Comprehensive Review of the National Tuberculosis Program, Ghana

February 17th to March 3, 2007

Disclaimer: GH Tech edits the disclaimer as needed, depending on whether the report is public or internal.
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ACKNOWLEDGEMENTS

The members of the review team would like to acknowledge with gratitude many persons who supported this mission: Dr. Frank A. Bonsu and the staff from the Central Unit of the Ghana NTP who hosted this mission, Mr. Richard Killian and the staff from QHP who assisted in the coordination and logistical support. Special thanks to Dr. Nii Nortey Hanson-Nortey, who recently joined the NTP central team, for his time and efforts in the coordination of the site visits and flexibility in responding to last minute changes. We would also like to thank those staff in the regions of Greater Accra, Eastern, Upper East and Ashanti, and all districts and sub-districts visited, who gave generously of their time during our site visits.

We would like to acknowledge and are most grateful for the financial support of USAID - through TBCAP program and the Quality Health Partners (QHP) project, and WHO Afro Regional Office, without which this mission would not have been possible. In particular we would like to thank Ms. BethAnne Moskov, Dr. Peter Wondergem and Dr. Paul Psychas from USAID/Ghana; Dr. Joachim Saweka, WHO Ghana Country Representative and Dr. Harry Opata, Communicable Disease Specialist, WHO Ghana; Dr David Okello, WHO Kenya country Representative, Dr Sukwa, Dr Wilfred Nkhoma, Regional TB advisor who kindly supported the presence of the WHO technical advisor to join this mission.
# ACRONYMS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>BMCs</td>
<td>Budget and Management Centres</td>
</tr>
<tr>
<td>CAT I, CATII</td>
<td>Category one, Category two (treatment regimen)</td>
</tr>
<tr>
<td>CB-DOTS</td>
<td>Community – based DOTS</td>
</tr>
<tr>
<td>CEDEP</td>
<td>Centre for Development of People</td>
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<tr>
<td>CHO</td>
<td>Community Health Officer</td>
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<tr>
<td>CDR</td>
<td>Case detection rate</td>
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<tr>
<td>CHPS</td>
<td>Community Health and Planning Services</td>
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<td>CMS</td>
<td>Central Medical Stores</td>
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<td>CU</td>
<td>Central Unit (of the NTP)</td>
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<tr>
<td>DANIDA</td>
<td>Danish Aid</td>
</tr>
<tr>
<td>DDHS</td>
<td>District Director of Health Services</td>
</tr>
<tr>
<td>DDNS</td>
<td>District Director of Nursing Services</td>
</tr>
<tr>
<td>DDPH</td>
<td>Deputy Director Public Health</td>
</tr>
<tr>
<td>DFID</td>
<td>Department for International Development (UK)</td>
</tr>
<tr>
<td>DHMT</td>
<td>District Health Management Team</td>
</tr>
<tr>
<td>DOTS</td>
<td>Directly Observed Therapy- Short course</td>
</tr>
<tr>
<td>DST</td>
<td>Drug susceptibility testing</td>
</tr>
<tr>
<td>DTC</td>
<td>Diagnostic testing and counseling</td>
</tr>
<tr>
<td>ECOWAS</td>
<td>Economic Community of West African States</td>
</tr>
<tr>
<td>EQA</td>
<td>External Quality Assessment</td>
</tr>
<tr>
<td>E</td>
<td>Ethambutol</td>
</tr>
<tr>
<td>EU</td>
<td>European Union</td>
</tr>
<tr>
<td>FDCs</td>
<td>Fixed Dose Combinations</td>
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<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
</tr>
<tr>
<td>GFATM</td>
<td>Global Fund for AIDS, Tuberculosis and Malaria</td>
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<tr>
<td>GHS</td>
<td>Ghana Health Services</td>
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<tr>
<td>GoG</td>
<td>Government of Ghana</td>
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<tr>
<td>GPRS</td>
<td>Ghana Poverty Reduction Strategy</td>
</tr>
<tr>
<td>GSMF</td>
<td>Ghana Social Marketing Foundation</td>
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<tr>
<td>GSPT</td>
<td>Ghana Society for Prevention of Tuberculosis</td>
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<tr>
<td>H</td>
<td>Isoniazid</td>
</tr>
<tr>
<td>HIV</td>
<td>Human Immunodeficiency Virus</td>
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<tr>
<td>HRD</td>
<td>Human Resource Development</td>
</tr>
<tr>
<td>IDA</td>
<td>International Development Agency of the World Bank</td>
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<tr>
<td>IGF</td>
<td>Internally generated funds</td>
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<tr>
<td>IUATLD</td>
<td>International Union Against TB and Lung disease</td>
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<tr>
<td>IQC</td>
<td>Internal Quality Control</td>
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<tr>
<td>ITC</td>
<td>Internal TB Coordinator</td>
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<tr>
<td>KATH</td>
<td>Komfo Anokye Teaching Hospital</td>
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<tr>
<td>KBTH</td>
<td>Korle Bu Teaching Hospital</td>
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<tr>
<td>MoH</td>
<td>Ministry of Health</td>
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<td>MS Access</td>
<td>Micro Soft Access</td>
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<tr>
<td>NGO</td>
<td>Non-Governmental Organizations</td>
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<tr>
<td>Abbreviation</td>
<td>Description</td>
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<td>--------------</td>
<td>--------------------------------------------------</td>
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<tr>
<td>NHIS</td>
<td>National Health Insurance Scheme</td>
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<td>NPHRL</td>
<td>National Public Health Reference Laboratory</td>
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<td>NMIMR</td>
<td>Noguchi Memorial Institute for Medical Research</td>
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<tr>
<td>NTP</td>
<td>National Tuberculosis Program</td>
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<tr>
<td>POW</td>
<td>Program of Work</td>
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<tr>
<td>PPM</td>
<td>Public – Private Mix</td>
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<td>PPP</td>
<td>Public Private Partnerships</td>
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<tr>
<td>QA</td>
<td>Quality Assurance</td>
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<td>QHP</td>
<td>Quality Health Partners</td>
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<td>RMS</td>
<td>Regional Medical Stores</td>
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<td>RTC</td>
<td>Regional Tuberculosis Coordinator</td>
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<tr>
<td>R</td>
<td>Rifampicin</td>
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<tr>
<td>S</td>
<td>Streptomycin</td>
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<tr>
<td>SSM+</td>
<td>Sputum smear positive</td>
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<tr>
<td>SWAP</td>
<td>Sector Wide Approach</td>
</tr>
<tr>
<td>TB</td>
<td>Tuberculosis</td>
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<tr>
<td>TBCAP</td>
<td>Tuberculosis Control Assistance Project</td>
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<tr>
<td>TBCTA</td>
<td>Tuberculosis Control Technical Assistance</td>
</tr>
<tr>
<td>TB-DOTS</td>
<td>Tuberculosis Directly Observed therapy short course</td>
</tr>
<tr>
<td>TOT</td>
<td>Trainer of Trainers</td>
</tr>
<tr>
<td>USAID</td>
<td>United States Agency for International Development</td>
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<tr>
<td>WB</td>
<td>World Bank</td>
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<tr>
<td>WHA</td>
<td>World Health Assembly</td>
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<tr>
<td>WHO</td>
<td>World Health Organization</td>
</tr>
<tr>
<td>Z</td>
<td>Pyrazinamide</td>
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EXECUTIVE SUMMARY

Introduction

A Comprehensive Review of the National Tuberculosis Program took place between February 15th and March 2nd, 2007. The aims were to feed into the development of the new 5 - year strategic plan 2007-2012 and to provide recommendations as to the direction of the future investment of USAID/Ghana mission country program.

The specific objectives included:

• To review the National TB control Program within the context of the Stop TB Strategy (Expanded Framework for DOTS).
• To review the Strategic Plan for Ghana 2001 – 2006 and achievements to date
• To identify barriers, lessons learnt and best practices
• Provide recommendations to improve the overall TB program and to support the development of the National NTP Strategy 2007-2012.
• Within the framework of the USAID-Operational Plan, to make recommendations on future technical assistance (to be supported by TBCAP)

The methodology of the review consisted of documentation review, interviews with Key stakeholders: members of the Central Unit and various persons in different programs within the MoH. Site visits were conducted to 4 regions (Greater Accra, Eastern, Upper East and Ashanti). Here, on-site interviews were conducted with key informants: members of regional and district and sub-district management teams, staff in hospital and peripheral health units. Interviews and focus groups were also conducted with treatment supporters, selected patients and community members.

Background

Ghana has a population of just over 22 million inhabitants, with a democratically elected government. The country is divided into 10 regions and is currently one of the best-performing economies in Africa. Nevertheless, while the combination of growth and macroeconomic stability has allowed progress in poverty reduction over the last few years, large disparities have threatened to perpetuate chronic poverty in parts of the country. Ghana is experiencing an epidemiological transition where the burden of morbidity and mortality is from both communicable and non-communicable diseases.

Health Sector reforms: The strategic objectives have been to improve the quality of health delivery, to ensure access to basic health services, to foster partnerships in improving health, to improve the efficiency of health service delivery, and to improve financing to the health sector. Key priority focus have included implementing a package of interventions that would address the major health concerns of the general population of Ghana, with special emphasis on HIV/AIDS/STDs, Malaria, TB, Guinea Worm and reproductive and child health services. To avoid a fragmented approach to financing different programs – the GoG with many development partners adopted a Sector Wide Approach – or pooled funding to finance these reforms.
Main achievements of the NTP

Since the establishment of the NTP in 1994, Ghana has achieved full DOTS coverage. Political commitment has increased and is evident in that TB is sited as a priority in the major national policy documents; the funding from the GoG to support TB in recent years has been stable, and there is recently a TB/HIV focal person appointed at the Central Unit. This is laudable in view of the sector reforms over the past decade. These reforms have been part of the government’s efforts to improve the health of the population through equitable access to services, with pooled funding. All public health programs, including TB control, have thus been well integrated at the service delivery level.

The NTP has demonstrated its overall capacity and has been able to attract funding from the GFATM in two separate rounds. The infusion of GFATM funds in 2003 and 2005 have contributed importantly to the activities undertaken by the NTP and will do so into the next 3 years. Although cautious in the first round (2003), the vision of expanding TB control into the private sector and implementing an “enablers package” that benefits patients, health workers and health clinics in both the public and private sectors was innovative and not without risks. This strategic approach has resulted in improved linkages between the public and private sectors, is based on mutual respect and can serve as a model for the region. The NTP seems well positioned to move into expanding TB-DOTS into communities. Between the first and fifth rounds of funding, the NTP has also provided leadership to the regions so that other initiatives could be piloted (without extra finances) and lessons learned have fed into plans to expand CB-DOTS. Now with GFATM funding expansion of TB-DOTS into the penal system is well underway. Over 35 NGOs have been engaged in ASCM activities.

Laboratory services (sputum smear microscopy) have expanded and the ratio of a microscopy centre to population at the national level is acceptable. A quality assurance program for the laboratory network has been established and covers both the public and private sectors. Over the past 4 years the number of patients evaluated at the end of treatment has increased remarkably, where 100% of sputum smear-positive patients have treatment outcomes recorded. Case management has also improved and the treatment success rate continues to improve (71% for the 2005 cohort). The NTP is set to shift from an outdated treatment regimen to the WHO-recommended fixed dose combination provided in patient kits.

With the GFATM funding, much effort has been targeted to increasing awareness among health workers and the public of TB control. During site visits – the level of knowledge among health workers was high and patients seemed to be well versed in TB, their treatment duration and the importance of completion. As well - there was a high level of awareness of the new initiatives which are set to scale up – such as the new treatment regimen, CB-DOTS, TB/HIV and TB in prisons. The two teaching major hospitals have been improved in readiness for the eventual implementation of the DOTS-plus program.

Key issues

The NTP manager is currently tasked as the Acting Director of Disease Control, and the position of the Deputy Director of the NTP has yet to be filled. This has and will continue to have an impact on
the amount of planning and supervision that can be undertaken and may leave the program 
vulnerable, especially in view of the many new initiatives to be scaled up in the next year.

While the infrastructure and basic support for TB control is in place, and TB has been high on 
the political agenda, the NTP operated under important financial constraints prior to and between 
GFATMR1 and R5. Various instances over the past decade were characterized by limited funding 
from external sources. This left the program vulnerable, and the pace of expansion was considerably 
slower than expected, and the targets set out in the Strategy for TB Control 2001-2006 have yet to be 
met.

The second strategy in the national action plan is to improve case detection. Although many of 
the interventions have been undertaken in the latter quarters of 2005 and throughout 2006 the – case 
detection is still far below the WHO case detection estimates (28% for all TB cases and 37% for 
smear-positive cases). Initiatives such as PPM have provided alternatives for patients for both 
diagnosis and treatment, but the absolute number of cases reported nationally has not changed. The 
increased case load seen in the private sector may very well be at the expense of the public clinics. 
The same was observed in some of the pilot sites, where although the number of clinics providing 
TB-DOTS has increased, the absolute number of patients remains the same. There were important 
drug shortages across the country in 2006 which could explain – at least in part- the lack of 
improvement in the numbers of TB patients admitted to the program. These drug stock-outs resulted 
in incomplete or interrupted treatment for some patients, or a long period between diagnosis and 
treatment initiation in some patients. The results of re-treatment cases are not uniformly reported.

With regards to various aspects of program management – monitoring and supervision from the 
central level is limited and at the de-centralized levels remains weak. The delay in the timely release 
of funds for the procurement of drugs led to the stock-out experienced in 2006 nationally. QA of the 
laboratory network is unevenly implemented and there is no application of internal quality control at 
this time.

Although many ACSM activities have been undertaken - there is no ACSM plan (outside of the 
GFATM document) nor are there guidelines or specific tools available to the program. To improve 
performance and achieve sustainability of the programme, the engagement of the regional and 
district authorities and communities will require skills in advocacy and without a plan (goals, 
objectives and activities) – and specific tools, this may be difficult to accomplish.

Forging partnerships to expand DOTS – the third strategy has yet to be launched in full. 
Church groups seem to play an important role in how and when people access services and

Activities such as improved collaboration for TB/HIV are about to be launched nationally. The 
mechanisms for coordination are not yet in place at the decentralized levels. Although there has been 
a central task force, it has been inactive for several months. The roll-out of TB/HIV activities will 
need to ensure close monitoring and supervision, however this has yet to be clearly defined between 
the two programs.

Perhaps the most important weakness of the NTP is the capacity to undertake operational research – 
the fourth strategy. The technical capacity for OR is very centralized and limited to a select group of
researchers. Many key studies have been implemented but the analyses of the results have not been forthcoming: the tuberculin survey and the MDR survey. The low case detection rates nationally and high case fatality rates in some regions are operational issues and both need urgent attention. In addition, many new initiatives have been or are about to be scaled up nationally. Lack of planning to collect key information to better define the outcome of these innovative programs is lacking. One good example of this is the lack of critical analysis of the “enablers package”. Lack of information will have implications for sustainability of an “enablers package” and other initiatives post-GFATM funding. This may also impact on the continued engagement of the private sector, and the ability to effectively identify and address barriers for the patient, health worker and clinics providing TB-DOTS. As Ghana is a country in epidemiological transition with an increasing burden of disease from chronic illnesses, maintaining or increasing investments for TB Control, will depend on the evidence that can be provided to ensure TB remains high on the political agenda at all levels.

Key recommendations

Recommendations to improve the MOH/GHS and the NTP

- Improve drug management and as an urgent priority - ensure smooth roll-out of FDC’s
- Strengthen QA system for the laboratory network with particular attention to QC and EQA and commodity and information management.
- Strengthen the monitoring (supportive supervision) at central and decentralized levels
- Ensure that mechanisms of collaboration for TB/HIV are established at all levels and the supervision strategies are well defined as the TB/HIV initiative is rolled-out
- As part of a national research strategy (including evaluation research), consider hiring a research coordinator to the central unit
- Finish analysis of data for major studies (MDR survey and Tuberculin skin test survey)
- Develop strategic action plan for 2007-2011 and consider the following areas of focus:
  - Consolidate case management through new initiatives (CB-DOTS, TB/HIV)
  - Develop strategy to improve case detection
  - Improve management capacity at all levels (HR, Information management, monitoring and supervision, linkages with partners, drug management)
  - Develop and implement an ACSM strategy
  - Develop and national research strategy that would include the capacity development in operational research at the decentralized levels

Recommendations to USAID for FY 07

- Support key activities of the NTP
  - The development of OR capacity and the formulation of a research agenda that will support sustainability of the program
  - Improve the QA system
  - Strengthen the drug management and implementation of FDCs
  - The development of the new Strategic Plan (2007-2011) including an ACSM strategy
1. INTRODUCTION

1.1 Background

The national TB control program (NTP) was formalized in 1994 following the WHO DOTS strategy. The NTP has a central TB unit, under the Disease Control unit of the Public Health Directorate of the Ghana Health Service (GHS), which plans and coordinates the program. Prior to 1999 the NTP was supported by the Danish Government (DANIDA) and many improvements in the program were observed. After 1999 TB control was supported through the “common pot” mechanism (SWAP) and resulted in new challenges for the NTP. Since 2002 funding has gradually increased from the Government of Ghana (GoG) and from the Global Fund (GFATM) and is to significantly increase this year as well (2006).

Tuberculosis control is seamlessly integrated into the GHS structure in primary, secondary and tertiary levels of care, so that each region, district and health facility has a team of health workers led by a TB coordinator. This team of coordinator is also responsible for ensuring the success of the public private partnership (PPP DOTS) program which is run as part of the integrated essential health package in all public health institutions, faith-based health facilities and in some selected private sector health facilities in the two main metropolitan cities of Accra and Kumasi. The last comprehensive NTP program review was conducted in 2002 led by WHO.

In 2006 the total number of new TB cases notified has increased slightly to 12,124 cases. The incidence rate for all cases in 2006 was 57 /100,000 with a CDR of 25% - well below the Africa Regional rate of 45%. The estimated case detection rate of SS+ cases is 37%. In spite of infusions of extra-budgetary funds – the number of cases notified has not increased since in 2004. The treatment success rate has slowly improved from 50.4 % (in 2000) to 72.6 % (in 2005) while the treatment failure rate has remained at 2%. The proportion of cases evaluated has change significantly – from 38% in to 99% in 2006.

