Kingdom of Swaziland

Ministry of Health

TB PROGRAM

ANNUAL REPORT 2012

Strategic Information Department

LIST OF ACRONYMS

AIDS	Acquired Immunodeficiency Syndrome
ART	Antiretroviral Therapy
ARVs	Antiretroviral [drugs]
BCC	Behavior Change Communication
CBO	Community-based Organization
CDC	Centers for Disease Control and Prevention
CIDA	Canadian International Development Agency
CMS	Central Medical Stores
CTA	Central Transport Administration
DOTS	Directly Observed Treatment Short Course
DR	Drug Resistant
DST	Drug Sensitivity Testing
EQA	External Quality Assurance
ETB	Extra Pulmonary Tuberculosis
FIND	Foundation for Innovative New Diagnostics
GFATM	Global Fund to Fight AIDS, Tuberculosis and Malaria
HIV	Human Immunodeficiency Virus
HMIS	Health Management Information System
INH	Isoniazid
IUTLD	International Union Against Tuberculosis and Lung Diseases
LED	Light Emitting Diode
LPA	Line Probe Assay
M&E	Monitoring and Evaluation
MDR	Multi-drug Resistant
MOH	Ministry of Health
MSF	Médecins Sans Frontières
NRL	National Reference Laboratory
NTCP	National Tuberculosis Control Programme
PHU	Public Health Unit
PLHIV	People Living with HIV
PMDT	Programmatic Management of Drug Resistant Tuberculosis
QA	Quality Assurance
QRM	Quarterly Review Meetings
SND	Smear Not Done
SOPs	Standard Operating Procedures
SS-	Sputum Smear Negative
SS+	Sputum Smear Positive
SSF	Single Stream Funding
TB	Tuberculosis
URC	University Research Council
WHO	World Health Organization
XDR	Extensively Drug Resistant

FOREWORD

This TB program annual epidemiology report reflects the key achievements made by the National Tuberculosis Control Program (NTCP) in its quest to improve the health status of the Swazi people, through provision of accessible and good quality TB services. The report also highlights the program's limitations and constraints encountered during the reporting period.

The (NTCP) notes the steady increase in case finding, smear conversion and treatment outcomes. As we advance to 2013, there are a lot of expectations and challenges that lie ahead. Some of these expectations are the attainment of the Millennium Development Goals (MDGs) by 2015, strengthening the health system and service delivery to improve the TB treatment outcomes.

Many health workers throughout Swaziland had committed themselves to improve the delivery of TB services in 2012. Their efforts are acknowledged. The Ministry of Health (MOH) gratitude also goes to the NTCP staff, TB focal persons in diagnostic facilities for their dedication and to our partners, URC, WHO and MSF who contributed significantly to the control and management TB in 2012.

Lastly may I take this opportunity to extend my gratitude to the MOH for its continuous political commitment in the fight against TB in the country. The MOH has continuously deployed nurses and assigned them to work at the TB units.

ACKNOWLEDGEMENTS

The primary aim of this report is to share information on progress made to tuberculosis control in Swaziland in 2012. The successful completion of the NTCP 2012 Annual Report was made possible by joint efforts of a number of dedicated individuals at facility, regional and national level. Our appreciation also goes to the management unit at the national level for their dedication to the accuracy of the reported data. We also thank the health workers at the regional and health facility levels who recorded and timely reported all data which has been aggregated in this report. They are urged to continue with the same dedication in the subsequent years.

This report would not have been a success without the following individuals;

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Philile Mndzebele	NTCP
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EXECUTIVE SUMMARY

This TB program annual epidemiology report reflects the key milestones achieved by the National Tuberculosis Control Program (NTCP) in its quest to improve the health status of the Swazi people, through the delivery of accessible, caring and good quality TB services. The report also highlights the program's limitations and constraints encountered during the reporting period. The NTCP notes the steady increase in case finding, smear conversion and treatment outcomes. As we advance to 2013, there are a lot of expectations and challenges that lie ahead. Some of the expectations are the attainment of the Millennium Development Goals (MDGs) by 2015, improving of health systems and service delivery to enhance the TB treatment outcomes.

TB Service Provision

The NTCP has expanded the provision of TB diagnostic services to 73 health facilities in all the four region of the country. Access to quality DOTs has improved and currently 139 facilities are providing TB treatment initiation and continuation phase. TB cases that were diagnosed with various types of TB in 2012 was 7 741, of which 92% of all patients diagnosed with TB were tested for HIV. Amongst these, 80% were HIV positive. About 98% of those patients were started on CPT while 66% were enrolled on ART.

The national treatment success rate has improved from 58% in 2008 to 73% in 2012 among new smear positive TB cases and The overall treatment success rate for both new and retreatment TB cases is 70%. This represents a huge achievement from the 54% documented in 2008. About 562 drug resistant TB patients were initiated on treatment in 2012 in the seven health facilities.

Political Commitment And Partnership For TB Control

There was remarkable commitment toward TB control at all levels; as the program decentralized at many health workers throughout Swaziland committed themselves to improve TB services in 2012. At the regional level the program demonstrated an increased involvement of the Regional Health Management Teams (RHMTs) in the TB control activities, while at the national program level there was improved coordination and partnership with a number of organizations contributing significantly to the control and management TB in 2012.

The Swaziland government's strong commitment to reducing TB-related mortality and morbidity was shown by the substantial investment in TB medicines and infrastructure. The government ensured procurement of equipment and human resources safeguard against interruptions to delivery of TB services.

Program Best Practices

The NTCP was able to achieve best practices through implementation of activities which have yielded benefits such as decentralization of TB services, scaling up of TB screening and diagnosis, introduction of new technologies and diagnostic methods, GIS mapping of MDR-TB patient and patient support in communities, better involvement of partners in TB control and improving data management through consistent onsite data verification and mentorships. These best practices have been established, institutionalized and are part of the program work plan for implementation.

CHAPTER 1: BACKGROUND AND INTRODUCTION

1.1 Overview

This document provides a description of the activities conducted by the National Tuberculosis Control Program (NTCP) in 2012. The report is intended to convey the main achievements of the program as well as the challenges faced. It is based on an annual report outline whose purpose is to provide typical tables in a manner that will be useful to policy makers, development partners and the office of the TB Program manager. The plan provides guidance concerning the most important indicators that have been institutionalized by NTCP in the program's monitoring and evaluation (M&E) plan 2010-2014. The data are presented as national level statistics and for population subgroups such as those defined by age, sex, and region of the country as per the indicator protocol definitions of the M&E Plan. The level of analysis in the report is primarily descriptive and is particularly useful for assessing progress of the program activities.

1.2 Introduction

In Swaziland, the World Health Organization (WHO)[1] estimates that there are about 1 380 per 100 000 incident TB cases occurring annually, which is by far among the highest TB burden in the world. Although the country recently moved out of the list of 22 high burden countries in the world, the TB situation is still a cause for concern. Until recently, the TB/HIV co-infection rate has remained above 80%, while antiretroviral therapy (ART) uptake among TB patients living with HIV has been low until 2011.[2] Also fuelling the challenge of controlling TB has been the continued increase in drug resistant (DR)-TB cases.

To tackle these historical and emerging challenges, the NTCP in its strategic plan 2010-2014 set out to expand and enhance high quality directly observed treatment short course (DOTS) by ensuring uninterrupted supply of TB drugs provided freely to all TB patients regardless of race, religion and nationality. Furthermore, the strategy dictates that the effort to control TB should be decentralized to engage all health providers in public and private settings so as to promote universal access to treatment. Another key strategy employed by the TB program has been the increased involvement of patients and their communities in TB control, which includes the implementation of DOTS by community treatment supporters.

Major milestones achieved since the start of implementation of the strategy include a significant improvement in the TB treatment success rate, from 68% in 2009 to 73% in 2012.[3] Although still below the 85% recommended target by WHO. The ART enrolment rate for TB/HIV co-infected patients has nearly doubled from 35% in 2010 to 66% in 2012, which is also a significant achievement. Despite these achievements, challenges still remain. The current DR-TB estimates predict that by 2015 a cumulatively total of 6 211 multi-drug resistant TB (MDR-TB) cases[4] would be diagnosed. This increased in resistance, coupled with the high TB/HIV co-infection rate, poses the most significant threats to gains already made in TB control.

[1] World Health Organisation Global TB report 2012
[2] Annual TB program report 2011
[3] TB statistical report 2012
[4] Programmatic Management of Drug Resistant TB (PMDT) Plan 2011-2015

CHAPTER 2: PROGRAM DESCRIPTION

2.1 Components Of The STOP-TB Strategy For Swaziland

Providing treatment and care to TB patients and their families requires a broad range of services that include clinical care focusing on diagnosis and treatment as well as supportive services to ensure adequate nutrition, psychological and social welfare. Swaziland is guided in implementation by the WHO and in 2009 adopted the STOP-TB Strategy. Within this strategy addressing TB/HIV is prioritized. This includes HIV screening among TB patients and efforts to prevent HIV transmission. In sum, comprehensive TB/HIV care must include clinical care, psychological support, socioeconomic support, involvement of TB patients, people living with HIV and their families and respect for human rights and legal needs.

Pursue High Quality DOTS expansion and enhancement: Under this objective, the NTCP has prioritized active TB screening among PLHIV, pregnant women in Public Health Units (PHUs) and prisoners and prison workers. Through active screening in ART sites, the TB program has been able to detect additional cases that may have otherwise been missed. Additionally, the TB program has solicited commitment from government to ensure uninterrupted supply of anti-TB drugs for the next two years with an additional one year buffer stock. The decentralization of TB services is continuing in accordance with the TB Services Decentralization Plan.

Address TB/HIV, MDR-TB and extensively drug resistant (XDR)-TB: The high TB/HIV co-infection rates highlight the need for integration of TB and HIV/AIDS services, especially in countries with high HIV prevalence, including Swaziland. The NTCP is implementing the '3 ones' (intensified case finding; infection prevention and control; Isoniazid preventive therapy). Furthermore, the emergence of MDR-TB continues to be a challenge particularly because of the length of the treatment period and the side effects of category IV regimen to address MDR and XDR-TB.

