

Uganda National Tuberculosis Strategic Plan, 06/07 – 10/11

1. Background information

1.1 Country geography

Uganda found in Eastern Africa is bordered by Sudan in the North, Kenya in the East, Democratic Republic of Congo in the West and by Tanzania and Rwanda in the South.

1.2 Demography

Uganda has a population, projected from 2002 census, of 28 million with a male to female ratio of 95 to 100. Most (88%) of the population is rural, 51% are below 18 years of age¹, 4.5% are 60 and above, 22% are childbearing age (15-49) women and 13% orphans primarily of AIDS and war. On average 143 inhabit a square kilometre.

1.3 Governance and administrative structure

Uganda follows a decentralized system of governance enshrined in the National Constitution (1995) and Local Government Act (1997). These delineate responsibilities between Central Government (Ministries) and Local Governments (Districts and Sub-counties). Core functions of Central Government include policy formulation, setting standards and quality assurance, capacity development and technical support, coordination, monitoring-evaluation, resource mobilization and training. Districts the implementers on the other hand incorporate local peculiarities as they planning and delivering services according to national policies and priorities.

Administratively, Uganda is divided into districts, counties, sub-counties, parishes and villages with corresponding Local Council V, LC IV, LC III, LC II and LC I political levels. Since July 2006, there are 81 districts up from 56; these are further sub-divided into 966 sub-counties, 5,152 parishes and 44,000 villages.

Elected District Councils formulate policies, plan and oversee implementation including of health services in districts. Elected District Chairmen head Executives and District Local Government Councils (Legislative arm of the districts), that oversee the day-to-day operations in the districts. The Chief Administrative Officers head civil arms of Districts

1.4 Socio-economic and Health situation

The country has experienced strong economic growth averaging 6.5% per annum since 1991/92, with inflation at an annual average of 4.8% (HSSP II). Per capita income is estimated at US\$ 330 over the last 5 years (Poverty Eradication Action Plan, 1997). The percentage of the population living below the poverty line had risen slightly to 38% in 2003 though it is as high as 65% in the north with a long standing civil strife and the effect of HIV/AIDS. *The country is currently ranked 144 on the Human Development Index (HDI).*

Uganda still has a low health status: an IMR of 83/1,000 live births, an annual population growth rate of 3.2% (Census 2002), an under-five mortality rate of 152 deaths per 1,000 live births, a total fertility rate of 6.9, and a maternal mortality ratio of 505 deaths per 100,000 live births (Uganda Demographic & Health Survey 2000/01). However, some progress has been made: literacy rates spurred by universal primary education have risen to 68%, safe water and toilet coverage to 61% and 83% respectively.

The country is in epidemiological transition with communicable diseases still predominating but non-communicable ones rising. According to the Uganda Burden of Disease study, over 75% of life years

¹ 19% of the population is below 5 years and 49% below 15 years

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lost due to premature deaths are due to ten preventable diseases². Perinatal and maternal conditions (20.4%), malaria (15.4%), acute lower respiratory tract infections (10.5%), HIV/AIDS (9.1%) and diarrhoea (8.4%) together account for over 60% of the total disease burden. Other diseases responsible for a significant proportion of morbidity and mortality include: tuberculosis, malnutrition (under-nutrition), anaemia, and intestinal infestations. Common among the emerging non-communicable diseases are hypertension, diabetes, cancer, mental illness, chronic and degenerative disorders and cardiovascular diseases.

1.5 Health infrastructure

The National Health Policy objective for the National Health System is to restructure the organization and management of the Ministry of Health and the District Health System to ensure effective harmony and linkages between the centre and the districts on the one hand and the public and private components on the other. It further calls for the establishment of “a network of functional, efficient and sustainable health infrastructure for effective health care delivery closer to the people”. In pursuit of this objective, Government is:

- a) Developing mechanisms to ensure equity in access to basic services for the most life-threatening health problems, particularly to avert pregnancy and birth-related deaths and the childhood killer diseases
- b) Building and strengthening the capacity of health facilities to improve health service provision
- c) Strengthening and rationally expanding the national health infrastructure through a medium term health facility development plan
- d) Establishing an appropriate and efficiently functioning referral system³.

The national standard is to have the following structures in place and functional³ serving the bracketed population

- i) **Ministry of Health and other National Level Institutions**
- ii) **National Referral Hospitals** (28,000,000 population)
- iii) **Regional Referral Hospitals** (2,000,000 population)
- iv) **District Health Services** (District level, 500,000 population)
- v) **Health Sub-District**
 - Referral Facility General Hospital (District level - 500,000 pop) or Health Centre IV (County level - 100,000 pop)
 - Health Centre III (Sub-county level - 20,000 population)
 - Health Centre II (Parish Level – 5,000 population)
 - Health Centre I (Village Health Team - 1,000 population)

Indeed the hierarchically organised health care delivery system takes its nomenclature from the corresponding political levels. HC I is located at village i.e. LC I level, HC II at LC II, HC III at LC III, HC IV at a Constituency (LC IV) and a district hospital at a district (LC V) level. Plus higher referral levels regional hospitals and the 2 National Referral Hospitals.

The current **1,469** HC IIs, 809 HC IIIs, 214 HC IVs (HSDs) and 102 hospitals in the country function such that higher-level units compliment lower ones and act as referrals for them. HC II has outpatient (OPD) from which it provides preventive and curative services. A HC III has an in-patient, maternity and laboratory services in addition to those provided by HC II. A HC IV has a theatre, A Medical Officer, does emergency surgery and provides blood transfusion services as well as services provided by HC III. A district hospital serves as a referral for the more complicated cases and performs both cold and emergency surgery in addition to services provided by HC IV. The 11 Regional Referral

² National Health Policy 1999

³ This is in reference to the public and PNFP health infrastructure

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Hospitals and 2 National Referral hospitals provide more specialised referral services. However, only some of these units provide TB services

Of the 102 hospitals in the country, two are the national public referral hospitals, 11 are regional, and 43 are general – giving a total of 56 public hospitals, 42 are Private Not-For-Profit (PNFP) hospitals and four are private health practitioner hospitals.

In 29 out of 214 HSDs, the function of HSD management has been delegated to the PNFP referral facility.

Table 1: Health facilities by level and ownership

Level of facility	Ownership			Total
	Government	PNFP	Private	
Hospital	56	42	4	102
HSDs/HC IV	185	29	0	214
HC III	650	47	12	809
HC II	845	362	264	1,469

Physical access to primary care services increased from the pre-HSSP baseline of 49% to 72% of the population living within 5 kilometres of a health facility (HSSP II).

Health Unit Management Committees to which health unit staffs are answerable oversee the units on behalf of their Local Councils. These committees ensure that any interventions carried out take into account the interests of the community.

Manpower: 56 of the 868 GoU & PNFP HC IIs remained totally un-staffed by end 2003 and the remaining 812 HC IIs, 32% were staffed exclusively by Nursing Assistants. There are a number of challenges related to pre-service training that are affecting the quality of training and need urgent attention. These include; critical shortage of tutors, inadequate infrastructure, excessive enrolment of trainees beyond designed capacity and under funding.

Health Planning and financing

The Central level (Ministries of Health and of Local Government) guides district planning. Annual plans are based on Health Sector Strategic Plans that were drawn in close consultation with partners. Health Sector Strategic Plans (HSSPs) - HSSP I from 09/00-04/05 and HSSP II 2005/06 – 2009/10 guide all implementers in the country. HSSP sets out priority health interventions the Uganda National Minimum Health Care package (NMHCP), objectives, strategies, targets as well as indicators for monitoring progress. TB is one of the NMHCP and its case detection ratio is one of the indicators. At district, a District Health Team headed by DDHS coordinates the development and monitoring of implementation of district plans

As for funding, despite the economic gains the country has made the health sector remains grossly under funded. For example, only US \$ 12 per capita (down from US\$ 15 in HSSP I) is currently being spent on health yet the MOH Health Financing Strategy estimates that \$28 per capita is required to deliver the minimum package of essential services spelt out in HSSP. In comparison, WHO in its report “Macroeconomics and Health: Investing in Health for Economic Development” (2001) estimates the optimum health requirement for countries like Uganda as \$34 per capita. On its part TB control is so under funded that it is more or less donor dependent.

1.6 National TB control Programme

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Prior to 1990 TB and Leprosy control programs were run as separate entities. A national tuberculosis control program was started in 1965, and progressed quite well until political changes took place in 1971. It gradually deteriorated to a non-operational level in mid 1970. Leprosy control on the other hand was for long carried out by church based organisations as a humanitarian Christian Mission. The idea of a combined program was conceived in 1988 and a joint National Tuberculosis Leprosy Program (NTLP) became operational (along the IUATLD/WHO model) as a pilot project in 10 districts supported by the European Development Fund (EDF) in 1990. It achieved 50% district coverage in 1993 and full operational coverage of all districts in 1995.

A combined NTLP is under the department of National Disease Control of Ministry of Health. A Program Manager assisted by Senior Medical Officers who function as Zonal TB Leprosy Supervisors (ZTLS) heads it. ZTLSs are peripherally based to facilitate oversight of TB control activities in all districts in their respective zones. The Central Unit of NTLP sets policies, technical and operational guidelines, plans, trains, ensures procurements and regular distribution of drugs and supplies as well as technical supervision and overall coordination of TB control activities countrywide.

At district level, a District TB Leprosy Supervisor (DTLS), a member of the District Health Team coordinates TB activities on behalf of the District Director of Health Services. At HSD level, a TB focal person is being groomed to oversee TB control at that level. Under the Community Based TB Care with DOTS model a Public health worker referred to as a Sub-County Health Worker (SCHW) links the formal health system to communities in respective sub-counties. SCHWs conduct community mobilization, facilitate communities through their leaders (Parish Development Committees-PDCs, Village Health Committees/Teams (VHC/Ts) or Local Councils (LCs) to select community volunteers (CVs) and train those selected. In addition they supervise CVs and replenish their TB drugs fortnightly. SCHWs are also responsible for updating Sub-County list TB and Health Unit anti-TB registers every two weeks.