Donors and Partners: Currently, the major donors and their support areas are as follows;

- GFATM: expanding PPP-DOTS; Community-based DOTS (CB-DOTS); TB/HIV and strengthening NTP managerial capacity through technical assistance
- DGIS - funded - KNCV Tuberculosis Foundation supporting with technical assistance
- USAID-funded DELIVER Project/JSI is supporting integrated drug management
- USAID-funded Quality Health Partners (QHP) Project supported the PPP-DOTS review, and other activities such as the Modified Comprehensive Review, and development of the NTP Strategic Plan
- USAID – funded TBCAP project supported a preliminary scoping mission and this Comprehensive review and technical assistance (TA).

In 2005 the USAID Ghana mission obligated $60,000.00 to TBCAP for the implementation of activities to support expansion of quality DOTS. The technical areas identified in consultation with the NTP are: 1) Development of a social mobilization and communication strategy; 2) Development of a five year strategic plan; 3) Strengthening NTP's capacity in planning, monitoring & evaluation; 4) Strengthening pharmaceutical supply and quality assurance systems.
The first TBCAP scoping mission took place in March 2006 and included technical experts from MSH, the TBCAP/Ghana coordinating partner and KNCV Tuberculosis Foundation. These experts were joined by a local health professional and staff from QHP. Findings of this mission provided evidence to continue the investment in the NTP with a priority to support a Comprehensive program review in the near future. Findings of this review would support future efforts in all technical areas outlined in the original scope of work, but most importantly, ensure that the development of the New Strategic Plan is based on evidence and in line with the Global Stop TB Strategy. Subsequent to this TBCAP scoping mission, the USAID/Ghana committed another $100,000 to TBCAP and approved the comprehensive review, planned to take place in September, 2006. However, due to an embargo on any and all in-coming missions, the review had to be postponed to after December 2006.

1.2 Purpose of the Comprehensive Program Review:

The Comprehensive Review took place between February 15th and March 2nd, 2007 and had two purposes: 1) to feed into the development of the New 5 year strategic plan 2007-2012 and 2) to guide the direction of the future investment of USAID within the scope of the USAID/Ghana mission country program and the new Operational Plan framework.

The specific objectives:

- To review the National TB control Program within the context of the Stop TB Strategy (Expanded Framework for DOTS).
- To review the Strategic Plan for Ghana 2001 – 2006 and achievements to date
- To identify barriers, lessons learnt and best practices
- Provide recommendations to improve the overall TB program and to support the development of the National NTP Strategy 2007-2012.
- Within the framework of the Operational Plan, to make recommendations on future technical assistance (to be supported by TBCAP)

1.3 Methodology

The members of the review team consisted of both national and international experts: from Ghana Professor Adukwei Hesse (QHP consultant), Dr. Kwasi Addo (QHP consultant) and Dr. Fulgence Sangber-Dery (QHP). International experts included Ms. Grace Kahenya (MSH/Zambia), Dr. Joel Kangangi (WHO/Kenya), Dr. Jacques van den Broek (KNCV/The Hague), Mr. Oliver Hazemba (MSH/Zambia) who joined the group for the second week of the mission, and Dr. Christine Whalen (QHP consultant/Netherlands) as the team leader.

Several weeks prior to the review, all team members received a set of key documents. During the two week - mission, the team received several more documents for reference.

The first two days entailed a review of the overall organization and structure of the review and expected outcomes. The team met with the NTP manager, Dr. Frank Bonsu, for formal briefing and agreed on the mission’s terms of reference. Data collection tools were presented and modified. Visits
were paid to various offices with the MOH: The Director of Public Health, the NTP, Office of Policy and Planning, CHPS office, the USAID mission and WHO office.

Visits were organized to 3 of the 10 regions: Greater Accra, Eastern and Upper East region. In total 15 districts were visited. The visits included interviews with the regional, district and sub-district level staff, visits to various facilities including hospitals, and health clinics and some communities. CHAG hospitals, private clinic and CHPS sites were visited as well as ART sites and VCT sites. To assess the laboratory network all levels of the system were visited including the National Public Health and Reference Laboratory, Noguchi Memorial Institute for Medical Research, regional, district and sub-district labs, and private laboratories. To assess the commodity management interviews were conducted with Department of pharmacy staff, Euro Health and JSI, the CMS, the RMS of Accra and peripheral pharmacies. Patients were interviewed to assess level of knowledge of and client satisfaction with TB services and focus groups discussion were held with treatment supporters. A final debriefing was undertaken at the MOH attended by various representatives from the MOH, the NTP, WHO, USAID, the Region of Greater Accra, and the Tema District.
2. GENERAL INFORMATION

Ghana, originally known as Gold Coast, is located on the Gulf of Guinea. Its sea coast spans 554 kilometres (334 miles), and is bordered on the north by Burkina Faso on the east by the Republic of Togo and on the West by Cote d’Ivoire. The total land area of Ghana is 238,538 square kilometres (92,100 square miles) with a distance from the south to the north of 840 kilometres (522 miles).

Ghana’s population is estimated at 22.1 million people (2005), 46% of whom are under the age of 15. The life expectancy is a little over 57 years. The highest population densities are in the urban areas. The peoples of Ghana are composed of two principal linguistic groups: the Gur in the north and the Kwa group in the south.

Table 1.

<table>
<thead>
<tr>
<th>General indicators</th>
<th>2000</th>
<th>2005</th>
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<tbody>
<tr>
<td>Population total</td>
<td>19.9 million</td>
<td>22.1 million</td>
</tr>
<tr>
<td>Populations growth</td>
<td>2.2</td>
<td>2.0</td>
</tr>
<tr>
<td>Life expectancy at birth</td>
<td>56.7</td>
<td>57.2</td>
</tr>
<tr>
<td>Fertility rate</td>
<td>4.6</td>
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<tr>
<td>Infant mortality rate (per 1000 live births)</td>
<td>68.0</td>
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<tr>
<td>Under 5 mortality (per 1000 live births)</td>
<td>112.0</td>
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<tr>
<td>Measles immunization (% child. 12-23 mo)</td>
<td>84</td>
<td>---</td>
</tr>
<tr>
<td>Prevalence of HIV</td>
<td>---</td>
<td>2.3</td>
</tr>
<tr>
<td>School enrolment primary</td>
<td>80.5</td>
<td>88.4</td>
</tr>
<tr>
<td>School enrolment secondary</td>
<td>37.4</td>
<td>43.6</td>
</tr>
<tr>
<td>Ratio of boys to girls in primary and secondary education</td>
<td>89.4</td>
<td>92.6</td>
</tr>
<tr>
<td>Literacy rate, youth female (% of females ages 15-24)</td>
<td>---</td>
<td>65.5</td>
</tr>
</tbody>
</table>

- Doctors to pop. Ratio (lowest – Upper West) 45,107 68,534
- Nurses to pop. ratio (highest – Greater Accra) 1,280 969
- Nurses to pop. ratio (lowest Western) 2,180 2,241

Sources:
- World Development Indicators database, April 2006.
- Facts and Figures. PPME GHS 2005
Geo-political
The government is centralized with a multi-party parliamentary system and a democratically elected President who is both Chief of the executive branch and the Head of State. There are 10 regions (Fig. 1), 138 administrative districts and about 600 sub-districts. There are about 240,000 households and over 45,000 communities.

Ghana was the first country in sub-Saharan Africa to gain independence from colonial rule and this year (2007) marks the 50th year jubilee celebration.

Socio-economic situation
The country has a mixed economy, consisting of a dominant agricultural sector (small-scale peasant farming) which absorbs about 60% of the total adult labour force. It has a relatively small capital intensive modern sector dominated by mining and a few other industrial activities, and a rapidly expanding informal sector dominated by petty traders, small artisans, technicians and small businessmen. The national per capita income is about US$ 400. Ghanaians’ access to electricity is the highest in Sub-Saharan Africa outside South Africa.

Ghana is currently one of the best-performing economies in Africa. The economic growth continues to increase – from an average of 4.5 percent in 1983 through to 6 percent in 2005. By 2015 Ghana is expected to achieve middle-income country status. By improving policies and institutions, and investing in infrastructure and basic services, Ghana – with the assistance of many development partners - has brought down poverty levels. It is likely to surpass the Millennium Development Goal of halving poverty by 2015.

Nevertheless, while the combination of growth and macroeconomic stability has allowed progress in poverty reduction over the last few years, large disparities have threatened to perpetuate chronic poverty in parts of the country. For instance, in an IDA report described that while the cities of Accra and Kumasi have poverty headcounts of less than 10 percent, nine districts (out of 138 in the country) have poverty headcounts above 80 percent. Moreover, while rural poverty is decreasing, urban poverty is posing new challenges.

Health of the population
Although Ghana made remarkable progress in the 1990s, particularly in comparison with the rest of Africa, many reports suggest that the health status of Ghanaians has remained poor. The epidemiological situation of Ghana is similar to other sub-Saharan countries, i.e. a predominance of communicable disease conditions, under-nutrition and poor reproductive health with emerging importance of non-communicable diseases. This dual burden of communicable and non-communicable diseases, a state of “epidemiological transition”, may be an important determinant in the ability to improve performance and respond to the changing health needs of the population.

The top 10 causes of outpatient morbidity are Malaria, URI, diarrhoeal diseases, skin diseases, hypertension, home/occupational injuries, eye infections, pregnancy and related complications, Rheumatic and join diseases and anemia. The top 10 causes of hospital mortality are Malaria, Anemia, Pneumonia, CVA, Typhoid Fever, Diarrhoea, Hypertension, Hepatitis, Meningitis Sepsis and other diseases.
Health sector reforms
The country had the advantage of one of Africa’s more advanced health systems, but coverage was far from adequate to meet the population’s needs. To avoid the fragmentation caused by multiple projects, the GoG, along with many development partners, focused on the “big picture” issues, such as reorganizing the Ministry of Health, comprehensive public health planning and capacity-building at both the central and local levels.

Since 1995, the Health Sector Reforms has led to the development of 1st Five Year POW (1997-2001) and 2nd Five Year POW (2002-2006). The strategic objectives of the POWs have been to improve the quality of health delivery, to ensure access to basic health services, to foster partnerships in improving health, to improve the efficiency of health service delivery, and to improve financing to the health sector. Key priority focus includes implementing a package of interventions that would address the major health concerns of the general population of Ghana, with special emphasis on HIV/AIDS/STDs, Malaria, TB, Guinea Worm and reproductive and child health services. In addition, services that address the needs of the poor and vulnerable have been emphasized and the community-based approach (CHPS) has been the main system for service delivery. These reforms were financed through a sector-wide approach (SWAPs).

Health Services Financing
With increased GDP growth, declining inflation rates to about 10% (2006) and an increased tax revenue from 17% of GDP in 2001 to 22% in 2005 (Government of Ghana 2005) all together have contributed to a substantial increase of nearly 400% in the total financial resources to health services since 2001 (see Table 2).

Table 2 Sector-wide Indicators for Health Financing

<table>
<thead>
<tr>
<th>Indicators</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006 (budget)</th>
</tr>
</thead>
<tbody>
<tr>
<td>% GoG budget on Health</td>
<td>8.7</td>
<td>9.3</td>
<td>9.1</td>
<td>8.2</td>
<td>15</td>
<td>17</td>
</tr>
<tr>
<td>% GoG recurrent spending on health</td>
<td>10.2</td>
<td>11.5</td>
<td>11.2</td>
<td>11.9</td>
<td>14.5</td>
<td>15</td>
</tr>
<tr>
<td>% GoG recurrent on health on no-salary items(2+3)</td>
<td>8.1</td>
<td>5.9</td>
<td>6.9</td>
<td>5.4</td>
<td>6.6</td>
<td>NA</td>
</tr>
<tr>
<td>% Spending on districts and below (items 2+3)</td>
<td>NA</td>
<td>40.9</td>
<td>35.4</td>
<td>37.9</td>
<td>48</td>
<td>43</td>
</tr>
<tr>
<td>% Earmarked/total DP</td>
<td>62.3</td>
<td>32.8</td>
<td>39.5</td>
<td>26.3</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>% IGF from pre-payment schemes</td>
<td>3</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>20</td>
</tr>
<tr>
<td>% Recurrent funds from GoG+HF allocated to CSOs</td>
<td>1.2</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>3.1</td>
<td>2</td>
</tr>
<tr>
<td>% Recurrent funds on exemptions</td>
<td>1.2</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Per Capita expenditure on health (USD)</td>
<td>6.3</td>
<td>8.1</td>
<td>10.5</td>
<td>13.5</td>
<td>23.9</td>
<td>25.2</td>
</tr>
</tbody>
</table>


In addition, the Government of Ghana (GoG) has increased the proportion of government expenditure allocated to health such that health had the third largest share of GoG funds in 2005 after the ministries of education and economics.
What is of note is the changing source of financing for the health sector. The main sources presently are the GoG, the Health Fund (Donor Pooled Fund), Earmarked Funds from some donors, internally generated funds (IGF) and the National Health Insurance Scheme (NHIS). The proportion of funds from the NHIS is increasing and is designed to replace the internally generated fund (IGF). Further, some health partners (such as the EU, DFID and the World Bank) are changing from direct health sector support to multi-donor budget support (MDBS) which is pooled at the level of the Ministry Finance to support the national budget. This latter arrangement poses a potential risk to the health sector budget: there is the concern that GoG resources to health may fall, the disbursement from the Ministry of Finance may be more cumbersome, less flexible and less predictable than the current Health Fund arrangements and because of less sectoral dialogue with partners there may be less commitment and therefore less funding from them. HIPC funds to the health sector were withdrawn in 2005 because of the positive accumulation of the national health insurance fund.

**Partners**

Many partners were involved in shoring up Ghana’s health reform program and include bilateral partners such as Canada, Denmark, France, the European Commission, Germany, Italy, Japan, the Netherlands, Spain, Switzerland, the United Kingdom, and the United States. Multi-lateral partners include: the African Development Bank, IFAD, the UN, and the World Bank.
3. **TUBERCULOSIS**

3.1 **Brief history of TB control in Ghana**

The national TB control program (NTP) was formalized in 1994 following the launch of the WHO DOTS strategy. Between 1994 and 1998 the NTB was lifted from a state of neglect and many problems were addressed resulting in important achievements. These included the strengthening the Central TB Unit, standardization of diagnosis, case definitions and treatment protocols; the availability of drugs; and the initiation of training for health staff. By the end of this period TB services were integrated into primary health care and DOTS coverage (District level) was estimated at approximately 98%. However, the program still faced significant challenges: in the context of health sector reform there were important budgetary constraints, and in spite of improved policies and structures, no significant impact was made in the burden of TB as evidenced by standard program indicators. The MoH decided to reformulate its control strategy, with an emphasis on the diagnosis of smear-positive patients and fully supervised short course chemotherapy for smear-positive patients.

The first national “TB Control Strategic Plan for Ghana” was launched in 2001 after extensive consultation across sectors and with civil society and technical and financial support from many development partners (WHO, the World Bank and JICA). The goal of this Strategic Plan was to consolidate, expand and improve the quality of DOTS in health facilities and in the communities using a Public Health approach.

**Strategies and Interventions:**

*Strategy 1: Improved TB case management and control:* Building the capacity among health personnel within the sector at all levels including the private sector to manage and implement the DOTS strategy.

*Strategy 2: Improved TB case detection:* Use IE&C to create awareness to encourage TB sufferers to access TB services. It will be used to help minimize the stigma attached to the disease. The laboratories would be supported and quality control to meet the expected increase in case detection.

*Strategy 3: Forge Partnership to expand DOTS:* Expand the DOTS strategy among the private sector with the same level of commitment to TB care as in the public sector.

*Strategy 4: Focused Research:* Ensure that policies and intervention for TB control is supported by well-researched information.

3.2 **Organization and management of TB services**

**Central level**
The NTP has a Central TB Unit (CTU), under the Disease Control Unit of the Public Health Division of the Ghana Health Service. The roles and responsibilities of the CTU are to ensure...
political commitment to the program. This entails liaising with various departments in the MOH advocating that TB remains a national priority, and also with many implementing partners. The CTU also provides overall technical leadership. This is achieved through development and publication of all program policies and guidelines. The NTP works closely with the Department of Pharmacy to ensure a regular supply of quality-assured drugs, undertakes supervision of the regional levels and participates in training at various levels. The NTP is the technical arm of the implementation of the GFATM grants and is responsible for providing technical oversight, planning and budgeting of these activities.

Two national-level meetings are planned annually, the first to present program information on the past year, the second to plan for the next year. These meetings also provide opportunities to provide information on upcoming initiatives. In 2006 – the meeting was collapsed into one so that both review and planning occurred together.

As most TB-specific activities are largely financed through the GFATM R5 project, at the Central, Regional and District levels, planning occurs annually and reporting (according to an agreed upon strategy) are provided quarterly.

**Management Structure**

For the past year the NTP Manager has been seconded as Acting Director of Disease and Prevention Department. A deputy director has yet to be named. All other positions at the CTU have been filled. The GFATM is currently supporting 6 “young professional positions”. These individuals had been posted previously to the NTP through the undergraduate internship program and were all successful in the open competition when these 6 posts were made available. In addition to providing general assistance to programmatic activities, they are assigned to one or 2 regions and provide support to ensure the quality of reporting and surveillance.
New facilities have been constructed thanks to the GFATM Round 1 and are found to be spacious with well equipped offices and conference facilities. The CU now has three dedicated vehicles.

**Regional level**

There are 10 regions plus two hospital facilities that are also treated as separate independent regions. Both Komfo Anokye Teaching Hospital (KATH) and Korle Bu Teaching Hospital (KBTH) provide in-patients and outpatient services. The only distinction from other regions is that they do not have supervisory responsibilities outside of the services they provide. Both hospitals are major reference hospitals, with in- and out patient facilities.

The NTP management differs among regions. In some regions the TB team was made up of various professionals: Regional Laboratory Scientist, Pharmacist, the doctor in charge of the TB clinic, DDNS and the Regional Disease Control/Surveillance Officer, in other regions the team comprises of only the TB coordinator with the support of the DDPH. The functions of the regional team include data management and report writing, planning and budgeting, commodity distribution (anti-TB medicines, laboratory supplies and materials); training of district managers; monitoring and supervision at the district level and organizing regular quality control. Each region has one trained doctor (The Referral Clinician) to provide support in the management of treatment failures, chronic cases and other clinical problems for which assistance may be needed.

