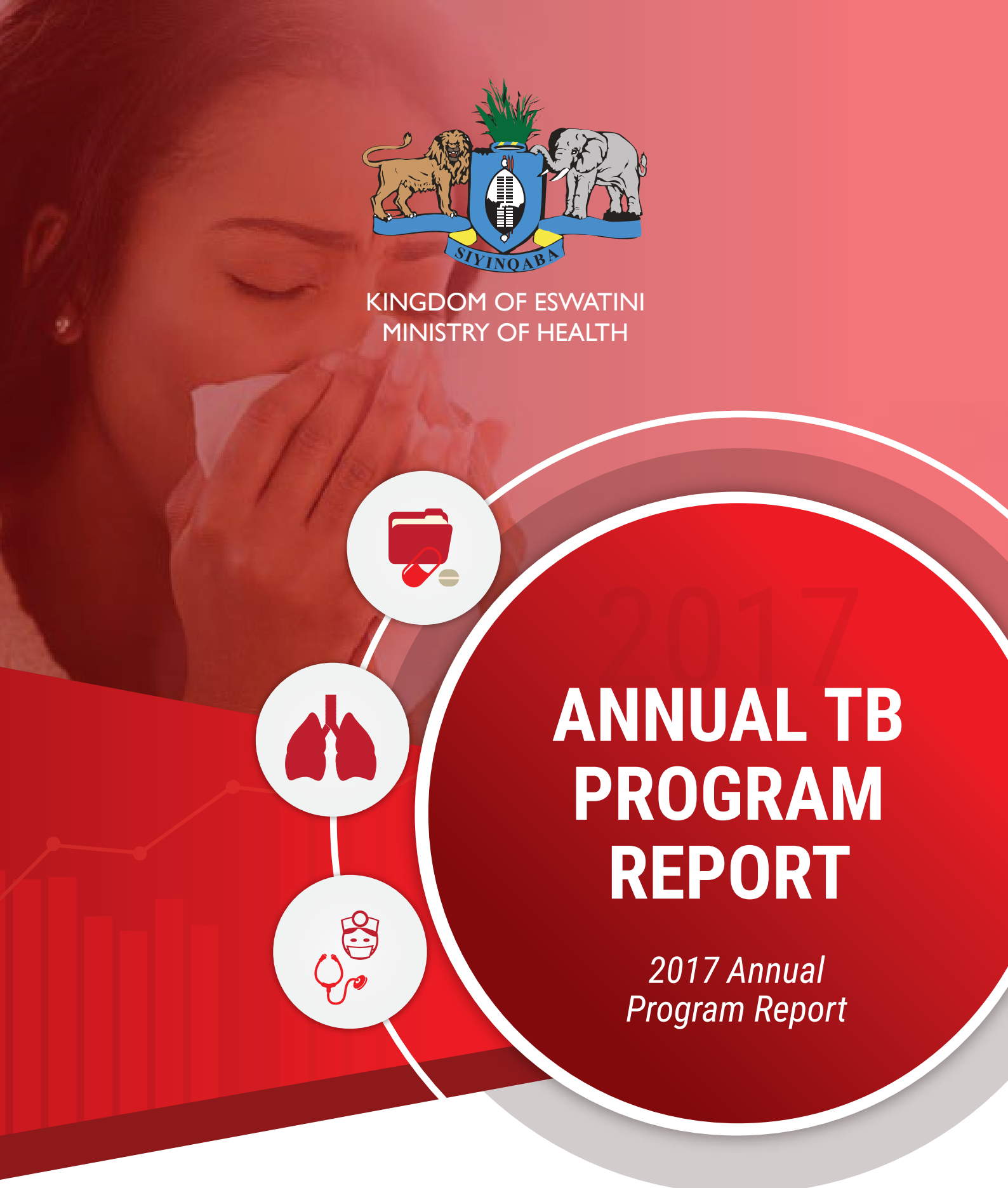

KINGDOM OF ESWATINI
MINISTRY OF HEALTH

2017

ANNUAL TB PROGRAM REPORT

2017 Annual Program Report

Monitoring and Evaluation Unit

Strategic Information Department

MONITORING AND EVALUATION

Acknowledgements

The primary aim of this report is to share information on progress made to control in Swaziland (2017). The successful completion of the NTCP 2017 Annual Report has been made possible by the joint efforts of dedicated NTCP staff both at National and Regional level. The successes of the program are a result of a close collaboration between the National TB program and its partners. Our appreciation goes to the M&E unit both at the national and regional level for their tirelessly efforts in producing high quality data used in this report. We also extend our heartfelt gratitude to the health workers at the regional and health facility levels who recorded and reported all data, which has been aggregated in this report. The program also appreciates IHM for both technical and financial assistance during the analysis and report writing period.

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Nonhlanhla Dlamini	PMDT Coordinator
Sisi Dube	Paediatric Focal Person
Nozipho Dlamini	Regional Information Officer

The report is based on the calendar year Jan 2017 - Dec 2017

CONTENTS

LIST OF FIGURES

LIST OF TABLES

Abbreviations and acronyms

ACF	Active Case Finding	**IPT**	Isoniazid Preventive Therapy
ACSM	Advocacy, Communication and Social Mobilization	**LPA**	Line Probe Assay
AFB	Acid-Fast Bacilli	**MDR-TB**	Multi-Drug Resistant TB
AIDS	Acquired Immuno-deficiency Syndrome	**MoH**	Ministry of Health
ANC	Ante natal clinic	**MTP**	Medium-Term Plan
ART	Anti-retroviral therapy	**MS**	Medical Stores
ARV	Anti-retroviral medicine	**MSF**	Medicins San Frontiers
CBNAAT	Catridge Based Nuclei Acid Amplification Test	**NERCHA**	National Emergency Response for HIV and AIDS
CBO	Community-Based Organization	**NGO**	Non-Governmental Organization
CDC	Centre for Disease Control and Prevention, Atlanta, USA	**NSP**	National Strategic Plan
CHAI	Clinton Health Access Initiative	**NTCP**	National TB Control Programme
CPT	Cotrimoxazole Preventive Therapy	**NTRL**	National TB Reference Laboratory
DOT	Directly Observed Treatment	**OPD**	Out Patient Department
DST	Drug Sensitivity Testing	**PHC**	Primary Health Care
EGPAF	Elizabeth Glasier Peadiatric AIDS Foundation	**PLHIV**	People Living With HIV
EQA	External Quality Assurance	**PSM**	Procurement and supply chain management
FDC	Fixed-Dose Combination	**PTB**	Pulmonary Tuberculosis
GDP	Gross Domestic Product	**QA**	Quality Assurance
GFATM	Global Fund to Fight AIDS, TB and Malaria	**SACU**	Southern African Customs Unit
HDI	Human Development Index	**SADC**	Southern African Development Community
HIV	Human Immuno-deficiency Virus	**SDGs**	Sustainable Development Goals
HF	Health Facility	**SHI**	Social Health Insurance
HPI	Human Poverty Index	**SNAP**	Swaziland National AIDS Control Programme
HR	Human Resources	**TB**	Tuberculosis
HRD	Human Resource Development	**TB/HIV**	HIV-related Tuberculosis
ICAP	International Center for AIDS Care and Treatment Programs	**URC**	University Research Co.,LLC
IHM	Institute of Health Meausrement	**URSA**	University Research Southern Africa
IOM	International Organization for Migration	**USAID**	United States Agency for International Development
		WHO	World Health Organization

Executive Summary

The Ministry of Health (MOH) through the National TB Control Program (NTCP) has made a great stride in controlling TB in Swaziland in the past years. The rising notification of TB cases in Swaziland has been halted through increased investments in TB control by the national government and partners.

Key interventions that the TB program has implemented in order to curb TB include among others, decentralization of TB services from 86 BMUs in 2013 to 125 BMUs in 2017, strengthening collaboration between the TB and HIV programmes through the National TB/HIV Coordination Committee (NCC), intensified case finding, strengthen contact tracing, expanding access to TB treatment and ensuring un-interrupted supply of quality-assured first and second line anti-TB drug.

According to the TB globally TB report (2017), the country's estimated TB incidence has decline from 565/100 000 population in 2016 to 398/100,000 population in 2017, TB-related mortality rate for HV- TB patients has dropped from 31/100,000 to 19/ 100,000 population and TB mortality rate among HIV+ TB patients has also decline from 91/100 000 population in 2016 to 84/100 000 population in 2017. In terms of TB case notification rate the country is at 295/100 000 population translating to 74% in case dectation rate.

Major milestones achieved since implementation of the TB National Strategic Plan (2015-2019), among DS-TB patients, a remarkable improvement in TB treatment success rate has been noted, increased from 73% in 2013 to 83% in 2017 though still below the 85% recommended target by WHO. A great progress has also been made in TB/HIV collaborative activities, HTS uptake has increased from 95% in 2014 to 99% in 2017, ART uptake increased from 79% in 2014 to 94% in 2017 and CPT uptake constantly doing exceptional well from 98% in 2014 to 99% in 2017. The government of Swaziland has also implemented numerous interventions to improve management of Drug resistant tuberculosis which includes but not limited to; roll out of Xpert MTB/RIF to improve DR-TB case detection, decentralization of Gene Xpert MTB/RIF testing capacity to peripheral laboratories, universal access of first-line and second-line Drug sensitivity testing (DST), introduction of first-line & second-line line probe assay (LPA), introduction of new TB drugs and shorter MDR-TB regimen and further decentralized DR-TB treatment services to 13 sites in 2017.

