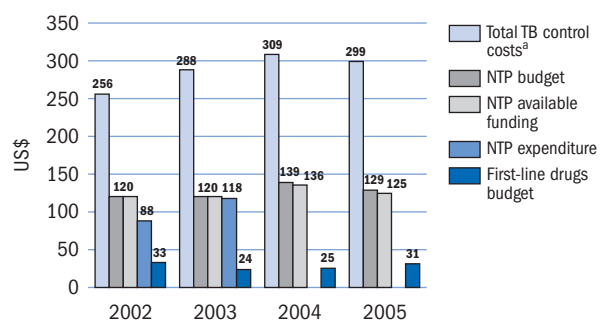
(b) NTP budget by line item



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



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



^a Total TB control costs for 2002 and 2003 are based on expenditures, 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.

the Dutch Government, have created nationwide TB services of high quality. A grant from the GFATM (signed in late 2003) is being used to reach TB patients among high-risk groups, remote populations and PLWHA. WHO and CDC provide technical and financial support for TB control activities, and CDC operates a Global AIDS Programme office in Viet Nam. A World Bank loan assists with purchase of anti-TB drugs.

Budgets and expenditures

The NTP budget has consistently been about US\$ 11–13 million per year between 2002 and 2005. Unlike most other HBCs, there has been no need for large increases in the budget during the period 2002–2005 because case detection and treatment success rates were already at target levels in 2002. Nevertheless, some budget increases have been planned, for example to allow better access to DOTS in remote areas and for a national prevalence survey.

Most funding is provided by the government (including loans), but

grants also make an important contribution, and GFATM funding accounts for about 13% of the budget in 2005. Actual expenditures in 2003 were very similar to the planned budget. The NTP budget is consistently about US\$ 120–140 per patient treated, while the total cost of TB control (including a network of dedicated hospital beds for TB patients and visits to clinics for DOT and monitoring during treatment) is consistently about US\$ 250–300 per patient treated. The total estimated cost of TB control has remained stable at US\$ 24–30 million per year.

Zimbabwe

Zimbabwe adopted the DOTS strategy in 1992 and has been reporting nationwide coverage since 2000. TB treatment is provided free of charge to all patients and an adequate supply of anti-TB drugs is assured until 2006. Nevertheless, Zimbabwe still has some way to go to reach the global targets for case detection and treatment success. Many difficulties face TB control efforts, including insufficient funding, severe staff shortages and the impact of the HIV/AIDS epidemic. WHO estimates that, in 2003, 69% of TB patients were HIV-positive. Efforts to address the needs arising from widespread TB/HIV coinfection are still in the developmental stage.

System of TB control

Zimbabwe's NTP was established in the 1960s. In 1983, the government introduced a policy of integrating all TB control activities into the general health services. The DOTS strategy was officially adopted by the NTP in 1997. The NTP operates at three levels: central, provincial/local authority and district. At the central level, the

NTP is part of the HIV/AIDS/STI and TB unit and is responsible for planning, coordination, monitoring, training and evaluation of programme performance. At the provincial level, training of staff and collection and analysis of TB data are the responsibility of the provincial epidemiology and disease control officer. Four local authorities (Bulawayo, Gweru, Harare and Mutare) run their own TB control programmes, but follow national guidelines and report to the NTP. Mission hospitals, health services of the uniformed forces and some large private organizations also provide TB control services according to national guidelines. The district is the basic management unit for TB control and is responsible for diagnosis, treatment and follow-up of patients, as well as supervision and monitoring of treatment, registration and compilation of quarterly and annual reports. There are rural health centres or municipal clinics in most urban localities that function as primary health-care facilities. These centres and clinics assist in the identification and referral of TB suspects, supervision and observa-

tion of treatment and follow-up of contacts and defaulters.