**District Level**

In each district, the District Director of Health Services (DDHS) has primary responsibility for TB control. One technical person is appointed as the District TB coordinator (DTC), to assist in coordinating TB control activities. As services are integrated, all of DTCs have various other responsibilities besides TB Control. TB Control activities include planning and budgeting, training and supervision of health staff, program monitoring through supportive supervision.

Those districts that have PPM activities are also responsible for ensuring the close monitoring and supervision and reporting of the PPM activities undertaken in their jurisdiction.

**Human resource development**

After the establishment of the NTP in 1994, a critical mass of health personnel from teaching Hospitals to District hospital level of all categories were trained in TB control. However, since 1999 the responsibility for training was delegated to the Unit of Human resource Division, under the common management arrangement. Regions and Districts were to continue to fund vital TB control activities from an ‘increased budgetary allocation’ under the ‘common pot’ arrangement. These changes slowed down TB control activities and interest. And this has affected rapid achievement of targets.

Technical assistance provided by TBCTA in 2004 also provided various recommendations pertaining to human resource development (HRD):

- Evaluate the basic TB training material and task descriptions.
- Relate the TB training with HIV/AIDS and counselling skills.
- Annex job descriptions for all staff levels in the new TB program manual and use these as baseline for course curricula.
- Use the WHO guide: “Management of Tuberculosis Training for Health Facility Staff” as a baseline for the adjustment of the training manual.
• Develop simple guidelines for the lowest level of health care, the patient and the patient’s supervisor

Currently, professional trainers are based in all regions. These cadres of health professionals are responsible for training of other health staff in all programmes. In the past year, the GFATM R5 project has financed several trainings for TB at all levels. To make training more efficient and to reduce the interruption of the services delivery, the NTP has adopted the approach to combine information or “package” all new initiatives expected to be rolled out this year, such as CB-DOTS, PPM, TB/HIV and the new treatment regimen.

Most persons interviewed received basic training in the past 2 years. During the annual review and planning meeting in January, 2006, participants were informed on these new initiatives and were asked to include the training and associated budgets in their new annual work plans.

3.3 TB Epidemiology

The Burden of TB in Ghana is not exactly known: The last WHO-sponsored survey carried out in 1957 estimated an Annual Risk of Infection (ARI) between 3% and 4% in Gold Mining towns. In 2001 the ARI was estimated between 1% and 2%, corresponding with 100 to 200 new TB cases per 100,000 population per year, of which 50-100 is smear positive. A more recent tuberculin survey was conducted in 2004-2005 but the data have not yet been analyzed. The best estimates of incidence of TB at this time come from WHO report.

<table>
<thead>
<tr>
<th>GHANA</th>
<th>AFRO</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>All cases (2005 data)</strong></td>
<td><strong>Estimated</strong></td>
</tr>
<tr>
<td>Incidence (all cases/100,000 pop/yr)</td>
<td>205</td>
</tr>
<tr>
<td>Number of all cases per year</td>
<td>45,328</td>
</tr>
<tr>
<td>Case detection rates (%)</td>
<td>--</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Smear positive cases</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Incidence (New ss+/100,000/yr.)</td>
</tr>
<tr>
<td>Number of new cases</td>
</tr>
<tr>
<td>Case detection rates</td>
</tr>
<tr>
<td>Treatment success</td>
</tr>
<tr>
<td>TB mortality (all cases/100,000/yr.)</td>
</tr>
<tr>
<td>TB/HIV cases (adults 14-49yrs)</td>
</tr>
<tr>
<td>Estimated cases of MDR (2001)**</td>
</tr>
</tbody>
</table>

* % of registered cases in the 2004 cohort
** C. Dye et al. Worldwide Incidence in Multidrug Resistant Tuberculosis

Source. WHO TB estimates 2007 report;
The case detection rates for 2006 for SS+ patients remained at 35/100,000 – down from 41.6 in 1997 and for all forms of TB decreased from 62 in 1997 to 57/100,000. The reported incidence fluctuated since the establishment of the NTP in 1994 but remained stable in the past 3 years.

The gender ratio (M/F) overall is reported as 2:1. As in most resource limited settings and in the literature in general, the age groups of those most affected are in the most productive years of life. In Ghana, the peak age group for women is 25-34 years of age, whereas in men it is 35-44 years of age. No further information was available.
MDR-TB

In a 2002 publication the MDR-TB in Ghana is estimated at approximately 2.6% (C Dye et al: World wide Incidence of Multi drug Resistant TB, 2002). A more recent laboratory survey for drug resistance was undertaken in 2005-2006; however the data have yet to be analyzed.

Case detection and treatment outcomes will be dealt with in sections 4 b., and 4c respectively.

4. FINDINGS, ACHIEVEMENTS, KEY ISSUES, RECOMMENDATIONS

Section 4 (and sub-sections) is organized according to the Stop TB Strategy Key components and definitions are provided at the beginning of each sub-sections in italics.

4.1 Pursue high-quality DOTS expansion and enhancement

The first component – DOTS expansion and enhancement – is the cornerstone of the DOTS Strategy and provides the foundation for the remaining five elements of the Stop TB Strategy.

Political commitment is needed to foster national and international partnerships, and should be linked to long-term strategic action plans. Adequate funding is essential. Funding the gaps requires efforts to mobilize additional resources from domestic as well as international sources, with a progressive increase in domestic funding.

Case detection through quality assured bacteriology - Bacteriology remains the recommended method of TB case detection, first using sputum smear microscope and then culture and drug susceptibility testing (DST). Other factors that impact on case detection, such as the policies and organization of services will be addressed first.

Standard treatment, supervision and patient support addresses factors that may make patients interrupt or stop treatment. These barriers may be physical, financial, social and cultural barriers – as well as health system – Particular attention should be given to the poorest and most vulnerable population groups.

Effective Drug supply: An uninterrupted and sustained supply of quality-assured anti-TB drugs is fundamental to TB control. An effective drug management system is needed to ensure the selection, procurement, distribution and use of these essential commodities.
Monitoring and evaluation system, and impact measurement includes a recording and reporting system that links central and peripheral levels and contains standardized recording of individual patient data. Enhanced recording and reporting should include information of DST and TH/HIV. Knowledge and skills of the staff to interpret this information for action is key to TB control.

Each of these areas will be dealt with separately.

4.1.a. Political commitment with increased and sustained financing

Various indicators have been used to measure “Political Commitment to TB Control”. In addition to the availability of a National Strategy for TB Control, other indicators are the availability of staff at all levels, availability of key documents such as norms and guidelines, opportunities for continued training and a regular supply of quality assured drugs and supplies. Notwithstanding, funding is key.

Current Situation

In Ghana, there is high level of political commitment to TB control. The GoG has maintained and increase its commitment to the health sector with financial and technical support from many partners. TB continues to be featured as an important public health problem – thus high on the political agenda. This is evidenced in various policy documents where TB is featured as such: in the Ghana Poverty Reductions Strategy, the POWs I, POW II and the draft POW III, special initiatives such as CHPS, and the enhancement of the Public Private mix.

The government supported the development of the Strategic Plan for TB Control (2001-2006) and has articulated its keen interest that the next TB strategy document be completed by the end of this calendar year so that it can be launched early in 2008. Many of the key NTP program technical and clinical management documents – such as the new updated norms and guidelines and TB/HIV technical documents have been prepared and will soon be distributed.

Resource allocation to the NTP:

Resource allocation to the NTP will be described in 4 separate time periods and reflect major policy or program changed that were accompanied by different financing strategies or new funding opportunities:

• 1991 -1994. Renewed political commitment

This period was characterized recognizing the poor state of TB and a renewed commitment from the GoG. In 1991 the WHA ratified the WHO targets of detecting 70% of infections cases and curing 85% of these cases. Although Ghana had a TB program, it was recognized the poor situation of TB in the country and embarked upon strategy, to improve it. In 1992, the NTP defined a project and began to approach donors, in this instance DANIDA, for financial support. In November1993, an agreement between DANIDA and the Government of Ghana was signed on the basis of a Project Document. The Document reflected the mainstream policy of the IUATLD at that time.


This period was characterized by the inception of the NTP (source: Review of the NTP, 2005), strengthening of the CU and new targeted donor funding. Early in 1994 under the agreement between the GoG and DANIDA, funds were disbursed and targeted to three of the ten regions as part of a phased approach. This resulted in patients moving between regions to seek TB care. The NTP
responded by changing its phase approach to a step – by step approach were all regions were involved in the implementation of TB-DOTS.

Financing for the NTP remained separate until the end of 1998, after which funding was through the common basket in the context of sector wide approach donor support. Small amounts were earmarked up to 2000 for advocacy, supervision, and national review meetings. The decrease in finances for the NTP resulted in a deterioration of the program. The GoG was not able to address this shortfall nor were there any other donors willing to earmark funds for the NTP at that time.

- **2000 - 2003:** Precarious funding and decline of the NTP
With this precarious funding arrangement some improvements in the program were observed – standardization of important program elements, availability of free treatment and trained staff in various regions. However, a 2000 mid-term review of the POW I found that although there was progress, there were also many important contextual issues that precluded program improvement in addition to the under funding and included insufficient prioritization of TB at lower levels and delays in releasing funds at the peripheral levels. The financial “common pot” mechanism (SWAP) continued to impact negatively on the program, as fewer activities in TB control were undertaken. In 2000 an extensive stakeholder analysis was undertaken and in 2001 the NTP launched the TB Control Strategic Plan 2001-2006. In 2003 Ghana was successful of the GFATM R1 proposal, supporting the establishment of PPM-DOTS and the “enablers package” in 2 pilot metropolitan cities in Accra and Kumasi, with an injection of US$5,713,128 for 5 years from 2003 - 2008.

- **2004 – 2007:** Sustained commitment increased funding and continued expansion
The GoG had increased the proportion of government expenditure allocated to health such that health had the third largest share of GoG funds in 2005 after the ministries of education and economics. Through the SWAPs mechanism the GoG continues to support salaries of all categories of workers, many of whom are engaged in TB control. Moreover, during this period the GoG provided stable financial support to the NTP, approximately US$1 million per year. Up until 2006, this has covered the cost of anti-TB medicines, and other consumables. In 2004 GFATM funds for PPM and the enablers package were made available. Although this was an important infusion of targeted funding, the NTP continued to operate under continued financial constraints. Funds fell short of covering the costs needed to scale up TB-DOTS and expand into new areas, such as CB-DOTS and TB/HIV. With these funding gaps in mind, the MOH submitted a successful proposal for the GFATM R5.

Table 4. Financing TB control

<table>
<thead>
<tr>
<th>Year</th>
<th>Government</th>
<th>WHO</th>
<th>GFATM R1</th>
<th>GFATM R5</th>
<th>USAID</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>1,000,000</td>
<td>30,000</td>
<td>1,217,416</td>
<td>---</td>
<td>60,000</td>
<td>2,307,416</td>
</tr>
<tr>
<td>2005</td>
<td>1,000,000</td>
<td>30,000</td>
<td>1,045,165</td>
<td>--</td>
<td>100,000</td>
<td>11,162,165</td>
</tr>
<tr>
<td>2006</td>
<td>1,000,000</td>
<td>40,000</td>
<td>1,015,715</td>
<td>8,977,000</td>
<td>500,000</td>
<td>11,162,165</td>
</tr>
<tr>
<td>2007</td>
<td>1,000,000</td>
<td>40,000</td>
<td>0</td>
<td>5,549,439</td>
<td>500,000</td>
<td>8,105,154</td>
</tr>
<tr>
<td>2008</td>
<td>1,000,000</td>
<td>40,000</td>
<td>0</td>
<td>6,215,231</td>
<td>500,000</td>
<td>7,255,231</td>
</tr>
<tr>
<td>2009</td>
<td>1,000,000</td>
<td>40,000</td>
<td>0</td>
<td>5,446,808</td>
<td>500,000</td>
<td>6,486,808</td>
</tr>
<tr>
<td>2010</td>
<td>1,000,000</td>
<td>40,000</td>
<td>0</td>
<td>5,231,599</td>
<td>500,000</td>
<td>6,271,599</td>
</tr>
</tbody>
</table>

WHO continued to provide between USD 30,000-40,000 for NTP support during this period. In 2005 Ghana was awarded a large grant from the GFATM R5 (USD 31,471,684 for 5 years (2006-2010). Unlike RI, these R5 funds would be provided to all regions, thus ensuring that TB remains a
priority through the country. Disbursement of funds is done quarterly, based on annual work plans and quarterly reports of activities and expenditure. These funds will continue to support the expansion of the enablers package nationally, and several other initiatives, such as CB-DOTS, TB/HIV, the new regimen for anti-TB medicines and expansion of the program to the prisons. GFATM resources are seen as complementary to other financial resources.

- **2008 and beyond**: Sun setting of external sources of funding and sustaining the gains
  
  In 2008 the funding of GFATM R1 and in 2010 that of GFATM R5 will end. The NTP expects that by the end of R5, sufficient evidence is shown to support the continuation of the enabler’s package that it will be taken up by the regions themselves. It is expected that the GoG will also continue support through the annual health budget. Other sources of funding will include some donor support for the provision of specific services especially TB/HIV collaborative activities.

*It is abundantly clear from reviewing documents and interviewing key stakeholders of the importance of financial resources and cannot be overstated. With sufficient funds available, the NTP has been able to improve political commitment at all levels and implement innovative approaches resulting in program improvements. Moreover, when funding has been taken away, the program did poorly and political will declined at all levels.*

**Key Issues**

In the general context of the health sector, the source of financing is changing. The main sources presently are the GoG, the Health Fund (Donor Pooled Fund), Earmarked Funds from some donors, internally generated funds (IGF) and the National Health Insurance Scheme (NHIS). The proportion of funds from the NHIS is increasing and is designed to replace the internally generated fund (IGF). Further, some health partners (such as the EU, DFID and the World Bank) are changing from direct health sector support to multi-donor budget support (MDBS) which is pooled at the level of the Ministry Finance to support the national budget. This latter arrangement posses a potential risk to the health sector budget: there is the concern that GoG resources to health may fall, the disbursement from the Ministry of Finance may be more cumbersome, less flexible and less predictable than the current Health Fund arrangements and because of less sectoral dialogue with partners there may be less commitment and therefore less funding from them.

Although the GoG has provided stable funds to support TB in the past few years and anticipates the same level of funding into the future, there will be a serious shortfall when GFATM funding ends. Unless efforts are focused on measuring the outcome of these new GFATM – supported initiatives, including the cost-effectiveness, it will be more difficult, to ensure the sustainability post-GFATM. This is especially true given that Ghana, in a period of epidemiological transition, is witnessing an increased burden of morbidity and mortality caused by chronic disease as compared with the burden of TB.

Though the targeted budgetary support from the MOH has supported the procurement of anti-TB drugs in the past, new treatment regimens are now being funded through the GFATM funds. The GoG funds will not decrease, but they will be used to continue to purchase laboratory reagents and to support the TB programme activities in districts that will not be covered by the GFATM funds.
Recommendations

To the MOH/NTP

• Plan for and build the skills necessary to advocate for increased government funding at the decentralized levels to meet the future needs to the NTP
• Support the NTP in defining an operational research strategy that will assist the regions and the districts to better management their programs and that will also provide evidence as to the need of sustained funding for TB.

To the Partners

• Provide financial and technical support to the development of the new TB Strategy
• Provide financial and technical support to the development and implementation of a national operational research agenda that will allow the NTP to advocate for continued support to ensure the sustainability of cost-effective interventions

4.1.b. Case detection

Organization of case detection

Case detection is largely passive and has been better integrated into primary health care services. This has now extended into the private sector and into special institutions such as prisons.

The number of cases detected increased from 8,245 in 1996 to 12,463 in 2006. The trends have not changed significantly since 2001. With the exception of 3 regions all others reported slightly less cases compared to 2005 (GAR, North and BA). These, however, are still well below the national average. It is thought that the lack of improvement in 2006 – despite many activities - may have been from the stock outs of anti-TB drugs that occurred nationally.

Case notification by category
Ziehl Neelsen should detect 60% of culture positive pulmonary cases and it would be expected that the rest of pulmonary cases should be smear negative. From 1996 to 2006 approximately 73% of the new pulmonary cases detected and reported each year were smear positive (range 60-75). This is slightly higher than would be expected. Relapses and extra-pulmonary cases account for less than 10% of all cases over the past 10 years.

Trends in CDR by Region
For 2005, five of the 10 regions had CDRs higher than the national average with the Greater Accra in the lead at 36%, but still half of the intended target of 75%. On closer examination, the increase in the number of cases detected in GAR is notable, with more than 500 additional cases reported between 2005 and 2006 (total 2,949). Ashanti – the second most populous region and one of the PPM sites, reported slightly fewer cases in 2006 compared to the previous year. The regions with lower CDRs as compared to the national average are considerably low and of concern.

Although many of the issues around the low CDR mentioned in previous reports have - to varying degrees- been addressed (Table 6) the CDR remains far below the target with little or no improvement. The quality of the data has improved in all regions with almost all cases evaluated. Although treatment outcomes have improved and should play a positive role in attracting TB suspects into the program earlier, that seems not to be the case. Defaulter rates are high across the nation (11%). It is not clear during the mission if absconding from treatment has occurred in the intensive or continuation phase. However, according to the NTP Central Unit it has already been established that most defaulters occur in the continuation phase especially after month 5 when sputum is negative. For those that do abscond in the first phase, the type of treatment regimen may play a role: most patients treated with CAT I undergo 2 months of S injections, and CAT II - 2 months of S. In addition, for those regions whose patient populations have poor access to treatment facilities, admission to the hospital is common.
Table 6. Reasons sited for poor CDR in previous reports

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Current status/ actions taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor treatment results:</td>
<td>Treatment success rates:&lt;br&gt;• 2001 – 56%&lt;br&gt;• 2005 – 72%</td>
</tr>
<tr>
<td>“good treatment is the best advocacy to attract TB suspects”</td>
<td>Default rates&lt;br&gt;• 2001 – 17%&lt;br&gt;• 2005 – 11%</td>
</tr>
<tr>
<td>Poor awareness and stigma among the population</td>
<td>Important resource allocation and various methods have been employed to increased awareness of TB in the general populations and in health workers. No comparative study but some empirical evidence suggest that awareness has improved has increased</td>
</tr>
<tr>
<td>Health seeking behaviour</td>
<td>Increased trend of visits to health services overall</td>
</tr>
<tr>
<td>Poor general health services</td>
<td>There has been a large infusion of GFATM funds to improve the infrastructure in many health units</td>
</tr>
<tr>
<td>Poor access (geographically, economically)</td>
<td>CHPS zones have little population coverage (3-5%)</td>
</tr>
<tr>
<td>Poor laboratory network</td>
<td>No strategy other than PPM to enhance TB-DOTS in the urban slum population limited to 3 metro areas</td>
</tr>
<tr>
<td>Financial: although the treatment itself is free, patients often have to pay a significant amount to get diagnosed and for getting treatment</td>
<td>The enablers package is now being extended nationally.</td>
</tr>
<tr>
<td>Availability of drugs</td>
<td>Although there has been a decline in reported stock – outs of tracer drugs in the Essential Medicines system, there have been important stock outs in anti TB drugs in 2006.</td>
</tr>
</tbody>
</table>

The role of national policies in case detection
Health reform efforts to improve access to health services were the major thrust of the GoG. Despite efforts to improve HRD and access, many indicators including TB, have remained stagnant. Pro-poor strategies to reach communities, especially in rural efforts (CHPS) have potential to improve case detection but efforts to expand CHPS have been very slow. The final and desired step in the CHPS process is the installation of a CHPS Zone characterized by a health post supported by the community. However, only 5% of communities have access to CHPS zones. Communities’ capacity or willingness to invest in this last step has been the most important factor to a wider expansion.