These efforts have been accompanied by a decline of DR-TB cases from 495 in 2014 to 318 in 2017 and a significant increase of DR-TB treatment success rate from 53% in 2013 to 71% for 2017.

However, despite the above-mentioned achievements, Swaziland is still experience some challenges with high death rate among TB patients and a drastic decline in childhood diagnoses. These challenges pose a threats to the achievements already made in TB control.

Key Performance Indicators

Thematic Area	Indicator	Baseline 2011	Target for 2017	2017 Achievement	Progress Status
Case detection	Case detection rate	Not available	70%	74%	✗
	Case notification rate	867/100,000	398/100 000	295/100,000	✓
DS-TB	% of TB patients initiated on ART	35%	90%	94%	✓
	Treatment success rate (All forms)	73%	90%	83%	●
	Treatment success rate (Co-infected patients)	72%	90%	82%	●
DR-TB	% of DR-TB patients initiated on ART	78% (2013)	90%	98%	✓
	Treatment success rate (All forms)	18% (2008 cohort)	90%	71% (2014 cohort)	●

Legend	
✗	Target off-track, requires action
●	Target on-track, likely to be achieved
✓	Target achieved.

CHAPTER 1

INTRODUCTION

1.1. Background

Swaziland, a monarch, landlocked country bordered in the **North, West and South** by the Republic of **South Africa** and by **Mozambique** in the **East**, has a land surface area of about 17,364 sq km (6,704 sq miles). The country is divided into four administrative regions: Hhohho, Lubombo, Manzini, and Shiselweni and further administratively subdivided into 55 Tinkhundla (constituencies) and 369 chiefdoms. The estimated population of the country is 1,093,238 people (2017 census). An estimated 78 % of the population lives in Rural Swaziland. The country is classified as a Low-Middle Income Country with an income per capita of $3,550 in 2014.

1.1.1. Development challenges

Real GDP growth declined to an estimated 1% in 2017, down from 1.3% in 2016. Sluggish growth was observed mainly in wholesale and retail trade, as well as financial services, where output was hindered by reduced government spending due to ongoing fiscal challenges. While the monetary stance has tightened, fiscal policy remains expansionary to boost economic activity. The budget balance swung into a deficit in 2014–15, which widened sharply to double digits in 2016 following a sharp decline in Southern African Customs Union (SACU) revenues and an upward adjustment of public-sector wages. Although agricultural output lifted by good weather conditions following the El Niño–induced drought of 2015, as was agro-processing, the sector contracted, hauled down by livestock production, which suffered heavy stock exhaustion following the drought. Manufacturing bounced back in 2017, driven mainly by investment in textiles. Construction activity contracted due to limited fiscal space, which hindered implementation of public projects in 2017.

The primary development challenge for the Kingdom of Swaziland is to address the high rate of poverty and inequality in the country, the weak economic environment, together with persistent drought conditions lowering poverty reduction in the country. Three in four Swazis live in rural areas making agriculture their main source of livelihood. As a result, the adverse weather conditions have limited poverty reduction, with the poverty rate at the international extreme poverty line of $1.9 per day in 2015 stagnating at 39.4 percent, compared to 39.5 percent in 2014. Inequality is very high with a Gini coefficient of 49.5. Amid 2001/02 and 2009/10 consumption of the bottom 40% of the population grew very slowly. Poverty is strongly correlated with unemployment which is about 28.5% overall and 52.4% among the youth. Poverty is also associated with the high burden of communicable diseases. The HIV/AIDS prevalence of 27% of the population is among the highest in the world and life expectancy has fallen to approximately 49 years.

1.2 Introduction

Tuberculosis (TB), still recognized by the World Health Organization (WHO) as the world's leading pandemic causing ill-health to approximately 10 million people each year continues to be a cause for concern. Its extent of worry is further attached to the fact that it is still the leading cause of death among people living with HIV. In spite of newer modalities for diagnosis and treatment of TB, unfortunately, people are still suffering.

Even though effective TB diagnoses and effective treatment has saved 53 million lives between 2000 and 2016, averting 53 million deaths between 2000-2016. The year 2016 exposed 1,3 million TB deaths among HIV-negative people and an additional 374 000 deaths among HIV-positive people. Drug-resistant TB is a continuing threat. In 2016, there were 600 000 new cases with resistance to rifampicin (RR-TB), the most effective first-line drug, of which 490 000 had multidrug-resistant TB (MDR-TB).

Swaziland has started implementing, the End TB Strategy which was approved by The World Health Assembly in 2014 aimed at ending the global TB epidemic, which targets to reduce TB deaths by 95% and to cut new cases by 90% between 2015 and 2035 and to ensure that no family is burdened with catastrophic expenses due to TB.

1.2.1 The burden of TB in Swaziland

Tuberculosis still constitutes one of the major public health glitches currently confronting the Kingdom of Swaziland. The country is among those with an estimated TB incidence of 565 per every 100,000 population. TB-related mortality rate (excluding HV+ TB patients) has decline from 31 per 100,000 in which year to the current level of 19 per 100,000 populations and TB mortality rate among HIV+ TB patients has also decline from 91 per 100 000 population to 84 per 100 000 population.

TB case notification in Swaziland for 2016 was estimated to be 6399 cases, including new and relapsed Cases. Among the estimated new cases; 2 045 were bacteriologically confirmed, 739 clinically diagnosed and 532 were extra-pulmonary cases. Of the reported retreatment cases; 275 were bacteriologically confirmed, and 215 were other previously treated cases. In terms of case detection, the country was at 74% showing a significant improvement from 59% in 2016.

Major milestones have been noted since the implementation of the strategy include a significant improvement in the TB treatment success rate, from 73 % in 2013 to 83% in 2017 above the 80% set target in the TB NSP (2015-2019). There has been significant progress regarding TB/HIV collaborative activities which has resulted in increased ART coverage among TB/HIV co-infected patients (75% in 2013 to 94% in 2017). However, the country is still experiencing high TB mortality rate and a drastically decline in childhood TB diagnosis.

1.2.2 Political commitment and leadership

The country is in line with the Post-2015 Global TB Strategy launched at the 67th World Health Assembly in May 2014. The ongoing NSP (2015-2019) is based on this framework whose vision is a world free of tuberculosis – zero deaths, zero disease and zero suffering due to tuberculosis. Thus, the NSP objectives have been aligned to comprehensively embrace the Principles as well as the Pillars and Components of the Post-2015 Global TB Strategy:

Principles:

1. Government stewardship and accountability, with monitoring and evaluation
2. Strong coalition with civil society organizations and communities
3. Protection and promotion of human rights, ethics and equity
4. Adaptation of the strategy and targets at country level, with global collaboration

Sustainable Development Goals:

The Sustainable Development Goals (SDGs) continue to be the focus of global priorities for development cooperation and also guide national priorities in most countries. The END TB strategy calls for effective use of existing tools to combat TB complemented by universal health coverage to push down global incidence rates and the reduction of people who die from TB by 2025.

The country committed to the SDGs in September 2015 during the UN General Assembly. In line with this, the country has also committed to ending the TB epidemic by 2030 which is one of the targets under Goal 3; "ensure healthy lives and promote well-being for all at all ages".

1.2.3 TB Strategic Plan 2015-2019

In 2015 the country began implementing the new National TB Strategic Plan (TB-NSP) 2015-2019. The goal of the TB National Strategic Plan 2015-2019 is to achieve a **35% reduction of TB prevalence rate by 2019.**

The NSP is based on five objectives which are:

1.To increase TB case detection rates from 46% in 2013 to 70% in 2017 and 80% by 2019.
Swaziland had been experiencing a continuous decline in the number of new TB cases notified annually since 2010. Sub-analysis of TB notification trends indicated a sharp decline in the number of notified smear negative TB cases which saw Swaziland adopting the GeneXpert MTB/RIF technology, in 2012.

2. To increase TB treatment success rates for all bacteriologically confirmed cases from 72.9% in 2013 to 90% by 2019
Swaziland had still not met the WHO recommended TB treatment success target of 85%. In line with this target, the NTCP intended to strengthen its efforts towards attaining and maintaining at least 90% treatment success rate among all detected TB cases by 2019.

3. To implement and expand country-wide collaborative TB/HIV activities and management of co-morbidities by 2019
In Swaziland, HIV is the main driver of the TB epidemic. High TB/HIV co-infection rates in Swaziland indicated a need to strengthen the implementation of TB/HIV collaborative activities in-order to mitigate the dual burden of TB and HIV infection.

4. To provide treatment and support to all drug-resistant TB cases and reduce the MDR-TB prevalence rate amongst new TB cases to less than 5% by 2019
Swaziland being among the countries with the highest TB prevalence rate per capital in the world Global Health Report, (2013) and a severe MDRTB epidemic of 7.7% among new TB cases and 33.9% among previously treated cases (2009 DR Survey), implementation of strategies for prevention, diagnosis and treatment of DR-TB became imperative.