The strategy of NTLP – Short term, long term, NTLP manual, principles of case finding, diagnosis and treatment

The MOH/NTLP adopted DOTS strategy and attained full district coverage in 1995. Despite a universal geographical the population coverage remains low. Only 465 health units provide TB diagnostic services and 1,216 TB-treatment. Other challenges in DOTS implementation include: weak political commitment, DOT, Medical Officers in some hospitals base diagnosis on radiology rather than sputum smear microscopy, raptures of drug supplies and a poor recording/reporting system.

Despite district wide coverage with DOTS case detection and poor treatment success indicators remained low. The poor performance was attributed to among others poor access to TB services⁴, high hospitalization and transport costs leading to high default rates as well as little if any community involvement in the planning and delivery of TB services. At the same time Uganda like other high-HIV-prevalence countries was experiencing a sharp rise in TB notifications (of about 4-6% annually) that overcrowded and strained the already overstretched health system. There was therefore a need to decentralize TB services.

NTLP supported by WHO involved Kiboga district officials and communities in designing a decentralized TB care protocol, preparing training and reference material, and held training in Kiboga District in 1997. In 1998 this model now dubbed community bases DOTS (CB-DOTS) was offered to patients in Kiboga, Rakai and Apac Districts. Cohort analysis in 1999 of patients treated with CB-DOTS showed high cure rates, meeting WHO target (85% success) through improved compliance.

⁴ Only 49% of the population lived within 5 k of general health facilities then and yet only a small fraction of them offered TB services

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Furthermore, CB-DOTS fostered community participation, improved access to treatment and equity in TB control, and also reduced on costs for TB care to both the patient and health system. The Ministry of Health endorsed the strategy and incorporated it into the Health Sector Strategic Plan in 1999.

Thereafter the MOH/NTLP policy promotes CB-DOTS as the best strategy for controlling TB. It advocates for passive case finding and effective chemotherapy with free anti-TB drugs to cure individual patients of TB and reduce its spread in communities. It also advocates for BCG vaccination at birth to prevent the severe forms of TB (military and meningeal) in children, use of CPT and ARVs to reduce case fatality among HIV co-infected TB patients. Though IPT can prevent latent TB infection from progressing to disease in people living with HIV/AIDS (PLWHA) it is currently not recommended for use on program basis.

TB case detection and case holding are integrated into the general health units as part of Primary Health Care (PHC). Case detection is currently based on sputum smear microscopy for AAFB. Fluorescent microscopy is limited to busy units like Mulago hospital. Chest x-ray on the other hand, is recommended to facilitate Medical Officers to rule in PTB in suspects with negative smears, military TB and to aid diagnosis in children. Culture is only recommended when drug resistance is suspected: failure cases and re-treatment cases. Currently culture facilities for programme use are only available in the National TB Reference Laboratory in Wandegaya. However there are other facilities (Joint Clinical Research Centre, Lacor and Mbarara) that do culture and drug susceptibility testing with which the program could collaborate.

NTLP follows WHO recommended treatment regimens. It currently recommends use of Cat I (2 RHZE/6EH) for all new cases⁵ aged 12 years and above, Cat II (2 SRHZE/1RHZE/5RHE) for all adult re-treatment cases, Cat III (2 RHZ/4 RH) for all children below 12 years⁶. Though the high prevalence of HIV in the general population and among TB patients justifies a shift to 4 months RH continuation recommended for HIV positive patients, this has been postponed till CB-DOTS is consolidated to guarantee DOT through the 6 months.

The NTLP uses a uniform standard recording/reporting system based on the WHO/IUATLD recommended format to monitor program performance. The standard tools include patient treatment cards, Laboratory TB registers, Unit TB registers in Diagnostic- Treatment Units, Sub-county health workers TB registers, District TB registers, and quarterly case notification (including program management) and treatment outcome forms. Below the health facility level CVs maintain Treatment DOT cards from which the SCHWs update their Sub-County TB registers and subsequently the Health Unit TB registers fortnightly. DTLs supervise all health units diagnosing and treating TB in their respective districts monthly. They compile and forward case notification, treatment outcome and programme management reports to Central unit through ZTLs quarterly. ZTLs in turn validate these before forwarding to Central Unit-NTLP where WHO supports its collation, analysis and use.

During the 2nd quarter of 2005 the standard tools were modified to capture indicators on TB/HIV and the treatment outcomes of smear negative and EPTB as well. The modified tools were introduced in August 2005 and used county wide from 3rd quarter onwards.

DTUs: There are 465 and 1,216 (**Deliver update**) diagnostic and treatment units in the country. Most of the diagnostic also double as treatment units. However the D unit: population ratio ranges from as low as 1 to 20,000 in Nakasongola to 1: 190,000 in Soroti. Secondly, DTUs are skewed in favor of urban areas. Human resource issues include shortage of qualified laboratory personnel, high rate of turn over of health workers from DTUs.

- Turn-around time (clinician and laboratory staff)

⁵ Including smear negative PTB given the high HIV prevalence, high fatality rate and that there is no routine HIV

⁶ There are ongoing discussions on use of E for smear positive children

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- ❑ Referral system for hard-to-diagnose cases and specimens
- ❑ Supervision of peripheral laboratories
- ❑ *EQA*

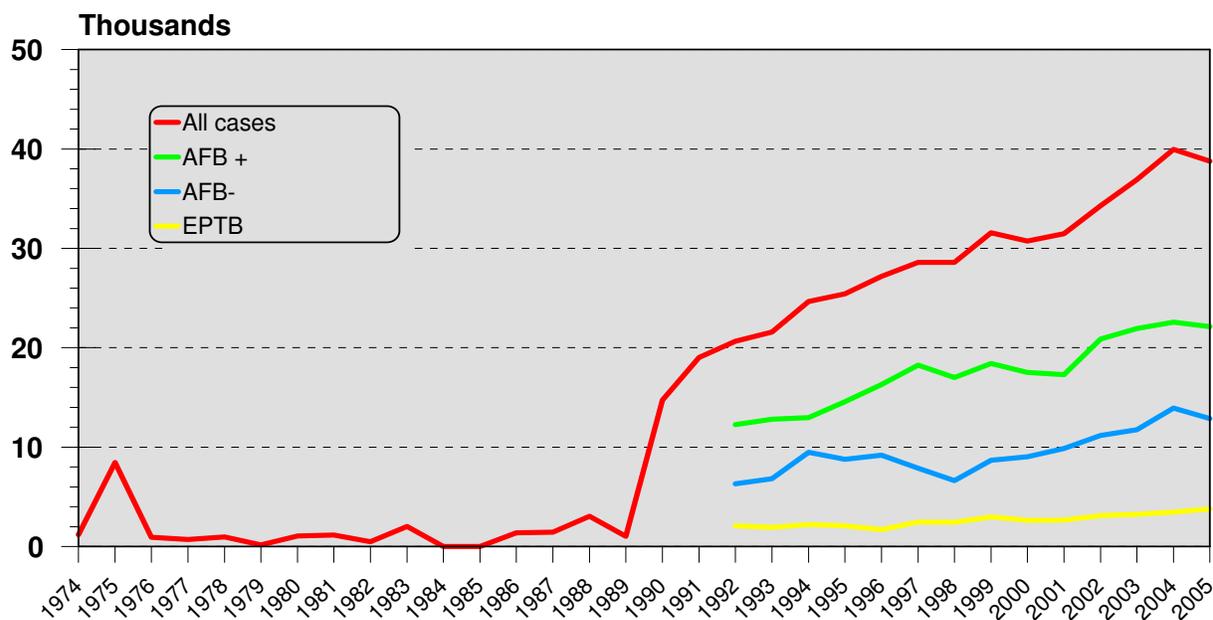
Funding: Most of the funding for TB control is from Partners in Development (Donors). Government of Uganda (GoU) contribution pays salaries of TB dedicated and General Health Workers (GHWs) maintains facilities and operational costs of the Central Unit (CU) and districts through PHC/PAF funds. Over the last four financial years or so, the GoU contribution to NTLP has been declining over time from UGX 50 millions in 2003/04 to 25 in 2007/08. This has happened as partners' contributions increase, which literally translates into partners' contribution displacing GoU contribution to NTLP. Partners have partitioned the country into territories with; GLRA providing operational funds to half the three of the six zones, WHO provides technical and financial support for Intensified Strategy Action Countries (ISAC) initiative (3 ANPOs, US \$ 300,000 to NGOS to support operations in 8 districts and EQA in KCC), UPHOLD supports 34 districts, CDC, AMREF (supports Lab network and EQA), IUATLD, CIDA, Italian Cooperation.

2 Extent of tuberculosis problem

Although the 2006 Global TB report ranks Uganda 15th among the 22 high burden countries and estimates that annually 175 new smear positive cases occur per 100,000 population the true size of the TB problem in the country is not known. The only nation wide tuberculin surveys done in 1958 and 1970 estimated annual risk of infection (ARI) as 2.1% and 2.2% respectively. However, a prevalence study recently done in Kawempe a Kampala suburb suggests a bigger magnitude. Moreover, HIV further complicates its epidemiology. Nevertheless the NTLP estimates ARI at 3% equivalent to 150 new smear positive pulmonary TB cases per 100,000 population per year.

As stated in 1.6 above DTLs register and notify NTLP of TB cases in their districts quarterly. Figure 1 shows the trend over the last 30 years. The numbers in the 1970's through to 1989 were deceptively low; as the HMIS in the then collapsed health system could not capture all the data. The steep rise from 1990 to 1995 resulted from more districts reporting to the NTLP that was itself reactivated in 1990 than from a real increase in cases. From 1995 onwards the graph closely reflects the reality, a steady rise in cases ranging from 4–10% per year largely attributed to an increase in population and to HIV co-infection but also to civil strife in parts of the country to some extent.