The role of earmarked funding
In recent years – thanks to GFATM, many interventions outlined in the National Strategy in TB Control (2001-2006) have been undertaken. Many of these directly support case detection efforts and have been scaled up since 2004 and more recently since mid – 2006 and are as follows:
• **Training of health care workers**: several hundred health care workers, have been trained in TB control and elements of DOTS.

• **ASCM Activities**: ASCM activities have been rolled out nationally to improve the awareness of TB among communities and actively engage the NGO community in its implementation.

• **Enablers package**: In 2004 the enablers package was implemented in selected areas. This extra support was to ensure that the cost of diagnosis and treatment is offset for the patient, and the facility. It has allowed for the expansion of laboratories in the private sector, directly contributing to improved access to laboratory services.

• **PPM in case detection**: With the enablers package extended to the private providers, training of staff, materials, supplies and medicines has made it an attractive opportunity for private providers to become increasingly involved in TB control. This PPM initiative resulted in expansion diagnostic and treatment facilities. Three pilot sites have been implemented in urban areas and are now being expanded nationally. The question that needs to be addressed is – are these cases additional or have they shifted from the public sector? The latter seems to be the case and is addressed in the section of PPM.

• **Community based DOTS in case detection**: GFATM funding (Round 5) is also targeted to support CB-DOTS. In anticipation and preparation of this, each region was encouraged to select 2 districts to undertake CB-DOTS. At each annual meeting lessons learned and challenges were presented. This information fed into the national plan for CB-DOTS roll-out plan, whose implementation is intended for 2007. As this program is yet to be implemented nationally there is no evidence to suggest the supportive role of this approach in case detection.

• **“Treatment supporters” in case detection**: Although there are various initiatives to recruit and train treatment supporters, there is limited experience in using this cadre of volunteers in case-finding activities. This group of volunteers may prove to be very useful in expanding case detection, but appropriately, efforts are focused on ensuring good case management.

To date several strategies have been piloted and will be launched nationally in 2007 with the support of the GFATM R5. These include CB-DOTS, improved collaboration of TB/HIV, and PPM. All have a great potential to enhance case detection efforts.

**Key Issues**

Perhaps the most important piece of information for the NTP at this time lies in the results of the Tuberculin survey undertaken by NMIMR (2004-2005). The results, yet to be analyzed, will be important to compare changes (if any) in the tuberculosis infection rates. These results will assist the program to define an appropriate strategy to enhance the case detection for the next 5 years.

Although national policies to expand health services through various reforms have been implemented, funding through the SWAPs to support these reforms has resulted in stagnation of
indicators for many diseases including TB. Infusion of extra-budgetary funds has not lead to increased case detection rates, however, as many activities have yet to be rolled out nationally, it may be too early to comment. An important question is whether the present health delivery system is able to support an increase in the present level of CD and whether this factor plays a role in the current low levels of CD.

The newer initiatives that have received important extra infusion of resources – including training of health care workers have not translated into increased numbers of cases. Where PPM activities have been under way, preliminary findings suggest that there has been a shift from the number of cased diagnosed from the public to the private sector, but over all no change in case detection rates. Where CB-DOTS has been implemented, improvements have largely been in the management and outcome of cases but not in the number of cases detected. Strengthening the ability to deliver quality DOTS to improve case detection for the urban poor is limited to PPM DOTS and strengthening the public sector services.

Although the commitment to undertake focused research has figured prominently as a National Strategy 2001-2006, perhaps this has been one of the most important challenges of the NTP. Except for the Tuberculin survey, little else has been planned for or undertaken to better understand the reasons for the continued low case detection results.

Stock out of various anti-TB medicines in the past year probably had some impact on the decrease in cases detected.

**Recommendations**

To the MOPH/NTP

- The NTP must be pro-active and engaged with the Department of Pharmacy to ensure that stock outs of medicines and supplies are avoided
- Ensure the timely analysis and distribution of the results of the Tuberculin survey
- Consider forming an Ad Hoc working group or special task force to assess the reasons and plan how best to approach the low case detection rates as a matter of urgency
- Monitor carefully the impact (treatment outcome) of the planned scale of various initiatives
- Consider conducting a prevalence survey in urban settings to more accurately estimate the burden of disease

**Case detection through quality-assured bacteriology**

**Organization of the laboratory network:** The TB laboratory network in Ghana is organized at three levels; i) National TB Reference Laboratory (NPHRL and NMIMR), ii) Intermediate Laboratory (Regional Public Health Laboratories and Regional Hospital laboratories) and iii) Peripheral Laboratories (Private laboratories, Hospital, District Hospital, Sub-district hospital, Quasi Government Hospital e.g. mission Police, Military and Mines Hospital Laboratories) as shown in the figure below.
The National TB Reference Laboratory is made up of the National Public Health Reference Laboratory (NPHRL) and the Bio-safety Level 3 TB Laboratory of the Noguchi Memorial Institute for Medical Research (NMIMR). Their roles and tasks include: Organization and maintenance of the network, guidelines development, TB smear microscopy, cultures, drug sensitivity tests, Quality Assurance, Training, Supervision and Research. The NPHRL and NMIMR are housed in different facilities.

### TB LABORATORY NETWORK IN GHANA

#### NATIONAL TB REFERENCE LABORATORY

NPHRL/NMIMR

#### INTERMEDIATE LABORATORY

- Regional Public Health Laboratories
- Regional Hospital Laboratories

#### PERIPHERAL LABORATORY

- Private Hospital Laboratories
- Private Laboratories

- District Hospital Laboratories
- Sub-district Hospital Laboratories

- Quasi Govt Hospital Laboratories (e.g. Mission Hospital, Police Hospital, Military Hospital, Mines Hospital)

At health facility the laboratory personnel don’t only perform TB sputum smears but also deal with HIV testing, leprosy, malaria, stools, urine and basic blood tests.

Between 2000 and 2001 a situation analysis of 114 laboratories was conducted, to assess the technical skills of the staff, documentation, bio-safety practices, equipment, supplies and disposal systems. The results highlighted varying deficiencies in smear preparation, faulty mechanical or optical units for microscopes, lack of constant availability of supplies for staining, deficiencies in recording reporting practices and poor bio-safety conditions. The study recommended the development and implementation of a quality assurance system. Following this assessment, a pilot study to implement a Quality Assurance System was undertaken in the Greater Accra region, resulting in improved recording and reporting and a decrease in the rate of false negative and false positive results. Given these positive results, the recommendation from this pilot was to expand the QA system nationally. Since that time the laboratory network has expanded (both public and private) and the QA system has been implemented nationally.

Currently there are 211 laboratories – in both the public and private sector that perform sputum smear microscopy, corresponding with approximately one microscopy centre per 107,000 population with a range of 1 microscopy centre per 78,328 in Greater Accra Region to 239,721 in the Northern
Region (Table 7). By TB-DOTS standards the national average is an acceptable ratio, however, the location of these labs may not translate to easy access for a portions of the population, as observed in the Northern Region. Conversely, we observed at least one or two laboratories performed only a very few smears per day – which will have an impact on maintaining the quality of the smears. Moreover, a few private laboratories who recently joined the network had yet to report any activity.

<table>
<thead>
<tr>
<th>Region</th>
<th>Population (2006)</th>
<th>No. public laboratories performing sputum smear microscopy</th>
<th>No. private labs performing and reporting results on sputum smear microscopy</th>
<th>Ratio of Microscope to Population ( ) / 100,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastern region</td>
<td>2,352,072</td>
<td>24</td>
<td>Not yet</td>
<td>98,003</td>
</tr>
<tr>
<td>Greater Accra Region</td>
<td>3,759,782</td>
<td>18</td>
<td>30</td>
<td>78,328</td>
</tr>
<tr>
<td>Upper East Region</td>
<td>1,013,984</td>
<td>10</td>
<td>2</td>
<td>84,498</td>
</tr>
<tr>
<td>Ashanti Region</td>
<td>4,442,717</td>
<td>27</td>
<td>11</td>
<td>116,913</td>
</tr>
<tr>
<td>Western Region</td>
<td>2,342,416</td>
<td>17</td>
<td>Not yet</td>
<td>137,789</td>
</tr>
<tr>
<td>Upper West Region</td>
<td>653,748</td>
<td>7</td>
<td>1</td>
<td>81,718</td>
</tr>
<tr>
<td>Central Region</td>
<td>1,846,235</td>
<td>16</td>
<td>2</td>
<td>102,568</td>
</tr>
<tr>
<td>Volta Region</td>
<td>1,860,778</td>
<td>21</td>
<td>Not yet</td>
<td>88,608</td>
</tr>
<tr>
<td>Northern Region</td>
<td>2,153,441</td>
<td>9</td>
<td>Not yet</td>
<td>239,721</td>
</tr>
<tr>
<td>Brong-Ahafo Region</td>
<td>2,123,848</td>
<td>16</td>
<td>Not yet</td>
<td>132,740</td>
</tr>
<tr>
<td>TOTAL</td>
<td>22,549,021</td>
<td>165</td>
<td>46</td>
<td>106,867</td>
</tr>
</tbody>
</table>

Summary findings from the review team are listed below:

**Human Resources:** The NPHRL has only two laboratory staff able to perform smear microscopy and this is also the same for some of the peripheral laboratories. In 2004 the NPHRL and NMIMR trained 32 Regional Trainers of Trainee (TOT). Subsequently all laboratory staff of the peripheral laboratories have been retrained. The number of qualified laboratory personnel varied; in Regional, District and Sub-district sites visited the number it was adequate; with the exception of the Upper East Region, where there are shortages. Occasionally, we observed laboratory environment that were not conducive to a proper work environment (little or no room for paper work, nor facilities for breaks), which contributed to the unmotivated de-moralized staff.

**Laboratory facilities; the physical environmental conditions were extremely variable:** in some of the peripheral laboratories visited were inadequate – with small, cramped work space, poorly ventilated and/or inappropriate bio-safety practices.

**Laboratory Commodity management Systems:** NPHRL is responsible for commodity management for the public health laboratories including the TB lab network (which includes both public and private labs). The NPHRL Store room had poor storage facility (dusty, hot, humid with a lack of appropriate ventilation). All laboratory materials and supplies were available but it was not
possible to quantify these products as no stock cards and inventory control forms were not available. Inventory control forms are kept at NTP offices. Regions and District do not receive the stock status of reagents and supplies as result the team observed many irregularities laboratory materials and supplies may not have been available in the laboratories performing TB microscopy, while the NPHRL store room has adequate supplies. Some of the regions had no distillers therefore tap water was used to prepare stains. Stains prepared at the Region are not labelled with date of preparation and expiration (expiration of stains is 6 months after preparation). The stains are then distributed to all microscopy centers. Most of the laboratories have only one microscope for use in the examination of all routine laboratory tests and in many instances the microscope is in a bad working condition.

**Laboratory Information Management System (Recording and reporting):** TB laboratory registers are most often properly filled. Some patients reports directly to the laboratory for SSM without TB Laboratory Request forms. The majority of smear positive suspects had 3 smears done and the average % of suspects who are sputum negative and have 3 sputum examination results were in the range of 49% - 95% (target >90%).

**SSM Services:** Standard Operating Procedure Manual for SSM have been developed and distributed. They were available in most laboratory settings and are reportedly used. Turn around time was acceptable in most facilities (3 days). However, in one mission hospital SSM was performed one day per week due to high workload with other laboratory tests.

**Quality assurances systems:** A Quality Assurance (QA) system is in place but is partially implemented, internal Quality Control (IQC) is not done. Excellent EQA guidelines have been developed but the implementation is not effective (interpretation of how to undertake lot sampling). The QA reports also give recommendations about samples for drug resistance surveillance, quality of microscopes and other issues. Some sites visited had between two and three supervisory visits (Upper East) however, a few sub-district laboratories have had none or less than 2 in the past year. The Laboratories that had supervisory visits reported that they had not received any feedback. According to the supervisors’ perspective when supervision is carried out, there is often little time to conduct it thoroughly. Supervision of the laboratories occurs in an integrated fashion. As the laboratory supervisors are part of an integrated team – they are dependant on the team as a whole and are subjected to the timing of these visits “supervisors interviewed stated that there is insufficient time to conduct quarterly QA supervisory visits to the regions and districts as they are part of the team.

**Culture and DST:** Ghana has a policy in place on culture and DST. In 2005 and 2006 TB drug resistance survey was conducted by NPHRL and NMIMR using WHO guidelines on drug resistance survey unfortunately the data is still being analysed hopefully to be completed by June 2007. The capacity to conduct MDR TB surveillance is available at NMIMR but not yet being carried out routinely.

**Achievements**

The organization of the laboratory services with the roles and responsibilities at each level is well defined. Guidelines for SOPS and Quality assurance are available and most laboratory personnel have been trained in the past 2-3 years. On average the number of laboratories with functional microscope for SSM is acceptable.
Key Issues
The NPHRL is short staffed and therefore cannot carry out all the roles and responsibilities of both QA and EQA. The NPHRL and Regions are weak in Commodity management systems, in some microscopy centres the microscopes, reagents and supplies were not adequate or sufficient. Due to poor communications between the NPHRL and NMIMR there is variable implementation of QA systems especially pertaining to monitoring supervision and feedback of results for SSM. There are still “access” issues for some segments of the population (Northern Region); however the team was not able to address the magnitude of this problem.

Recommendations

To the MOH/NTP
- Strengthen the capacity of the NPHRL to coordinate, plan and supervise the laboratory network
- Ensure that the expansion of laboratory services into the public and private sector is demand and not supply driven (conduct mapping of location and population access) and results in improved access to quality services
- Strengthen the Quality Assurance System to ensure its full implemented throughout the laboratory network with particular attention to
  - Strengthen internal QC and EQA
  - Strengthening the quality of regular monitoring and supervision of the laboratory network at all levels, including those that are conducted as part of an integrated team approach
  - Strengthening the capacity in laboratory Commodity and Information Management systems
- Consider regular external reviews as one strategy to improve the implementation of QA

To the Development Partners
- Provide technical support to strengthen and implement the quality assurance system to include all the components of QA at all levels of care
- Provide technical support to strengthen laboratory Commodity and Information Management systems

4.1.c. Organization of treatment, supervision and patient support, and treatment outcomes

The current treatment regimens (CAT I & CAT II) include streptomycin in the intensive phase. There are however, some exceptions to this, which will be discussed later in this section. (Table 8). The intensive phase of treatment is largely facility based through hospital out-patients services, polyclinics and health care clinics. Selected private facilities that have been enrolled in the NTP also provide treatment. In more remote regions patients are admitted to the hospital for the intensive phase.
Table 8. Previous Treatment Regimens: In the previous treatment regimen patients were not necessarily categorised according to the present format. They were categorised according to diagnosis and treated as such:

<table>
<thead>
<tr>
<th>Category</th>
<th>Treatment Regimen</th>
</tr>
</thead>
<tbody>
<tr>
<td>New SS+ Short course (SC)</td>
<td>2SHRZ + 6HT</td>
</tr>
<tr>
<td>New SS- Standard Treatment (ST)</td>
<td>2SHT + 10HT</td>
</tr>
<tr>
<td>Relapse</td>
<td></td>
</tr>
<tr>
<td>Treatment Failure</td>
<td></td>
</tr>
<tr>
<td>Re-treatment Regime</td>
<td>2SHRZE + 1HRZE + 5HRE</td>
</tr>
<tr>
<td>Treatment after default</td>
<td></td>
</tr>
<tr>
<td>Children</td>
<td>2HRZ + 4HR</td>
</tr>
</tbody>
</table>

With the support from the central NTP - the two teaching hospitals and patients in Kumasi have been able to provide treatment regimen replacing Streptomycin with Ethambutol. This was seen as an important strategy 1) to encourage patients to remain on treatment at the teaching hospitals and 2) to allow the implementation of a pilot project in CB-DOTS where the intensive phase of treatment could be provided by treatment supporters in the community.


**Supervision and treatment support:** DOT is facility-based for the intensive phase. In more remote areas there are policies in place whereby all TB cases are admitted until sputum is negative at the 2nd or 3rd month. In the Upper East most cases admitted are severe and said to prefer hospital treatment because of their state of health and also the provision of food supplements. Treatment in the continuation phase is either self-administered or, where CB-DOTS has been initiated – by a community volunteer or treatment supporter. Patients or the volunteers collect the drugs on a monthly basis. In many regions, there are health centres that are not involved in the management of TB cases.

The use of “Treatment supporters” is implemented in the three metropolitan areas, a few districts per region and other selected districts, the latter in an ad hoc fashion. The enablers package (discussed below) is key. The volunteers, patients and health care workers are provided with materials and/or financial support to ensure optimal treatment results. Some districts outside the pilot sites have begun to train treatment supporters as part of the CB-DOTS initiative with varying degrees of implementation. In many areas there seems to be strong support from community based organizations or NGOs that are already in the communities, however, in many areas visited, linkages with the health centres is weak or non-existent. The CB-DOTS has yet to be implemented nationally but is planned for the second half of 2007. The roll-out of CB-DOTS has been postponed due to the late arrival of the new treatment regimen.