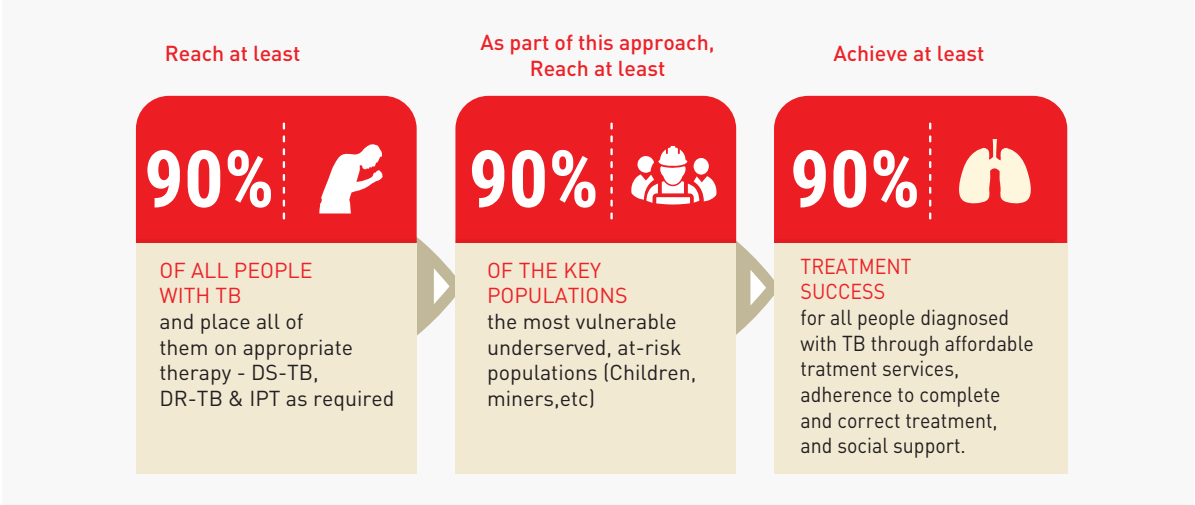
5. To strengthen the capacity of the National Tuberculosis Control Program to effectively implement, coordinate and evaluate TB prevention, treatment and care interventions.
The aim of this component was to increase the capacity of the NTCP to be an innovative, effective and efficient in the coordination and management of TB prevention, care and treatment.

CHAPTER 2

Program Description

The National TB Control Program (NTCP) is responsible for the planning, implementation, monitoring and evaluation of TB control services in line with the global and regional TB strategies. The Government of Swaziland, through the Ministry of Health has aligned itself to the Global Plan to End TB (2016-2020) **"The Paradigm Shift- End TB Strategy"**. The NTCP has also aligned itself to the global vision of "A world free of tuberculosis- zero deaths, zero disease and zero suffering due to tuberculosis.

GLOBAL PLAN TO END TB-STRATEGY



2.1 Leadership and governance

The National TB Control Program (NTCP) is a government entity under the Ministry of Health and forms part of the 13 public health programs. The TB Program is under the direct supervision of the Ministry of Health directorate which is under the responsibility of the Principal Secretary and the Honorable Minister who provides political guidance on the implementation of the UN declarations and Global commitments towards ending TB.

2.2 Organization of TB services

2.2.1 Health workforce

The NTCP is structured at four levels namely the national, regional and facility and community levels. At national level, the Program Manager is supported by the DOTS coordinator, Pediatric TB coordinator, TB/HIV coordinator, Advocacy Communication and Social Mobilization coordinator, National Active Case Finder, Laboratory Focal person, National Monitoring Evaluation and Research Officers, Community Monitoring Evaluation and Research Officers, Monitoring and Evaluation Advisor, Clinician Scientist, Grants coordinator, PMDT Technical Advisor, Audiologist, IT officer, Two National PMDT Coordinators and a Pharmacist. At regional level there are four TB/HIV regional coordinators, four regional Active Case Finders coordinators and four Health Information officers.

The TB/HIV regional coordinators and regional ACF officers are part of the Regional Health Management Teams (RHMT) of their respective regions.

At facility level there are health care workers who are tasked with providing TB services in each of the 125 TB BMUs. These include TB focal persons, TB screening officer, TB expert clients, HTS counselors and TB/HIV adherence officers.
At community level provision of TB services are offered by Active Case Finders, TB treatment supporters, Rural health Motivators, Care givers in collaboration with other Community Based Organizations, Faith Based Organizations (FBOs), Civil Society Organization (CBOs) and other Non-Governmental Organizations.

2.2.2 Health Services

The TB Program aims at providing effective, safe, accessible and quality TB services including proper diagnosis and placing TB patients on appropriate TB therapy.

TB/HIV Integration: In Swaziland, HIV is the main driver of the TB epidemic. There have been ongoing efforts by the NTCP and Swaziland National AIDS Programme (SNAP) to address the joint epidemics through the development of the TB/HIV Integration policy which guides the implementation of TB/HIV activities. The program also has a functional National Coordination Committee (NCC) at National level and at Regional level there are Regional level committees (RCC) which guide the successful implementation of the WHO recommended framework for collaborative activities. With respect to the reduction of HIV among TB patients, The TB Program has scaled up HTS, CPT and ART provision over the past years. Interventions aimed at reducing the Tb burden among PLHIV include intensified TB screening, Infection Prevention and Control (IPC) and implementation of Isoniazid Preventative Therapy (IPT).

Accessible: In a bid to improve access to accurate and rapid TB diagnosis, prompt and appropriate treatment initiation as well as treatment monitoring and follow up, the TB program continues to decentralize and scale up the number of sites providing TB services. In the past year a total of 14 additional sites were accredited to provide TB services. As part of increasing accessibility, the program has also embarked on community door to door screening exercise.

2.2.3 Medical Products and Technology

A well-functioning health system ensures equitable access to essential medical products and technology of assured quality, safety, efficacy and cost effectiveness. Supply chain management of essential health commodities, including First -line anti-TB drugs, Second-line anti-TB drugs and antiretroviral (ARV) drugs, involves a sequence of activities that will ensure a continuous availability of medicines from Central Medical Stores (CMS) to patients. This 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 of either first or second line TB drugs.
To ensure an effective supply chain management system, the program has collaborated with central medical stores (CMS) through a dedicated NTCP pharmacist and have a proper electronic system (LMIS) to ensure proper quantification, ordering and uninterrupted supply of TB drugs.

2.2.4 Laboratory

Effective laboratory services are critical for a successful TB control program. The national TB laboratory network consists of 28 peripheral laboratories which are under the leadership of the National TB Reference Laboratory (NTRL). The TB program through the NTRL has collaborated with the Supra National Reference Laboratory (SNRL) in Uganda to upgrade the country's BSL 3 reference laboratory to facilitate the provision of 2nd line DST services in Swaziland.

The NTRL has developed the infra-structure and capacity for rapid molecular diagnostic testing with GeneXpert MTB/RIF as well as mycobacterial culture and 1st line DST (LPA, MGIT, solid culture). Implementation of the GeneXpert MTB/RIF in all microscopy centers has improved the turnaround time for feedback of results to health facilities and has improved patient attrition between diagnosis and initiation into treatment. The NTRL also maintain national laboratory quality control through conducting External Quality Assessments (EQAs) and provide capacity building, mentoring and supportive supervision to all peripheral laboratories to enhance provision of effective laboratory services in the country.

2.2.5 Information and Research

Health Information Systems ensures the production, analysis, dissemination and use of reliable and timely information on health determinants, health system performance and health status. The M&E unit continues to monitor and evaluate program performance to inform timely response to changing service needs and ongoing institutional adjustment of programme inputs in order to achieve key results.

2.2.5.1 Data collection, mining, reporting and source documents

The NTCP M&E System is largely paper based from facility to regional and national level hence it is a manual system which reports summary of patient aggregated data. However, the program in collaboration with HMIS has developed TB module which will be incorporated into the Client Management Information System (CMIS) that is currently being rolled out to all health facilities. The major sources of data for TB indicators included DS- TB treatment registers, DR-TB treatment registers, Contact Tracing register, Presumptive register, patient cards, Lab registers, screening tool and summary reporting tools.

2.2.5.2 Information products, timelines and target audiences

Different information products are generated from the routinely collected data sets targeting different audiences who are part of the NTCP stakeholders. This Annual report forms part of the key information products that targets health managers and policy makers in the Ministry of Health and TB Control response to understand the TB epidemiology in the context of the environment under which services are provided. Other information products include; Progress Update and Disbursement Report (PUDR) which measures performance of the TB grant and provide progress update on implementation of grant activities, SADC report, WHO Global TB report and the TB Epidemiology reports provided quarterly to clinicians and public health professionals to trigger new strategies and interventions based on epidemiological data

2.5.2.3 Data utilization

Quarterly data Review Meetings (QRMs) are conducted to create demand for data use in evidence based decision making. These provide a forum to share best practices; lessons learnt and develop quality improvement projects at facility and regional level to improve service delivery. Furthermore, the quarterly review meeting also provides an opportunity to build capacity of health care providers in TB/HIV patient management.