Figure 1: Trend of case notifications to NTLP, 1974 – 2005



Source: WHO update / Quarterly case finding reports, Uganda NTLP

HIV and TB epidemics are fuelling one another. The HIV/AIDS epidemic has become the most important risk factor for TB incidence and death. HIV promotes the progression of recent and latent infection to active disease; it also increases the rate of recurrent TB. On average, about half of the new TB patients in Uganda are co-infected with HIV compared to 35% in the Afro region and 8% globally. HIV infection is causing TB to occur more and more in younger economically productive members of society, especially girls and young women (15 - 24 years). In Uganda, smear negative TB has increased by 38% over the past five years and this is thought to be due to HIV. HIV positive TB patients also have a worse prognosis than HIV negative TB patients. Indeed TB is the leading cause of death in people living with HIV/AIDS (PLWHA). Previously smear negative PTB had a better prognosis than smear positive. This is no longer the case those co-infected with HIV. Collaborative TB/HIV activities

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have been initiated though still in infancy. *A lot of goodwill has been generated from several partners under the umbrella of the Uganda Stop TB Partnership (USTP).*

As for MDR-TB, its magnitude in the country is not known but there are reports of MDR-TB cases. For example, Mulago hospital has identified 11 cases, Buluba and JCRC a further . Secondly, the country has no second line drugs. However, individual hospitals and institutions are treating the few MDR-TB cases on their own initiative. For example Mulago is currently treating 6 (out of 11) MDR-TB patients.

In Uganda the National Tuberculosis and Leprosy Program (NTLP) reports over 40,000 new TB cases annually. The WHO mathematical modelling (Dye, 2001) estimates that 175 new sputum smear positive cases occur per 100,000 population annually. The nation wide tuberculin surveys done in 1958 and 1970 estimated Annual Risk of Infection (ARI) at 2.1 and 2.2 respectively. A prevalence survey done recently in Kawempe (suburb of the commercial, administrative and legislative capital of Uganda) suggests a bigger magnitude and the high HIV prevalence further complicates the disease epidemiology. This scenario begs for a “robust” performance Monitoring and Evaluation (M&E) System for NTLP and the Strategic Plan (NSP) drawn.

3 Review of status of implementation of the 2001/02-2003/04 strategic plan

The 2001/02 – 2003/04 strategic plan aimed to expand CB-DOTS to all districts as a means of attaining global case detection and treatment success targets of 70% and 85% while minimising emergence of drug resistant TB.

3.1 Community based DOTS expansion

Whereas NTLP aimed to cover all districts by end of 2003/04 this was attained (with technical and financial support from WHO, GLRA, AIM, Malaria Consortium, and UPHOLD) in April 2005, 11 months behind schedule. The delay was largely due to shortage of trainers.

Generally, districts committing resources to and closely overseeing CB-DOTS implementation fare better than those not, with a superior treatment success due to improved compliance and reduced default.

Despite 100% district coverage only 30-50% of the patients are treated under the strategy leading to persistently high default rates (16.7% among 2004 cohort). Districts commitment & ownership is still weak. Even the funding to support supervision, critical to the success of the strategy, is still donor dependent.

Challenges in CB-DOTS implementation include:

Generally, districts committed to and implementing quality CB-DOTS throughout fare better than those not, with a superior treatment success due to improved compliance and reduced default.

However challenges in CB-DOTS implementation include

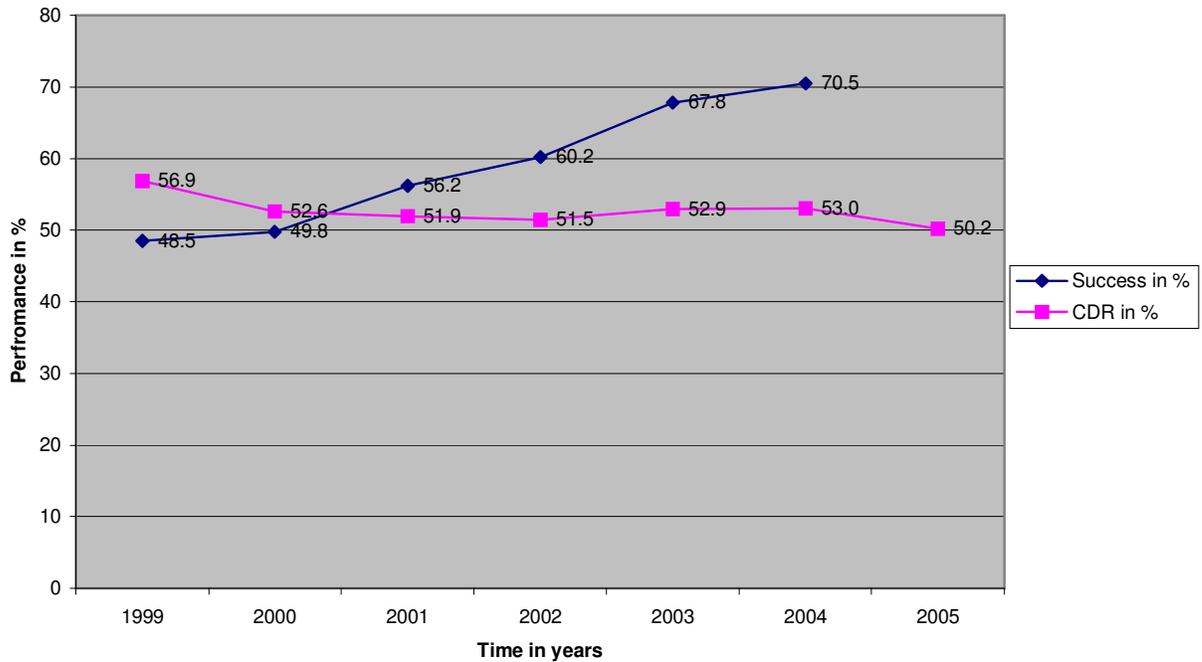
- ❑ Few patients are enrolled on CB-DOTS.
- ❑ Patients are not informed of DOT options – some districts simply inform them CB-DOTS is new MOH policy without explaining the potential benefits and letting them select a DOT option
- ❑ Referral system is not functional in several districts
- ❑ SCHWs a critical link between the formal health system and communities: some are not committed – cadre, selection
- ❑ Most districts are relying on external funds to facilitate SCHWs; as a result their activities have deteriorated. On the other hand, those e.g. Rakai that include them in their PHC budgets have been able to sustain SCHW outreaches.
- ❑ While CB-DOTS leads to savings on admission and related costs these have not been equally redistributed to cater for increased need for supervision.
- ❑ Even where it has been successfully implemented the strategy has not impacted on CDR as much as on treatment success

3.1.1 Case detection, treatment success and sputum conversion performance

Uganda is committed continues to lag behind the global case detection, treatment success and sputum conversion targets. Figure 2 depicts the country's performance over the last 6 years a worsening CDR but a rising though not rapidly enough treatment success indicator.

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Figure 2: Trend NTLP case detection & treatment success ratios, 99-05



As regards CDR, the country has continued to perform poorly. For example in 2005 the country detected only 75/100,000 population new smear positive PTB cases, 50.2% of the expected. Only 5 districts were on targets while 5 others were close (60% and above). The poor CDR is attributed to:

- ❑ Poor access to diagnostic services (long distances, long waiting times, charging for sputum smears, shortage of qualified laboratory personnel, use of microscopists some part time resulting in lab being closed for 2 – 3 days a week, non-functional microscopes in some, negative staff attitude in others)
- ❑ Missed opportunities among: a) symptomatic visiting health facilities primarily with symptoms such as cough that could lead to suspicion of PTB and b) patients visiting primarily for other conditions but who may also have cough. Such high positivity as in Iganga (87%), Kamwenge (48%), Arua (37%) and Hoima (31%) could be a pointer to missed opportunities.
- ❑ Non-prioritization of sputum-smear microscopy for identifying infectious cases and confirming their cure. Although overall NSD PTB declined (to 7% from 11%) 10 districts still had proportions of over 10%: Bugiri 39%, Kampala 19% and Kabarole 18%.
- ❑ GFATM-suspension induced stock out of drug and reagent during forth quarter affected.
- ❑ Poor record keeping and registration: treated not captured in district registers in a few districts, primary default i.e. smear positives in lab not traceable in any unit register in others (and recurrent in Mayuge and Moroto)
- ❑ Late health seeking behaviour due to stigma, socio-economic factors, low levels of awareness on TB, not knowing where to seek for TB services or that they are free.
- ❑ Moreover, the above is coupled with a weak IEC strategy
- ❑ Uncertainty over the expected incident cases: The ARI and therefore cases is indeed 3% and 150/100,000 population respectively n the high side or not. Nevertheless case detection is below target.

As for TSR, some improvements have been noted. For example 8 districts were on target and 13 others close (over 80%). The good performance here is attributed to improved recording and

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reporting, evaluating more case, quality CB-DOTS implementation, and finding definitive treatment outcome of transfer outs. On the contrary poor performance is due to:

- ❑ Poor quality CB-DOTS implementation: partial district coverage and/or enrolling a small proportion of patients on CB-DOTS. Low district political commitment evinced by committing little if any PHC funds to SCHW outreaches.
- ❑ Persistently high default and transfer out rates. Nationally 16.7% defaulted (down from 18.6% but above acceptable 5%), and over 10% in 26 districts. Default continued to be high in Mbarara (41.8%), Masaka (33.1%), Kampala (28.9%), Wakiso (29.6%) and Mpigi (22.8%) due to poor CB-DOTS implementation, poor recording, starting and failing to hold far off patients on treatment. Moreover, the first 3 districts contributed a quarter of the 2004 cohort.
- ❑ Routine exchange of information on transfers, arrival and definitive treatment outcomes, not institutionalized.
- ❑ Poor follow up, recording and reporting of patients on treatment especially in large hospitals, Kampala, Moyo and Adjumani. The latter 2 evaluated only 80% of their cohort.
- ❑ Low levels of awareness among communities as a result of a weak ACSM
- ❑ Though the national death rate has remained constant at around 6% 10 districts have a death rate of over 10%. Nearly a quarter of the patients in Kalangala died followed by Kabale (19%), Mukono and Kyenjojo (16%). Some of the HIV related deaths could be prevented through TB/HIV collaborative activities - CPT and ART

Sputum conversion rate at end of intensive phase

Sputum conversion at the end of intensive is guide clinicians on when to switch to continuation phase and a proxy to cure. However, only 42% of the 2005 cohort⁷ converted at end of intensive phase because follow up smears were not done in nearly half the cases primarily due to poor communication between clinicians and patients. It is not surprising that cure was not confirmed in over a half of those successfully treated above.