Contribute to health systems strengthening: The NTCP collaborates with other health programs in mobilizing the necessary human and financial resources for implementation and impact evaluation, sharing and applying achievements of TB control. Material and social support is needed in communities to ensure that nutritional and daily living needs are met. Various options include microcredit schemes, housing, food support, health insurance schemes that include HIV/AIDS care and treatment and support for orphans and vulnerable children in households and communities.

Engage all care providers in TB control: People need to be involved in the planning and delivery of comprehensive care to ensure that HIV/AIDS care; treatment and support programmes intended for them address their needs, reinforce adherence, prevention and care, promote health-seeking behaviour and respect their human rights.

Enable and promote program based operational research: Services are needed that address stigma and discrimination in health facilities, communities and in the workplace. This should also include succession planning and protection of property.

2.2 TB & DR-TB Guidelines, Policies And Strategies

National guidelines on TB and DR-TB have been reviewed and updated. The central policy documents for the implementation of TB services are the National Tuberculosis Control Strategic Plan 2010-2014, the NTCP Manual 2012, the DR-TB Management Guidelines 2012, the TB Infection Prevention and Control Guidelines 2012 and the TB/HIV policy guidelines 2010.

The National TB Control Programme Manual 2012: previously referred to as the TB Management Guidelines. The newly revised manual is more comprehensive and includes emerging issues in TB control. The new manual includes a detailed segment on the management of childhood TB, which currently constitutes about 12% of annual TB cases. The manual also addresses issues of infection control, specifying the requirements for a facility in order to initiate and manage TB patients.

The National Drug Resistant TB Management Guidelines: To date, Swaziland has over 700 DR-TB cases initiated on treatment. When the first case of DR-TB was diagnosed in Swaziland in 2006, the country realised the need to have a structured response for DR-TB. One of the early initiatives was to build a national TB hospital. A year after the completion of the hospital formal guidelines were drafted and finalised in 2011.These guidelines cover the case definition of DR-TB, its diagnosis and treatment, management models for DR-TB as well as key risk categories. The guidelines aim to ensure

that the quality of care is standard across all facilities and that it is in accordance with the WHO recommendations.

2.3 Human Resource Management

2.3.1 Organisation Of TB Services

At the national level there are coordinators responsible for thematic areas under the guidance of the Program Manager. The thematic areas include TB/HIV, DOTS, Pharmacy, Laboratory, Research and M&E, grant management, Stop TB partnership, MDR-TB and childhood TB. At regional level, there are four TB coordinators and two MDR-TB coordinators. At facility level, TB services are provided through a TB focal person (in 73 health facilities nationwide), TB screening officers and TB/HIV adherence officers. At community level, the TB control program partners with community-based organizations to provide support to TB patients through care givers, treatment supporters and community health motivators.

2.3.2 Capacity Building Strategy

A number of human resource management strategies have been adopted by the NTCP in order to strengthen efficiency of health care workers, quality of TB services and patient satisfaction. Nurses undergo training by the NTCP before they start initiating TB treatment. The TB program also sends select program staff to the annual Arusha TB Management course offered by The International Union against Tuberculosis and Lung Diseases (IUTLD) for participants from all over the world, especially Africa. In addition, program staff attend regional and international conferences to share experiences and innovative approaches to TB control.

Informative training is a cornerstone of the NTCP. Sessions include modules on TB and TB/HIV management, TB/ART treatment adherence and monitoring, recording and reporting of TB services, sample collection and transportation. These trainings are generally one week in length. Special trainings on Infection control, drug management, and M&E are also provided. The program also provides on-site trainings for nurses, providing mentorship and continued support beyond the formal trainings.

Table 1: Clinical Officers, Nurses, And Treatment Supporters Trained

Cadre of HCW		Type of training				
	TB Management	DR-TB Management	TB & DR-TB Drug supply chain mngnt	TB Screening & Triaging	Adherence monitoring	TB/HIV management
Medical Officers	0	0	0	0	0	0
Nurses	20	20	0	0	0	19
Pharmacist/Pharmacy Technologists	1	1	0	1	1	1
Lab Technologists /microscopists	1	1	0	1	1	1
Treatment Supporters	96	96	0	0	96	96
Adherence Officers	17	17	0	0	17	17
Cough Officers	28	28	0	28	28	28
TOTAL	**163**	**163**	**0**	**30**	**143**	**162**

2.4 External Quality Assurance (EQA)

The quality assurance program is mainly for the laboratory and focuses on three core activities as follows:

- Evaluation of clinical care via targeted chart reviews and monthly site reports from the electronic medical record,
- Feedback and training in areas of poor site performance,
- An exchange program between clinics to improve overall clinical quality.

Samples for EQA are randomly selected from participating laboratories every quarter and rechecked at NRL for specificity and competency. Other samples are sent to the Supra-national reference laboratory, which is the Medical Research Council in South Africa, for proficiency testing. The results are compiled and used for capacity strengthening within the laboratory to improve quality of smear results under microscopy. This program is coordinated by a central team of QA laboratory technologists and microscopists every quarter.

Table 2: Laboratories That Participated In External Quality Assurance By Region In 2012

Region	Number of Laboratories	Number Participated in QA in 2012			
		Q1	Q2	Q3	Q4
Hhohho	5	5	5	5	5
Manzini	6	6	6	6	6
Lubombo	5	5	5	5	5
Shiselweni	3	3	3	3	3
TOTAL	**19**	**19**	**19**	**19**	**19**

The table above describes the number of times samples are taken from laboratories for QA purposes. A total of 19 laboratories throughout the country participated in EQA during 2012. This translates into 100% EQA participation by laboratories in Swaziland and is in compliance with the WHO recommendation.

2.5 Improving Health System Infrastructure

There is universal appreciation that without strengthening health systems, greater access to vital treatment including anti-TB drugs and ART is unlikely to be attained. Management, storage and distribution of anti-TB drugs are cross-cutting issues that require strong systems to manage their current functions better. Service delivery needs to be reoriented from acute to chronic disease care and ensuring uninterrupted supplies of treatment for high levels of adherence.

2.5.1 Infrastructure

Combined efforts from partners and continued support from government during 2012 led to the successful upgrading of health facilities and the rehabilitation of laboratories at the peripheral level. Key renovations included: upgrading the TB hospital ventilation system which was supported by University Research Cooperation (URC); renovation of the TB center clinic to have a fully-fledged laboratory, also supported by URC; the renovation of the TB ward at Mankayane Hospital with support from Médecins Sans Frontières (MSF) and government; the rehabilitation of the Mpuluzi clinic to become TB treatment initiation site also supported by MSF; the accreditation of Siphofaneni laboratory to provide diagnostic services for Siphofaneni clinic and other surrounding health facilities in the Lubombo region supported by the government and URC; the renovation of the Hlathikhulu TB ward to admit DR-TB patients supported by government and MSF; the reconstruction of the Dvokolwako TB/HIV clinic supported by URC; and, the setting up of the MDR-TB wing at Matsapha Comprehensive clinic with support from MSF.

Figure 1: TB hospital upgrading of the mechanical ventilation system installed with support from URC

Figure 2: Renovations at Dvokolwako TB/HIV clinic including reconstruction of the patient waiting area supported by URC in the Hhohho region

Figure 3: Renovations at Mpuluzi TB clinic including reroofing and construction of the patient waiting area supported by MSF.

2.6 New Diagnostics And Laboratory Strengthening For TB

The laboratory is a vital component of the TB control structure and in Swaziland, laboratories are at the heart of the national TB control strategy. Monitoring the ability of laboratories to carry out minimal as well as more advanced testing requirements is essential. A critical indicator for TB laboratory services, in light of the increasing strains of MDR-TB, is the proportion of cases that are bacteriologically confirmed. It is therefore necessary that the National Reference Laboratory (NRL) be able to run both first and second line drug sensitivity testing (DST). NTCP also aims to increase the coverage of microscopy centres in line with universal access; and hence, has adopted a TB microscopy coverage indicator.

In 2012, the NTCP received support from partners to refurbish the NRL with new diagnostic machines including light emitting diode (LED) Microscopes bought by MSF and WHO; GeneXpert machines bought through support from TBREACH, MSF and the Foundation for Innovative New Diagnosis (FIND). The NRL also increased capacity to run 1st line DST through procurement of line probe assay (LPA) machines supported by FIND. In the Shiselweni region, MSF supported procurement of the Thin Layer Agar for culture and DST. Additional Bio-safety cabinets were procured for peripheral laboratories through support from partners as well.

Table 3 Genexpert Roll-Out In 2012

Facility	Installation Date	Number of Gene-Xpert Machines
1. Mbabane Laboratory	25.05.12	2
2. Good Shepherd Hospital Laboratory	23.04.12	1
3. Piggs Peak hospital Laboratory	21.05.12	1
4. RFM Laboratory	28.05.12	1
5. Sithobela HC Laboratory	24.04.12	1
6. Siphofaneni Laboratory	30.07.12	1
7. TB Hospital Laboratory	16.07.12	2
8. Matsapha MSF	Oct-11	2
9. Mankayane Laboratory	Nov-11	1
10. Hlathikhulu Laboratory	Aug-12	1
11. Nhlangano Laboratory	Aug-12	2
12. Matsanjeni Laboratory	Nov-12	1
13. TB Centre	Nov-12	2
Total	**By end of 2012**	**18**

Since October 2011, a total 18 GeneXpert machines were installed in 13 facilities around the country to increase rapid mycobacterium TB detection and to improve DR-TB case finding.

Some of the new laboratory equipment is shown in the photographs below.

Figure 4: A 4 module GeneXpert machine installed at TB center.

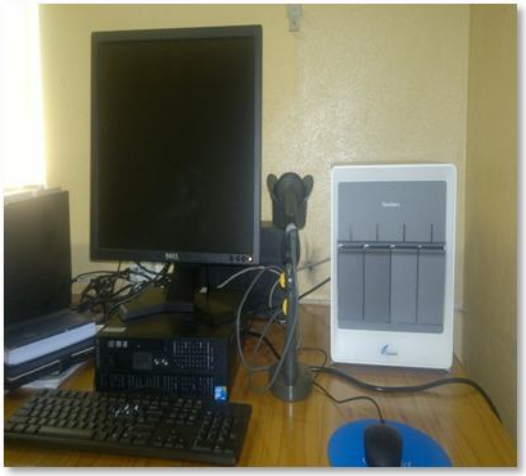


Figure 5: A LED microscope placed at TB Hospital laboratory. More LED microscopes were bought through support from MSF and FIND installed at TB *center.*

Figure 6: An MGit machine used to run samples for culture and DST at the National Reference Laboratory in Mbabane.