2.5.2.4 Research

In 2017, the TB program in collaboration with SNAP has conducted the Jointly Mid-term Review to ascertain progress of the implementation of the TB NSP (2015-2019). These review revealed that there is inadequate documentation of presumptive cases hence there is need to systematical maintain presumptive registers to facilitate outcome follow up and monitoring. It also highlighted that the Adopted use of Gene Xpert as first line of diagnosis has resulted in low suspicion of index for clinical diagnosis of TB and the recommendation was that the program need to strengthen the national TB management guidelines to position the role of clinical diagnosis using other diagnostics such as chest X-ray. Furthermore, the review also found that there is a declining proportion of paediatric TB cases among notified TB cases which depict that there is inadequate clinical diagnosis of childhood TB (use of X-rays, clinical judgement), including inadequate capacity (equipment) for sample collection (NGA, Sputum induction) in most health facilities hence the need to build capacity of health care workers to improve TB diagnosis in children.

The Program has successful conducted Drug resistance survey and completed the preparatory phase for Prevalence survey. It has also developed a Research agenda which had assisted the program to identify gaps in knowledge in specific program areas and serves to guide the direction and development of research question.
In addition, research papers were presented by the National TB Control Programme in the National Health Research Conference in November 2017. This included:

- Successful adoption of the shorter course MDR-TB regimen for accelerated National scale up in Swaziland
- Implementation of the ACF project in Swaziland
- DR-TB financing in Swaziland
- The prevalance of drug induced hypothyroidism in MDR-TB patients in Swaziland
- Overcoming challenges in the introduction and scale up of newer drugs for the treatment of MDR-TB

CHAPTER 3

Program Results

According to SAM 2013, there are 287 health facilities out of which 125 are TB Basic Management Units (BMUs). The programme targets to have scaled up access to accurate TB diagnosis, treatment and close monitoring to 125 sites by 2017 and has therefore achieved 100% target. It should be noted that the non-BMUs provide some TB services which include TB screening, sputum collection, TB Preventive therapy (IPT) and referral of patients to the BMUs. Table 1 below shows the distribution of the BMUs across the four regions. In order to improve TB diagnosis, the program has decentralized Gene-Xpert and Microscopy services to 28 peripheral laboratories across the four region as indicated in the table below.

Table 1: TB Basic management Units and TB Diagnostic Sites

Region	Number of Health Facilities	Number of BMUs	Xpert TB diagnosis and microscopy sites	Culture facilities
Hhohho	82	28	5	1
Manzini	121	31	11	0
Lubombo	48	35	8	0
Shiselweni	36	31	4	0
National	287	125	28	1

3.2 TB Screening

TB screening remains an essential component for TB detection especially in high TB/HIV burden countries including Swaziland. The national TB control program started implementing intensified case finding in 2009 which aimed at expanding TB screening services to all health facilities and service entry points (departments) in health facilities including diabetes clinics, ART clinics, outpatient departments, antenatal clinics and prison clinics and proactively screen patients for TB.

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.

Table 2: Trend in TB Screening Conducted , 2012-2017

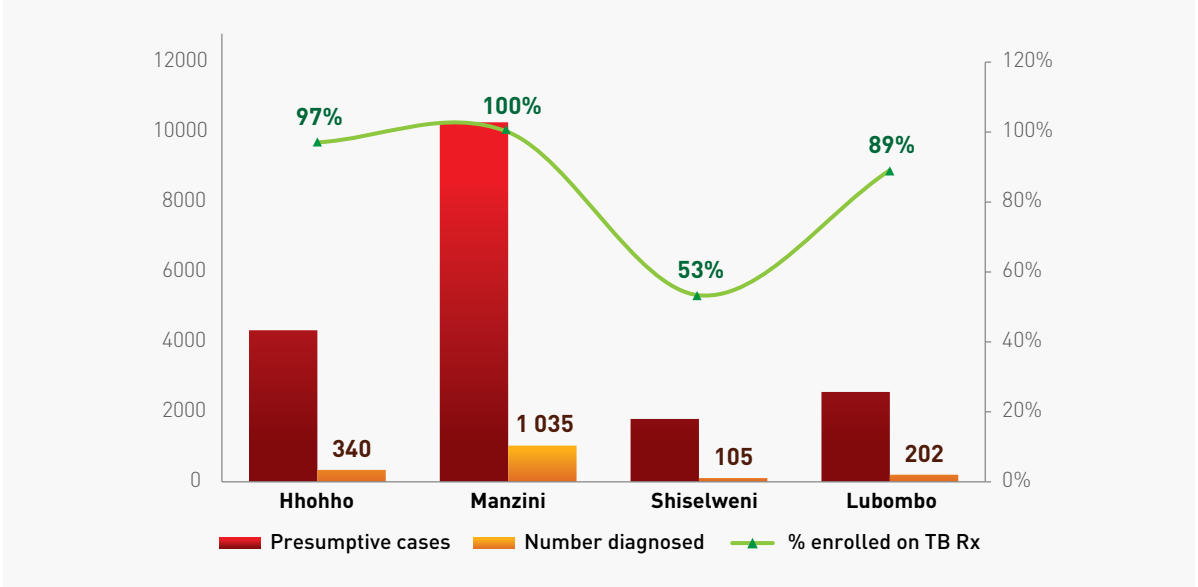
	Number screened	Presumptive cases	Number diagnosed	Number enrolled on Rx	% enrolled on Rx
2012	294,611	16,140	1,671	1,428	85%
2013	294,590	12,001	1,281	1,239	97%
2014	286,073	9,744	838	715	85%
2015	240,051	11,641	1,139	958	84%
2016	1,075,077	18,980	1,682	1,596	95%
2017	1, 253,174	16,168	1,410	1,374	97%

NB: Please note that the number screened are screenings performed not the number of people screened.

The table above shows an increasing trend in number of TB screenings conducted over the years from 294, 611 cases in 2012 to 1, 253 174 in 2017. This upward trend can be attributed to the improvement in the strengthening of intensified case finding and implementation of active case finding strategy in 2016 which has enabled proactive TB screening of patients within health facilities and community door to door screening. Even though the number of TB screenings conducted has been increasing over the years, the yield has been constant ranging between 9-11%. In 2017, the number needed to screen (NNS) was 889 to get 1 patient with active TB. There has been significant increase in the number of cases enrolled on TB Treatment under the TB screening cascade, from 85% in 2012 to 95% in 2017. This implies that most of the patients who are diagnosed to have TB are put on treatment hence reduction in infection rate.

Figure 1: Number of TB Screening Conducted, 2017

Figure 2: TB Screening and Presumptive Cases by Region

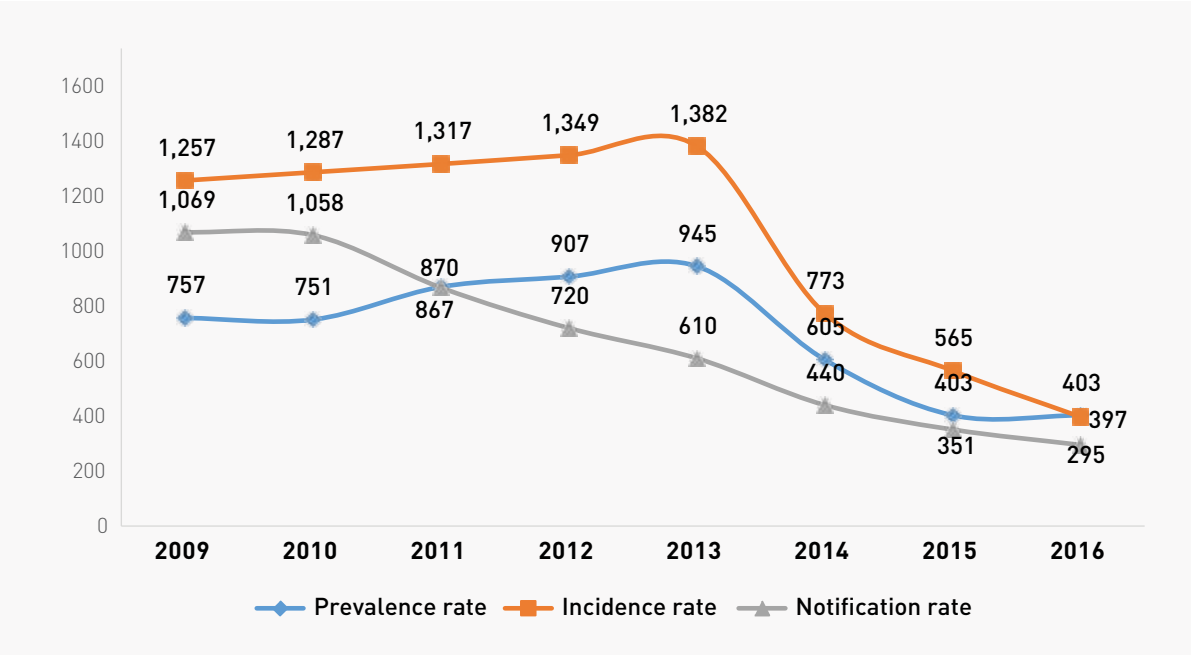


3.3 Case Detection

Case detection has remained one of the most critical components of a TB control programme. It serves as an indication of the efficiency of NTP to identify and diagnose TB cases and have these cases reported within the National TB Control surveillance systems. In line with WHO recommendations the NTCP adapted the diagnostic standardized diagnostic algorithms for diagnosing smear positive; smear negative pulmonary and extra pulmonary TB in adult and pediatric patients. Drug resistant TB cases are diagnosed using GeneXpert as a first line diagnosis followed by first and second line LPA then culture and Phenotypic FL/SLDST. Comparative accuracy of GeneXpert/ Cartridge Based Nucleic Acid Amplification test (CBNAAT) is used for diagnosing TB and DR-TB in all sites.