DTUs: The number of diagnostic units rose from 421 to 465 and that of treatment units from 864 to 1,216 (**Deliver update**). Most of the diagnostic also double as treatment units. However the D unit: population ratio ranges from as low as 1 to 20,000 in Nakasongola to 1: 190,000 in Soroti. Secondly, DTUs are skewed in favour of urban areas. Human resource issues include shortage of qualified laboratory personnel, high rate of turn over of health workers from DTUs.

EQA introduced two years ago now covers 71 of the 81 districts.

- ❑ *Turn-around time (clinician and laboratory staff)*
- ❑ *Referral system for hard-to-diagnose cases and specimens*
- ❑ *Supervision of peripheral laboratories*
- ❑ *EQA*

Drugs and logistics

- ❑ Introduced computerized drug management system shifted from case load to a computerized consumption based with supplies including buffer issued every 2-months instead of quarterly
- ❑ 4-, 3- and 2-FDC blister packed drugs to facilitate dispensing, use by lay community volunteers, and patient swallowing
- ❑ *Lack of a multi-year procurement plan*
- ❑ *No committed drug procurement budget*
- ❑ *Weak capacity at lower levels on new drug/logistics system leading to raptures in supply chain*
- ❑ *New system needs more resources: log books and order forms, fuel and per-diem for more frequent visits to districts*

⁷ October 2004 to September 2005

Recording and reporting

- ❑ Quarterly CN, RO and program management
- ❑ *Introduced new reporting format that WHO HQ is piloting in a few countries. This captures TB/HIV indicators as well*
- ❑ *Accuracy of records/reports wanting in some districts (some reports do not reflect the reality on the ground)*
- ❑ *Poor quality supervision at all levels consequently lower level workers are inadequately guided*
- ❑ *Inadequate feedback – negative*

TB/HIV

The following have been put in place as initial steps to improve coordination, standardization, implementation and monitoring of TB/HIV collaborative activities in Uganda.

- ❑ *A National TB/HIV Coordinator was recruited under the ISAC initiative.*
- ❑ *A National Coordination Committee for TB/HIV was established and is functional.*
- ❑ *A working group on TB/HIV has been established under the USTP.*
- ❑ *National Policy Guidelines for TB/HIV collaborative activities were produced.*
- ❑ *A Communication Strategy for TB/HIV collaboration was produced.*
- ❑ *The facilitator's manual for training district health worker's on TB was revised to adequately address TB-HIV collaborative activities.*
- ❑ *An orientation manual for health workers on implementation of collaborative activities was produced.*
- ❑ *The recording and reporting system for NTLP was revised to incorporate TB/HIV collaborative activities.*
- ❑ *Staff training on TB/HIV collaboration has taken place in 11 districts using a standardized manual.*

HIV (6.4% as per 2005 community based sero-prevalence survey) further complicates its epidemiology.

New Developments

- ❑ USTP formed and launched in 2004. Expanded to 27 partners. Formed 3 working groups not yet fully operational
- ❑ ISAC
- ❑ Global Stop TB Plan 2006-2015 in place
- ❑ August 2005 Maputo Declaration calling on Ministries of Health to urgently develop and implement interventions to reverse the worsening of HIV fuelled TB epidemic

3.2 Outstanding challenges

The challenges outlined above can be summed as follows

1. The country lags behind the global CDR and TSR for reasons given above. However, objectively monitoring its CDR performance is complicated by lack of knowledge on true ARI
2. A limited DOTS population coverage and poor quality services in some DOTS units.
3. The country continues to experience raptures of drug supplies largely due to lack of a procurement plan and a dedicate drug budget. In addition, there are no second line drugs
4. Limited access to quality smear microscopy, the infant EQA system does not cover the whole country, and lack of routine culture to facilitate diagnosis of smear negative PTB and EPTB, no drug susceptibility testing. There is also the issue of shortage of trained manpower
5. Despite HIV continuing to fuel TB epidemic and formulation of TB/HIV collaborative activities policy the number of districts implementing it in a comprehensive manner is still limited
6. Limited operational research

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7. A weak program management, monitoring and evaluation (strengthen including computerize HMIS, analysis and use of data at origin, supportive supervision including by unit in charges to encourage accuracy and completeness of data capturing) Even the size of TB problem is not known
8. Human resource gaps:
9. Funding
10. Monitoring and Evaluation (M & E) The NPO-TUB, ZTLSs and DTLs do collect, validate and analyse data as required by the operational assignments of their job descriptions, but the NTLP lacks a designated M&E Officer to manage and coordinate data management at the Central Unit.

3.3 Justification for strategic plan

The previous strategic plan (2001/02 – 2003/04) is over and even the interim ISAC one is coming to a close. Therefore there is a need for a new costed strategic plan to guide partner interventions in the country and to use as an advocacy tool.

Issues to address include expansion of DOTS (through public-public and public-private partnerships), consolidation of CB-DOTS (referral and advocacy for ownership), strengthen drug management (procurement plan, dedicated budget, capacity building, second line drugs, distribution system), strengthen bacteriological diagnosis of TB including EQA (microscopy, CST & DST, human resources, refresher training and actual monitoring), Monitoring and Evaluation (strengthen HMIS, introduce electronic registration, OR on prevalence, drug resistance surveys), and

4 National Tuberculosis Strategic Plan, 2006/07 – 2010/11

4.1 Vision

A Uganda free of Tuberculosis

4.2 Mission

To reduce the incidence and prevalence of Tuberculosis to such an extent that it is no longer a public health problem in Uganda

4.3 Goal

To reduce the mortality; morbidity and spread due to TB in Uganda by 2010/11 so as to by 2015 have contributed to the Millennium Development Goals and the Stop TB Partnership targets

4.4 Objectives

The objectives are to achieve and sustain

4.4.1 Annual incident infectious case detection ration of at least 70%

4.4.2 An annual treatment success ratio of at least 85% (over 95% of whom should have been cured)

4.4.3 HIV testing of at least 80% of all TB patients; over 90% of HIV positive put on co-trimoxazole preventive therapy

4.5 Strategies

The NTLP will apply the following strategies to achieve the above objectives: (*Whereas strategies are simply enumerated here they are further described in chapter 5 under activities*)

4.5.1 Expand and consolidate high-quality DOTS services in all districts by 2010

- a. Increase and sustain political commitment to TB control at all levels
- b. Expand and consolidate DOTS in all districts
- c. Increase access to quality-assured bacteriology for TB care
- d. Ensure an uninterrupted supply of quality-assured anti-TB drugs, including second-line drugs

4.5.2 Expand and strengthen TB/HIV collaborative activities, address MDR-TB and TB in special settings and populations

- a) Strengthen TB/HIV collaborative activities
- b) Strengthen prevention and management of drug-resistant TB
- c) Strengthen Implement TB control activities in special settings and populations: IDPs, Prisons, Army, Police

4.5.3 Strengthen health systems

- a) Strengthen management capacity at all levels of the NTLP
- b) Improve monitoring and evaluation of TB control
- c) Expand the Practical Approach to Lung Health (PAL)
- d) *Adapt innovations from other fields: - integration within community, PHC outreach, social mobilization like HIV/AIDS, regulatory actions and financing schemes*

4.5.4 Engage TB patients and communities to participate in TB care

- a) Mobilise communities to participate in CB-DOTS in all districts

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- b) Improve ACSM activities on for TB (*CBOs, patient organisations, communities – allocate roles for each beyond formal health sector, how to partner with NTLP and MOH*)
 - c) Empower TB patients and communities to participate in TB care
- 4.5.5** Engage all care providers in TB care
- a) Enhance public-public and public-private mix in TB control
 - b) Include informal and other care providers in TB care
 - c) Adapt, promote and apply ISTC
 - d) Strengthen the Uganda Stop TB Partnership
- 4.5.6** Enable and promote programme-based operational research
- a) Develop and strengthen capacity of NTLP to oversee OR
 - b) Conduct OR activities
 - c) Disseminate OR findings
 - d) Evaluate impact of OR on TB control.

5 Activities

The activities to be implemented in order to fulfil the above strategies are enumerated under each

5.1 Expand and consolidate high quality DOTS. Under this strategy the following activities will be undertaken

5.1.1 Increase and sustain political commitment to TB control at all levels

For effective implementation of this strategy, clear and sustained political commitment by national government to TB control efforts is crucial. Political commitment should be reflected by greater commitments of human, material and financial resources to TB control activities, with the national government taking the lead in fostering national partnerships. The government will take over the purchase of all first-line anti-TB drugs in the country, with partners such as the Green Light Committee supporting the supply of second-line drugs and the management of drug-resistant TB.

Activities:

1. Revise and disseminate guidelines
2. Participation by senior government representatives at World TB Day events

5.1.2 Expand and strengthen DOTS in all districts

It is planned to raise DOTS population coverage to 80% by expanding DOTS to more units (public and private) and by improving the quality of DOTS services offered. The NTLP will conduct district reviews to identify the strengths and weaknesses in TB control, documenting the extent and quality of TB control in DOTS and non-DOTS units (public, Private-Not-For-Profit, private). Gaps in TB control services will be addressed through re/training health staff on DOTS, replacing required equipment in order to improve the quality of DOTS services and to open treatment units and/or diagnostic units in non-DOTS implementing ones.

Activities:

1. Conduct review of district TB control activities in 80 districts
2. Carry out a Training Needs Assessment (TNA) on DOTS management for laboratory staff, clinicians and SCHWs at (DTUs)
3. Training of General Health Workers in Performance Improvement Approach (PIA) and Quality in the Eyes of the Clients (QUOTE) for TB control activities.

5.1.3 Increase access to quality-assured bacteriology for TB care/control

The NTLP will liaise with districts to review the current distribution of microscopy centres, in order to procure binocular microscopes and fluorescent microscopes for busy centres. Laboratory reagents and supplies will also be procured in sufficient quantities; and internal and external quality assurance strengthened.