**The Enablers Package:** In response to various barriers that hamper access to diagnosis and care, and in consultation with providers in both the public and private sectors, an “Enablers Package” was
developed and piloted in three metropolitan areas. Staff from the participating health facilities undertakes several tasks to ensure successful treatment completion by patients. The collaborating health facility would be responsible for staff supervision, distribution of supplies and advocacy. The table below summarizes the components of the Enablers Package.

Table 9 Components of the Enablers Package

<table>
<thead>
<tr>
<th>Patient component</th>
<th>Health staff component</th>
<th>Health facility component</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport</td>
<td>Address verification,</td>
<td>Monitoring and supervision, Training, meetings,</td>
</tr>
<tr>
<td>Food</td>
<td>Contact tracing,</td>
<td>Advocacy, supplies, Maintenance and Overheads.</td>
</tr>
<tr>
<td>Inter-current illness care</td>
<td>Home visits, Early warning visits, Community education,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Default tracing.</td>
<td></td>
</tr>
</tbody>
</table>

The value of the Enablers Package has been determined to be USD 100 per patient, however since this assessment (May 2006) – it has decreased to USD 40 per patient. The distribution remains the same: 50% for the patient component, 30% for the health staff and 20% for the participating health facility. This Enablers Package has been presented, discussed and agreed upon in the meetings with the professional associations of medical practitioners and private laboratories and has been an integral component of the PPM DOTS supported by GFATM RI in three metropolitan areas. The GFATM R5 in 2005 has ensured that as of the third quarter 2006 the “Enablers package” has been expanded nation – wide.

Treatment Results
The data for cohort analysis is presented for 10 regions with an additional two teaching hospitals as separate and independent “regions”. The main difference is that neither of these teaching institutes have supervisory responsibilities outside of their facilities.

The number of cases evaluated has improved markedly since 1996, from 38% to 99% in 2006. Treatment results have also improved: the treatment success was reported as 22% in 1996 and rose to 72% in 2005.
The number of persons that absconded from treatment was 11% nationally (2005 cohort), but differs between regions with a range of 2.9% in GAR to 21.8% in the Western Region.

The Case Fatality Rate (CFR) for the country with relatively low prevalence of HIV infection is of concern. The mortality in TB remains high. A study undertaken in 1981 by MOH planning unit described TB as the most common cause of premature deaths of adults. The number of cases who die in the community is unknown. In 1996 TB case fatality rates of new SS+ cases was reported as 3.4% of total registered cases. However, this can be deceptive as only 38% of new SS+ cases registered were evaluated. Otherwise – of those SS+ cases evaluated, the case fatality rate was 8.9. In 2005 99% of SSM+ cases were evaluated with a CFR of 9.3%. The range of CFR between 1996 and 2005 has fluctuated between 7.8% in 2001 to 9.6% in 1998, but there is no upward trend.

There is however a marked difference between regions. The West Region is the only region reporting CFR at 5%. Five others report CFR between 5-10%. Four of the ten regions have CFRs over 10%, the highest is Upper East with a CFR at 16.6%. KATH has 28.8%. As both KATH (28%) and KBTH (16.2%) are teaching hospitals, have ARV clinics and are major reference centres. From previous studies, it seems that an important number of patients at these facilities are co-infected with HIV.

Overall, with respect to treatment outcomes, there are regions that are performing consistently better than others (GAC, Ashanti and Volta), others with mixed results. A group of regions that are performing least well with high defaulter rates, deaths and at the expense of treatment success (West, Upper West, Northern and Brong Ahafo).

Achievements
The data management has vastly improved and outcome data is now available for the vast majority of patients. Through access to GFATM funds, the NTP has been able to plan, pilot and is in the process of scaling up various initiatives that have decreased barriers to care, provided extra funds to staff and facilities to off set the cost of the increased workload. Treatment outcomes have improved, in some regions more quickly than others.
Key Issues
The stock out of anti-TB medicines may have offset a net gain in the treatment outcomes of patients. There are still some regions that are reporting poor outcomes: the defaulter rates are high as are the case fatality rates Outcome data is not reported uniformly on re-treatment cases. The amount of the Enablers Package has decrease to less than half of the original amount (USD100-USD 40). The impact of this change has not been monitored.

Recommendations

To the MOH/NTP
• Focus increased efforts on those regions with poor outcomes
• Evaluate the effectiveness of the Enablers Package: both the processes and outcomes of implementation and should also include a cost-effectiveness component1.

4.1.d. Effective Drug Supply and Management System

The Pharmaceutical Management Cycle framework (Graph) was applied to assess the logistics and management of anti-TB drugs.

• Selection
Selection of anti-TB medicines is headed by the CU. Pharmacotherapy for TB has been used at the Teaching Hospital since 1960, shortly after independence. In 1992, treatment was standardized, but revision on the use of medicines has changed over the years. To date drugs used for TB treatment include streptomycin, Isoniazid, Rifampicin, Thiacetazone and Ethambutol. It is anticipated that from the first quarter of 2007 onwards – the NTP will be using the WHO-recommended fixed dose combination (FDC) regimen for all new TB cases, including relapses and in children.

• Procurement
Procurement involves quantification, tendering, evaluation, customs clearing, monitoring of suppliers and quality assurance of commodities.

Quantification and ordering: Ghana’s quantification of TB medicines is based on the service figures and consumption information. Health facilities compile information on the NTP’s “Quarterly Report on New Cases and Relapses/Quarterly order form” (TB07a/07b). Facilities send these forms to district facilities. The district coordinator refill facility orders, and send compiled order reports to the CU including the medicines consumed in the district. At the central level, the CU (together with the Dept. of Pharmacy) uses this information to quantify the national needs for drug, medical laboratory materials and supplies.

1 WHO would be willing to support and make generic protocols for such evaluation available to the NTP.
**Procurement Process:** The CU submits its requirements for tendering to the National Procurement Unit (NPU) of the MoH. The NPU floats the tenders, awards, monitors the suppliers up to the time of delivery. In 2006, the award was offered to the Global Drug Facility (GDF). The funds were transferred in April 2006. The review team was informed that the first consignment of the FDCs was scheduled to arrive in February 2007. Of note was the lead-time from placing an order to delivery is more than 1 year\(^2\).

Drugs procured through GDF contain a WHO certificate to ensure quality. However, all medicines are subjected to FDA to ascertain their adherence to Ghana Quality Control Standards. The process takes about 2-6 weeks.

**Customs clearance:** Customs clearance of all the MoH products at the ports of entry has been contracted out to Ghana Supply Company, a public limited liability entity. All public health commodities are exempted from routine customs clearance process and are released in about 3-4 days to the Central Medical Stores (CMS).

**Stores Management:** The CMS has adequate warehousing facilities, including air-conditioning system with a capacity to control the relative humidity and heat. Currently there are no thermometers to monitor the temperature in the warehouse.

• **Distribution**
  The distribution includes stores management, inventory control and transportation.

The Regional Medical Store for Greater Accra is in a deplorable condition. The infrastructure has corroded and is unable to control environmental factors such as heat, humidity, pets, pests and rain. Stocks are, however, protected from sun rays. Similar conditions could not be ascertains in other nine regions.

In the Upper East the drug management and ordering differs from facility to facility. At the Regional Hospital and WMR, requisitions for drugs are made by the ITC (TB Ward i/c) to the Pharmacist who supplies from the pharmacy store. When stock levels are low, a requisition is made by the pharmacist to the RMS that is endorsed by the RTC. Drugs received from the RMS are kept in the pharmacy store.

Two District Hospital facilities procure anti-TB medicines through the DHMT. The ITC makes a request to the DTC who collects the drugs from the DHMT drug store for the TB ward. The DHMT drug store is managed by the DHMT Dispensing Technician. When stocks are low, the DTC makes a requisition to the RMS that is endorsed by the RTC. The drugs when procured from the RMS are kept at the DHMT store.

\(^2\) On the second day of the review, the team leader contacted the GDF in Geneva to report this anomaly and secure information on “track and trace”.

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Inventory Control: An assessment was made on the systems used for tracking movement of medicines at the health facilities and the depots. Inventory control cards, ledger books and receipt and issue record forms for recording and reporting and Stock control (bin) cards were used to take stock at Central and Greater Accra Regional for TB medicines presented in above table.

At the CMS, the stocks of pyrazinamide was adequate for 1,000 new cases for only for 1 month. Ethambutol was adequate for 1 month and Rifinah was adequate for 6 months. The quantity of stock at RMS was for the first quarter stock ending in March 2007. There was no buffer stock.

Transportation: CMS has 6 trucks for distribution of supplies to RMS and other clients. However, CMS has no scheduled distribution program and rarely delivers on request at no cost to the recipient. Greater Accra RMS has one truck and a pick up van for distribution. However, no scheduled distribution takes place either due to limited stocks at the RMS warehouse to deliver.

Drug use
All treatment is provided free of charge. Depending of the socio-economic level of the patients, costs incurred for the first 2 months of therapy can be defrayed through the “enablers package”. With very few exceptions, all health professional interviewed were aware of the treatment regimen.

In the past year stock outs were reported nationally. The local response to these stock-outs varied. Although the NTP policy is to initiate treatment only when a complete regimen is available for each patient, this was not done in all cases. Stock-outs resulted in treatment interruptions. Other health units reported that unless anti-TB drugs was guaranteed, initiation of treatment in some newly diagnosed patients was delayed for up to several weeks until stocks were replenished. Data was not available to substantiate the magnitude of this problem in the health units visited.

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3 This matter was brought up to the NTP and the central level responded by requesting up to date information on stock levels in all regions and facilities. In addition – the new shipment of FDC’s also included Z to cover the needs of the NTP.
The NTP is in the process of changing the treatment regimen, with Rifampicin in the continuation phase. Information on the new treatment protocols to be introduced nationwide in 2007 have been already introduced in the districts visited.

• **Management Support**

The organization and management of Anti-TB drugs requires collaboration, coordination, and synergy with the MoH Suppliers, Stores and Drug Management directorate, CMS, Food and Drugs Authority, the Ghana Health Service (GHS) and TB coordinators at national, regional, district and sub-districts level.

Inventory control and reporting information for TB services and medicines supply information has been standardized for the program (and have been integrated into the Essential Medicines Program. Inventory control forms for anti-TB medicines are used at both health facility and CMS. At CMS both manual and automated systems continue to be used in parallel. The CMS developed a MS Accesses based software used for tracking stocks and supplies. Inventory control forms, report and issuing forms and invoices are used for issuing. However, at facility level, inventory control forms and patient records are used to keep a record of issuing.

**Training materials:** There are no adequate training materials available

**Human Resources:** Health workers interviewed that handle TB medicines responded that they were trained in recording and reporting and ordering of medicines in the last 2 years, however none were trained in stores management. This was consistent with the observations during the site visits: there was considerable variability of how drugs were stored: in some instances storage was clearly inadequate (see annex report for details).

**Financing:** Over the years, the Government of Ghana financed TB medicines procurement. However, in 2006, on successful access to GFATM, the country used to fund procurement of the medicines and these GFATM funds have been used to support FDC’s.

**Achievements**

Ghana has demonstrated political commitment by financing the procurement of drugs and has now ensured the change to a WHO recommended regimen, with 4 FDCs and RH in continuation phase – to be provided in patient kits. The Essential Medicines list of products and the management systems that exist for essential medicines are also used for TB drugs.

The processes for port clearance for products are good. Central stores warehousing environment and practices are good as well. Most physicians adhere to the current regimens. Of particular note were the efforts undertaken by nursing staff to ensure hours of operation that allow patients access to treatment in a customised manner. Most patients were well aware of the need to adhere to treatment and the duration of the first and second phases. Initial training (awareness) of all health workers on the new treatment regimens has been undertaken.

**Key Issues**

The NTP Strategic 2001-2006 does not include drug management strategies. As a possible consequence the program could not respond well to a force majoure encountered during the
procurement stage, ordering and delivery. Moreover, there has been a lack of continuous monitoring and evaluation of the “action plan” and the supervision of drug management practices did not seem to be a part of regular supervisory visits.

Lapses in communication at all levels, including timely forecasting, delayed delivery by the GDF, resulted in stock outs of anti-TB drugs. This in turn resulted in treatment interruption for some patients and for others a delay in initiating treatment. In addition, recent erratic procurement and supply of anti-TB drugs were often not based on recommended replacement protocols.

At the Clinic/hospital level the stock inventory practices are often found to be weak. There was a low level of knowledge of drug management as evidenced by some inappropriate practices.

There was a lack of clear plans for the roll-out the new 4 FDC treatment regimens.

**Recommendations**

**To the MOH/NTP**
- Urgently procure new stocks of RH, E and Z for the patients already on treatment. The stocks in the regions/districts should be quantified immediately to determine the real needs and utilization during the transitioning period to FDCs.
- Plan for and implement effective supply management systems for the roll-out of the FDCs including the timely procurement, cost effective scheduled distribution from CMS, RMS and health facilities, strengthened storage and inventory control management, rational utilization, development of training materials, tools and formats and strengthen the quality of supportive supervision
- Consider sending a team from the NTP to Zambia to observe, share information of the NTP and to better understand lessons learned in rolling out the FDCs.
- Review the National Protocols for Management of TB and work with other departments and assist to incorporate the treatment strategies in all relevant national documents. For instance, Standard Treatment Guidelines, National Essential Medicines, IMCI, training curricula, etc.

**To partners:**
- As an immediate need, support the planning of the roll-out of FDC’s
- Support any follow-up needed to ensure smooth implementation of the new treatment regimes.

**4.1.e Monitoring and evaluation system, and impact measurement**

- **Monitoring and evaluation**
  Ongoing monitoring of NTP performance is possible through supportive supervision. The CTU team supervises staff of the regional level according to a supervisory schedule. Supervision at the regional level is performed within the context of the health sector reform, and is therefore subject to availability of a regional budget for TB supervision. The regional TB coordinator visits the districts 2-3 times in a quarter, while the district coordinator visits the health facilities monthly. The supervision is done in an integrated fashion. Checklists from various programs are utilized for this purpose. Non-TB program personnel – or those professional with different backgrounds (e.g.
nutrition) have been trained to participate in the review of the TB program activities and carry out specified tasks as part integrated supervision.

As the NTP expands into the private sector, the function of the public health nurses attached to the district or sub-district is to supervise both the health centres in their jurisdiction, in addition to the quasi – public, private clinic and private hospital facilities. The “enablers package” that is received in the districts where PPM – DOTS has been implemented include cost for supervision. However, the managerial staff at the Regional and District levels spend a considerable amount of time on fulfilling the reporting requirements from the GFATM.

Key omissions and shortcomings in the registers and reports pass unnoticed. A large part of the performance problems identified during the review could have been corrected through adequate and effective technical supervision. Reports of supervision activities are not always available. If they are, not always are the main findings reported, proper recommendations made and the recommendations followed-up during consequent visits. For laboratory supervision, please refer to the section on QA in laboratories.

Many program evaluations have been carried out in the past 2 years in preparation for scale up of key activities. It is foreseen that many of the recommendations will be implemented with the arrival of the 4FDC drugs, manual, and new cards, registers and reports. Funds for regular annual external technical assistance is available in the GFATM proposal.

**Recording and reporting**

The NTP is in process of launching new patient cards, records and report forms, reflecting the reporting requirements under the new Stop TB Strategy, including treatment with 4FDC medication in patient kits. Launching is postponed till staff has been trained, patient kits have been distributed and the switch over to these kits has been made. For the same reasons, the printing and distribution of the new NTP manual has been postponed. Till now there are no efforts taken to computerize TB data, although plans exist and the new recording & reporting system (TB register) is ready for it.

District TB registers are available in all districts. The registers are kept and maintained by District TB Coordinators, or Institutional TB Coordinators or, in the urban areas, the public health nurse with supervisory responsibilities. In the districts where PPM has been implemented, all sites that dispensed TB treatment had a patient register. The sub-district register was a compilation of both public and private facility data, again, for each and every patient registered. There was a standardised laboratory register in every diagnostic centre.

Some district TB registers were well filled out, while others were incomplete with completely blank right pages, precluding meaningful cohort analysis. The information on patient category and treatment outcomes was at times inaccurate, and not supported by evidence of results of sputum smear examination. In some units - a substantial proportion of sputum smear negative pulmonary TB cases have no sputum smear examination results. Other facilities however, demonstrated that many smear negative patients do not have all three sputum smears done (See lab section). Also, it was observed that various patients have been declared cured without sputum smear results. Often this finding was a reflection of the data management and overall performance of the districts. Recording
of the unique district number for each TB patient was not done; instead only the general district code was filled.

TB cards are used as treatment monitoring tool, as there are no TB treatment registers to record attendances of patients, outside the districts where PPM is being implemented. For those areas without, this made it difficult to get insight in how many TB patients were currently on treatment in the DOTS centres.

Quarterly reports on case notification and treatment outcomes were available, but were sometimes difficult to retrieve. The quality of the quarterly reports varies and sometimes inconsistent with the data in the TB register and the laboratory register. At national level, no data on re-treatment outcomes were available, although these are quarterly reported on.

Although the NTP has designed forms for the monitoring of TB/HIV activities, they are yet to be implemented. Ergo, there are few health centres that are recording systematically the data relevant to TB/HIV.

**Achievements**
There are sufficient funds for supervision at all levels. Supervisory checklists have been developed and are used by the supervisory team. All forms and registers necessary for TB case management are currently in use. The NTP also commissions external annual reviews targeted at one aspect of the program such as the Management at the regional and district levels (2006) or a new initiative such as the 2005 review of PPM DOTS. The recommendations may help the NTP to focus on improvement of various program aspects.

**Key Issues**
Information systems are key to program management. Although registers were well kept, information from monitoring and supervisory visits was often kept on loose sheets, and not ready available for managerial purposes. Many offices visited at sub-district level did not have an adequate filing system in place to allow easy access to program files.

It was apparent that the frequency of supervisory visits was limited – either in number or quality, especially in those areas that were not yet benefiting from the “enablers package”. Notwithstanding, it was apparent that the “recording and reporting” is the main focus. Many aspects of TB – DOTS are not integrated within supervision.

Technical support to ensure good quality supervision is generally weak. Staff at regional levels remarked on the few supervisory activities received from CU. At regional and district levels, checklists are not always used. Only a few units were able to provide supervisory notes (documented in the comments column of the TB register). Follow-up from one visit to the next may not always address previous issues.