Despite the slight increase of the TB incidence and prevalence rates from 2010 to 2013 before declining in 2014, case notification rates of all forms of TB had been steadily declining during the same time period, as shown in Figure 3 below. The scenario presented by Figure 3 below, on the national TB incidence and prevalence rate, mirrors the WHO estimates on the prevalence and incidence rates with the difference being the rate of increase being lower for the actual compared to the estimates. In terms of the case notifications, the current data is significantly lower than the values of the WHO estimates, the country was expected to notify more cases than what has been reported in the same time period. This can further be explained by the high confidence intervals in WHO estimates.

Figure 3: Estimated TB Prevalence, Incidence and Notification Rate (Actual), 2009-2016



The figure above depicts the estimated TB prevalence, Incidence and Notification rate per 100 000 population for Swaziland 2009-2016. A general decline in both the prevalence and incidence has been noted since 2013 as estimated by WHO Global TB Report. This has also been evidenced by the decline in case notification rate for all forms as shown by figure 3 above, with 1,069 cases notified per 100 000 population in 2009 to 295 cases notified per 100 000 population in 2016. However, in terms of case detection, the country is doing exceptional well, increased significantly from 59% in 2016 to 74% in 2017. This further explains the gap between the incident rates as well as the notification rates that seem to be closing-in mimicking an epidemiology of a country that is experiencing a maturing epidemic.

3.4 TB Case Notification

The National TB program receives aggregate case-finding, TB/HIV, sputum conversion and treatment outcomes data for TB patients registered on a quarterly basis from all facilities providing TB services. The Program follows the recommended global method of cohort analysis for describing case finding and treatment outcomes. Timely data collection, reporting and dissemination remain key for monitoring the program's performance.

Figure 4: TB Notification Trends, 2012-2017

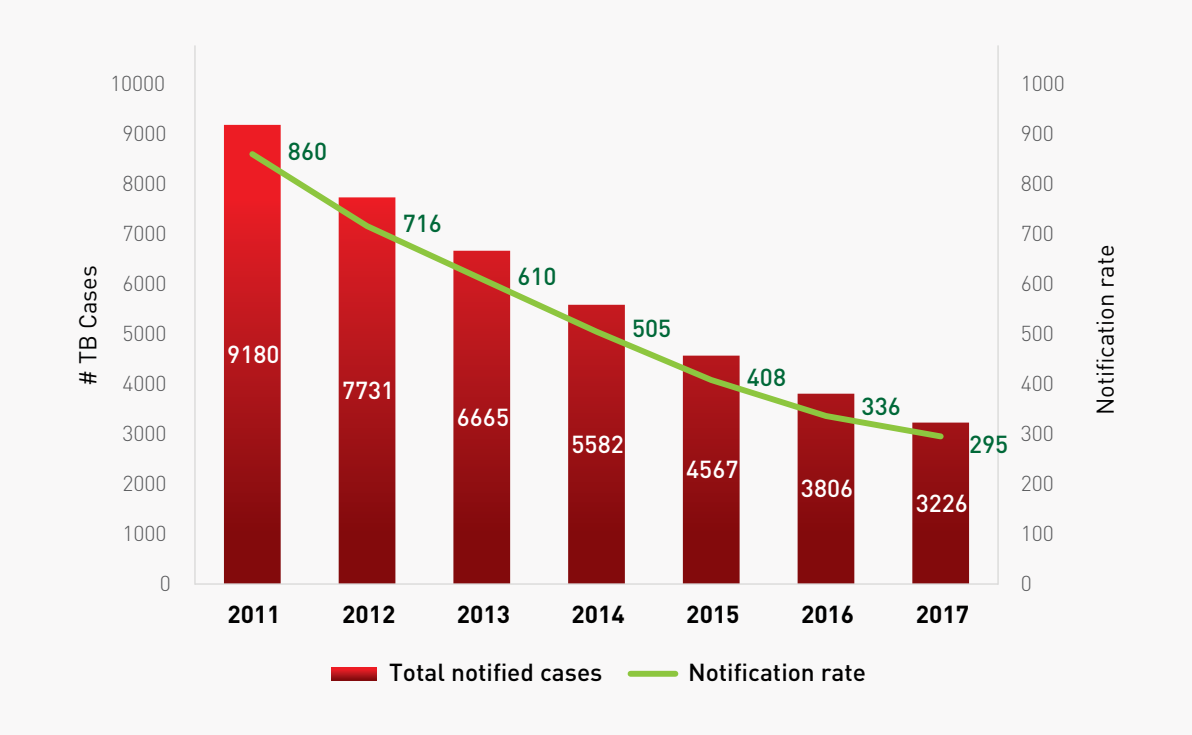
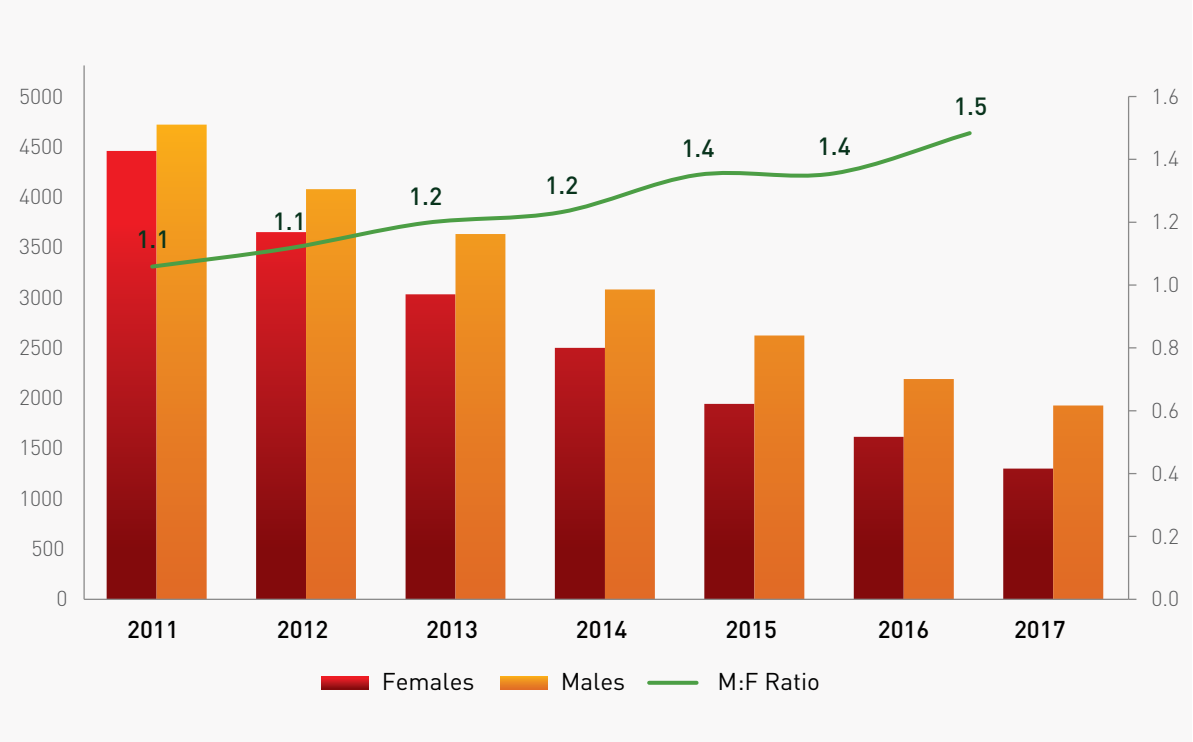


Figure 4 above shows the number of TB cases notified in health facilities and enrolled on TB treatment between 2011-2017. Similar to the TB prevalence and incidence rates, the number of cases notified and enrolled on to TB treatment have also steadily declined averaging between 18 % to 15% per annum. By the end of 2017, a total of 3226 TB cases were enrolled on TB treatment, representing a 15% decline from the 3806 reported in 2016. These is despite the effort the program has put in place of strengthening active case finding and TB contact tracing in communities hence a strong indication of a need for a prevalence survey to determine the burden of TB in the country.

Figure 5: TB Notification Trends by Sex, 2011- 2017



The figure above shows notification trends by sex. Globally, the male: female ratio for TB notifications was as high as 1:7 meaning there are more males reporting with TB compared to females. This shows a higher TB burden among males compared to their female counterparts. For Swaziland the male: female ratio has shown major changes between 2011 to 2017. In 2011 for every 1 female with TB there was also 1 male with TB yet in 2017, there was slightly more males (1.5) infected with TB than female (1). Historically, more males have been reported to be infected with TB compared to females. This adversely affect the overall public health programme and implies the need to equally target females as much as males in TB active case finding interventions. Lastly, males are reported to dominate the extra pulmonary TB yet the strong focus of TB interventions is on prevention and treatment of pulmonary TB.