The National Tuberculosis Reference Laboratory (NTRL) will strengthen culture and drug sensitivity testing, and introduce culture for diagnosing smear-negative and extra-pulmonary TB. Culture and DST will be decentralised to some regional centres (e.g., Gulu, Mbarara, Mbale and Fort Portal). The NTRL will be strengthened to conduct its activities through increased staffing and material resources, and will continue collaborating with the Supranational Laboratory in Germany. There will be a dedicated budget-line for TB laboratory network and the NTRL will support operational research on novel diagnostic tools

1. Recruit Human Resource to cater for increased activities at the NTRL.

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2. Training NTRL and Regional TB Reference Laboratory (RTRL) staffs to supervise and monitor TB microscopy services at DTUs.
3. Create capacity for Sputum Smear Microscopy (SSM) at all sub-counties.
4. Procure and distribute equipment and reagents for SSM to all functional DTUs
5. Establish referral system for culture and Drug Susceptibility Testing (DST) of sputum from the 80 districts.
6. Conduct supervision and monitoring of SSM at all DTUs.
7. Conduct refresher training courses on TB bacteriology at NTRL and RTRLs.

5.1.4 Ensure a regular uninterrupted supply of quality anti-TB drugs, including second-line drugs

Currently, NTLP only procures and distributes first-line drugs (in fixed-dose combination tablets). The country uses a “pull” drug supply system, and uses the revised Logistics Management Information system (LMIS) to quantify and allocate anti-TB medicines to TUs. The Government of Uganda (GoU) has not got a procurement plan or budget dedicated to procuring anti-TB medicines. Despite the high HIV prevalence, the NTLP has not yet introduced the rifampicin-isoniazid (RH) continuation phase. Therefore, the NTLP is committed to developing and advocating for two years anti-TB medicines procurement plan and a dedicated drug budget (GoU for first-line medicines and Partners in development to support second-line medicines). Whereas procurement and use of FDCs will continue, a limited amount of single drug formulations will also be procured to cater for reactions. This strategic plan provides for procurement of Second line anti-TB medicines. The RH continuation phase will be introduced during the second year 2007/08 of this plan, which will necessitate updating treatment guidelines, re-training staff and improving collaboration with ACP. The LMIS will also be consolidated through re-training health staff, strengthening drug delivery every two months and supervision.

A Drug Sensitivity Test (DST) Survey to test for resistance to anti-TB medicines will be undertaken to establish the magnitude of the problem. An appropriate regimen based on resistance patterns will then be worked out, centres of excellence established, staff trained, second line drugs procured and distributed to enhance the capacity of NTLP to manage MDR-TB in the country. The drug supply and patient referral system will be improved. All these activities will be done in collaboration with the Green Light Committee (GLC).

Activities:

1. Develop a procurement plan for anti-TB medicines.
 2. Advocate for creation of a dedicated budget in MOH for first-line anti-TB medicines.
 3. Conduct LMIS training (including needs TB/HIV collaboration) for health workers in all districts
 4. Procure first-line anti-TB medicines
- 5.2 Procure second-line anti-TB medicines
5. Store and distribute anti-TB medicines.

5.2 Expand and strengthen TB/HIV collaboration activities, address MDR- and XDR-TB and TB in special populations

The above strategy shall be achieved through activities listed below

5.2.1 Strengthen TB/HIV collaborative activities

In the long term, only effective control of HIV epidemic will reverse the associated increase in TB incidence. In the meantime, interventions to strengthen TB/HIV collaborative activities need to be implemented with the goal of decreasing the burden of tuberculosis and HIV.

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This strategy will strengthen and expand, in an expedited manner, TB/HIV collaborative activities to all districts, in conformity with the WHO Interim Policy on Collaborative TB/HIV care, the WHO/AFRO TB/HIV Control Strategy and the Stop TB Strategic Plan 2006-2015. TB/HIV collaborative activities shall be implemented according to the National Policy Guidelines. The Communication Strategy for TB/HIV Collaboration shall be used to improve advocacy, communication and social mobilization for joint TB/HIV interventions. These interventions shall be carried out as part of the health sector response to the intersecting TB and HIV epidemics and as part of the minimum health care package.

Activities

1. Conduct National Coordination Committee Meetings
2. Hold joint NTLN/NACP planning for resource mobilization and deployment, capacity building, joint ACSM and operational research
3. Conduct TB/HIV courses for Managers at Central and Regional/Zonal level
4. Conduct Training of Trainers' Course on TB/HIV collaborative activities
5. Train health workers at district level on TB/HIV collaborative activities
6. Train DTU staff on rapid HIV testing and counselling
7. Carry out periodic surveillance on the prevalence of HIV among TB patients at the 20 selected sentinel sites
8. Provide HIV preventive measures to TB patients
9. Provide cotrimoxazole prophylaxis (CPT) to HIV co-infected TB patients and refer HIV-co infected patients for ART
10. Develop and implement referral mechanisms for HIV-positive TB patients for HIV treatment, care and support
11. Support the creation, implementation, supervise and monitor a referral system for TB cases for HIV Counselling and Testing.
12. Train General Health workers in special settings and populations for TB/HIV collaborative activities.

5.2.2 Strengthen the prevention and management of drug-resistant TB

The most effective way of preventing the emergence of drug resistant tuberculosis is good TB control. The new Stop TB strategy recommends routine monitoring of drug resistance and treatment of confirmed cases of multidrug resistant TB or resistance to at least isoniazid and rifampicin (MDR-TB) according to internationally accepted guidelines. Development of resistance to first-line drugs as well as two or more of the major classes of second-line drugs, now called extensively drug resistant tuberculosis (XDR-TB⁸) raises the possibility of an incurable epidemic.

The NTLN will conduct a rapid survey to determine the extent of MDR-TB and XDR-TB among all previously treated TB cases **and among failures**, with active tracing and screening of contacts of known MDR-TB or XDR-TB cases. Staff will be trained on the prevention and management of drug-resistant TB, and infection control in health facilities will be improved. Establish and improve infection control measures for case containment, including administrative modifications such as the physical separation of known MDR-TB and XDR-TB cases from other patients and members of the community, especially those who are immuno-compromised such PLWHA. A routine drug susceptibility survey will be conducted within the life of the strategy.

1. Conduct a rapid survey on the extent of multiple and extensive drug-resistant TB
2. Conduct needs assessment to determine capacity of NTLN to manage MDR-TB

⁸ The revised definition of XDR-TB is resistance to INH and Rifampin (which define MDR-TB) plus resistance to fluoroquinolones plus resistance to one of the injectable drugs (amikacin, kanamycin or capreomycin), the two most effective second-line drugs.

Annex T-2

3. Initiate and strengthen management of MDR-TB in selected sites
4. Sponsor attendance of staff at international course on the prevention and management of MDR-TB
5. Improve infection control measures at facilities managing MDR-TB
6. Conduct drug susceptibility survey

5.2.3 Address TB in special settings and populations (prisons, health facilities, schools, IDP and refugee camps)

Activities:

1. Conduct situational analysis of TB control in special settings and populations
2. Train care providers in special settings on TB control and TB/HIV collaborative activities
3. Develop and implement referral mechanisms between NTLP and special settings and populations

5.3 Strengthen health systems

The following activities shall be implemented as a contribution to health system strengthening

5.3.1 Strengthen management capacity at all levels of TB control

The NTLP will lobby for the improvement of the staff complement at central, zonal and district levels. The additional posts required will be an officer at NTLP for human resource issues and three additional ZTLS posts, while the four vacant posts of ZTLSs will need to be filled. A full-time Director of National Tuberculosis Reference Laboratory will be appointed while the NTLP will lobby for the position/function of DTLS, establishing a good performance/award and supporting with the logistics for SCHWs, HSDs, DTLSs and the Central Unit.

Activities:

1. Advocate for the establishment and filling of requisite posts at Central Unit, and lobby for post/function of DTLSs
2. Orientation training for HSDFPs and new DTLSs as well as refresher training for already existing DTLSs, Central Unit staff including ZTLSs, on programme management and M&E
3. Sponsor NTLP staff to attend International courses, conferences and study tours

5.3.2 Improve monitoring and evaluation of TB control

The data collection and reporting system in NTLP has been revised to enable collection of data on CPT, HIV status and treatment. Create notification forms to capture defaulters, failures and individual patient's coverage of CBDOTS status. This will entail revision of M&E tools, including stationery, and strengthening of supervision and monitoring at all levels.

Activities

1. Review M & E tools (registers, quarterly reporting forms, LMIS forms, etc)
2. Procure and distribute standard NTLP stationery (patient cards, registers, quarterly reporting forms, LMIS forms, referral cards TB/HIV, transfer/referral books, lab stationery etc)
3. Hold quarterly review meetings at HSD, District, Zonal and National levels
4. Hold Annual Review and Planning Meetings at National Level
5. Procure an Electronic TB Register (ETR) capturing patients' data from Source (Treatment Units).
6. Introduce and Roll-out ETR.

Annex T-2

7. Conduct support and supervision visits on CB-DOTS, TB/HIV, PPM-DOTS, PAL, electronic TB register, etc, to community volunteers (every two weeks), HSDFPs to health workers at DTUs (monthly), DTLs to HSDFPs (monthly), ZTLs to DTLs (quarterly), central unit staff to ZTLs/DTLs (biannually)

5.3.3 Expand the Practical Approach to Lung Health (PAL)

PAL aims to develop an integrated strategy to managing respiratory conditions within PHC services. The approach needs to fit national health policies and priorities as well as the available health resources. There are two components of the PAL strategy:

- Standardization of clinical care (adaptation of clinical practice guidelines focusing on priority respiratory diseases, especially the improvement of TB diagnosis within PHC system)
- Coordination among health workers (at same and different levels and within and among the various categories of health workers) to maximize the use of available resources.

Coordination also implies establishing efficient referral system for respiratory condition and for TB suspects and TB cases in particular. In addition, coordination is needed among TB and HIV/AIDS control programs, general health services, PHC department, Essential Drug Program, health management information system (HMIS), the existing training network, and others.

Activities:

1. Adapt and print PAL guidelines and training material
2. Phased implementation of PAL to all districts.

5.4 Engage TB patients and communities to participate in TB care

5.4.1 Mobilise communities to participate in community-based DOTS (CB-DOTS) in all districts

CB-DOTS was introduced to address congestion in DTUs, high default rates and enhance community involvement. However, a year after 100% district coverage was attained high default rates still persist (16.7% of 2004 cohort), and the political commitment at central and district levels to fund and oversee its implementation is still weak. On the technical aspect, weaknesses include patients not being offered DOT options, poorly functioning referral system and weak supervision.