The quality of district registers was variable. Some registers were incomplete, with blank right pages, precluding meaningful cohort analysis. The information on patient category and treatment outcomes was at times inaccurate and not supported by sputum smear results. A substantial proportion of sputum smear negative cases had no sputum smear examination results. Also, many
patients have been declared cured without sputum smear results. Often this finding was a reflection of the overall performance of the districts. From the present recording and reporting system no accurate data on case finding and treatment outcomes can be obtained. Diagnosis of TB without evidence could point to over-reporting. Declaring patients cured without a sputum smear result inflates the treatment success rate, perhaps away from the category “not evaluated”.

Recording of the unique district number for each TB patient was not done; instead only the general district code was filled.

Recommendations

To the MOH/NTP

• Focus on strengthening program monitoring and supervision as a priority, especially in the roll-out of the new FDCs, CB-DOTS and enhanced TB/HIV services
• Consider hiring a person for 2-3 years to focus on monitoring and supervision especially in view of these new initiatives to be rolled out over the course of this year.
• As GFATM funds are available for external technical assistance for collaborating partners, consider use of these funds to strengthen the supervision at all levels.
• Review and adapt the recording and reporting systems as a unique opportunity to improve the quality of the data management system
• Conduct a study on the validation of the recorded and reported data

4.2 Address TB/HIV, MDR-TB and other challenges

The HIV epidemic fuels the TB epidemic. HIV promotes the progression of recent and latent Mycobacterium tuberculosis infection to active TB disease; it also increases the rate of recurrent TB. In the long term, only effective control of the HIV epidemic will reverse the associated increase in TB incidence. In the meantime, interventions to reduce HIV-related TB morbidity and mortality need to be implemented (23).

MDR-TB. Evidence shows that MDR-TB is a threat to global TB control. This is aggravated by inadequate treatment of those already affected with MDR-TB; the rise in drug resistance resulting from the widespread misuse of second-line anti-TB drugs; and the absence of new effective drugs to treat TB.

TB control programmes need to pay special attention to certain population groups and special situations that are associated with a higher TB risk. In health care and congregate settings, where people with TB and HIV are frequently crowded together, the risk of contracting TB is increased (24). The risk groups that need special attention include prison populations, refugees and other displaced people, migratory workers, illegal immigrants, cross-border populations, the orphaned and homeless, ethnic minorities, other marginalized groups, alcohol abusers and injecting drug users.

Each of these three areas TB/HIV, MDR-TB and special populations will be discussed separately

4.2.a Implement collaborative TB/HIV Activities
The dual relationship between TB and HIV is a tragedy for TB control escalating the disease burden and mortality. All the gains that were achieved in the 80’s and 90’s are being reversed. The war on either disease cannot be won unless at least both diseases are tackled together, which requires concerted efforts by the TB and HIV/AIDS control programmes to jointly work together.

Individuals living with HIV are at a markedly increased risk of developing active TB disease. Therefore TB/HIV collaboration that guarantees screening for TB in all HIV infected patients is important to ensure early treatment. Increased acceptance of HIV testing in the general population and TB screening among the HIV infected patients is likely to improve TB case detection.

Three areas of focus are paramount in responding to the dual epidemic:
- To strengthen the health system to respond to the TB/HIV dual epidemic
- To decrease the burden of TB in people living with HIV/AIDS and
- To decrease the burden of HIV in TB patients

Current situation

Epidemiology: The HIV/AIDS situation in Ghana is low and rather stable compared to the other sub-Saharan countries. Since the first case of HIV was reported in 1986, the HIV sero-prevalence rates showed a median of 2.4 % in 1994 rising to 3.6 % in 2003 and hence declining to the current 2.7 %. The most affected group being the 35 to 39 years for males and 30 to 34 years for females.

Although the national HIV sero-prevalence is low (2.7%), it is estimated that co-infection rates among TB patients are high ~ 40%. A non-representative small scale study in 2004, among 343 TB patients tested, 120 (35%) were HIV positive, while in 2005, out of 844 TB patients tested 340 (40%) were HIV positive.

At present HIV prevalence among new TB patients is estimated to be 10% (unpublished study Public Health reference laboratory). For in-patients HIV prevalence among new TB patients is estimated at between 23% in Komfo Anokye Teaching Hospital and 16% in Korle-Bu teaching Hospital Strategy (2001-2006).

Mechanisms of collaboration and coordination: The National TB/HIV Collaborative working group was constituted in 2005 but there are no regular meetings; only 2 meetings were held in 2006. The working group consisted of members from the TB, HIV/AIDS programmes, SHARP, FBO’s, WHO, university, civil society, USAID, PLWHA, various NGO’s, UNAIDS, Catholic services and other partners. There are no mechanisms for collaboration at either the regional, neither district nor community levels. Within the CU, a national TB/HIV focal person has only recently been appointed and is yet to start implementing the policies. Although National technical and clinical guidelines have been developed, they have not been finalized for distribution.

Minimal collaborative activities are taking place, and if so, they are implemented in an ad hoc fashion. Some TB clinics may offer HIV testing among TB patients, and some may refer patients that are co-infected to the HIV/AIDS clinic for the provision of Co-trimoxazole. The ART program in Ghana is in the process of scaling up. Many ART sites are found in urban areas and those visited had a certain degree of collaboration with the TB program – but again – this seemed to be ad hoc. No data was available at the time of the mission to estimate the magnitude of these activities.
The TB/HIV technical guidelines have yet to be released – however, information to sensitize and increase awareness among health workers has been provided.

**Decreasing the burden of TB in PLWA:** TB/HIV collaboration that guarantees screening for TB in all HIV infected patients is necessary to avail to them to appropriate treatment and care. Increased acceptance of HIV testing in the general population and TB screening among the HIV infected patients is likely to improve the TB case detection, but this has yet to be studied.

The country has 311 functioning voluntary Counselling & Testing (VCT) and 34 (31 active) Anti-retroviral therapy (ART) Centres. These centres are few for the entire country meaning that access to HIV counselling and testing might be minimal and hence the TB/HIV patients might not receive the necessary comprehensive care. It was noted that there are ad-hoc comprehensive services for TB/HIV patients but not adequately coordinated. There are however plans to add 40 more ART sites (i.e 4 in each district in the year 2007) and training of 6 staff from each district. TB nurses are currently being trained to provide VCT. This will help to ensure a comprehensive approach to care, especially for those patients that would otherwise have to travel to another health facility for an HIV test.

**To decrease the burden of HIV in TB patients:** It is estimated that up to 40% of the TB patients are dually infected. As the TB/HIV strategy has yet to be rolled out, there is little data on how many TB patients are offered an HIV test, and of those tested, what proportion are HIV-positive. In the case of a negative HIV test the health service has an obligation as part of the enhanced program collaboration, to provide key messages on prevention, but this seems to be rarely practiced –if at all.

**Achievements**

TB/HIV collaborative policies and both technical and clinical guidelines have been developed. A focal point for TB/HIV is in place at the CU. There are funds available to implement TB/HIV activities from various sources. Though the collaborative activities are not well established, HIV testing among TB patients, provision of Co-trimoxazole and even ART services in various degrees are provided in some centres, mainly in urban areas. Health care workers received information on TB/HIV in anticipation of further training as the program is being rolled out.

There are opportunities to involve various existing community care groups to spearhead TB/HIV community component. There are some faith based health care groups such as the home based care activities spearheaded by the Christian Health Association of Ghana (CHAG) but there is need to develop the engagement plan.

**Key Issues**

Although the national TB/HIV committee has been established is has not been functional for since 2006. Regional and district level coordination mechanisms have yet to be developed and formalized. Roll-out plans for both programs have yet to be clearly drawn up at regional and district levels. Many other initiatives, such as the CB-DOTS and the new treatment regimen will also be rolled out and may be confusing to those who are managing the implementation of all of these, not to mention the potential confusion at the delivery levels for those who will be responsible for operationalizing
these activities. Moreover, there are important weaknesses in the monitoring and evaluation of NTP activities even before the introduction to these new initiatives.

**Recommendations**

**To the MOH/NTP:**

**Mechanisms of coordination:**
- Strengthen the National TB/HIV collaborative working group. Redefine terms of reference, membership, regularity of meetings and develop a plan of action.
- Ensure that mechanisms of coordination are established and functional at all regions, and districts
- Prepare a draft policy on Diagnostic, Testing and Counselling (DTC) for TB/HIV patients in line with country policy on HIV testing to increase the uptake in counselling for HIV among TB patients in strategic areas such in the medical wards, TB wards and clinics.
- Efforts should be made to determine activities that can be implemented together by both TB and HIV programmes in the field such as planning together, training in counselling, patient care, data collection, M&E.
- Develop TB/HIV collaborative training and implementation plans.
- Develop and implement an M&E plan with appropriate tools
- Ensure coordination with the Prison Health services to define a strategy for the implementation of TB/HIV serviced in these institutions.

**Screen PLWA for TB**
- Include TB screening and care activities in the VCT centres, PMCTC, home-based care training and implementation or referrals for appropriate care of the dually infected patient.
- Ensure information on TB and TB/HIV co-infection is readily available to clients attending VCT, PMTCT and ART services

**Screen and counsel TB patients for HIV**
- Bring in the concept of Diagnostic Testing and counselling (DTC) so as to increase the uptake in counselling for HIV among TB patients in strategic areas such in the medical wards, TB wards and clinics.
- Ensure that Prevention is part of the strategy to prevent HIV among TB patients

**4.2.b. Prevent and control multidrug-resistant TB**

A recent publication estimates MDR-TB in Ghana to be 2.6% of all estimated cases (C Dye et al: World wide Incidence of Multi drug Resistant TB, 2002).

Ghana has a policy in place on culture and DST. In 2005 and 2006 a TB drug resistance survey was conducted by NPHRL and NMIMR using WHO guidelines. The data is still being analysed to be completed by June 2007. The capacity to conduct MDR TB surveillance is available at NMIMR but not yet started.
Steps have been taken to revise the current TB forms to capture treatment outcomes of smear positive re-treatment cases but data are not yet available (outcomes from the first cohort will be available in 2007). The NTP is preparing itself for DOTS-Plus implementation in 2009. The GFATM will provide funding for the next 5 years to support the upgrading of two teaching institutions that will enable them to develop and implement the DOTS-plus program to manage the treatment for patients diagnosed with MDR.

Achievements
To date the NTP has used an older drug regimen whereby the creation of drug resistance is probably minimal. Hence it is expected that the number of cases of MDR T are very few.

Key Issues
Patients who are currently suffering from MDR TB do not have access to treatment, save the private sector, and will not until the DOTS-plus program is implemented in 2 years time. The cost for treatment in the private sector may be prohibitive for the MDR infected patients.

The introduction of the new regimen with RH in the continuation phase will necessitate DOTs throughout treatment to minimize the risks of the development of MDR-TB. Rolling out various initiatives at once (as planned) may increase the likelihood that DOT may not be as well organized, hence the risks of losing patients in the continuation phase is real and constitutes a risk for the development of MDR-TB.

Recommendations
To the MOH/NTP
• The NRL must make every effort to ensure timely access to culture and DST as per the appropriate protocols for the treatment of failures and relapse cases
• Ensure timely analysis and distribution of the results of the MDR survey
• Consider organization of treatment for patients with MDR – TB earlier than the 2-year anticipated target.

To the Development Partners
• Support the strengthening of the laboratory network

4.2.c Address prisoners, refugees and other high-risk groups and special situations
High risk groups (for increased transmission) in Ghana are those individuals who are in correctional facilities.

Current situation
The Ghana penal system (GPS) is governed by the Prison Ordinance of 1960. The system is a national, centralized system, operating under the authority of the Director of Prisons.

The GPS has a total of 42 prison establishments or correctional facilities. These vary in number and type. There is one maximum security prison. Most of the correctional facilities are used for short-
Incarceration. Open prisons are also used for less dangerous offenders. Medium security prisons are used for persons serving a one to two-year prison sentence.

Juvenile offenders who have committed less serious crimes are housed in separate facilities and are mainly managed by the Salvation Army. There are also five "Industrial Schools" that are used for juvenile offenders 15-17 years-old. They are managed by the Ghana Ministry of Social Welfare and Community Development and provide vocational and educational programs. There are two Borstal Institutions for offenders 17-20 years of age who have committed more serious crimes and cannot be handled effectively at industrial schools. The review team was not able to access any data on women in the penal system. The staff in the penal system is approximately 3,800 and there are an estimated 12,000 inmates. Female prisoners account for approximately 2% of the prison population.

Collaboration between the Prison system and the NTP began in 2004. With the support of the round 5 GFATM grant, the Ghana Prisons authority is the lead implementing agency and will be responsible to oversee the activities whose objective is to reduce TB transmission in the 12 establishments within the Ghana penal system.

With the roll-out of GFATM supported efforts, several activities have been undertaken. During 2006 all commanders of the Prison Service were sensitized to TB by the NTP. In addition, two separate 3 days workshops were held for 70 Prison Services health staff. The aim was to increase capacity of Prison health staff to diagnose, treat and report on TB cases in the prisons community. In addition, an assessment was made how to staff can network with general health services to ensure completion of treatment and how to monitor treatment outcomes of inmates who could not finish their entire treatment regimen before expiration if their sentences. Finally the importance of counselling TB patients before starting treatment and positive attitude of staff towards TB/HIV patients was discussed.

A visit was conducted to the Nsawam Prison - the largest prison in Ghana and one of three facilities in the Eastern region. This corrective facility is considered a medium security prison with 2,752 inmates. The Nsawam Prison is the only prison with a TB diagnostic laboratory and a TB ward with 14 beds. TB patients from other prisons are diagnosed in the general health services, and then referred to prisons with treatment facilities.

It became clear that the risk of transmission of both TB and HIV in prisons is apparent, due to serious overcrowding, poor ventilation (often more than 50 individuals sleep in one room with only one door and no window), stress and poor nutrition. HIV testing is not routinely done, despite the apparent high risk of transmission, nor is there routine provision of condoms.

The TB register showed 43 new cases for 2006, out of which 17 were smear positive TB 8 smear negative, 11 cases without smear examination and 7 extra-pulmonary cases.

The 2005 cohort analysis showed a cure rate of only 13%, a high death rate of 31%. Patients lost to follow-up were 56%. The latter includes TB patients sent to the police station, where they spend days or weeks before being brought back to prison or those transferred to other prisons or those released from prison after finishing their sentences. These patients run the risk to develop and transmit drug resistant TB. Prison health staff was also advised to supply remand prisoners with
enough drugs to continue treatment in the police cells. The effect of these measures will be known by the early 2008. The prisons also benefit from the enablers packages.

Achievements
The national policy for expansion of TB diagnosis and treatment includes vulnerable populations – and in Ghana – that would include prisons. With GFATM R5 funds TB DOTS expansion is now well underway in the prison system. Health staff has been trained and the commanders informed about TB and DOTS.

The prison health system has responded in a timely fashion – to shortfalls identified in previous assessments: for example – there has been the installation of microscope in the prison laboratory visited and now this laboratory is part of the TB smear microscopy network. Another example: as many inmates who have been released while still on treatment were lost to follow-up, the prison health services decided to develop and implement an interim policy such that all inmates (scheduled for release and on treatment) would be kept until treatment is completed.

Key Issues
The physical and environmental conditions leading to a very high risk of transmission have been reported in previous studies and were observed during the review. Policies involving HIV in the prison system have yet to be defined and implemented. There are few linkages with the health system to deal with prisoners on treatment who are released back into the community prior to treatment completion. There is a lack of data on TB in the prison system in general (case detection and treatment outcomes).

Recommendations:
• Continue to build on strong partnerships with the prison service authority
• Develop, implement and closely monitor effective policies that address prevention of TB among inmates, after a new TB case has been diagnosed.
• Continue to plan for and roll out DOTS expansion in TB in prisons
• Include prisons in regular quarterly reviews, and regular monitoring and evaluation
• Develop a policy to offer routine HIV testing of all TB suspects and provision of preventive measures (condoms) and treatment with Cotrimoxazol and ART among prisoners

4.3 Contribute to health system strengthening

Health system strengthening is defined as “improving capacity in some critical components of health systems, in order to achieve more equitable and sustained improvement across health services and outcomes”.

Contribute to health system strengthening
Active participate in efforts to improve system-wide policy, human resources, financing, management, service delivery and information systems
Share innovations that strengthen systems, including the Practical Approach to Lung Health
Adapt innovations from other fields
4.3.a. Actively participate in efforts to improve system – wide policy, human resources, financing, management, service delivery and information systems.

The NTP has been in the forefront of health system strengthening in the country in many ways. The NTP Manager has been actively engaged in MOH policy dialogue and participated in all meetings to formulate system-wide policies. The input from the NTP Director has ensured that TB is seen as an important communicable disease and a national priority: Evidence is found in many of the GOG, MOH documents such as the Program of Work I (1997-2001), II (2002-2006), and the most recent draft of POW III (2007-2011), where TB is mentioned among the most important communicable diseases. In addition, he is involved in preparing districts to meet challenges of further decentralization of health services.

The NTP Manager also oversees other disease control areas and in this position actively seeks opportunities to ensure efficiency and relevance. An example is the approach to regular meetings. There is discussion on combining regular TB and HIV meetings, as the Program Manager deals with both diseases.

**Human resources:** Most sites visited demonstrated sufficient human resources to carry out the functions of the NTP. Recently the staff of the CU has been increased to cope with the management responsibilities of the program. During site visits almost all staff had received TB-related training in the past 2 years. Most staff interviewed has other responsibilities besides TB control. However, in service delivery areas - the current treatment regimen and Streptomycin in the intensive phase of both Cat I and II patients - necessitates that staff come to work very early each day and must also come on weekends with little or no reprieve. In many places there did not seem to be a roster of rotation for these functions outside of their normal working hours. Some of the district level staff felt that there was insufficient office space to carry out their duties and to manage program information, especially reports, in a proper manner. Some of the working conditions of the laboratory specialists (who perform other lab related tasks) are not adequate.

**Management:** Management functions such as planning, monitoring and supervision and communication are carried out in an integrated fashion, often with staff that oversee other areas of work. When staff receives training to improve their managerial capacity, the same skills are presumably applied in carrying out other job-related functions. As systems to support TB are improved, it can be said that these same systems also impact the quality of other disease control programs.

**Service delivery:** The provisions of logistics such as vehicles, microscopes and motorcycles for regional and district health management teams and hospitals to be used for sector wide health care is another strong point of the NTP.

**Financing:** The NTP also provides districts and regions some financial support for monitoring and supervisory activities for all their programmes including TB activities. The NTP has been consistently training laboratory personnel not only in sputum microscopy but also in general laboratory procedures and care of microscopes, thus strengthening the laboratories in general. Indeed, the NTP is the only programme that regularly trains laboratory personnel in the GHS. The
use of the enablers’ package and the numerous training of health workers have improved their motivation for work.