Figure 6: TB Notification Trends by Age Group, 2012-2017

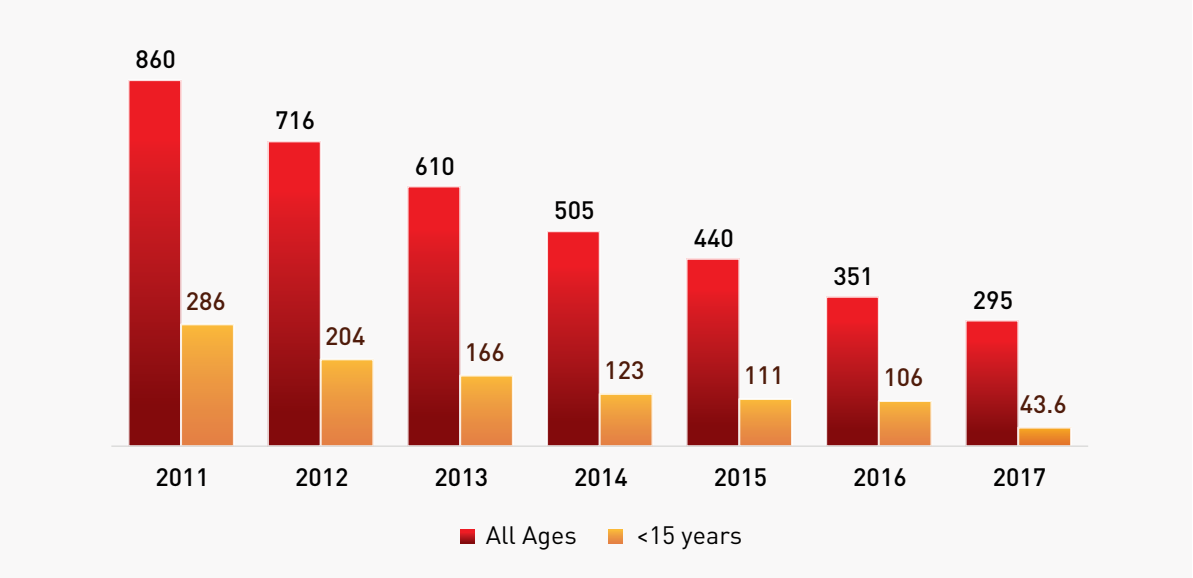
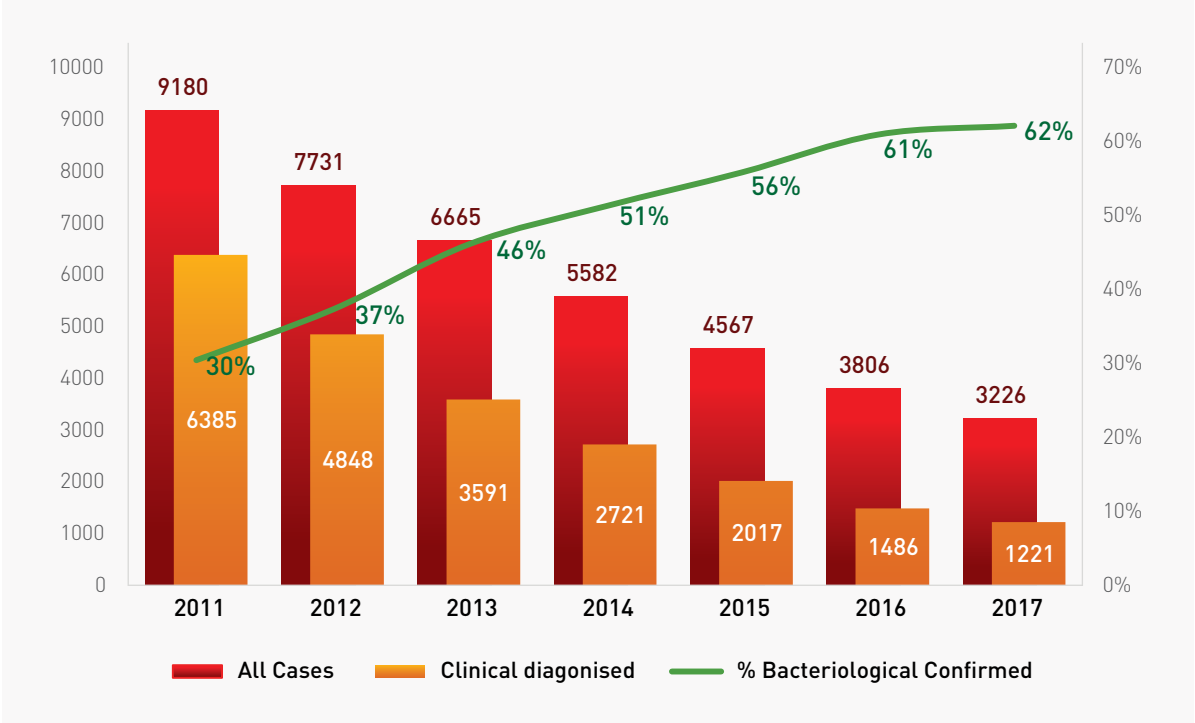


Figure 6 above shows TB notification rates for all forms of TB for all ages and children (<15 years). There has been a general declining trend in TB notification rate in the country. According to Haumba et al (2015), the wide coverage of ART services results in reduced TB notification rates. In addition, the program continues to ensure infection control measures, strengthened intensified case finding in all TB BMUs in order to curb transmission. Despite all the efforts made by the program the country is still struggling to meet the 10% target stipulated in the WHO standards and Benchmarks.

3.5 TB Case notification by Diagnosis status

According to the TB NSP (2015-2019), the country adopted the GeneXpert MTB/RIF technology which is a highly sensitive 1st line diagnostic test which is proven to be more sensitive than the smear microscopy. This has significantly improved the diagnosis of smear negative cases which would have been undetected before the introduction of GeneXpert. In addition to this, sputum smear microscopy, culture, DST, LPA and other molecular tests are also used for bacteriological confirmation of TB cases. Other non-bacteriological methods are also acceptable for TB diagnosis including assessment of clinical symptoms by the medical officers and X-ray diagnosis for cases where sputum cannot be obtained from patients.

Figure 7: Number of all Forms of TB by Bacteriological Confirmation, 2011-2017



The figure above shows bacteriological confirmed TB cases from 2011-2017. Regardless of the declining trend in TB cases notification, bacteriological confirmed cases have been steadily increasing from 30% in 2011 to 62% in 2017. These is below the 80% bacteriological confirmation target stipulated in the TB NSP (2015-2019).

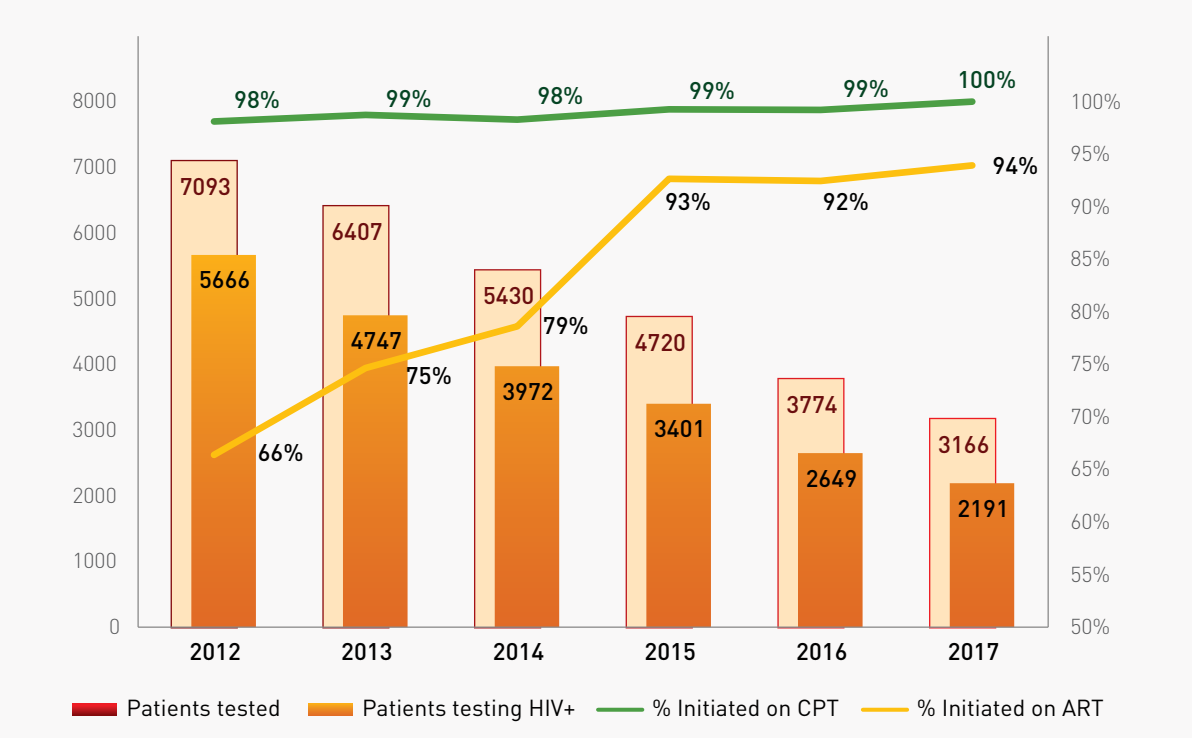
Due to the inverse relationship between bacteriological confirmation and clinical diagnoses of pulmonary cases, there is a high likelihood of missing TB cases especially among immunocompromised TB/HIV co-infected patients as well paediatric cases aged less than 1 year. Hence the need for more sensitive TB diagnostic tests, for example, TB LAM that has proved efficient in the detection of TB among immunocompromised patients with CD4>100 (Pasi etal, 2016), and use of the GeneXpert Ultra.