Figure 7: A Bio-safety cabinet installed at Mhlume RSSC laboratory in the Lubombo region. Used to run samples for culture and DST.

2.6.1 Human Resources Capacity

Skilled laboratory personnel are needed at the NRL to receive and process the samples and to run these tests. In 2012, URC and MSF supported the NTCP to deploy additional laboratory technologists to the TB hospital, NRL and Matsapha comprehensive care clinic. Microscopists were also recruited to carry out TB smear microscopy in peripheral laboratories including Raleigh Fitkin Memorial Hospital and Matsapha Comprehensive Care through support from MSF and other partners. Additional capacity building for the TB laboratory in the area of GeneXpert implementation was provided by the WHO. This technical assistance encompassed training on how to retrieve and interpret GeneXpert sample results. Additional long term technical assistance has been engaged for the laboratory through URC to strengthen areas of EQA, laboratory information systems as well as operations research.

2.7 Drug Supply And Management

Supply chain management of essential health commodities, including high-value medicines like first-line TB drugs, second-line TB drugs and antiretroviral medicines (ARVs), involves a series of activities to guarantee the continuous flow of products from the point of manufacture to the point of use. This supply chain operates within a management system that provides program managers with data to help determine what types of products are needed, what quantities are required, where and when they are needed. This is meant to ensure that there is no interruption of TB treatment due to unanticipated stock-outs.

Despite some erratic supplies resulting from expired drugs being distributed from the Central Medical Stores (CMS), not one of the TB treatment facilities reported any stock out of TB drugs during 2012.

Ordering and distribution of TB medicines has been centralised and integrated to the Ministry of Health (MOH) system and is now fully coordinated by the Central Medical Stores. A dedicated pharmacist for the management of TB medicines and supplies has been appointed at the CMS. In terms of changes in the formulary, Streptomycin is being phased out and is no longer prescribed for new patients.

2.8 Data Management And Reporting

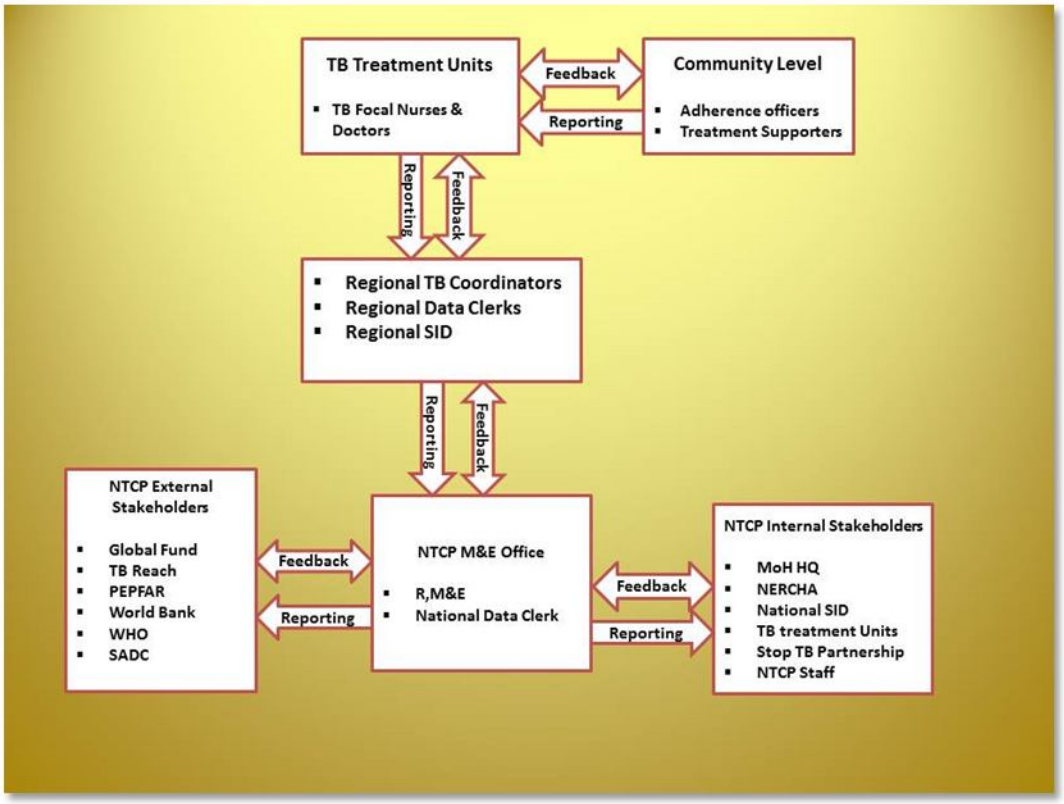
2.8.1 Data Collection, Mining, Reporting And Source Documents

The NTCP M&E System is a largely paper-based manual system from facility to regional and program level that provides summary aggregate patient data. DR-TB data are in electronic form and nominal. In 2012, the M&E unit at the TB program continued to track progress of program implementation results and impact. The M&E unit provided management with information for developing strong systems and procedures that ensure on-going institutional adjustment of programme inputs to achieve key results. The M&E unit also provided information on key program

Indicators. Data sources include TB registers, DR-TB registers, patient cards, lab registers, and summary DOTS reports.

2.8.2 Information Flow And Feedback Mechanism

Figure 8: Information Flow And Feedback Mechanism



2.8.3 Information Products, Timelines And Target Audiences

Different information products were generated from routinely collected data to target different NTCP stakeholders. This annual report targets health managers and policy makers in the MOH. Other information products include: Progress Update and Disbursement Report (PUDR) for the Global Fund to Fight HIV/AIDS, Tuberculosis and Malaria (GFATM) and the TB Epidemiology reports provided quarterly to clinicians and public health professionals.

2.8.4 Data Utilisation

Uses of quarterly review meetings (QRM) to share best practices, lessons learnt and develop quality improvement projects at facility and regional level has led to improvement in patient treatment outcomes.

2.9 Research And Development

In 2012 the TB program published the study "Reducing TB diagnostic delays in Swaziland", which was conducted with technical and financial support from the Centres for Disease Control and Prevention (CDC) through URC. The study revealed that despite the gains made in TB control, particularly in early treatment initiation, there are still structural barriers to diagnosis as a result of continued low turnaround time for TB diagnosis results and inconsistencies with the sample transportation system. It also underscored the role of men in influencing positive health seeking behavior, as married women were reported to have sought their husbands' permission before seeking medical attention. This implies the need for increased sensitization campaigns targeting men.

Additional research papers were presented by the NTCP at the National Health Research Conference in November 2012, including:

- A study on Quantitative and Qualitative Analysis of Ambulatory Care for MDR-TB in Swaziland: Clinical Outcomes and Patient Experience, which highlighted that there were no significant differences in clinical

outcomes of patients managed under ambulatory care in the comfort of their families and those that are managed at facilities.

- A paper on the Impact of GeneXpert rapid tests on TB Case finding in Swaziland, which highlighted the contributions of GeneXpert technology in reducing the number of smear negative TB cases being enrolled on TB treatment and the number of Smear Not Done cases while detecting rifampicin resistance on the spot thus reducing the proportion of non-converters at 2 to 3 months after treatment enrolment.

- Another paper presented by the NRL was on the processes, lessons learnt and challenges experienced in rolling-out GeneXpert in Swaziland, which highlighted effective collaboration between partners in supporting the procurement and subsequent maintenance of the GeneXpert machines.

- Two additional papers were presented by the regions on successful scaling up of TB/HIV services in health facilities and the role of partnerships in implementing TB/HIV collaborative activities in Shiselweni region. Both the papers highlighted the achievements of the NTCP in increasing coverage of TB/HIV services and bringing the services closer to the people.

CHAPTER 3: PROGRAMME SERVICES AND OUTCOMES

3.1 Coverage Of TB Services

TB services are generally evenly spread across all four regions of the country and many of the facilities that provide curative services also provide some form of TB care. The Shiselweni region has the highest number of sites that initiate and treat TB and Lubombo region has the fewest.

Table 4: Facilities That Are Providing TB Treatment Initiation Services By Ownership 2012

Region	Public	Private	NGO	Mission	Industry	TOTAL
Hhohho	12	2	2	1	0	**17**
Manzini	8	5	2	4	0	**19**
Lubombo	5	0	0	3	3	**11**
Shiselweni	20	1	2	3	0	**26**
TOTAL	**45**	**8**	**6**	**11**	**3**	**73**

The table above shows the number of facilities that are offering TB treatment initiation services by region and ownership. Worth noting is that the decentralization policy of the NTCP expanded the provision of TB services, particularly in Lubombo region. Compared to 2011 where only seven facilities were providing TB treatment in Lubombo, the number increased to 11 in 2012 and more are expected to be accredited in subsequent years. Generally with the exception of Shiselweni, which already had the most TB facilities, all the regions decentralized their services further in 2012 with the greatest increases taking place in Hhohho from 12 facilities in 2011 to 17 facilities in 2012 and in Manzini from 14 facilities in 2011 to 19 facilities in 2012.

As expected, the majority of facilities are government-owned, but an increasing number of private practitioners are taking interest in TB control. A total of eight private facilities notified TB cases in 2012.

3.2 TB Screening And Diagnosis

TB screening is conducted in over 130 health facilities in Swaziland including ART sites. The goal of the program is to extend TB screening services to all departments in health facilities including diabetes clinics, ART clinics, outpatient departments, antenatal clinics and prison clinics. In 2012, the NTCP decentralized its screening services to the prison clinics as well as selected PHUs, outpatient departments and ART clinics through the deployment of TB screening officers who do TB screening, triaging, sample collection and follow-up for treatment initiation.