**Key Issues**
Most staff has integrated responsibilities for many programs. For staff with managerial responsibilities - supportive supervision or “monitoring” is part of their regular functions. This activity should also take into consideration and address issues such as time management and working environment. Identification of problem areas and skills to assist in defining solutions was largely dependant on the individual and sometimes not rooted in quality improvement practices. We observed many missed opportunities that could have addressed these issues.

**Recommendations**

**To the MOH/NTP**
- Actively seek opportunities to improve the management capabilities of the staff at the regional and district levels

4.3.b. **Share innovations that strengthen systems including the Practical Approach to Lung Health.**

TB control is integrated from the regional level downwards. Several activities are undertaken, such as planning, training, monitoring, and ACSM. Many activities are funded through the GFATM funds, sometimes mixed with Regional/ District level funding. Regional/District level funding is sometimes not available or has not been disbursed, hampering e.g access to transportation to visit peripheral facilities. Staff at the district and sub-district levels has reported that during the implementation of some of these GFATM – supported activities, it gives them opportunities to integrate other disease – related activities as well.

**Achievements**
Targeted funding from GFATM to the NTP has allowed various TB control activities to take place that may not have otherwise, such as: procurement of logistics, training, monitoring and supervision, and health education. Staff at all levels have often taken advantage of the funding opportunities to “pull along” other programs and associated activities. Additionally, engaging the private sector with financial support has had tremendous impact on the relationship between the public health services and those private physicians/clinics and laboratory services in terms of ensuring standardization of treatment protocols and quality of services.

**Key Issues**
As other funding opportunities may come on stream (The President’s Malaria Initiative), staff at all levels will be challenged with an added complexity of establishing priorities, implementing work plans and achieving program and outcome results that can be measured.

With regards to integrated supervision, sufficient time for supervisory tasks has not always been available for all members of the team. The result has been less than complete reporting and lack of feedback.
**Recommendations**

- Actively look for opportunities to improve the management functions of the staff at the regional, district and sub-district levels
- Define and implement a system on how best to monitor the performance and output of integrated activities such as supervision

**Practical Approach to Lung Health (PAL)**

To improve the CDR a number of new initiatives is required to increase the number of TB cases coming for care. The Practical Approach to Lung Health (PAL) is one of such initiatives. The PAL strategy is aimed to strengthen the primary health care clinical services to deliver integrated management to lung health. PAL is a syndromic approach with major emphasis on TB, ARIs, including pneumonia and chronic respiratory diseases, such as asthma and chronic obstructive pulmonary disease (COPD). It is believed that this approach should lead to the improvement in the identification and the management of TB with respect to other respiratory conditions and conversely - to improvement in the identification and management of non-TB respiratory conditions.

It has been shown that once TB suspects have been investigated and found not to have TB they are in most instances sent home with inadequate care or follow-up services. Since this category of patients is large, there is need to develop care systems to treat their condition, alleviate their suffering and improve their quality of life.

In January, 2007 a workshop was held in the Africa Region to introduce this new initiative - PAL - to several countries to sensitize public health officials. However, PAL has yet to be adopted in Ghana, but may well offer another innovative way to increase the timely detection of TB suspects. During the review, it was noted that such opportunities for care of patients with respiratory symptoms - as outlined by the PAL strategy - are not yet well developed. This obviates the need to review and adapt the already developed PAL guidelines in the integrated management of adult illnesses (IMAI) for use by frontline health care providers.

**Table 11**

4 groups of Objectives in PAL....
(with regards to TB) source: WHO. PAL

<table>
<thead>
<tr>
<th><strong>Epidemiological</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce the burden of morbidity and mortality through reductions of TB morbid-mortality and risk of transmission</td>
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</table>

<table>
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<tr>
<th><strong>Quality of Care</strong></th>
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<tbody>
<tr>
<td>Improve the identification of TB suspects among respiratory suspects</td>
</tr>
<tr>
<td>Improve the quality of diagnosis among TB suspects, especially those with smear negative but with high clinical suspicion of TB</td>
</tr>
<tr>
<td>Strengthen the quality of care for TB patients and contribute to high rates of treatment success</td>
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<table>
<thead>
<tr>
<th><strong>Managerial</strong></th>
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<tbody>
<tr>
<td>Ensures standardization of drug treatment</td>
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<tr>
<td>Defines criteria for requesting laboratory tests and Chest x-rays</td>
</tr>
<tr>
<td>Establishes criteria for referral and counter-referral</td>
</tr>
<tr>
<td>Defines roles of the health worker at all levels</td>
</tr>
<tr>
<td>Assists in the formation of essential equipment at all levels</td>
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<tr>
<td>Assists in planning and resource allocation</td>
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<table>
<thead>
<tr>
<th><strong>Cost-effectiveness</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Assists in defining cost-reduction approaches, improved management and cost effective health interventions for respiratory conditions</td>
</tr>
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</table>
Achievements
Theoretically, the PAL approach offers another way to strengthen primary health care services. As health sector reforms have led to the integration of programs at the middle management and at the delivery care levels, the introduction of PAL into the GHS may well assist in improving the CDR and also improving lung health overall. As TB Control has already engaged other sectors including the private sector, the PAL approach would also promote the uptake evidences-based diagnostic and treatment protocols that have been developed in addition to TB-DOTS.

Key Issues
The NTP is on the cusp on rolling out several initiatives nationally, such as new drug regimens with FDC in a new and improved presentation (patient kits), Community – based DOTS, improved TB/HIV collaboration and expanding PPM beyond the three current urban centres. PAL offers yet another concept and slightly different approach to of improving case detection and management of TB, but also addressing other respiratory conditions. The timing of the introduction of such an approach will be critical to its success.

Recommendations:

To the MOH/NTP
- Consider the PAL approach in the upcoming Strategy for TB Control in Ghana
  - Review the PAL concept implementation guidelines and the stepwise process to adapt and implement the initiative.
  - Decide on the entry points of patients to enter the PAL care systems
  - Develop the monitoring and evaluation system for the patients under PAL
- Approach WHO AFRO or the IUATLD for TA to review and advice on the initiation of the integrated implementation of PAL in TB and HIV programmes with the aim of strengthening the primary health care services.

4.3.c. Adapt innovations from other fields.

As many of the health care staff is responsible for other program activities, and implementation is largely a district and sub-district level defined activity, there is a lot of scope for innovations, both from the NTP and from other Disease control programs.

The recent addition of the TB/HIV focal point in the CU with a background and work experience in HIV/AIDS, provides an opportunity for cross-fertilization of ideas and approaches. Likewise, the fact that the health teams at the operational levels have responsibilities in other disease control programs places them in a unique position to adopt/adapt best practices or lessons learned form other programs, including different concepts, ideas, approaches and skills.

Staff in one district mentioned that results of a recent national survey helped them better understand health seeking behaviour – in this case - why some patients chose to seek care in facilities that are NOT close to their homes. Instead of planning for and implement activities that are based on geographic proximity, staff has been encouraged to ask the question “who do they prefer as your...
treatment supporter” and not assume that it will be the closest at hand. Conversely results from another study demonstrated that whilst the CHO's felt that patients prefer to receive DOT from a friend, community worker or volunteer, the majority of patients interviewed responded that they prefer to receive DOT from either a health care worker or family member. From being involved or having access to the results of health services assessments - staff felt that they are now more knowledgeable about how health seeking behaviour will impact on the success of any program and those responsible for the design and development of new initiatives – can learn valuable lessons from these other initiatives/studies.

**Achievements**
The NTP Manager has been in the forefront of major policy initiatives. This has contributed that TB is recognized as a public health priority. The appointment of the TB/HIV focal point – who has also undertaken other program responsibilities, has helped ensure the regular programmatic activities are implemented and has been pro-active in addressing any problematic area that can and has arisen.

Major policy thrusts are the domain of the central units in the MOH, and implementation is left to the programs and to the decentralized service delivery levels. This has allowed the regions, districts and sub-districts greater flexibility to take into consideration the local context in which they operate. In several instances local staff related how they are able to “seek their own solutions” and look for efficiencies in the environment of often scarce resources. Staff has reported that while planning for and implementing GFATM-funded TB activities such as supervision and health education, they used these opportunities to implement integrated services at both the health care at the community levels. This, however is not uniform and is largely dependant on the leadership and enthusiasm of the district and health staff.

**Key Issues**
Many innovative approaches in strengthening other programs have benefited largely because of the leadership of the individuals responsible for disease control programs and also the availability of GFATM funds. Planned activities that have not been financed in a timely fashion from district level funding may be displaced because of the needs dictated by the GFATM funded activities – which take priority. This can overtake and displace other regularly planned activities in other health priority areas.

Maintaining involvement in larger policy areas and advocacy to ensure that TB remains in the forefront of the health agenda takes time. Until recently, the manpower at the CU was inadequate to do regular monitoring and supervision may.

The challenge for the NTP will be to document all the priority practices that are being developed and implemented in such a way that this information can be used for advocacy purposes for increased GOG budgetary support. Moreover, cost–effectiveness and cost benefit analysis will be of great use for selection and promotion of “important impact” control activities. This will be of particular importance after the GFATM support to sustain these (selected priority) activities.
The management of human resources at the point of service delivery is generally weak.

**Recommendations**
To the MOH/NTP

- Consider developing an incentive system that recognizes and rewards the application of innovative experiences to other programs.
- Document the lessons learned and impact of integrated health service delivery on major TB programme activities- consider support from the Policy Unit in the Stop TB Partnership
- Management of human resources (hours of work, rotations, working conditions) needs to be addressed at the decentralized level
- Information management – appropriate storage and classification of files should be improved
- Although there are many integrated functions, attention should be given to the quality of performance of these functions

To the Development Partners

- Support opportunities to improve performance of the program – such as the development of an incentives fund

4.4 Engage all providers

In most settings, patients with symptoms suggestive of TB seek care from a wide array of health-care providers apart from the public sector TB services. Evidence suggests that failure to involve all care providers used by TB suspects and patients hampers case detection, delays diagnosis, causes improper diagnosis as well as inappropriate and incomplete treatment, increases drug resistance and places a large and unnecessary financial burden on patients (31).

**ISTC can be used for advocacy tool and is particularly relevant where the private sector plays an important role in TB control and where drugs are available outside the TB program. It is also useful in the development/adaptation of medical curriculum.**

4.4.a. Public–Public and Public–Private Mix

**Current Situation:**

Ghana's PPM DOTS initiative to strengthen TB control in the country is a timely and bold effort that attempts to address the ground realities of a rapidly growing and increasingly used private sector. Ghana has been the first African country to have applied for and obtained sizeable Global Fund grants for implementing PPM in the First and the Fifth round of applications.

Evolution of private sector engagement in TB control: The NTP's addressing the issue of private sector began in 1999 with a policy initiative to restrict access to anti-TB drugs to public sector only. It was the result of observations on irrational use of anti-TB drugs in the private sector. This action was not unilateral. The NTP approached the National Pharmaceutical Association, shared concerns
of the risks of emergence of MDR-TB if an unrestricted and unmonitored use of anti-TB drugs was allowed and sought their support for NTP’s plans to prohibit sale of anti-TB drugs in private pharmacies. Subsequently, the NTP furthered the process of partnership building with Professional Associations and collaboration with private providers for referral of TB suspects and patient. It was this partnership, the explicit national policy on private sector involvement in health sector development and the ongoing health sector reforms that culminated in the NTP giving priority to making PPM a component in the successful GFATM proposal for Round 1. It was envisaged that private sector involvement could improve physical access to care for TB patients and minimize inconvenience of having to visit a public sector facility for daily DOT in the intensive phase of treatment. A major objective of involving private providers was to improve treatment adherence among detected TB patients and also increase case detection. The main instrument to ensure private sector involvement with the help of the GFATM grant was a specially developed "Enablers Package" to address the known constraints faced by TB patients and the providers in private clinics, hospitals and laboratories. Encouraging results of PPM DOTS in two metropolitan areas of Accra and Kumasi prompted the NTP to scale up PPM DOTS initiative to four cities in the country as part of another successful proposal for the Round 5 of applications to GFATM.

The Enablers Package: The Enablers Package has been developed with these constraints in mind and has emerged out of discussions with relevant public sector staff at different levels and private providers. Staff from the participating health facility undertakes several tasks to ensure successful treatment completion by patients. The collaborating health facility would be responsible for staff supervision, distribution of supplies and advocacy, among other tasks. (see details in section 4.1.c).

The sequence of local implementation of PPM DOTS has been clear and logical. Private sector facilities in areas where public sector facilities are difficult to access are approached on a priority basis. The public sector staff are first oriented and trained on PPM DOTS implementation. Doctors and health staff from private facilities are then trained. The Enablers Package is explained to the private providers. Participating facilities are supplied with drugs, reagents and other relevant material including recording and reporting formats. Regular Monitoring and supervisory visits are expected to be carried by NTP staff. Quality control of laboratories is also expected to be undertaken. Records and reports are supposed to be collected by the local NTP staff. Patients and their families are also expected to be visited by the NTP staff to obtain their feedback on the care they receive.

Current PPM DOTS coverage: Table 12 shows the current coverage of PPM DOTS in Accra, Kumasi and Tema. So far, 111 out of 557 private health facilities including clinics, laboratories and hospitals, have been engaged and 97 of these facilities have been contributing towards diagnosis, treatment and supervision of TB cases.
Table 12
PPM-DOTS coverage of private health facilities in Accra, Kumasi and Tema

(source: PPM review, May 2006)

<table>
<thead>
<tr>
<th>District</th>
<th>Total no. public facilities</th>
<th>Total no. private facilities (hospitals &amp; clinics)</th>
<th>Total no. private (single) laboratories</th>
<th>No. private hospitals and clinics with trained staff</th>
<th>No. private single laboratories with trained staff</th>
<th>No. private facilities reporting cases</th>
<th>No. private laboratories reporting cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accra</td>
<td>16</td>
<td>250</td>
<td>54</td>
<td>35</td>
<td>18</td>
<td>32</td>
<td>16</td>
</tr>
<tr>
<td>Kumasi</td>
<td>8</td>
<td>203</td>
<td>20</td>
<td>33</td>
<td>13</td>
<td>31</td>
<td>11</td>
</tr>
<tr>
<td>Tema</td>
<td>3</td>
<td>20</td>
<td>10</td>
<td>10</td>
<td>2</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>TOTAL</td>
<td>27</td>
<td>473</td>
<td>84</td>
<td>78</td>
<td>33</td>
<td>69</td>
<td>28</td>
</tr>
</tbody>
</table>

Private laboratories
The involvement of private laboratories has received greater attention so far than linking of private clinics and hospitals to the NTP. The public sector staff visits and assesses the laboratory set-up before entering into any collaboration. As part of the Enablers Package, collaborating laboratories receive all the necessary supplies from the NTP: sputum containers, glass slides and boxes, reagents as well as laboratory registers. Nearly 40% -- 33 out of 84 private laboratories -- have trained staff and 28 of these have been reporting TB cases.

Technicians from collaborating private laboratories are trained exactly like the NTP laboratory technicians at the NMIMR that houses the national reference laboratory. Training on smear microscopy and its quality assurance is given. All private laboratories visited by the mission had trained technicians, quality of smears taken was satisfactory and laboratory registers were properly maintained.

Importantly, a large majority of the patients examined for smear microscopy by private laboratories - about 60 to 80 per cent -- were referred to them by public sector facilities. It was not possible to ascertain if these referrals from the public sector laboratories were made purely for sake of patient convenience or had an element of the public sector staff easing their own workload in favor of private laboratories.

Achievements
The sequence of local implementation of PPM DOTS has been clear and logical. Private sector facilities in areas where public sector facilities are difficult to access are approached on a priority basis. The public sector staff are first oriented and trained on PPM DOTS implementation:

The PPM has improved access to laboratory services – as the ratio of laboratories to population has greatly improved in the pilot areas. Moreover, the selection of the new diagnostic centre was determined largely through assessment of geographic access. The laboratory technicians well trained to carry out sputum smear microscopy.

The referral systems between public and private sector providers appear to be in place and functioning well.
Key Issues
As in many new initiatives, there are issues that continue to require attention and refine: some laboratories complained of irregularity in receiving laboratories supplies such as sputum containers, glass slides and reagents. In some instances, it was not clear whether the laboratory staff had to collect the supplies or the NTP was supposed to deliver it to them. In others, the laboratories did not know where to collect the supplies from.

Supervision was weak and in some instances an absence of quality assurance of private laboratories over the previous year. This was largely due to non-resolution of an issue of the costs of QA, both the region and the district offices expecting the other to bear it or receiving a special budget from the CU.

There was a lack of clarity and occasional irregularity in the application of the Enablers Package. For example – the laboratories are supposed to get paid for each sputum smear slide they made, but this appears to have been problematic.

Private clinics and hospitals: The selection of private facilities was largely based on their physical location with a view to improve access to patients in areas where public health facilities are relatively scant. This also included some maternity homes. After initial visits and discussions on the tasks and responsibilities, the first important step is training of staff. The laboratory technicians are given the same training as offered to the NTP laboratory technicians. Training for doctors has been modified to suit their convenience. It is undertaken during afternoon hours over a period of four working days. This includes four sessions of three hours each. Both clinical and programmatic aspects are covered in the training. Private facilities follow the NTP guidelines for diagnosis and treatment of TB. Each facility maintains a TB register and a laboratory register if there is an attached laboratory. Usually the nurses maintain records and attend to patient follow up as well as default management. Drugs are often kept in patient-wise packets. DOT is provided during the intensive period. The NTP will soon begin using rifampicin throughout and will demand daily DOT throughout the six months of treatment. Currently, Ghana is among the very few countries that still use thiacetazone containing regimens.

Treatment success rates among patients managed in the private sector not only exceeded the target of 85%, but were also higher than those among patients in the public sector as depicted in the adjacent figure.