CB-DOTS has expanded to all districts with varying levels of commitment to sustain the funding and to oversee its implementation. Major issues here are DOT, quality care of patients, referral options and supervision. Due to its long-standing tradition as a “vertical” or specialized programme, many regard TB control as a donor-dependent health programme, a contributory factor to insufficient funding of TB control activities at different levels. The advent of the Global Fund to fight AIDS, TB and Malaria (GFATM) has not improved the situation, despite the Fund’s strong commitment to complement and not replace government allocations to fight the three diseases.

Advocacy is the appropriate tool to reverse the trend and obtain full recognition of TB as an integral part of PHC package and to include TB control among the activities eligible to receive a share of PHC funds allocated to districts. The Uganda Stop TB Partnership (USTP) will lead the initiative to foster the desired participative approach and involve all stakeholders in the advocacy campaign. To improve the overseeing of CB-DOTS implementation by districts and HSD, closer link should be developed between the NTL, DDHs, large hospitals and the private sector.

Activities:

1. Incorporate TB planning guidelines in MOH Planning guidelines

Annex T-2

2. Convene review meeting of the USTP to get their consensus on the draft TB planning guidelines
3. Convene advocacy meetings with District Officials on CB-DOTS
4. Convene regional and district workshops on CB-DOTS

5.4.2 Improve ACSM activities on TB

An ACSM plan covering all aspects of TB control (DOTS, TB/HIV, CB-DOTS, PPM-DOTS, etc) will be developed and implemented, with continuing sensitisation of communities and partners in TB control at all levels, and regular detailed commemorations of World TB Days. Advocacy will be carried out with central and district level officials to raise commitment to fund and monitor CB-DOTS implementation. Discussions will also be held with DHTs to raise technical commitment to the strategy, improve selection of SCHWs, and to ensure inclusion of CB-DOTS in district budgets. Health workers will also be re/trained on CB-DOTS and intensified support supervision provided at all levels (budgeted under M & E)

1. Develop ACSM strategic plan on TB, TB/HIV, CB-DOTS and PPM approaches
2. Develop and disseminate IEC material on TB, TB/HIV, CB-DOTS and PPM approaches
3. Conduct sensitisation meetings at sub-county levels in all regions
4. Commemorate World TB Day

5.4.3 Empower TB patients and communities to participate in TB care

Community-based TB care consists of an operational partnership between the health services and civil society (motivated individuals, existing community volunteers, persons previously or currently affected by tuberculosis etc.) aimed at increasing their participation in TB control. This especially important in settings where diagnostic and treatment health facilities are concentrated in and around urban areas with poor geographical and economic access among rural populations.

There is evidence that community-based initiatives reduce defaulting, improve treatment success, and are cost-effective for both health services and TB patients. Community involvement in TB control empowers community members to assume greater responsibility for their health and, if adequately supervised, can improve demand for essential services, enhance the quality of personal care, and reduce the workload of medical services.

Activities

1. Engage community leaders in mobilising/sensitising communities
2. Facilitate participation of communities in development of plans for improving ACSM for TB using participatory rural appraisal methods
3. Support districts to translate TB and TB/HIV ACSM strategies into activities for their settings
4. Facilitate the participation of communities in development, production and distribution of IEC materials
5. Conduct KAP studies on TB to evaluate impact of IEC interventions in the communities

5.5 Engage all care providers

5.5.1 Enhance public-public and public-private mix in TB control

The quality of TB care offered by private and public health care providers working outside National TB Programs (NTPs) is often uneven. However, TB control targets will not be met unless all private and public sector care providers become actively involved in DOTS implementation. Various Public-Private Mix for DOTS (PPM-DOTS) models have demonstrated the feasibility and effectiveness of PPM DOTS.

Annex T-2

This strategy seeks to expand DOTS through the PPM-DOTS approach. In collaboration with private health providers (PHP), guidelines will be printed and PHPs engaged to offer services according to their capacity and willingness. Some will only identify and refer suspects while others will act as DOT centres, diagnostic units, treatment units, or provide the whole range of services. This will be achieved by involving more public units (public-public mix) or private units (public-private mix) in DOTS expansion as well as by improving the quality of DOTS services provided.

Activities:

1. Conduct situational analysis on extent and feasibility of PPM-DOTS in urban and rural areas
2. Develop and produce guiding principles and policy on PPM-DOTS
3. Organise national workshop to adopt/endorse and disseminate PPM-DOTS policy and guidelines
4. Hold annual national consultations with relevant partners/stakeholders on PPM-DOTS
5. Train private health providers (PHPs) on PPM-DOTS

5.5.2 Include informal and other care providers in TB care

1. Develop and apply proper selection, training and quality assurance mechanisms for involving informal and other care providers
2. Develop mechanisms for effective referral between NTLP and informal health care system
3. Establish and continue two-way communication with selected informal and other care providers

5.5.3 Adapt, promote and apply International Standards of TB Care (ISTC)

The ISTC describe a widely accepted level of care that all practitioners, public and private, should achieve when managing patients who have, or are suspected of having, TB. The Standards can facilitate the effective engagement of all care providers in delivering high-quality care for patients of all ages with all forms of TB, including sputum smear-positive, sputum smear-negative, and extra pulmonary tuberculosis, tuberculosis caused by drug-resistant organisms, and tuberculosis combined with HIV infection. The basic principles of TB control are maintained: prompt and accurate diagnosis, standardized treatment regimens of proven efficacy with appropriate treatment support and supervision; monitoring of response to treatment and maintenance of essential public health responsibilities.

Non-programme providers (public and private) are the main target audience of the ISTC. The NTLP however needs to develop policies and procedures to enable such providers to adhere to standard TB care, applying the ISTC in a balanced manner that emphasises both individual patient care and public health principles of disease control in order to reduce the burden due to TB.

Activities:

1. Adapt ISTC and Patient's Charter for Tuberculosis Care
2. Promote use of ISTC and Patient's Charter for Tuberculosis Care

5.5.4 Strengthen the Uganda Stop TB Partnership

The new Stop TB Strategy identifies ACSM as one of the six new strategic elements that must be enhanced to create demand, spur health seeking behavior and combat stigma. An integrated and sustained ACSM strategy can positively impact a country's ability to achieve the case-detection targets. To this end, the USTP needs to be strengthened in order for it to spearhead ACSM efforts and resource mobilisation (financial, material and human) with respect to TB control.

Activities:

Annex T-2

1. Sponsor quarterly meetings of the USTP
2. Sponsor attendance of members of USTP at international meetings
3. Fund activities of USTP (full-time coordinator and secretary, office rent, equipment and recurrent expenses)
4. Build capacity of USTP for resource mobilisation
5. Document and disseminate best practices

5.6 Enable and promote program-based operational research

5.6 Enable and promote programme-based operational research (OR)

Operational research is an important tool to control TB and improve programme implementation by facilitating data-driven decisions. The new Stop TB Strategy encourages programme-based operational research as a core component of NTP work, with collaboration between programme managers and researchers. The NTLP should identify and address issues related to programme operations and performance to initiate OR in collaboration with researchers and academia.

5.6.1 Priority will be given to OR that can improve policy-making, the program design and operations and its monitoring/evaluation. For example, NTLP is not certain of the magnitude of the TB and MDR-TB problems. Two prevalence surveys (one at the beginning and another in 5 years) will be conducted to determine the size of the problem and to guide monitoring. A rapid drug survey will be conducted to ascertain the MDR-TB survey will be carried out to gauge the problem and to help avail 2nd line drugs in the country. Other ORs include a study to determine: the timing of when to start HAART in HIV co-infected TB patients, barriers to integrated HIV/AIDS care for TB patients, the prevalence of HIV among TB patients.

To facilitate the development of a programme-based operational research (OR) programme, a post will be created at the central level of the NTLP for a focal point for OR. This cadre may also have other related responsibilities, e.g., TB epidemiology or TB/HIV collaborative activities. A situational analysis of the OR needs and capacity of Uganda will be conducted, which will be followed by a workshop to develop the national OR agenda on TB. NTLP staff will receive in-service training on OR by the NTLP and academic bodies.

Activities:

1. Establish a committee at central level of NTLP for OR
2. Train national level personnel on OR, epidemiology and surveillance
3. Develop national OR agenda
4. Conduct training workshops on research methods and writing skills

5.6.2 Conduct operational research

The NTLP will solicit for the submission of research protocols and select from the applications studies to be funded. Successful applicants will receive funding for their projects, which will be regularly supervised and monitored by the NTLP

1. Conduct a TB prevalence survey
2. Review and sponsor OR proposals (according to NTLP priorities) from zones and districts
3. Supervise and monitor OR studies

Possible OR activities/topics:

- a. Conduct TB/HAART study
- b. Conduct a study on barriers to integrating HIV care among TB- patients co-infected with HIV

Annex T-2

- c. Conduct study on feasibility of expanding DOTS through Public Private Mix (PPM DOTS)
- d. Conduct a survey on MDR –TB (See Dr. Joloba for Laboratory)
- e. Conduct a survey on prevalence of TB
- f. Conduct a survey on HIV burden among TB patients
- g. Conduct a feasibility study on provision of IPT to latently infected PLWHA under program settings
- h. Pilot electronic TB register and data base
- i. Build capacity of Central, Zonal and district level personnel to conduct OR
- j. Regularly review research agenda to address emerging priorities and conduct research on them

5.6.3 Disseminate OR findings

Research findings will contribute to the evidence base to guide and improve TB control activities. Annual review meetings will be convened to discuss and disseminate the findings of OR studies funded by the program. Funding will be provided to enable researchers to present their findings and national and international scientific meetings. National TB control policies and practices will be changed according to the evidence produced by funded studies Annual workshops will be convened to impart skills and knowledge on research methods and proposal writing.

Activities:

1. Hold annual scientific conference on TB and TB/HIV related research
2. Prepare and submit papers to national and international publications

5.6.4 Evaluate impact of OR

To ensure that the funded studies are having an impact on programme performance, an evaluation of the impact of funded projects will be conducted after at five years.