The laboratory network consists of an NRL, 10 intermediate (province/city) laboratories and 96 peripheral laboratories. All intermediate and peripheral laboratories do smear microscopy and refer re-treatment and failure cases for culture and drug susceptibility testing to the NRL. In addition, the NRL is responsible for providing overall assistance and EQA to all laboratories in the network. There are more than 30 private laboratories that do smear microscopy for private and public providers and that participate in the NTP laboratory network, but they are not involved in the NRL EQA.

Surveillance and monitoring

The total number of TB cases reported in Zimbabwe rose from 6000 in 1988 to 60 000 in 2002. However, the rate of increase has been slowing since 1997, and the number of reported cases fell between 2002 and 2003. The smear-positive case notification rate has been fairly stable since 1997, so the proportion of cases diagnosed as smear-positive has fallen. This proportion was only 27% in 2003, indicating poor diagnostic technique. In 2003, Zimbabwe experienced nationwide industrial action in the public health sector for three months, which adversely affected diagnosis and treatment of TB. It is not clear whether these trends reflect the underlying trends in incidence or variations in the quality of reporting, but the pattern is similar in some other eastern and southern African countries with high rates of HIV infection. Case detection under DOTS was in the range 40–50% between 2000 and 2003, but further investigation is needed to verify this estimate.

The treatment success rate was 67% for patients registered in 2002 and has remained at this level since 1998. In the 2002 cohort, 11% of patients died and 22% either defaulted or were transferred between

PROGRESS IN TB CONTROL IN ZIMBABWE

Indicators

DOTS treatment success, 2002 cohort	67%
DOTS case detection rate, 2003	42%
NTP budget available, 2004	58%
Government contribution to NTP budget, including loans, 2004	27%
Government contribution to total TB control costs, including loans, 2004	59%
Government health spending used for TB control, 2004	4%

Major achievements

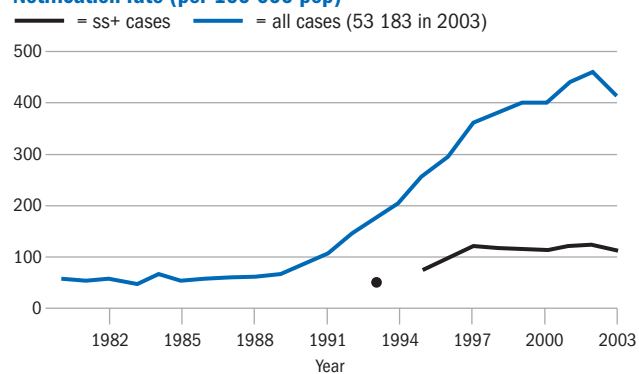
- Training of all laboratory staff and strengthening of laboratory supervision
- Training of prison health workers on DOTS
- Joint MoH/WHO review of the NTP in November 2003

Major planned activities

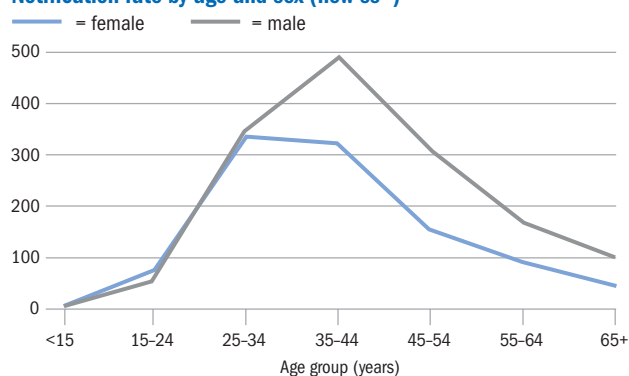
- Strengthen the EQA system in both public and private laboratories
- Improve the recording and reporting system that links the national reference laboratory and public and private laboratories
- Introduce DOTS to prison services and train prison health-care workers
- Introduce community-based DOTS in one pilot district
- Introduce FDCs
- Revise national TB manual
- Train TB microscopists