3.6 TB/HIV collaborative activities

TB is the most common opportunistic infection and cause of mortality among people living with HIV (PLHIV.

HIV infection increases the risk of TB infection on exposure, progression from latent infection to active TB, risk of death if not timely treated for both TB and HIV and risk of recurrence even if successfully treated. The program in collaboration with SNAP developed the TB/HIV integration policy which aims to reduce the burden of either disease amongst the people at risk or affected by TB or HIV. The main activities for TB/HIV integration include; establishing and strengthening the mechanisms for delivering integrated TB and HIV services; reducing disease burden among people living with TB and HIV and increase uptake of ART services among TB patients.

Figure 8: TB/HIV Collaborative Services, 2012-2017



The graph above shows TB/HIV collaborative activities from 2012-2017. A general improvement in TB/HIV collaborative activities have been noted over years. This is evidenced by the increased in proportion of TB patients tested for HIV (from 92% in 2012 to 98% in 2017), showing a 6% increase over the five-year period. Worth mentioning is the decline of TB disease among HIV positive patients, from 79% in 2012 to 69% in 2017 which reflect a 10% decline. This decline could also mean that there is an increase in TB patients who are HIV negative which could be a result of poor infection control measures at all levels (community, facility etc.) hence the need to strengthening IPC measures.

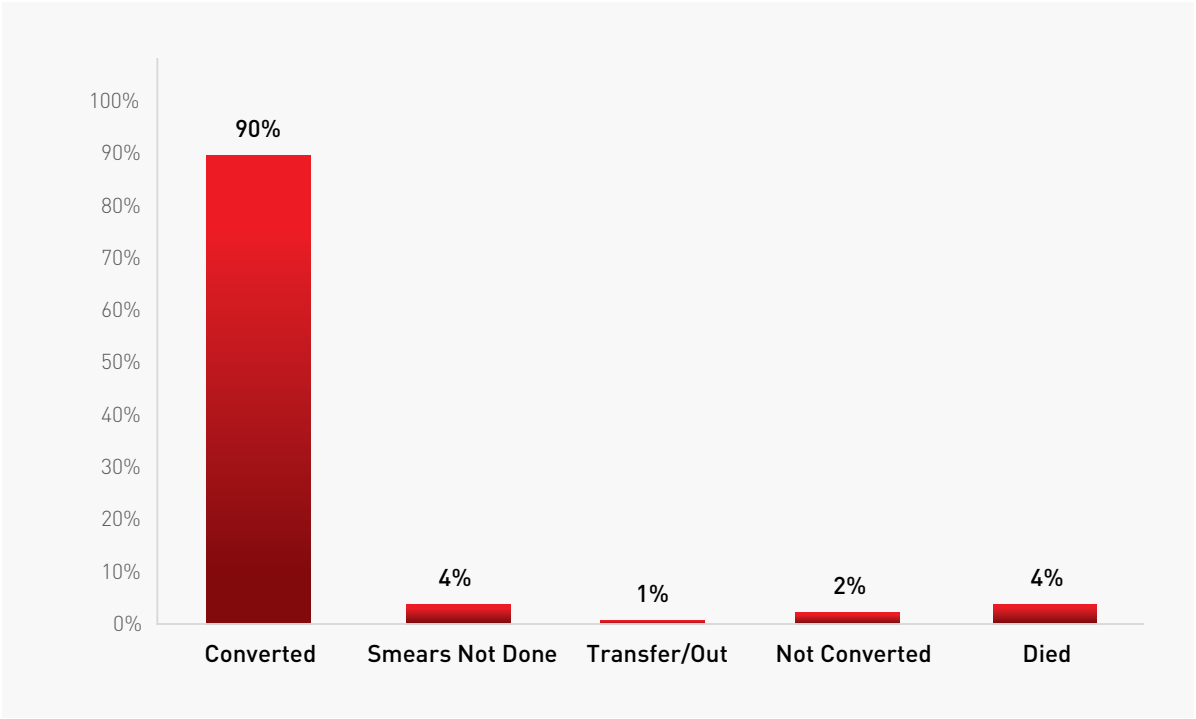
ART uptake has increased from 66% in 2012 to 94% in 2017. The proportion of TB patients living with HIV initiated on CPT has remained high throughout the years. This can be attributed to the continuous effort the program has put in place to strengthen the delivery mechanism for integrated TB/HIV services.

3.7 Sputum Smear Conversion

The national TB manual for the management of TB patients stipulates that monitoring of patients already on treatment should be done at month two, three, five and end of treatment through sputum smear microscopy. In accordance with this manual, the TB program monitors progress of TB patients once started on treatment and documents this for future patient management.

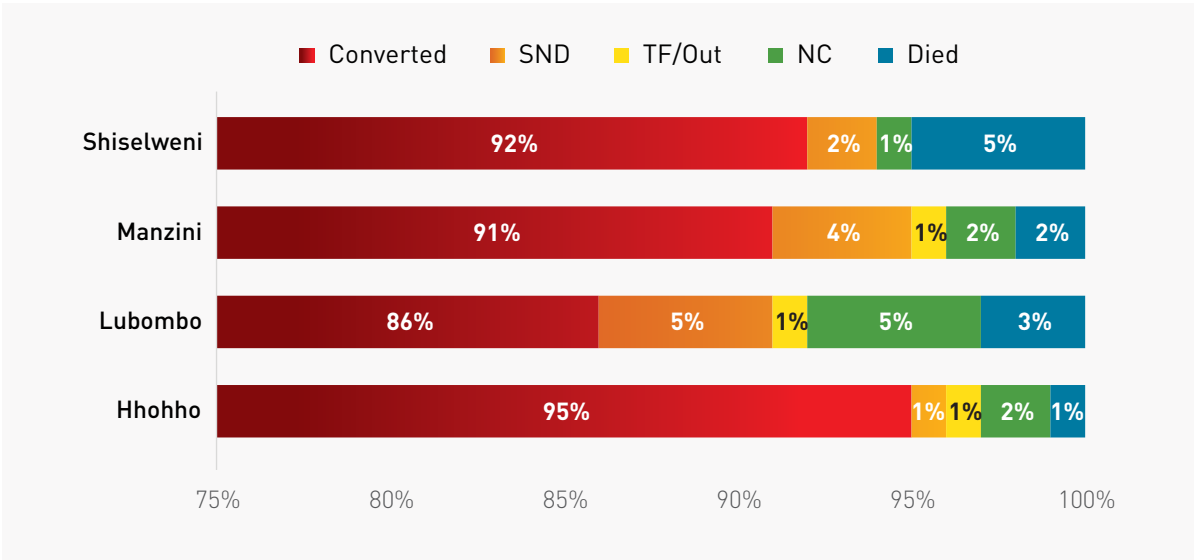
Follow-up of TB patients at month two (2) and three (3) is a critical step in TB control as it allows for the assessment of treatment efficacy by determining sputum conversion. When TB medicines are effective to treat the strain of TB, the sputum is expected to convert at either two months and /or three months of treatment from date of treatment initiation.

Figure 9: Sputum Conversion among New and Retreatment Cases, 2017



The figure above, shows smear conversion cases among new and retreatment cases in 2017. Out of 2129 registered TB cases, 90% converted at 2 and 3 months meaning these patients are no longer infectious. Only 4% had smear not done which shows that the program has surpassed the 5% target stipulated by WHO. However, smear not done continue to pose a challenge in TB control as such patients are unknown whether they are converting or developing resistant strains of TB.

Figure 10: Sputum Conversion among New and retreatment TB cases by Region, 2017



The figure above, presents sputum smear conversion rates among new and retreatment cases by regions in 2017. The proportions of patients who converted in all the four regions is above the 85% target set by WHO, with Hhohho at 95%, Shiselweni at 92%, Manzini at 91% and Lubombo at 86%. This can be attributed to proper patient management and adherence to treatment. Smears not done and Smears not converted is slightly high in the Lubombo region at 5% respectively when compared to the other regions. The death rate for all the regions ranges between 5% -1%.

3.8 Treatment Outcomes

The TB program has aligned itself with the END TB Strategy and Global Plan of Action (90 - 90 - 90) towards attaining and maintaining at least 90% treatment success rate among all patient put on treatment by 2019. Monitoring of the treatment outcomes is a critical component for TB control and prevention of more complex resistant TB cases types.