The TB program utilises a standard screening tool, which asks questions on major symptoms including cough of any duration, fever, night sweats and weight loss. If a patient answers yes to any of these, they are suspected for TB and investigated. TB diagnosis is mainly bacteriological through the sputum smear microscopy, culture, GeneXpert, LPA and other molecular tests. Other non-bacteriological methods are also acceptable for TB diagnosis including clinical symptoms staging by the medical officer and X-ray diagnosis for cases where sputum cannot be obtained from patients, but these are not generally encouraged under the current strategic plan.

The national TB control program started implementing an active case finding strategy in 2009 and has been proactively screening patients for TB since that time. Support from GFATM in 2010 to recruit cough officers for TB strengthened this initiative and contributed to a dramatic increase in number of screenings conducted that year. With support from other development partners like the WHO, additional cough officers were recruited to expand coverage of facilities and further increase the number of TB screenings conducted in 2012 as seen in table 6.

Table 5: Trends In TB Screenings 2010-2012

Year and Location		Total Screened	Total Positive	Total Diagnosed cases	Total Treated
Hhohho	2010	27 564	4 425	429	358
	2011	63 335	5 145	424	403
	2012	87 192	5 009	499	382
Lubombo	2010	470	1 710	101	90
	2011	17 279	2 309	156	114
	2012	37 083	1 978	191	149
Manzini	2010	0	1 108	147	124
	2011	78 370	5 564	334	299
	2012	118 026	8 223	862	792
Shiselweni	2010	1 600	1 859	134	75
	2011	16 803	861	103	91
	2012	52 310	930	119	105
TOTAL	2010	29 634	9 102	811	647
	2011	175 787	13 879	1 017	907
	2012	294 611	16 140	1 671	1 428

This table shows how active TB case finding has contributed to the timely finding of TB cases and subsequent TB treatment enrolment. Of note is that since the inception of a project supported by the Canadian International Development Agency (CIDA) in late 2009 and later by TBREACH in early 2012, the numbers of TB screenings conducted have increased six fold and the proportion of those screened positive has also increased. This can be attributed to the high sensitivity of the TB screening tool, which ensured that suspects are detected and investigated as early as possible.

A total of 3499 additional cases have been detected through active TB case finding over the last three years and all of these patients were put on treatment. However due to poor updating of registers, the data reflect a 15% deficiency. To resolve these data quality issues and improve reporting, the TB control program initiated quarterly data review meetings with screening officers in 2012.

3.3 Childhood TB Diagnosis And Treatment

TB is a disease closely associated with the underprivileged and marginalised in society. According to the WHO HIV policy, women, children, people living with HIV (PLHIV) and prisoners are amongst those most affected by TB. Countries are encouraged to monitor the TB burden among these groups in order to tailor and promote services accordingly. The national TB strategy 2010-2014 does not provide detailed strategies to counter TB in children though it highlights the importance of an age and sex specific response to the epidemic. Clear guidance on addressing TB in children is provided in the new TB guidelines revised in 2011. More precisely, these guidelines detail the need for paediatric TB regimens that ensure children infected with TB are cured with minimal side effects.

Table 6: Childhood TB Burden And HIV Testing 2012

Type of TB	Age Group	HIV Testing			# On CPT	# On ART
		# With TB	# Tested for HIV	# HIV +		
New Sputum Smear Positive (SS+)	0-4 years	6	4	3	3	3
	5-14 years	51	47	22	22	18
New Sputum Smear Negative (SS-)	0-4 years	41	38	19	17	14
	5-14 years	112	101	72	70	49
Extra pulmonary TB (ETB)	0-4 years	25	22	11	11	8
	5-14 years	42	39	21	19	14
Smear not done (SND)	0-4 years	351	296	142	129	79
	5-14 years	153	145	97	94	55
Other	0-4 years	11	10	9	9	4
	5-14 years	33	29	25	25	18
TOTAL		**825**	**731**	**421**	**399**	**191**
%		**11%**	**89%**	**58%**	**95%**	**45%**

The table above shows the number of TB patients who were less than 15 years of age. As a package of care, all TB patients are offered HIV testing including those below age 15 and in 2012 about 89% of diagnosed childhood TB patients were tested for HIV. From those tested, about 58% were found to HIV positive giving a childhood TB/HIV coinfection rate of 58 per cent. Cotrimoxazole Preventive therapy (CPT) enrolment for all the HIV positive patients was 95% while ART uptake was 45 per cent.

About half of all childhood TB cases in 2012 were children under 5 years and the majority were smear not done, which has always been a challenge for the management of childhood TB. This proportion is expected to decline as new methods of collecting samples including gastric lavage from children become widely practiced in facilities.

3.4 Case Detection Of TB: All Forms

Table 7: TB Notification By Type 2012

Region	New SS+	New SS-	ETB	New SND	Other	Total
Hhohho	543	473	281	404	285	1 986
Lubombo	416	154	333	262	179	1 344
Manzini	1 209	506	509	619	308	3 151
Shiselweni	389	407	213	153	98	1 260
TOTAL	**2 557**	**1 540**	**1 336**	**1 438**	**870**	**7 741**

This table presents the number of TB cases that were diagnosed with various types of TB in 2012. Compared to 2011 where TB cases notified were 9 180, notifications declined to 7 741 in 2012 further fuelling the prospects that Swaziland TB burden in declining. Bacteriologically confirmed TB cases including those diagnosed through GeneXpert and those diagnosed through smear microscopy accounted for 33 per cent of all the cases notified. The rest were proportionally shared between smear negatives (20%), smears not done (19%), extra pulmonary cases (17%) and other cases (11%). Included in this table are people who diagnosed with TB and recurrent TB episodes after previously being treated for TB.

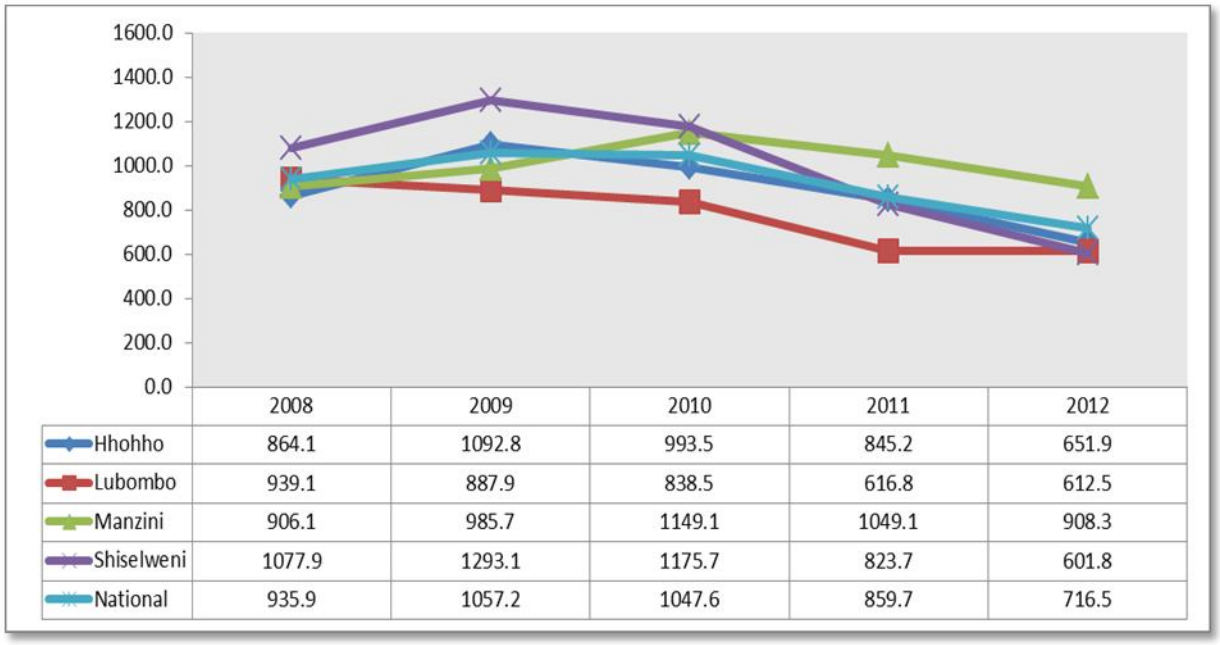
3.4.1 TB Case Notification Rate: All Forms

Table 8: TB Notification Trends: All Forms

Region	2008	2009	2010	2011	2012
Hhohho	2 483	3 186	2 939	2 537	1 986
Lubombo	1 975	1 887	1 801	1 339	1 344
Manzini	2 949	3 259	3 860	3 581	3 151
Shiselweni	2 249	2 700	2 457	1 723	1 260
TOTAL	**9 656**	**11 032**	**11 057**	**9 180**	**7 741**

Index TB cases have been declining since 2010 when the number stabilised and started to decline thereafter. These declines are noted from all the regions and they started at about the same year except for Lubombo which started in 2009 as seen in the above table.

Figure 9: Trends In TB Case Notification Rates: All Forms



The graph presented above portrays the TB notification trends for all forms of TB from 2008 to 2012. While the estimated TB incidence by WHO has been increasing from 1 198 per 100 000 in 2010 to 1 380 in 2012, actual notification rates for Swaziland have steadily declined from 1 057 in 2009 to 717 cases in 2012. This discrepancy reflects the acknowledged deficiencies of the WHO estimates and the growing demand for country specific TB surveys to determine the TB burden based on population level data. Swaziland is increasingly compelled to plan one in order to explain the falling notifications.

Table 9: TB Case Notification Trends: New Cases

Region	2010	2011	2012
Hhohho	2 561	2 160	1 701
Lubombo	1 509	1 138	1 165
Manzini	3 430	3 179	2 843
Shiselweni	2 117	1 554	1 162
TOTAL	**9 617**	**8 031**	**6 871**

Assessing notification rates for new TB cases over the last three years, reveals that there have been corresponding declines all forms of TB and all regions as seen in table 11.