LATEST ESTIMATES ^a		TRENDS	2000	2001	2002	2003
Population	12 891 242	DOTS coverage (%)	100	100	100	100
Global rank (by est. number of cases)	19	Notification rate (all cases/100 000 pop)	402	441	461	413
Incidence (all cases/100 000 pop/year)	659	Notification rate (new ss+/100 000 pop)	114	120	124	112
Incidence (new ss+/100 000 pop/year)	265	Detection of all cases (%)	65	68	70	63
Prevalence (all cases/100 000 pop)	660	Case detection rate (new ss+, %)	46	46	47	42
TB mortality (all cases/100 000 pop/year)	153	DOTS case detection rate (new ss+, %)	46	46	47	42
TB cases HIV+ (adults aged 15-49, %)	69	DOTS case detection rate (new ss+)/coverage (%)	46	46	47	42
New cases multidrug resistant (%)	1.9	DOTS treatment success (new ss+, %)	69	71	67	—

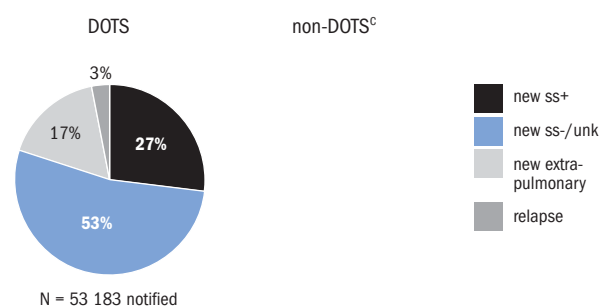
Notification rate (per 100 000 pop)



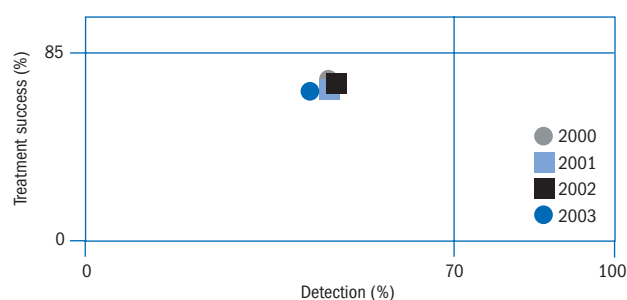
Notification rate by age and sex (new ss+)^b



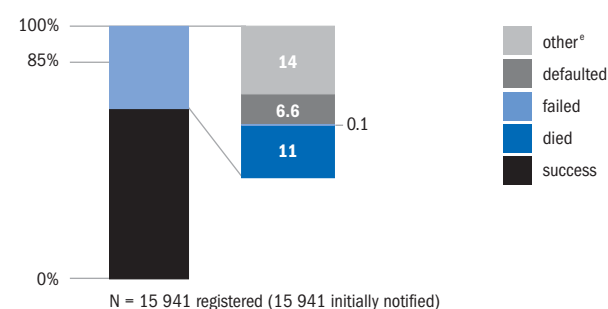
Case types notified



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.

treatment centres without follow-up. Among patients registered for re-treatment, 20% were reported to have died, 16% defaulted or transferred without follow-up.

While it would be valuable to assess the impact of DOTS on the burden of TB in Zimbabwe, the immediate priority is to evaluate more accurately the progress made in programme implementation (case detection, treatment success) against the background of changing TB incidence, prevalence and death rates.

Improving programme performance

The high rates of HIV infection together with unfavourable socioeconomic conditions have had an impact on general health services in Zimbabwe in the past year, and will also affect TB control activities. A national review of the NTP by MoH/WHO carried out in November 2003 included a review of activities at the central level, in all eight provinces and the three major cities (Bulawayo, Chitungwiza and Harare). Recommendations were made on strengthening existing TB control and collaborative TB/HIV activities in order to reverse the downward trends in case detection and treatment success. Senior ministry officials are committed to improving TB control and a national TB policy, strategic plan and manual have been developed. However, the strategic plan for DOTS expansion has not been adopted nationally and there are serious financial and infrastructural deficiencies at all levels.