Activity:

1. Conduct evaluation to assess development of operational research capacity, impact of research on policy and practice, and on programme/health systems performance

EXPECTED OUTCOMES

- Improved case detection efficiency/case management/index of TB suspicion
- Bacteriological diagnosis of TB improved: Sputum Smear microscopy improved to one DTU per 25,000 populations (S/County) by July 2010; 4 Culture facilities 1 DST facility/
- Expanded External Quality Assurance for sputum smear microscopy to the 80 districts by December 2008; cncordance -
- 100% of all the cells in the Health Units, Laboratory, HSD and DTLs Registers are filled correctly, consistently, accurately and completely.
- All DTLs submit their quarterly diseases surveillance reports by the 14th day of the month following the reporting period.

- All ZTLSs submit validated and corrected Quarterly diseases surveillance reports by 15th day of the month following the reporting period
- Proportion of TB cases on treatment “CURED” increased *by 5% for every year*, to 85% by yr 3 and sustained thereafter
- At least 80% of TB patients tested for HIV; 100% provided CPT
- Strengthen management and coordination of TB control activities at all levels.
- Strengthen M & E of TB control activities

6. Monitoring and Evaluation Framework for the NTLP Strategic Plan 2006/07 – 2010/2011

The Monitoring & Evaluation (M&E) Section sets out how the NTLP will monitor performance towards the set goals, objectives and targets. It describes the framework laid down for enhancing the M&E system in NTLP. This framework will enhance the program’s capacity to monitor and evaluate each patient and program performance as an integral part of the STOP TB strategy. Under this framework, information will be collected, analysed, utilised and disseminated using the following structures:

- Community Volunteers (CVs) will continue to use patients’ TB cards to record directly observed treatment (DOT) daily,
- Sub-County Health Workers (SCHWs) will continue to transcribe TB patients’ DOT information from the SCHWs Registers and Laboratory Register, and thereafter update the Health Unit Registers twice a month,
- Health Sub District TB Focal Persons (HSDFPs) will continue to verify correctness, completeness, accuracy and appropriateness of patients’ information in the Health Unit Registers, and transcribe it into the HSDFP Registers monthly,
- District TB & Leprosy Supervisors (DTLSs) will continue to verify correctness, completeness, accuracy and appropriateness of patients’ information in the Health Unit and HSDFP Registers, and then transcribe it into the District TB Register monthly,
- DTLSs will continue to compile aggregated case finding, treatment outcome and program management data on standardized reporting formats for timely submission and onward transmission thru the ZTLS to the Central Unit quarterly,
- The Central Unit at NTLP will continue to compile aggregated data from the DTLSs and enter it into the electronic (Spread sheet) database (using WHO Guidelines) to report on the quarterly and annual epidemiological and disease surveillance trends,
- DTLSs’ quarterly program management reports are aggregated to generate national quarterly and national reports,
- Information from collaborating projects (partners in implementation) submitted to the Central Unit as Activity Reports upon completion of each activity as well as cumulative and progressive activity reports.
- Prevalence surveys will be done to accurately estimate the prevalence of TB and repeated to demonstrate a decline, if any

6.1 List of Indicators

The indicators to be used are those recommended by WHO for High Burden Countries (HBCs), and select key ones for monitoring program management as well as progress in implementation of key activities. Their definitions are annexed, see annex .

6.1.1 Impact and MDG indicators

- a) Prevalence rate- Number of persons with TB per 100,000 population in a year
- b) Mortality rate/ Case fatality ratio- Proportion of registered TB patients that die
- c) MDG target: halve prevalence and deaths due to TB by 2015 relative to 1990 levels

6.1.2 DOTS indicators

- a) **Case detection ratio (# new smear positive cases detected/# estimated per year in %)**
- b) **Treatment success ratio (number successfully treated/number in cohort in year %)**
- c) **Sputum conversion ratio (# new smear positive cases converted at end of intensive phase/total number of new smear positive in cohort)**

6.1.3 Other select indicators

- a) Case notification rate (# new S+ cases detected/100,000 population)
- b) Smear positive proportion (# new S+ cases/# new pulmonary TB x 100)
- c) Pulmonary cases proportion (# new pulmonary TB (S+ and S-)/# new all type TB)
- d) Number of re-treatment cases (how shall we use this indicator?)

- a) DOTS coverage (by district and by population)
- b) Microscopy network coverage (% of pop. having access to a TB microscopy centre, *this is more difficult to measure than DU : population 1:25,000; culture: population etc*)
- c) Availability of external quality assurance (% of diagnostic centres supervised for EQA)
- d) Laboratory reagent stock out
- e) Zero stock out of FLDs; % facilities with stock outs

- f) Quarterly National Coordination Committee meetings
- g) Proportion of districts with health workers trained to implement collaborative TB/HIV activities
- h) Proportion of TB patients tested for HIV (at least 80% by 3rd year and sustain thereafter)
- i) Proportion of HIV positive TB patients on CPT (at least 90%)
- j) Number of MDR and XDRTB cases diagnosed; % treated
- k) Special populations: what indicator?
- l) Proportion of planned supervisory visits carried out
- m) % of quarterly reports received in time (15th of January, April, July and October); proportion of complete quarterly reports; proportion of accurate reports
- n) Number of districts that report timely on LMIS (by the 7th day of the month following the bi - reporting period)

- o) Proportion of SCs implementing CBDOTS
- p) Proportion of TB patients enrolled on CBDOTS (at least 80%)
- q) Proportion of VHTS participating in TBC (*issue here would be how to obtain the indicator, in which case it is better to leave it out*)

- r) Number of private health providers participating in DOTS
- s) Level of community/patient satisfaction with services provided
- t) *Number of anti TB courses procured and distributed*
- u) Number of quarterly central level supervisory visits to zones
- v) Number of operational researches conducted

6.2 Logical Frame Matrix

LOGICAL FRAMEWORK FOR NATIONAL TUBERCULOSIS PROGRAM STRATEGIC PLAN

Log frame matrix summarizes the key impact, outcomes, outputs and process indicators that will be monitored. It also indicates the means of verification and the assumptions where applicable.

LOGICAL FRAMEWORK FOR NATIONAL TUBERCULOSIS PROGRAM STRATEGIC PLAN			
Description	Performance indicators	Means of Verification	Assumptions
Goal: Mortality; morbidity and spread due to TB in Uganda reduced by 2010/11 so to contribute to the MDG by 2015.	Prevalence of TB	Survey report	Political Commitment to control TB sustained
Objectives: 70% of new smear positive PTB detected annually 85% of cohort successfully treated annually At least 80% of TB patients tested for HIV annually	CDR in % TSR in % Proportion of TB patients tested for HIV	Quarterly NTLP CN reports Quarterly NTLP TO reports Quarterly NTLP CN & TO reports	
Strategies: High quality DOTS expanded & consolidated in all district TB/HIV collaboration expanded & strengthened, X/MDR_TB addressed and TB in special populations addressed Health systems strengthened	% population DOTS coverage Ratio population : Diagnostic unit % (100) districts with EQA; concordance Stock out of FLDs; % DTUs with stock outs Stock out of reagents Ppn districts with trained health workers % TB patients tested for HIV (80%) % HIV positive TB patients on CPT Number X/MDRTB, number treated % complete district reports received	Quarterly NTLP CN reports Census data & NTRL reports (annually) NTRL quarterly supervisory reports LMIS reports; supervisory reports Activity reports Quarterly NTLP CN & TO reports Quarterly NTLP CN & TO reports <i>Quarterly NTLP CN, PM & TO reports</i> Quarterly NTLP CN, TO & LMIS reports	

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	timely % of planned supervision visits implemented	Annual plans & activity reports	
	% quarterly review meetings held	Annual plans & activity reports	
TB patients & communities engaged in TB care	Proportion of TB patients on CBDOTS Proportion of SCs implementing CBDOTS	Quarterly NTLN CN reports <i>Supervision reports</i>	
All care providers engaged in TB care			
Program based operational research promoted	Number of prevalence surveys (1) carried out	Survey report	

6.3 Key indicators targets and the responsible

The table below gives a summary of key indicators and targets as well as the primary responsible officer

Serial	Indicator description	Responsibility	2006 /07	2007 /08	2008 /09	2009 /10	2010 /11
	Impact indicators						
	Prevalence and death rate of TB	PM	Un know n			Know n	
	Participation by senior government representatives at World TB Day events.	PM					
	Outcome indicators						
	CDR in %	PM				70%	70%
	TSR in %	PM		80%	85%	85%	85%
	Proportion of TB patients tested for HIV	PM				80%	80%
	Output indicators						
	% population DOTs coverage	DHOs					
	Ratio population : Diagnostic unit						
	% (100) districts with EQA; concordance	NTRL					
	Stock out of FLDs;						
	% DTUs with stock outs						
	Stock out of reagents	PM/NTRL					
	Ppn districts with trained health workers	PM		50%	100%	100%	100%
	% TB patients tested for HIV (80%)	PM/DHOs				80%	80%
	% HIV positive TB patients on CPT	PM/DHOs		80%	85%	90%	100%
	Number X/MDR TB, number treated	PM/MO MDR TB					
	% complete district reports received timely	PM					
	% of planned supervision visits implemented	PM/ZTLSs/ DHOs		80%	80%	80%	80%
	% quarterly review meetings held	PM/ZTLSs/ DHOs		100%	100%	100%	100%
	Proportion of TB patients on CBDOTS	PM/DHOs			80%	85%	90%
	Proportion of SCs implementing CBDOTS	PM/DHOs			90%	90%	95%
	Number of prevalence surveys (1) carried out	PM				1	
	Train care providers in special settings on	PM/Director					

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		Prisons/Police /UPDF Services					
	TB/HIV collaborative activities	PM					