As seen earlier, the trend of case detection rates has for several years almost been a straight line. An objective of engaging private providers was to increase case detection rates. The case detection among private sector rose sharply from 104 cases in 2003 to 418 in 2004, but this did not resulted in an increase in the total number of cases detected. An increasing contribution of cases by private providers has been offset by a corresponding decrease in the number of cases detected in the public sector. As mentioned above, at least during these initial years of PPM DOTS, private providers have been detecting cases among suspects referred from the public sector.
Achievements:
Both public sector staff and private providers seem enthusiastic about collaboration, which seems to be predicated on mutual respect. Involvement in the PPM initiative exposed Private practitioners for the first time to proper training in TB management. Standardization of TB management across public and private has been an expected outcome of PPM initiative. Staff in private facilities visited were generally aware of the diagnostic and treatment protocols as well as routine programme procedures and the public sector staff are reported to be responsive to the needs of private providers generally.

The NTP has made investments in renovations and upgrading and the procurement of office furniture for some of the private clinics and hospitals and laboratory facilities in addition to the Enablers Package. There are reasons to believe that the financial compensation as part of the Enablers Package helped to earn collaboration from private providers. As in the case of laboratories, a good proportion of patients received by private facilities were referred from the public sector for diagnosis and/or treatment. This was an important benefit to private providers.

Increase in the number of service outlets is expected to improve access to care. While this potential positive effect of the PPM initiative has not yet been investigated, enhanced treatment success rates among patients treated in the private sector provides some indication to that effect. Similarly, introduction of the Enablers Package with specific provision of compensation of transport costs and service delivery closer to their homes should result in cost saving for patients. This aspect needs to be further studied as a part of the effectiveness of the Enablers Package.

Key Issues
The implementation of the Enablers Package in private clinics and hospital has not been standardized. There was no clarity on the different components of the Enablers Package. The distribution by different providers of the amount received per patient into the three components -- the patient, the health staff and the health facility -- varied from facility to facility.

Records of the use of funds received under the Enablers Package were not kept by most facilities. One facility that provided the mission with a detailed account of expenditure claimed that in the first quarter of the current year, their facility spent about one and half times of the amount they received thus incurring a loss.

In terms of effectiveness, the PPM DOTS programme of Ghana has indeed brought the public and the private health sector together for the purpose of achieving a common public health goal. As a result, some but not all the potential benefits of the collaboration have been realized in the first two years of implementation: TB diagnosis and treatment have been standardized across the providers; treatment success rates have been improved and an increasing number of cases are being detected by private care providers. However, this has not yet resulted in an overall increase in case detection.

Contribution of public and private sector to case detection (source: PPM Review. 2006)
In large part, there has been a redistribution of cases -- cases identified by the NTP are being diagnosed and managed by the private sector with better treatment outcomes. This should change as PPM implementation progresses and private providers should contribute not only to supervising treatment of TB patients but also to detecting new, additional cases.

**Recommendations**

**To the MOH/NTP**

- Continue productive engagement with private providers
- Continue with phased expansion of PPM across the country at a manageable pace
- Advocate for a corresponding increase in NTPs budgetary allocation for PPM to ensure sustainability
- Strengthen quality assurance of laboratories, especially private laboratories through development and implementation of a QA plan: The QA program for private laboratories should go hand-in-hand with the monitoring of the Enablers Package. For this purpose, the staff undertaking QA should also be aware of the laboratory related components of the Enablers Package.
- Develop and disseminate clear operational guidelines on PPM DOTS.
- Inform people and TB patients about PPM, especially about the Enablers Package: the NTP should undertake a major effort to inform people and patients about the Enablers Package and the benefits of it which they can legitimately avail as well as the tasks expected of the providers

**To the Development Partners**

- Support the evaluation of the enablers package (financially and through technical assistance)
- Support the development and dissemination of Guidelines for PPM

**4.b.2 International Standards of TB Care**

**Current Situation:**
The PPM mission (May 2006) observed that anti-TB drugs are strictly limited for use thru the NTP, only public and private sector providers engaged in implementing DOTS have access to these drugs through the NTP. The policies and practices of the NTP are similar to the contents of the ISTC. No special attention has been given to adopt these guidelines. This review mission felt that there may still be scope to use the standards as a training and advocacy tool targeted towards to both the public and private sector, in addition to updating the medical curriculum.

**Recommendation**

To the MOH/NTP

- After undertaking expansion of key areas such as TB/HIV and PPM and MDR TB, the NTP should consider opportunities to apply the ISTC standards, in either the public or private sectors or both, and in updating the medical curriculum.
4.5 Empower people with TB and communities

(ACSM) embrace: advocacy to influence policy changes and sustain political and financial commitment; two-way communication between the care providers and people with TB as well as communities to improve knowledge of TB control policies, programmes and services; and social mobilization to engage society, especially the poor, and all allies and partners in the campaign to Stop TB.

Community participation in TB care implies establishing a working partnership between the health sector and the community – the local population, especially the poor, and TB patients, both current and cured.

Patients’ Charter outlines the rights and responsibilities of people with TB and complements the ISTC for health-care providers. It is based on the principles of various international and national charters and conventions on health and human rights. Its purpose is to empower people with TB and communities and to make the patient–provider relationship mutually beneficial.

4.5.a. Advocacy, communication and social mobilization

Improving advocacy, social mobilization and education (ACSM) for TB control is one of the approaches that is underscored in the TB Strategy (2001-2006) to achieve the medium term objective of “achieving high quality TB services in the entire country ( ). The aim of ACSM is to provide a supportive environment for sustainable growth of ACS to TB and TB/HIV control services. It will be implemented nationwide with NGO's as lead partners.

The GFATM round 5 is supporting a major part of the ACSM initiatives. As outlined in the GFATM - The objective of the advocacy component is to place TB and TB HIV high on political and development agenda. The communication component is to increase knowledge among the general public about TB and TB/HIV. The social mobilisation component aims at mobilising the communities for action to fight stigma and eliminate TB and TB/HIV as public health threats.

Lessons learnt from implementing PPM DOTS indicate that sustained education and media activities maintain the interest of private providers. The behavioural change communication (BCC) programme will contribute to reduce delay in TB diagnosis, promote adherence to treatment and acceptance of DOTS services, reduce stigma, this all through marketing DOTS as a brand for TB control in Ghana.

Different partners will be engaged to promote various aspects with their comparative strengths. The partners are the Ghana Society for Prevention of Tuberculosis (GSPT), Centre for Development of
People (CEDEP), and Ghana Social Marketing Foundation (GSMF), and Ghana Postal services. World TB Day will climax ACS activities every year. The messages varied depending on the target population: TB patients, individuals, families, households, in school and out of school youth, churches and other organized bodies, communities and the entire population.

The strategy will involve a phased approach with emphasis on mass media (radio, TV, print), interpersonal communication, civil society engagement and community outreach services. The program will run for 5 years, and will deal with stigma and incorrect beliefs and practices, DOTS and treatment seeking behaviour.

NGO activities began 3rd quarter 2006. There is no single comprehensive report that summarizes all activities. Of interest is the development of a Stop TB Partnership, Ghana. This Partnership has developed a web-page which contains (local) information like recent events and seems to focus on TB/HIV. This web-page is independently funded.

4.5.b. Community participation in TB CARE – Community Based DOTS

The NTP’s objectives of Community Based DOTS (CB-DOTS), is to improve geographical access to diagnosis and treatment; referral by communities to diagnostic services, adherence to treatment and reduce financial burden for patients and families. It will be implemented in 60 districts and synchronized with districts implementing TB/HIV collaborative activities.

The NTP uses two mechanisms to introduce and expand CB-DOTS: 1) recruitment of treatment supporter volunteers and 2) through existing community –based initiatives such as CHPS.

A key component is the recruiting and training of community volunteers in health education, identification of TB suspects, referral and observation of treatment of TB cases. This system started in the second half of 2006 and is still in the process of implementation. In preparation of GFATM support, every region was encouraged to select at least two districts to recruit and train a set of volunteers. Selection on the district was predicated on: the high burden of TB, enough staff, and presence of district TB coordinator with any means. For those areas just beginning, volunteers are trained and tasked, initially with assistance in the first home visit. For those areas that are more advanced – the volunteers have been trained and many have already one or more TB patients on treatment – usually soon after diagnosis.

A volunteer can be attached to an NGO or not. A public health nurse – usually at the District or Sub-district level attached to the TB clinic will provide the oversight for the volunteers and meetings are held regularly. This nurse will also make visits to both the public health and private facilities. Once a patient is diagnosed the nurse will discuss with the patient the treatment supporter options (facility or community based) and assign to them a treatment supporter who will be responsible for shepherding the patient through treatment and providing the DOT.

The definition, management and administration of the enablers package for the volunteers is decided upon at the regional and district levels. Incentives vary and could include the provision of bicycles, a lunch and refreshments during monthly meeting (bicycles are ordered through the GFATM proposal,
but not yet received). In other Districts (urban), volunteers may be remunerated according to whether they have a TB patient under their care in that month. They will not receive extra funds for each additional patient. Volunteers do not receive a stipend or remuneration for those months with no patient related activity.

In Ghana, the Community Health and Planning Services (CHPS) is a strategy to ensure access at the doorstep to essential health services with community participation. It involves the use of well-trained and paid health professional Community Health Officers (CHO) resident in a CHPS zone. It demands working with a community health volunteer to provide health promotion, disease prevention and minor ailments treatment services, including reproductive and child health services. The CHPS compound is the first point of contact with the formal health sector.

A recent study to assess the state of readiness of the CHPS Zones to undertake CB-DOTS showed that of the 30 districts studied, 83% didn’t include CB-DOTS into TB services. Defaulters rates were approximately 20 % and the main reasons sited were distance, economic, feeling better and migration – most patients received treatment at the district facility. Although community members interviewed were poised to provide CB-DOTS, however they demanded training, tools, and incentives. An important finding was that patients preferred treatment supervision (DOT) to be delivered by either the health worker or a family member. Guidelines were not tailored to the CHO, volunteer or village health committee. CHOs didn’t keep records of patients nor had IEC material available. Recommendations from this study strongly supported the rapid implementation of CB-DOTS using CHPS as a vehicle. It also provide a thoughtful description of the needs to proceed in terms of organization and management – including supervision, HRD, knowledge and attitudes, case management, community involvement and attitude towards patients. Perhaps one short fall of these recommendations is the lack of attention to data, from identification of TB suspects through the admission into the program and then release upon cure (or treatment completion).

4.5.c Patient’s Charter

Ghana has a patient’s charter, although not TB specific it is a bill of rights that health institutions are expected to adopt “to ensure that service personnel themselves as well as patients/clients and their families understand their rights and responsibilities. We did not investigate the degree of which this is understood by either the institutions visited nor with the patients themselves.

Achievements

During the site visits all teams were able to meet and interview groups of treatment supporters and volunteers. In most sites, the response to this volunteer opportunity was large. The motivation of the volunteers met was apparent. One volunteer expressed his motivation as: “The feeling that someone else get cured through our hands”.

Volunteers use special forms to fill when a case of TB is diagnosed, including recording of contacts and arranging for screening. Also, the new patient ID card and treatment support card will enable the volunteers to record intake of drugs. Recording of drug intake is also possible by volunteers on the boxes of the GDF patient kits, if these are kept by them in their homes.
The arrival of 4FDCs in patient kits will greatly enhance the work of the volunteers, as there is no need for injections (Cat I and III) and fewer side effects expected due to absence of thioacetazone.

**Key Issues**

As yet there are no guidelines for Advocacy in the ACSM, members of CU have articulate the need for this. Planning for the roll-out of this activity is critical, especially in view of the introduction of FDC’s where CB-DOTS will play a much greater role in case management. A plan for roll-out CB-DOTS was not available (the team was instructed to review the GFATM documents for details of the roll-out).

Many volunteers were of the opinion that the materials (especially for illiterate clients) is lacking. The present guide for peripheral health staff may be too complicated for volunteers.

An important aspect of CB-DOTS in both approaches is the impact assessment, which is not monitored as routine. This is most probably because the CB-DOTS initiative is still in the pilot stage and has yet to be rolled out nationally.

The coverage of the CHPS zones is still limited to approximately 5% of the communities in Ghana. As CHPS is a phased process which necessitates the buy-in from the community, the most important reasons of the slow roll-out of this last phase is to the expensive prerequisite of a suitable house with sufficient amenities. CHPS is focused on rural environments; however, more TB suspects and potential cases may reside in the urban slum areas.

**Recommendations:**

**To the MOH/NTP**

- For Advocacy purposes: consider the development of a guideline that would be useful for all managers at each level of the GHS. The NTP should use the ISTC for this purpose
- Consider a timely mechanism to involve stakeholders (and end-users) to review and adapt the guide that contains the most important procedures and tasks for treatment supporters.
- Consider standardizing the enablers package (see section on PPM).
- For CB-DOTS: Ensure the plans to roll-out CB-DOTS – both the volunteers and CHPS aspects, are carefully designed and a monitoring system is put into place so that implementation can be done on a phased approach.
- Include M&E in the training and ensure that M&E is part of the either TB program supervision or integrated supervision
- The indicators of to monitor effect and impact of CB-DOTS may include:
  1) **Increase in number of suspects.** This indicator can be obtained from the laboratory register: as a result of increased public awareness and increased case finding the absolute number of suspects should go up.
  2) **Decrease in the proportion of sputum smear positives among suspects.** This indicator can be obtained from the laboratory register: this proportion, which is on average 20% in Ghana, should decrease.
  3) **Improved treatment outcomes** in terms of cure rates, treatment success and less defaulters. The new TB patient cards allow for analysis separately between CB-DOTS and facility based DOTS. However, the new TB register has no such provision, unless this is indicated in the column “remarks”.

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4) Decrease in **TB mortality** in the community (one of the MDGs), as a result of early reporting due to active case finding and decreased stigma. This information can only be obtained from the community register.

- Consider conducting research on KAP to assess the knowledge about TB and measure the impact of various BBC approaches on stigma, access to care and case detection rates
- Ensure adequate opportunities both between and among regions to share lessons learned in the roll-out of CB-DOTS and advocacy activities
- Consider undertaking a cost-effectiveness analysis to assess sustainability of the various approaches

### 4.6 ENABLE AND PROMOTE RESEARCH

“The Stop TB Strategy consolidates DOTS implementation and involves the implementation of several new approaches for tackling the challenges facing NTPs. To put these approaches into practice, programme-based operational research is considered a core component of the NTP’s work. Designing and conducting locally relevant operational research can help in identifying problems and workable solutions, testing them in the field and planning for the scaling up of activities. For this purpose, collaboration between programme managers and researchers is essential”.

#### 4.6.a. Programme-based operational research

Setting the agenda for new basic and operational research and monitoring progress of ongoing research, is organised through stakeholder meetings. Members of this meeting include the Regional Directors of Health, Deputy Directors of Public Health, and individuals from the College of Health Sciences, mainly from the University of Ghana Medical School and Noguchi Memorial Institute for Medical Research (NMIMR), both of which are under the Ministry of Education. Regional Directors are encouraged to select research topics within the already established agenda. However, due to workload and the lack of research capacity, and lack of funding little has been done to date.

Research partners of the NTP and NMIMR (intellectual and financial) have included WHO, CDC, JICA, Ghanaian-Dutch Collaboration for Health Research for Development.

#### Table 13.

<table>
<thead>
<tr>
<th>Ongoing research - GFATM funded:</th>
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<tbody>
<tr>
<td>• Nationwide survey on the resistance to first line anti-TB drugs in Ghana.</td>
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<tr>
<td>• Nationwide survey of the TB/HIV co-infection in Ghana.</td>
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<tr>
<td>• Survey to determine the prevalence of tuberculin skin sensitivity in Ghanaian school children</td>
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<tr>
<th>Ongoing research funded by Ghanaian-Dutch Collaboration for Health Research for Development:</th>
</tr>
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<tbody>
<tr>
<td>• Assessment of private laboratories to support TB care and control in Ghana.</td>
</tr>
<tr>
<td>• Eliminating milk-borne public health risks in Ghana: assessing tuberculosis, brucellosis and enteropathogenic <em>Escherichia coli</em> hazards and the occurrence of antimicrobial agents in raw milk.</td>
</tr>
<tr>
<td>• The application of molecular techniques in the control and management of drug resistant tuberculosis (DR-TB) in selected Ghanaian prisons.</td>
</tr>
</tbody>
</table>
Development, IAEC (International Atomic Energy Commission), and the KNCV Tuberculosis Foundation

Every year there is a meeting of the College of Health Science of Ghana where some of the research findings are presented.

4.6.b. **Research to develop new diagnostics, drugs and vaccines**

At the time of the review there were no investments in the development of new drugs nor diagnostics. There is interest however, for the GOG to become pre-qualified (according the WHO criteria) in the production of certain pharmaceutical products.

**Achievements**
The NTP’s ability to develop important partnerships with various national as well as international academic institutions is evident and laudable. In this, the ability to attract funds from different sources is also of note. The MOH has also been forward looking in the acquisition of pre-qualification status for certain products. This has yet to be further developed.

**Key Issues**
Although mechanisms may be in place for discussion and setting a research agenda that includes the decentralized levels, it appears that the research that has been undertaken to date has involved a few individuals at the central level and very little involvement of person working at the for decentralized levels.

Operational research responding to fundamental questions of the NTP, such as why CDR remains consistently low, or what are determinants in the high case fatality rate in some regions – are not being addressed. Another area that requires urgent attention is the evaluation of the effectiveness of the enablers’ package. The capacity to carry out this type of research or opportunities to access funding at the decentralized levels has been limited to date.

Again, although the mechanism are in place– quarterly stakeholder meetings - to determine research priorities and monitor progress, some researches interviewed described their concern about the forum for interaction between the NTP and researchers for 1) determination of research areas and 2) how findings are being disseminated.

**Recommendations:**

**To the MOH/NTP**
- As part of defining a national research strategy (including evaluation research), consider hiring a research coordinator to the Central Unit
- In the advent of rolling out many programmatic initiatives in these next several months, the NTP should look to build the research capacity at the decentralized levels, including the setting of a research agenda. This should also be included as a priority in the next Strategic Plan
• Define or improve a mechanism of communication and collaboration whereby selected areas for research proposal development are consistent with the major challenges of the NTP, and whose results can be addressed nationally
• Look for funding and technical assistance from partners that would support the enhancement of operational research – that would also involve the decentralized levels

To the development partners:
• As a matter of priority, consider investment in developing the research capacity and skills that will allow the NTP to design and generate information for action. As many programmatic decisions have been decentralized, the capacity of the staff at these levels needs to be strengthened. The ability to generate evidence with which to base decisions is a key factor in improving the quality of services and also serves as an incentive to those who carry our these types of investigations.
ANNEXES

References
Itinerary
Persons Interviewed
Site visits
Terms of Reference for the review