There is a severe shortage of human resources at all levels, especially at the central level. The NTP continues to be adversely affected by the departure of experienced staff from the public to the private sectors and to other countries. Five of the eight provincial TB coordinators were appointed in the past year and many districts have no TB coordinators. The NTP is planning to identify districts without coordinators, appoint new staff and ensure that all district hospitals have a staff member responsible for TB. Staffing at the central level has been strengthened by the appoint-

ment of a national TB coordinator to assist the NTP manager and by NTP advisers and officers that have been seconded by IUATLD and CDC. Training for staff has been intensified and efforts have been made to train prison health workers on the DOTS strategy.

IEC material is generally available at most facilities; however, it is produced centrally, which reduces its impact in areas where other languages are spoken. No national advocacy plan has been developed.

The supply of high quality anti-TB drugs is guaranteed until the end of 2006, with funding from the European Union, but FDCs and paediatric formulations are not available. The NTP intends to introduce FDCs in early 2005. The last national DRS was done in 1994–1995, when the prevalence of MDR-TB in previously untreated patients was 1.4%. No recent data on the prevalence of MDR-TB are available, but another DRS is planned for 2005. The draft policy document on MDR-TB management is awaiting finalization. Consequently, no second-line drugs are currently being used.

Other areas where programme performance needs to be improved include diagnostic laboratory services, TB/HIV coordination and links with other health-care providers.

Diagnostic and laboratory services

Training of laboratory staff and strengthening of laboratory supervision were undertaken in 2003–2004, but many facilities still have untrained staff. Similarly, while EQA systems were strengthened, financial and staffing constraints mean that some quality assurance activities were not routinely performed or have been suspended at national and provincial levels. A major problem for the laboratory services in Zimbabwe is the shortage of staff associated with the elimination of many posts for microscopists, and the movement of trained staff to the private sector or to other countries. The country is planning to train basic-level TB microscopists in 2005 to help to rectify this problem.

TB/HIV coordination

The number of AIDS cases and AIDS-related deaths continues to increase in Zimbabwe. There is no routine HIV surveillance among TB patients, but WHO estimates that 69% of adult TB patients are infected with HIV. The government has set up units to manage opportunistic infections, including provision of co-trimoxazole and fluconazole to PLWHA, and plans to begin delivery of ART in Harare and Mpilo hospitals in the near future. The government has also signed a policy on the use of co-trimoxazole among HIV-positive TB patients, though not yet on the use of isoniazid preventive therapy in PLWHA.

A TB/HIV working group has been set up and collaborative TB/HIV activities have been planned. To date, few of these activities have started. WHO is funding a community TB/HIV care initiative in one district and HIV surveillance among TB patients is planned for 2005.

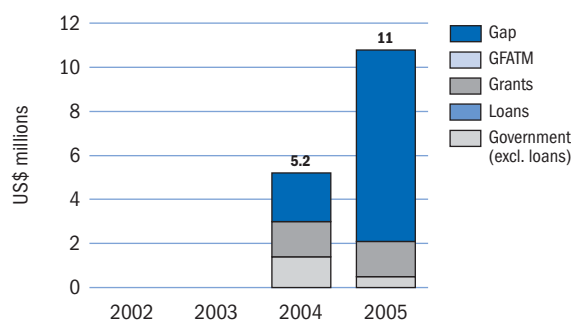
Links with other health-care providers

Private laboratories have been included in the NTP laboratory network. A small-scale PPM-DOTS project involving private practitioners and hospitals is being piloted in Harare. The NTP is involving medical colleges, specialist TB hospitals, prison health services, mission hospitals and health services operated by the police and the armed forces in DOTS implementation. A few large agricultural and mining companies also provide TB control services to their employees and dependants according to national guidelines.