3.4.2 TB Case Notification Rate: New And Relapse Cases

Table 10: TB Case Notification Trends: New And Relapse TB Cases

Region	2010		2011		2012	
	New	Relapses	New	Relapses	New	Relapses
Hhohho	2561	97	2160	97	1698	86
Lubombo	1509	75	1138	57	1165	49
Manzini	3430	141	3179	109	2843	138
Shiselweni	2117	82	1554	43	1162	24
TOTAL	9617	395	6496	306	6868	297

The table above describes TB notification trends for new and relapse TB cases from 2010 to 2012 by region. In line with the declining total notifications, both new and relapse cases have been decreasing. This points to a maturing TB epidemic in Swaziland and again emphasises the need for a prevalence survey to adequately determine the burden of TB in the country.

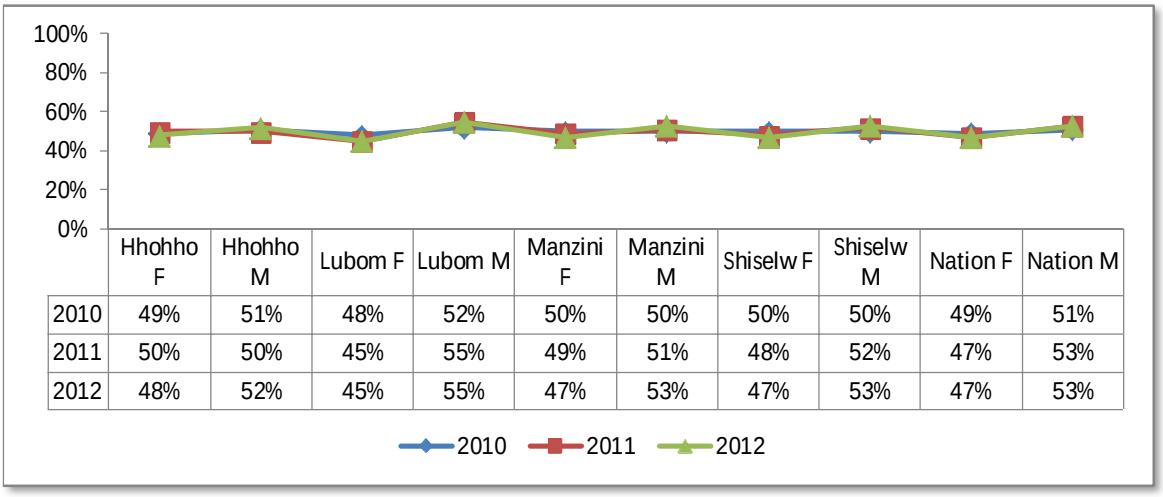
3.4.3 TB Burden By Sex

Table 11: Burden Of TB Among Males And Females: Trends

Region			2010	2011	2012
Hhohho		Female	1430	1 281	956
		Male	1509	1 256	1 028
Lubombo		Female	872	597	609
		Male	929	742	735
Manzini		Female	1 929	1759	1 494
		Male	1 931	1 822	1 657
Shiselweni		Female	1 236	822	594
		Male	1 221	901	666
TOTAL		Female	5 467	4 459	3 653
		Male	5 590	4 721	4 086

The proportion of males to females who are diagnosed with TB each year remains steady as seen on table 12 above. Over the years, TB diagnosis between males and females remained at par with no significant variations. This is also true for regional disaggregation as seen in the figure below.

Figure 10: Trends In TB Burden By Sex



	Hhohho F	Hhohho M	Lubom F	Lubom M	Manzini F	Manzini M	Shiselw F	Shiselw M	Nation F	Nation M
2010	49%	51%	48%	52%	50%	50%	50%	50%	49%	51%
2011	50%	50%	45%	55%	49%	51%	48%	52%	47%	53%
2012	48%	52%	45%	55%	47%	53%	47%	53%	47%	53%

3.5 Addressing The Co-Epidemics Of TB And HIV

People living with HIV who are also infected with TB are about 21–34 times more likely to develop TB disease compared with those who are HIV-negative. Starting in the 1980s, the HIV epidemic led to a major upsurge in TB cases and TB mortality in many countries that persisted throughout the 1990s and up to around 2004, especially in southern and east Africa. The TB burden in Swaziland is largely worsened by the high prevalence of HIV among TB patients which affects TB patient outcomes. Evidence has shown that majority of TB deaths are occurring to patients who are co-infected with HIV hence the WHO recommendation to start all co-infected patients on ART immediately once diagnosed with TB irrespective of CD4 count, so as to increase their survival rates and reduce TB deaths.

Table 12: TB/HIV Co-Infection, CPT And ART Uptake

Region	# HIV Tested			# Testing HIV +			# on CPT			# on ART		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Hhohho	960	914	1 874	682	731	1413	667	714	1 381	427	478	905
Lubombo	696	580	1 276	521	452	973	501	437	938	331	313	644
Manzini	1 577	1 463	3 040	1 203	1 207	2 410	1 181	1 193	2 374	745	811	1 556
Shiselweni	619	554	1 173	436	434	870	459	407	866	323	334	657
Total	**3 582**	**3 511**	**7 093**	**2 842**	**2 824**	**5 666**	**2 808**	**2 751**	**5 559**	**1 826**	**1 936**	**3 762**
%	**51%**	**49%**	**92 %**	**50%**	**50%**	**80%**	**51%**	**49%**	**98%**	**49%**	**51%**	**66%**

This table shows the TB/HIV collaborative activities against the total number of TB patients who tested for HIV including those who came with a known HIV status. About 92% of all patients diagnosed with TB in 2012 were tested for HIV and amongst these, 80% were HIV positive, 98% of those patients were started on CPT while 66% were enrolled on ART.

3.6 Sputum Smear Conversion

The national guidelines for TB treatment stipulates that follow-up of patients already on treatment should be done at least at month two, three, five and end of treatment through sputum microscopy. In accordance with these guidelines the TB program monitors progress of TB patients once started on treatment and documents this for future programmatic interventions and corrective actions when needed.

Table 13: Sputum Smear Conversion For TB Patients On Treatment

Sputum Smear Conversion	Total Registered Cases	Smear not done At 2/3 Months	Sputum Conversion		Not Converted at 2/3 Months	Died Before Conversion	Transferred out Before Conversion
			2 Months	3 Months			
# Of New Smear Positive Cases	2 414	457	1 189	342	269	119	38
# Of Re-treatment Smear Positive Cases	351	65	120	54	71	33	12
Total	**2 765**	**522**	**1 309**	**396**	**340**	**152**	**50**
%		**19%**	**47%**	**14%**	**12%**	**5%**	**2%**

Follow-up of TB patients at two months and three months is a critical step in TB control particularly because it allows for the assessment of treatment efficacy through determining sputum conversion. When TB medicines are fully effective to treat the strain in the patient, the sputum is expected to convert at either two or three months from date of treatment initiation. Failure to convert is a high proxy for DR-TB and hence samples must be taken for culture and DST. Table 14 shows that about 63% of the registered new smear positive TB patients converted at either two or three months, whereas 19% did not have sputum tests. This is a concern for TB control as not knowing whether the patients are converting or not could lead to undetected DR-TB and subsequent loss of life and further transmission due to delayed diagnosis. In addition, about 11% of the patients failed to convert at either two or three months and thus were suspected for DR-TB. TB deaths before conversion accounted for about 5% of the registered cases which although at the global threshold of 5%, is too high in absolute numbers. As expected the performance with regards to conversion among retreatments was poor approximately 20% failing to convert aft two or three months of treatment.

Table 14: Sputum Smear Conversion Rates

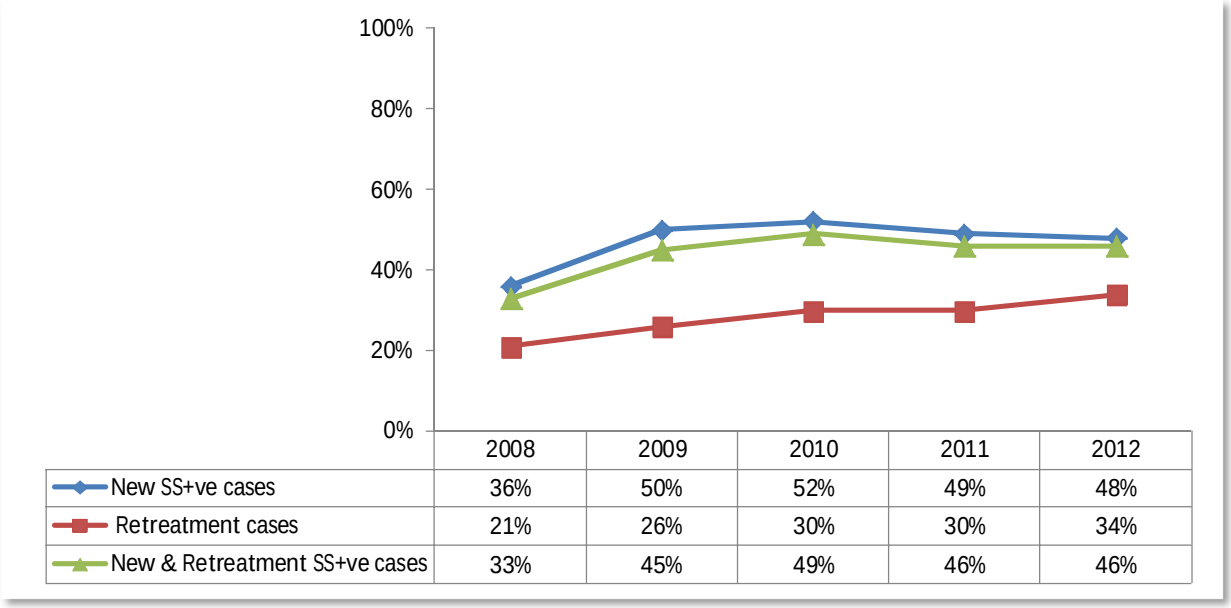
Sputum Conversion Rates	Region				Overall
	Hhohho	Lubombo	Manzini	Shiselweni	
Converted few cases	73%	57%	59%	69%	**65%**
New SND	10%	21%	24%	14%	**17%**
New failure to convert cases	9%	16%	10%	12%	**12%**
Died few cases	6%	4%	4%	5%	**5%**
Converted retreatment cases	54%	34%	50%	56%	**49%**
SND retreatment cases	12%	28%	19%	20%	**20%**
Retreatment failure to convert cases	22%	22%	20%	5%	**17%**
Died retreatment cases	10%	8%	11%	5%	**9%**

Table 15 shows the conversion rates by regions in 2012 and reveals that there were significant differences between regions with regards to this indicator. The proportion of new cases that converted was higher in Hhohho compared to the rest of the regions while the proportion of SND was higher in Manzini compared to the rest of the regions. The conversion among retreatment TB cases was almost the same in all regions except for Lubombo which recorded 34% compared to the average 53% in the rest of the regions. Shiselweni region performed best with regards to retreatment failures and deaths registering 5% in both categories compared to average 21% and 9% for both categories in the rest of the regions.