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Indicator	Definition	Source	Frequency	Responsible	Calculation
CASE FINDING					
Case Detection Rate (CDR)	The number of new pulmonary smear-positive cases detected, expressed as a percentage of the estimate of new smear-positive cases. It provides a measure of case finding coverage.	NTLP quarterly reports	Quarterly, Annually	DTLSs, ZTLSs	Numerator: The number of new smear-positive cases registered during a year in a defined population. Denominator: The number of new smear-positive cases estimated to occur during the year in that population.
Proportion of pulmonary smear-positive cases	Proportion of pulmonary smear- positive cases out of all pulmonary cases registered in a quarter ¹	NTLP quarterly CN reports	Quarterly, Annually	DTLSs, ZTLSs	Numerator: The total number of pulmonary smear-positive cases (new and relapse) registered during a quarter, year. Denominator: The total number of pulmonary cases (new smear-positive, relapse and smear-negative) registered during the quarter, year.
Proportion of new smear-positive cases.	Proportion of new smear-positive cases to new smear-negative and extra-pulmonary cases	NTLP quarterly reports	Quarterly, Annually	DTLSs, ZTLSs	Numerator: The number of new smear- positive cases registered during a quarter, year. Denominator: The total number of new cases (smear-positive, smear-negative, and extra-pulmonary) registered during the quarter, year.
Positivist Ratio	Number of smear positive cases detected divided to the total number of suspects examined.	NTLP quarterly CN & PM reports	Quarterly, Annually	HSDFPs, DTLSs	Numerator: The number of smear-positive cases registered during a quarter, year. Denominator: The number of tuberculosis suspects examined by smear microscopy in that quarter
Incidence rate for new smear-positive cases.	The number of newly detected smear-positive cases per 100,000 populations.	NTLP quarterly reports; population estimates	Annually	DTLSs, ZTLSs	Numerator: The number of new smear-positive cases registered during a year from within a defined population (district, region or country). Denominator: The estimated total mid-year population of that district, region, or country.
Conversion rate at 2 (3) months of treatment.	Number of smear-positive cases that convert from smear-positive to smear-negative in 2 (3) months of treatment out of all smear-positive cases registered during a quarter.	NTLP quarterly CN & PM reports	Quarterly, Annually.	DTLSs, ZTLSs	Numerator: The number of smear-positive cases (new, relapse, or retreatment) which are smear-negative at 2 (3) months of treatment. Denominator: The number of smear-positive cases (new, relapse, or retreatment) registered during the quarter.
Treatment Outcomes					
Cure rates of pulmonary smear-positive cases.	Number of new pulmonary smear-positive cases cured (new pulmonary positive and returns at least two sputum smear negative results one at 8 th month of treatment and another either at 2 nd or 5 th month of treatment) divided by all registered new pulmonary smear-positive cases for a given quarter.	NTLP quarterly TO reports	Quarterly, Annual	DTLSs, ZTLSs, M&E Officer	Numerator: The number of new smear-positive cases successfully treated quarter/year. Denominator: Total number of new smear positive cases started on treatment that quarter/year.

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Indicator	DEFINITIONS	Source	Frequency	Responsible	CALCULATIONS
Completion rate of new smear-positive cases	Number of new pulmonary smear-positive cases who completed 8 months of treatment but without sputum smears follow-up results at 8 th month of treatment divided by all registered new pulmonary smear-positive cases for a given quarter/year.	NTLP quarterly TO reports	Quarterly, Annually	DTLs, ZTLs, M&E Officer	Numerator: The number of new smear-positive cases who completed 8 months course of treatment in a given quarter/year. Denominator: Total number of new smear positive cases started on treatment that quarter/year.
Treatment Success rate (TSR)	The sum of cure and completion rates for a given quarter/year.	NTLP quarterly TO reports	Quarterly, Annually	DTLs, ZTLs, M&E Officer	Numerator: The sum of new smear-positive cases that completed 8 months course of treatment plus those cases successfully treated in a given quarter/year. Denominator: Total number of new smear positive cases started on treatment that quarter/year.
Default rate for new smear-positive cases	Number of new smear-positive cases who completed at least 56 days of treatment but interrupted treatment by more than 28 days, divided by all registered new smear-positive cases for a given quarter.	NTLP quarterly TO reports	Quarterly, Annually	DTLs, ZTLs, M&E Officer	Numerator: Number of new smear-positive cases who completed at least 56 days of treatment but interrupted treatment by more than 28 days in a given quarter/year. Denominator: Total number of new smear positive cases started on treatment that quarter/year.
Failure rate for new smear-positive cases	Number of new pulmonary smear-positive cases who remain sputum smear positive after completing 5 months of treatment divided by all registered new smear-positive cases for a given quarter. <i>It should be no higher than 4% if there is no drug resistance</i>	NTLP quarterly TO reports	Quarterly, Annually	DTLs, ZTLs, M&E Officer	Numerator: Number of new pulmonary smear-positive cases who remain sputum smear positive after completing 5 months of treatment for a given quarter/year. Denominator: Total number of new smear positive cases started on treatment that quarter/year.
Death rate for new smear-positive cases	Number of deaths of new pulmonary smear-positive cases while on treatment divided by all registered new smear-positive cases for a quarter.	NTLP quarterly TO reports	Quarterly, Annually	DTLs, ZTLs, M&E Officer	Numerator: Number of deaths of new pulmonary smear-positive cases while on treatment for a given quarter/year. Denominator: Total number of new smear positive cases started on treatment that quarter/year.
Transfer rate for new smear-positive cases	Number of new pulmonary smear-positive cases who formally transfer and continue treatment to another district divided by all registered new smear-positive cases for a given quarter.	NTLP quarterly TO reports	Quarterly, Annually	DTLs, ZTLs, M&E Officer	Numerator: Number of new pulmonary smear-positive cases who formally transfer to another district and continue treatment during a given quarter/year. Denominator: Total number of new smear positive cases started on treatment that quarter/year.
Program management activities					
Proportion of supervisory visits conducted	Number of supervisory visits conducted quarterly by the Supervisor (S/C. HSD, District, Zone) to the catchments divided by the planned number of visits to the catchments.	Activity reports	Monthly Quarterly Bi-annually	SCHWs, HSDFPs & DTLs ZTLs Central Unit	Numerator: Total number of supervisory visits conducted to corresponding catchments. Denominator: Total number of planned supervisory visits to corresponding catchments.

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Indicator	Definition	Source	Frequency	Responsible	Calculation
Proportion of reports submitted.	Number of reports submitted by supervisors that are complete, correct and timely from the catchments for the activities conducted, divided by the planned activities for a given period of implementation.		Monthly, Quarterly Bi-annually Annually	SCHWs, HSDFPs & DTLSs ZTLSs Central Unit	Numerator: Number of reports submitted by supervisors that are complete, correct and timely from the catchments for the activities conducted. Denominator: Number of planned activities for a given period of implementation.
Consumption Rate	Number and type of drugs and supplies used in a quarter compared to the estimates for drug and supply usage for the quarter.				Numerator: Total number of drugs and supplies used per district in each quarter. Denominator: Estimated number of drugs and supplies per district in each quarter.
Positive Predictive Value.	Proportion of slides accurately read as smear-positive or smear-negative out of a sample of slides.				Numerator: The number of slides accurately read. Denominator: The entire sample of slides sent to check for quality control.
Negative Predictive Value.	Proportion of slides accurately read as smear-positive or smear-negative out of a sample of slides.				Numerator: The number of slides accurately read. Denominator: The entire sample of slides sent to check for quality control.

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**Data Collection
Information Dissemination System**

A list of appropriate indicators *will* be used to monitor the *progress of* implementation of the strategic plan over the five years of its duration. While, on one hand, the indicators should provide a valid and reliable measure of programme performance and epidemiological impact, on the other hand, their number and complexity should be kept to a minimum in order to avoid an excessive investment of time and resources on data collection at the expense of activities.

G.1 INFORMATION DISSEMINATION AND USE OF RESULTS

N'TLP Strategic Plan Information and Results Dissemination Plan

Indicators	Audience	Decision to be made	Information needs	Dissemination Method	Information used for
Impact 1.Prevalence rate 2.Mortality Rate 3.Case detection ratio 4.Treatment success ratio 5.TB Cases detected Output Indicators 6.Number of districts that report timely on LMIS 7. Proportion of annual need of 1st line drugs procured 8.Number of microscopes procured 9.Proportion of notified TB patients screened for HIV 10.Number of health units implementing TB/HIV collaborative activities 11.Number of TB video shows	National Level Minister of Health D G of Health Services Director Com..Diseases Donors USTP Media	Advocacy for: Resource Allocation Approval/Endorsement of the intervention plan Donor collaboration Public information package to be published.	Methodology used to collect and analyze data -Magnitude of the problem -Proposed strategies/interventions -Operational budget -Implementation plan	Stakeholders meetings Position papers Media publications Newsletter Survey report	Advocacy
	Zonal Level - Zonal TB/Leprosy Supervisor Area Health Management Team TB Implementing Agencies -Regional Hospital Directors - Partners -Media	- Multi-sectoral Joint Planning -Integration of TB control interventions in their activities -Donor/implementing Partners' collaboration -Equitable Resource allocation - Public information package to be published.	Methodology used to collect and analyze data -Magnitude of the problem -Proposed strategies/interventions -Operational budget -Implementation plan -Expected contributions	-Stakeholders meetings -Regional Coordinating Council meetings. - Briefing papers -Media publications -Baseline survey report	Advocacy -Inform decision making on resource allocation -Joint planning
	District Level -DHT District Health Officer	Integration of malaria control interventions in their activities	Summary of the survey outcomes - Identified gaps and	Stakeholders meetings - Briefing papers -Media publications	Implementation of intervention strategies -Inform decision making on

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<p>12.Number of quarterly central level supervisory visits to zones</p> <p>13.Proportion of quarterly district TB reports received timely (by 15th day of next quarter)</p>	<ul style="list-style-type: none"> -District Hospital Directors -District Health Management Team -DTLS -Health Unit In-Charges -Chief Administrative Officer -DLGCouncil Chairpersons LCII/Is -VHTs -Opinion Leaders -Media 	<ul style="list-style-type: none"> -Establishment of effective community-facility referral system -Resource allocation to support the program -Community mobilization and sensitization strategies -Public information package to be published. 	<p>Resources required</p> <ul style="list-style-type: none"> -Proposed intervention strategies -Expected contribution and roles 	<ul style="list-style-type: none"> -Baseline survey report -District Assembly meetings 	<ul style="list-style-type: none"> resource allocation -Activities , support and supervision -Community mobilization and sensitization
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Budget Estimates per year:

Year	2006	2007	2008	2009	2010	2011	Total
US\$	10,174,542	13,204,290	15,132,810	13,884,879	14,971,605	15,201,931	82,543,057
Edited		19,685,455	21,204,945	18,353,831	24,369,442	24,708,637	108,322,310