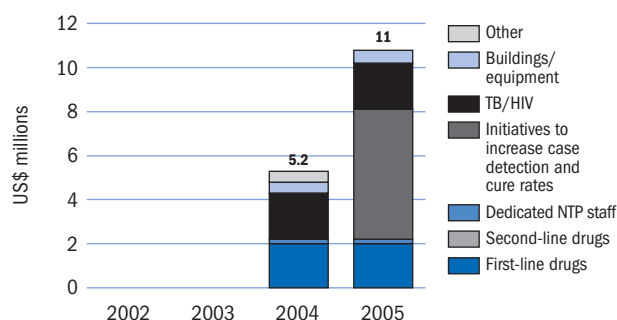
Partnerships

Technical assistance is provided by IUATLD and WHO. The CDC provides laboratory support (reagents and other consumables) and the EU provides funding for anti-TB drugs. There is a national TB expert committee that guides policy development and implementation, but there is currently no interagency body coordinating TB control. However, a country coordination committee meets monthly and functions as the national TB/HIV coordinating body.

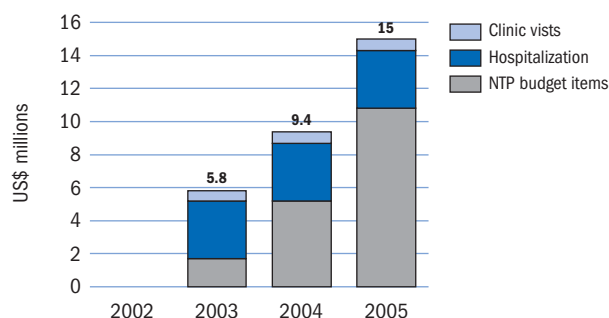
(a) NTP budget by source of funding



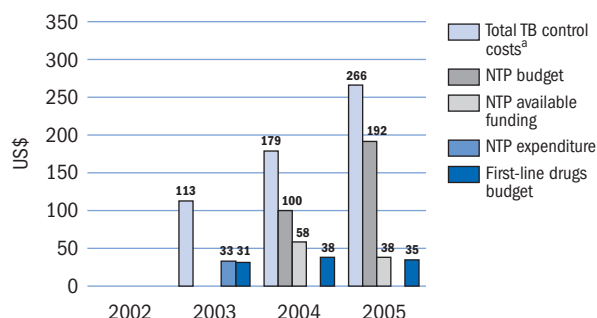
(b) NTP budget by line item



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



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



^a Total TB control costs for 2003 are based on expenditures, 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.

Budgets and expenditures

The NTP budget for 2005 is US\$ 11 million, compared with US\$ 5 million in 2004 (about US\$ 200 per patient vs US\$ 100 per patient). The increased budget reflects plans to increase spending on various initiatives, including collaborative TB/HIV activities, training, monitoring and evaluation, and community TB care. However, available funding is limited, at only around US\$ 2 million in 2005. This is down from available funding of US\$ 3 million in 2004, but a slight increase compared with expenditures of US\$ 1.7 million in 2003. The government's contribution to funding is likely to be higher than reported, as finan-

cial support for buildings and equipment is not reflected in disease control programme budgets. Most of the grant funding for first-line drugs is provided by the EU through the essential drugs programme and has remained constant between 2003 and 2005 at around US\$ 1.6 million each year (equivalent to about US\$ 35 per patient treated). At around US\$ 9 million, the funding gap in 2005 is equivalent to 80% of the budget. Zimbabwe is likely to apply to the GFATM in round 5 to address this gap.

The total cost of TB control, which includes the cost of dedicated TB beds and clinic visits during treatment as well as items included in the NTP

budget, was about US\$ 6 million in 2003 (just over US\$ 100 per patient treated). If the 2005 NTP budget is fully funded and spent, this will increase to about US\$ 15 million in 2005 (about US\$ 270 per patient treated). The estimated cost of dedicated TB hospital beds, at US\$ 3.5 million, is based on an estimate of 1660 dedicated TB beds, including those in mission hospitals. However, since occupancy in district hospitals is decreasing (for example because of a new admission policy introduced in the late 1990s) and beds are being reallocated to other diseases, this may be an overestimate.