3.7 Treatment Outcomes

The aim of the TB program is to achieve 100% favourable outcomes for all patients initiated on TB treatment. Whenever possible, the aspiration of the national TB strategy is to cure patients of TB while ensuring that all patients finish their course of treatment. Accordingly, the goal is to achieve and surpass the long awaited 85% treatment success rate for TB.

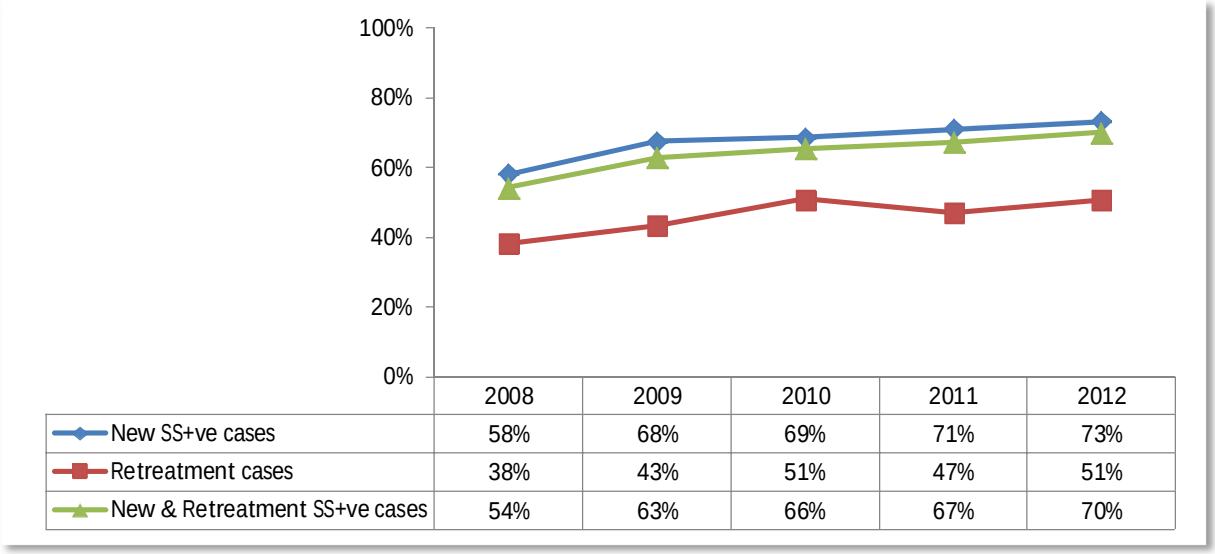
Figure 11: Trends In TB Cure Rates



	2008	2009	2010	2011	2012
New SS+ve cases	36%	50%	52%	49%	48%
Retreatment cases	21%	26%	30%	30%	34%
New & Retreatment SS+ve cases	33%	45%	49%	46%	46%

Cure rates for new smear positive TB has been constant over the last four years with slight decreases between 2010 and 2012. However, the cure rates for retreatment TB cases have improved in recent years, from 33% in 2008 to 46% in 2012. These rates are below the program target of 60% cure rates and hence the need to continue emphasis on the cascade of services for TB control including follow-up sputum at 2 or 3 months and again at 5 months.

Figure 12: Trends In TB Treatment Success Rate, 2008-2012



	2008	2009	2010	2011	2012
New SS+ve cases	58%	68%	69%	71%	73%
Retreatment cases	38%	43%	51%	47%	51%
New & Retreatment SS+ve cases	54%	63%	66%	67%	70%

Although the global goal for TB treatment success increased from 85% to 87% after the favorable Global Stop TB Review of 2010, Swaziland retains the target of attaining 85% treatment success. The national treatment success rate has improved from 58% in 2008 to 73% in 2012 among new smear positive TB cases and an increase among retreatment cases has also been documented. The overall treatment success rate for both new and retreatment TB cases currently sits at 70% which is a huge milestone from the 54% recorded in 2008.

3.7.1 Unfavourable TB Outcomes

The TB control program actively tracks the performance of the response with respect to undesirable outcomes as well. Undesirable outcomes that have a bearing on the performance of TB programs include the TB death rate, treatment failure rate, defaulter rate and not evaluated. An increase in the defaulter rate signifies that the systems for DOTS and patient follow-up are weak and thereby prone to increasing drug resistance. Similarly, the increase of failure cases is a high proxy for initial DR-TB patients which is a cause for concern in the TB settings.

Table 15: Unfavorable TB Treatment Outcomes

TB Outcomes	2008		2009		2010		2011		2012	
	#	%	#	%	#	%	#	%	#	%
Died New SS+	188	7%	313	10%	349	10%	317	10%	206	8%
Defaulted New SS+	329	11%	250	8%	245	7%	166	5%	130	5%
Transferred out New SS+	300	10%	81	3%	70	2%	65	2%	75	3%
Treatment failures New SS+	174	6%	236	7%	240	7%	259	8%	203	8%
Died Retreatment cases	156	12%	212	15%	256	17%	267	18%	198	17%
Defaulted Retreatment cases	151	12%	127	9%	149	10%	102	7%	81	7%
Failure Retreatment cases	97	7%	150	11%	133	9%	160	11%	115	10%
Transferred Out Retreatment	133	10%	53	4%	57	4%	77	5%	35	3%

After three years steady at 10%, TB Death rates began to show a decline to 8% with the 2011 cohort in the year 2012. The death rates represent the proportion of smear positive TB patients dying before finishing TB treatment, which should be at less than 5% by global standards. Similarly, the proportion of patients lost to follow-up should remain below 5% according to global standards. The Swaziland rate has remained at 5% for the last two years, after showing a remarkable decline from 11% in 2008. This achievement is largely due to the program's well-structured patient tracing mechanism. The efforts of Adherence Officers and Treatment Supporters, who promote treatment adherence and conduct timely tracing of patients, are evidently making gains. Equally important is the 'transferred out' rate, which has also declined to about 3% in 2012 from 10% in 2008. This can be attributed to the efforts of TB nurses who follow-up on the transferred patients to ensure up to date records and accurate reporting.

Despite these gains, the high treatment failure rate for both new and retreatment cases remains a major challenge for TB control in Swaziland. In the last three years, failure rates among retreatment cases have ranged between 10-11%, which is very high compared to the recommended 5% or below. Similarly, the rates of failures among new cases ranged between 7-8% over the last three years. The results of the last Drug Resistant Survey conducted in 2009 in Swaziland revealed that resistance levels are very high among retreatment cases at 33.9% while for new cases the resistance is 7.3%. This raises high suspicion that the failures among new and retreatment cases are in fact drug resistant case. It is anticipated that widespread coverage of the GeneXpert technology will help to detect resistance earlier and will reduce the treatment failure rate.

3.7.2 Drug Resistant TB Management

The management of Drug resistant TB cases remains a priority for the national TB control program. Though the M&E system around DR-TB is still weak lacking in standard reporting formats and the ownership by facilities, the NTCP has kept a close monitoring of laboratory confirmed drug resistant TB cases including multi-drug resistant TB (MDR-TB) cases and extra-drug resistant (XDR-TB) cases. The main indicators tracked by the TB M&E Plan for drug resistant TB are MDR-TB confirmed cases, MDR-TB cases enrolled on treatment, MDR-TB patients supervised by trained treatment supporters and the Treatment Success for MDR-TB patients.

Table 16: DR TB Case Finding 2012

	Period				
	Jan-Mar/12	Apr-Jun/12	Jul-Sep/12	Oct-Dec/12	Total
Presumptive DR TB Cases	788	605	590	454	2 437
Culture Positive Cases	287	248	222	189	946
Confirmed MDR-TB cases	80	65	40	35	220
Rifampicin Resistant Only Cases	6	1	1	1	9
Confirmed XDR-TB cases	0	2	0	0	2

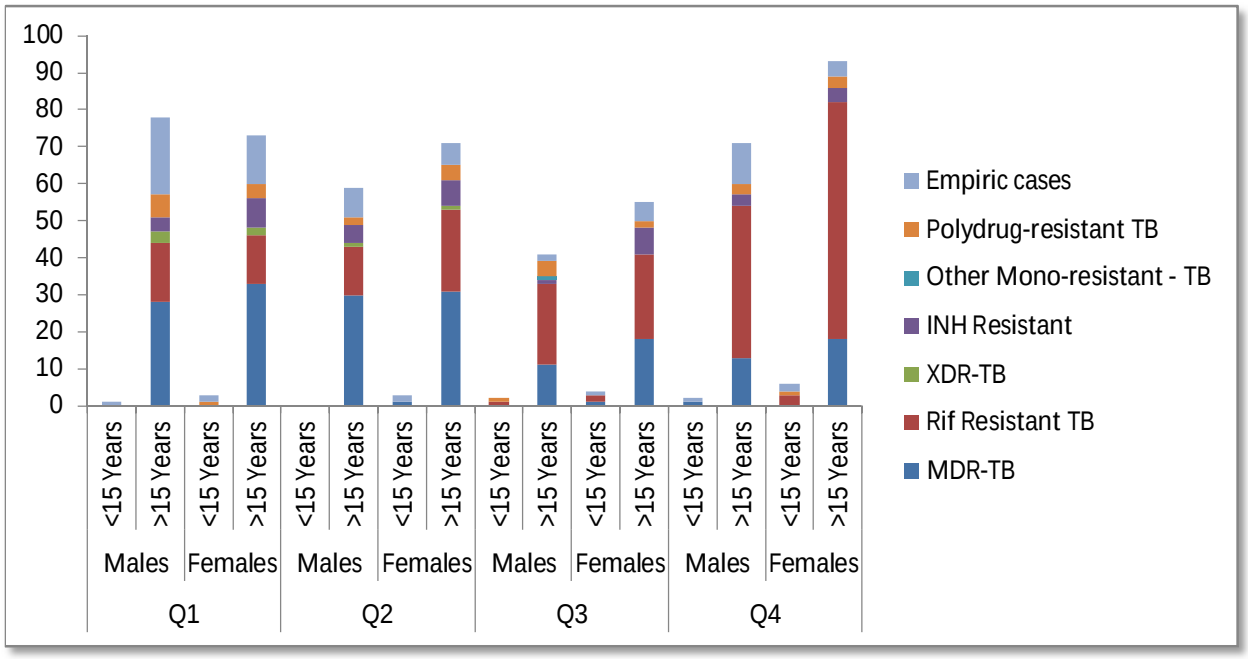
DR-TB case finding is reported mainly from the NRL. In 2012 the laboratory reported receiving and processing 2 437 samples collected from DR-TB suspects in health facilities across the country. About 39% of these samples were found to be culture positive. Of these, 23% were confirmed MDR-TB cases. Analysis of the quarterly statistics reveals that the numbers of presumptive DR-TB cases were declining each quarter along with the confirmed MDR-TB cases. The total Rifampicin resistant TB cases reported by the laboratory exclude those detected with GeneXpert as they are subjected to further tests (i.e., Mgit, and LPA) to determine resistance to other drugs prior to being recorded as a final DR-TB diagnosis.

Table 17: Dr-Tb Treatment Enrolment 2012

DR-TB Categories	Period				TOTAL
	Jan-Mar/12	Apr-Jun/12	Jul-Sep/12	Oct-Dec/12	
MDR-TB initiated on treatment	61	62	30	32	185
Rifampicin resistant only initiated on treatment	29	35	48	108	220
XDR-TB initiated on treatment	5	2	0	0	7
INH resistant only initiated on treatment	12	12	8	7	39
Other monoresistant -TB	0	0	1	0	1
Poly-drug resistant TB initiated on treatment	11	6	7	7	31
Empirical patients started on treatment	37	16	8	18	79
Total DR-TB cases initiated on treatment	155	133	102	172	562

About 562 drug resistant TB patients were initiated on treatment in 2012 in the seven facilities currently managing these TB strains countrywide. The majority of the cases enrolled in 2012 were Rifampicin resistant only, which an expected trend is given the rapid rollout of the GeneXpert tests in 2012 to more than 16 laboratories countrywide. The new DR-TB guidelines calls for immediate initiation on category IV regimen for all cases detected through GeneXpert and found to be Rifampicin resistant; hence, the increase in initiation of patients under this category in 2012. The total of MDR-TB cases enrolled on treatment also improved. Whereas there continues to some discrepancy between cases detected and those started on treatment, the gaps are significantly decreased with the implementation of the GeneXpert and use of the other molecular tests. Although the new guidelines allow for initiation of DR-TB suspects on category IV regimen as empirical cases such is to be done in limited cases and with extra precautions to avoid starting patients on treatment without proper diagnosis. All empirical patients are expected to be taken samples for culture and DST within the first month of treatment in order to reclassify them according to their resistant pattern once results are known. This explains the noted declines in empirical cases being started on treatment over the four quarters of 2012 as seen in the table.

Figure 13: Drug Resistant TB Treatment Enrolment By Age And Sex 2012



Tuberculosis has long been declared a disease of the disadvantaged and marginalised in society. Women and children have been found to be among the most vulnerable to the disease. In 2012 a majority of the enrolment for DR-TB were women. Though fewer in number, cases of childhood DR-TB were also diagnosed and started on treatment. There were no significant differences however, with regard to the DR-TB categories for which men and women were being initiated for as seen in figure 5 above.

3.7.3 Multi-Drug Resistant TB Final Treatment Outcomes

Table 18: Final Treatment Outcomes For The Cohort Of MDR-TB Patients Started On Treatment In 2009

Outcome		Treatment Outcomes								
		Total Registered Patients	Cured	Completed Treatment	Failed treatment	Defaulted treatment	Died	T/Out	Still on treatment	Total Evaluated
New Patients		0	0	0	0	0	0	0	0	0
Previously Treated with 1st line drugs		70	36	4	1	3	19	1	6	70
Previously treated with 1st and 2nd line drugs		0	0	0	0	0	0	0	0	0
Others		0	0	0	0	0	0	0	0	0
Total	**#**	**70**	**36**	**4**	**1**	**3**	**19**	**1**	**6**	**70**
	%	**100%**	**51%**	**6%**	**1%**	**4%**	**27%**	**1%**	**9%**	**100%**

Although more than half (57%) of MDR-TB cases registered during 2009 were successfully treated, this is far below the ideal. With 80% of TB patients coinfected with HIV, the management of comorbidities is a serious challenge to the health system. Moreover, systematic management of DR-TB was introduced only in 2010 after the first DR-TB survey results. The Programmatic Management of Drug Resistant TB (PMDT) plan for Swaziland, which has received approval from WHO and other partners, was finalized in 2012, but has yet to be implemented. It is anticipated that with improvements in diagnosis, management, coordination and follow-up for DR-TB, the treatment success rate will improve.

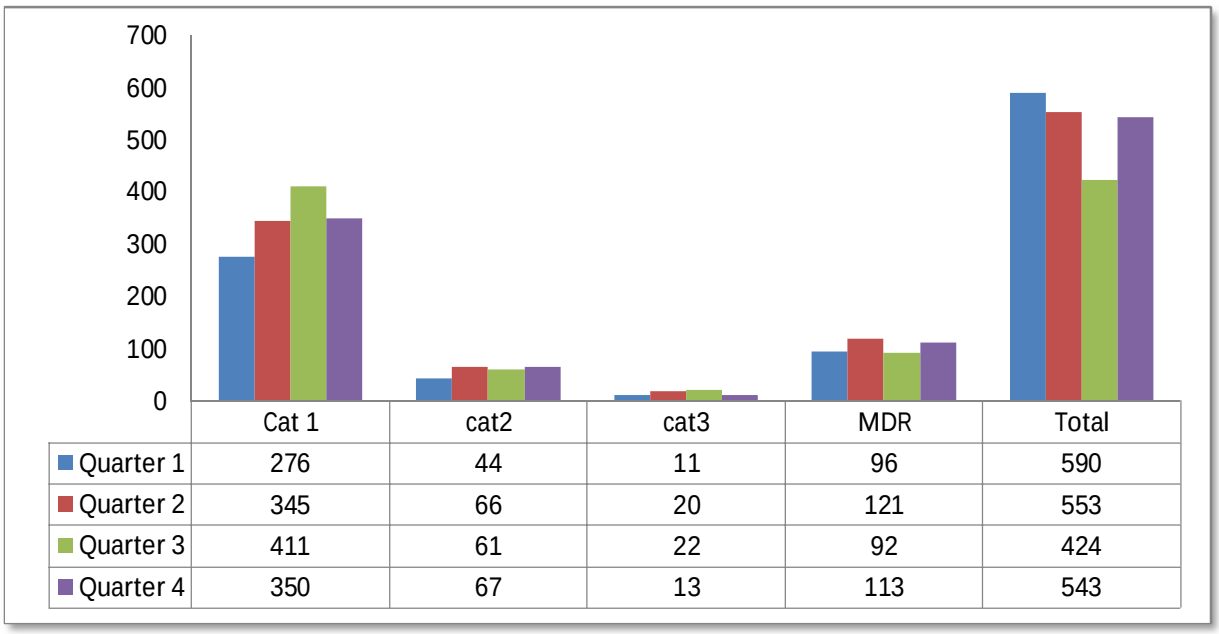
Of particular interest will be reducing the proportion of MDR-TB patients dying while on treatment (27%) and those who remain on treatment way past their expected treatment end dates. These are the areas already highlighted by the PMDT Plan and the revised DR-TB Guidelines 2012 edition.

3.8 Progress In Community DOTS

Treatment adherence is crucial to treatment success and to reducing the chances of drug resistance. Swaziland's DOTS initiative aims to support adherence. It is mainly community-based and coordinated through the office of the DOTS coordinator at NTCP. Community health workers involved in DOTS include Treatment Supporters, Adherence Officers, Cough Officers and TB Nurses in facilities. The major DOTS indicators tracked by the NTCP are proportion of TB patients that are supported by treatment supporters in specified periods, treatment success for TB patients under DOTS, and DR-TB patients supervised throughout treatment by trained treatment supporters.

The systematic tracking of patients on DOTS started late into the year with the guidance of the GFATM and local development partners. The results are that 95% of patients on treatment have treatment supporters and there is little difference across the regions.

Figure 14: Number Of Patients Supported By Trained Treatment Supporters By Patient Category, 2012



	Cat 1	cat2	cat3	MDR	Total
Quarter 1	276	44	11	96	590
Quarter 2	345	66	20	121	553
Quarter 3	411	61	22	92	424
Quarter 4	350	67	13	113	543

Training of treatment supporters is not limited to TB management but also goes in-depth on MDR-TB management, prevention and infection control as well as community health education. In 2012, patient support for most categories increased. For example during the first quarter, only 276 patients in category I were supported, but this increased to 411 by the third quarter. The support for MDR-TB patients increased from 96 patients in quarter one to about 113 patients during quarter four.

3.10 Private Public Mix Activities For TB

The provision of quality health services for TB relies on the full engagement of all role players and stakeholders in TB control. The national TB control strategy stipulates in accordance with the Global Plan to STOP-TB that patients and communities

must also be involved in controlling the epidemic while at the same time forging private public partnerships for TB control.

3.10.1 Commemoration Of The World TB Day 2012

World TB day was commemorated at Tikhuba in the Lubombo region. The event proved to be a success as thousands of Swazis converged at the Tikhuba inkhundla to show support on the day. The event was attended by people of all ages. The theme for the year was "stopping TB in my lifetime".

3.11 Resources And Financial Spending For TB Control

The latest Global Report on TB estimates indicates that funding for TB control has significantly declined in the last 10 years. In light of continued HIV prevalence and the latest WHO estimates, the GFATM will require in excess of 1.2 billion U.S. dollars to support TB scale up plans in countries by the end of 2013. This level of need calls for greater commitment and resource mobilization by governments and partners. This section provides a detailed analysis of Swaziland's budgetary allocation and spending patterns for TB control.

3.11.1 Government Contribution

The Swaziland government is strongly committed to reducing TB-related mortality and has invested in TB medicines and infrastructure, including equipment and human capital to ensure uninterrupted provision of TB services in the country. Table 21 below details the budget allocation for TB control in 2012.

Table 19: Government Budget Allocation For TB Control, 2012/13

Item Codes	Amount Released By Government 2011/12	Actual Amount Spent 2011/12	Amount Released By Government 2012/13	Actual Amount Spent 2012/13
002 – Central a Transport Administration (CTA) Charges	150 058	1,060,604	100,042	193,441
011 – Salaries	1 059 337	1,496,721	1,411,267	1,734,155
012 – Allowances	1 661 400	288,310	2,215,200	382,587
021 – Internal Travel (Claims)	27 226	13,630	36,309	65,834
022 – External Travel	144,000	-	312,000	69,607
023 – Transportation (Courier)	1,944	360	2,293	-
024 – Communication	144,443	119,479	144,443	121,181
034 – Drugs	12,590,704	6,187,674	5,170,704	1,193,279
041 – Professional Services	222,734	-	531,122	-
043 – Contract Repairs & Maintenance	3,106	-	4,149	-
044 – Printing	640,561	306,700	515,561	420,000
046 – Utilities (Water And Electricity)	10,684	50,415	130,684	116,814
061 – Food Supplies	3,888	-	5,187	-
062 – Cleaning Material	226,972	110,562	326,972	253,252
066 – Uniform	31,122	-	41,496	-
067 – Stationery And Office Supplies	517,613	355,242	743,486	358,018
069 – Miscellaneous	3,888	-	5,187	-
072 – Office Equipment & Machine	-	-		58,425
Total	14,246,315	9,989,696	11,696,102	4,966,592

Over the last two financial years (i.e., 2011/12 and 2012/13), the government committed over 25 million Emalangeni (SZL) to TB control. The majority of this money went to the purchase of TB drugs, both for susceptible and DR-TB. This commitment reflects the political will to ensure that there is no interruption of ongoing TB treatment or treatment initiation.

According to table 21, government contribution in the financial year 2011/12 totalled SZL 14 246 315 00 of which SZL 9 989 696 was spent by the TB program. About 50% of the utilized budget went to the procurement of TB drugs whilst 15% supported salaries and allowances. The remainder (35%) went to CTA charges (7%), cleaning materials (5%), and printing and office stationeries/supplies (5%), among others. In the 2012/13 financial year, government contributed SZL 11 696 102 of which SZL 4 966 592 was utilized by the TB program. Again, drugs constituted the bulk of the expenditure (44%). Salaries, allowances and claims constituted 19% of the expenditure whilst the rest went to CTA charges (2%), cleaning materials, printing, stationery and office furniture (9%) and other costs.

3.11.2 The GFATM Contribution

The TB program successfully applied for the Round 10 TB grant from the GFATM. In 2011 this award was consolidated with the Round 8 grant into the single stream funding (SSF). Collectively the SSF grant amounted to USD 40 million, the bulk of which was meant to be disbursed in the first three years of the grant (i.e., between October 2011 and September 2014). During the calendar year 2012, none of the disbursements were made which significantly crippled implementation of the TB Strategic Plan as over 70% of planned activities were based on GFATM funding. Nonetheless, staff salaries continued to receive GFATM support, including other major contractual agreements such as renting of office space for the program and selected regional meetings. A major and only disbursement that was approved by the GFATM in 2012 was the procurement of 2nd line drugs for MDR-TB patients, which are currently awaiting receipt.

3.11.3 Other Partners' Contributions

In the absence of disbursements from the GFATM, other partners came through for the TB Program and funded different activities in 2012. One of the prominent activities in 2012 was the rapid rollout of the GeneXpert technology, which was supported mainly by funding from the TBREACH grant, but also by additional procurements from MSF, FIND and URC. In addition, a number of capacity building and human resource development activities were conducted and financed by partners in 2012, including TB trainings for health care workers and recruitment of personnel to fill key positions. Partners have also collaborated in developing and improving the infrastructure in TB clinics across the country, which has led to improved infection control and reduced potential for transmission.

CHAPTER 4: CONCLUSIONS, CHALLENGES AND RECOMMENDATIONS

4.1 Conclusions

In 2012, the TB control program accomplished its set targets and implement planned activities in a timely manner. Success was evident both at programmatic and clinical level. The program realized improvements in all key TB indicators, including those identified and monitored through the TB M&E Plan. Functional and fruitful collaboration with partners at national, regional, facility and community level helped to ensure that implementation of planned activities was completed according to the set timeframe. Moving forward, the program will continue to accelerate efforts to accomplish its mandate, especially towards meeting global and national targets.

4.2 Challenges

A number of challenges were noted in the implementation of the TB Strategic Plan in 2012:

I. Inadequate program outputs - The failure by the GFATM to disburse monies in 2012 had far reaching effects in carrying out strategic activities. For instance, incentives for community-based organizations were not released, which led to reduced patient support services at community level thereby rendering low performance of the DOTS indicator.

II. Poor results turnaround time - The laboratory results turnaround time continued to be a challenge in 2012 as a result of inadequate maintenance of the sputum transportation system, including sub-standard communication between laboratory and facilities and the lack of availability of contingency and relief vehicles.

III. Inconsistent supply of TB drugs- Occasional stock outs of some second line TB medicines as a result of delays in the payment of suppliers and the previous arrangement which restricted 2nd line TB drugs to procurement with all other medicines. Similar delays in upfront payments for 1st line medicines also necessitated occasional shortages which were further aggravated by the continued use of TB medicines for ailments other than TB.

IV. Weak DR-TB Recording and Reporting- A major challenge in 2012 was the coordination of recording and reporting needs for DR-TB response as the services were being decentralized to other facilities beyond the national TB Hospital in Moneni while the guidelines themselves were being reviewed for adoption. The absence of a standard reporting tool for all facilities to report comparable data was a major challenge coupled with the non-existence of an Active DR-TB Surveillance database to ensure timely tracing of all confirmed cases.

4.3 Recommendations

I. Strengthen MDR-TB Recording & Reporting, surveillance and notification systems

II. Work with the central medical stores to improve and strengthen both 2nd line and 1st line drug supply chain management system

III. Strengthen research and evaluation activities; TB program review; TB prevalence studies; Clients satisfaction surveys

IV. Work with the National clinical laboratory services (NCLS) CS, the National Reference Laboratory (NRL) and facility labs to improve turnaround time for TB lab test results.

V. Strengthen ACSM interventions.

DEFINITIONS OF TB CASES

Definite case of TB: A patient with *Mycobacterium tuberculosis* complex identified from a clinical specimen, either by culture or by a newer method such as molecular line probe assays. In countries that lack laboratory capacity to routinely identify *Mycobacterium tuberculosis*, a pulmonary case with one or more initial sputum specimens positive for acid-fast bacilli (AFB) is also considered to be a "definite" case, provided that there is functional external quality assurance (EQA) with blind rechecking.

Case of TB: A definite case of TB (defined above) or one in which a health worker (clinician or other medical practitioner) has diagnosed TB and decided to treat the patient with a full course of TB treatment.

Case of pulmonary TB: A patient with TB disease involving the lung parenchyma.

Smear-positive pulmonary case of TB: A patient with one or more initial sputum smear examinations (direct smear microscopy) AFB-positive; or one sputum examination AFB+ and radiographic abnormalities consistent with active pulmonary TB as determined by a clinician. Smear-positive cases are the most infectious and thus of the highest priority from a public health perspective.

Smear-negative pulmonary case of TB: A patient with pulmonary TB not meeting the above criteria for smear-positive disease. Diagnostic criteria should include: at least two sputum smear examinations negative for AFB; radiographic abnormalities consistent with active pulmonary TB; no response to a course of broad-spectrum antibiotics (except in a patient for whom there is laboratory confirmation or strong clinical evidence of HIV infection); and a decision by a clinician to treat with a full course of anti-TB chemotherapy. A patient with positive culture but negative AFB sputum examinations is also a smear-negative case of pulmonary TB.

Extra pulmonary case of TB: A patient with TB of organs other than the lungs (e.g. pleura, lymph nodes, abdomen, genitourinary tract, skin, joints and bones, meninges). Diagnosis should be based on one culture-positive specimen, or histological or strong clinical evidence consistent with active extra pulmonary disease, followed by a decision by a clinician to treat with a full course of anti-TB chemotherapy. A patient in whom both pulmonary and extra pulmonary TB has been diagnosed should be classified as a pulmonary case.

New case of TB: A patient who has never had treatment for TB or who has taken anti-TB drugs for less than one month.

Retreatment case of TB: There are three types of retreatment case:

- A patient previously treated for TB, who is started on a retreatment regimen after previous treatment has failed (treatment after failure)
- A patient previously treated for TB who returns to treatment having previously defaulted
- A patient who was previously declared cured or treatment completed and is diagnosed with bacteriologically-positive (sputum smear or culture) TB (relapse).

Case of multidrug-resistant TB (MDR-TB): that is resistant to two first-line drugs: isoniazid and rifampicin. For patients Diagnosed with MDR-TB, WHO recommends treatment of at least 20 months with a regimen that includes second-line anti-TB drugs.

Table 20: Trends In TB Cases By Population, 2009-2012

Region	2009		2010		2011		2012	
	TB Cases	Pop	TB Cases	Pop	TB Cases	Pop	TB Cases	Pop
Hhohho	3 186	291 551	2 939	295 819	2 537	300 174	1 986	304 634
Lubombo	1 887	212 535	1 801	214 786	1 339	217 077	1 344	219 429
Manzini	3 259	330 617	3 860	335 913	3 581	341 339	3 151	346 896
Shiselweni	2 700	208 805	2 457	208 988	1 723	209 183	1 260	209 378
TOTAL	**11 032**	**1 043 508**	**11 057**	**1 055 506**	**9 180**	**1 067 773**	**7 741**	**1 080 337**