Figure 11: Treatment Outcomes among Bacteriological Confirmed cases, 2012-2016 cohort

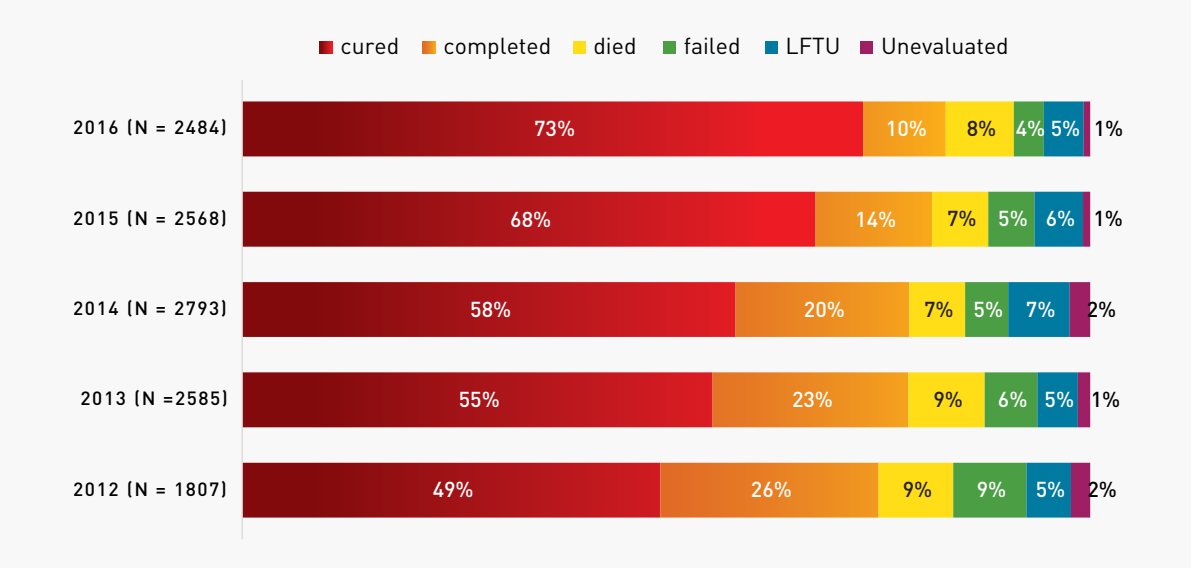


Figure 11 above presents the treatment outcomes for bacteriologically confirmed pulmonary TB cases enrolled to treatment between 2012-2016. Over the years, an increase in TB treatment success rate has been noted from 75% in 2012 to 83% in 2017. The TB death rate ranges between 9% and 7% (2012-2016). Lost to Follow Up (LTFU) has also been fluctuating between 7% and 5% over years. Not evaluated remains constant low at 1% from 2015 to 2016. This shows a good performance for the program since almost all patients put on treatment are evaluated at the end of the end of treatment.

Figure 12: Treatment Outcomes for All forms of TB, 2017

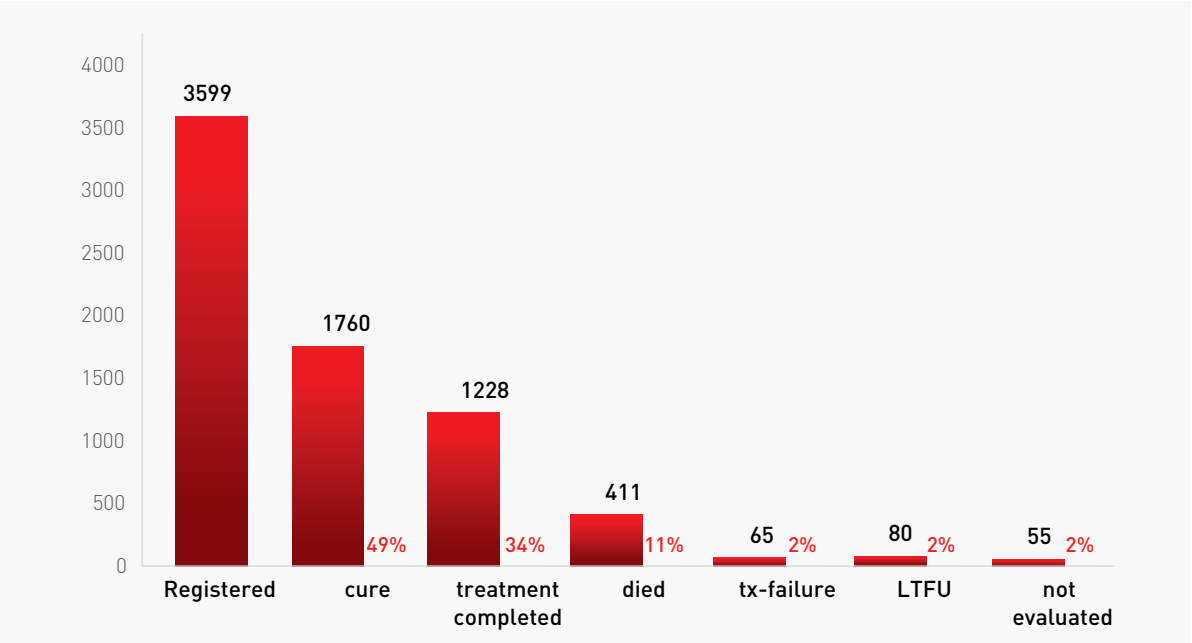


Figure 12, above presents TB treatment outcomes for all forms of TB in 2017. The overall TB treatment success rate for all forms of TB cases stood at 83%. This shows a 4% improvement when compared with 79% reported in 2016. Of note is the increase in the cure rate among TB patients started on TB treatment and these could be an indication of the improvements in bacteriological confirmation of TB patients when initiating them on treatment. TB deaths continue to be high at 11% among TB patients, however the NTCP has embarked on strategies to investigate the underlying causes of TB mortality. Unfavourable outcomes LTFU, Rx Failure and not evaluated were all at 2% respectively.

Figure 13: Treatment Outcomes for all forms of TB, 2011-2016 cohort

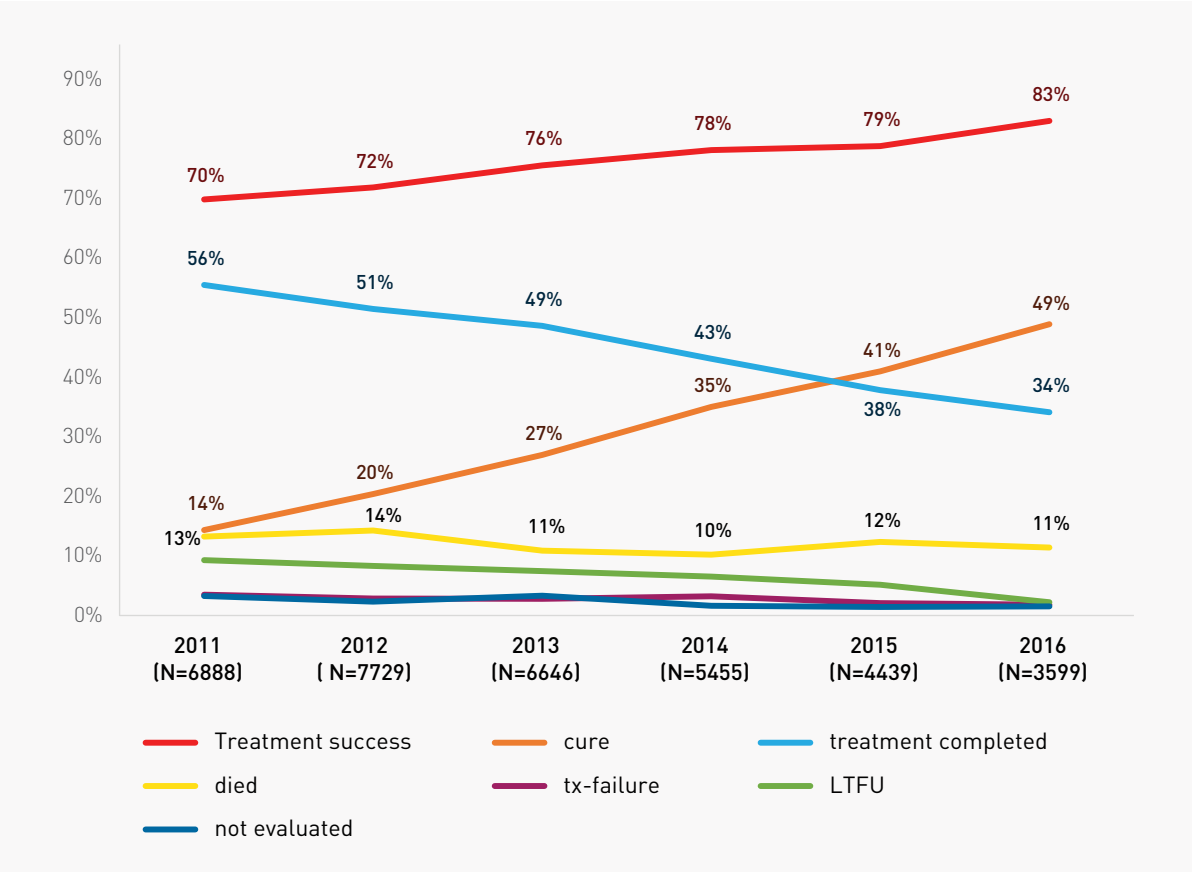
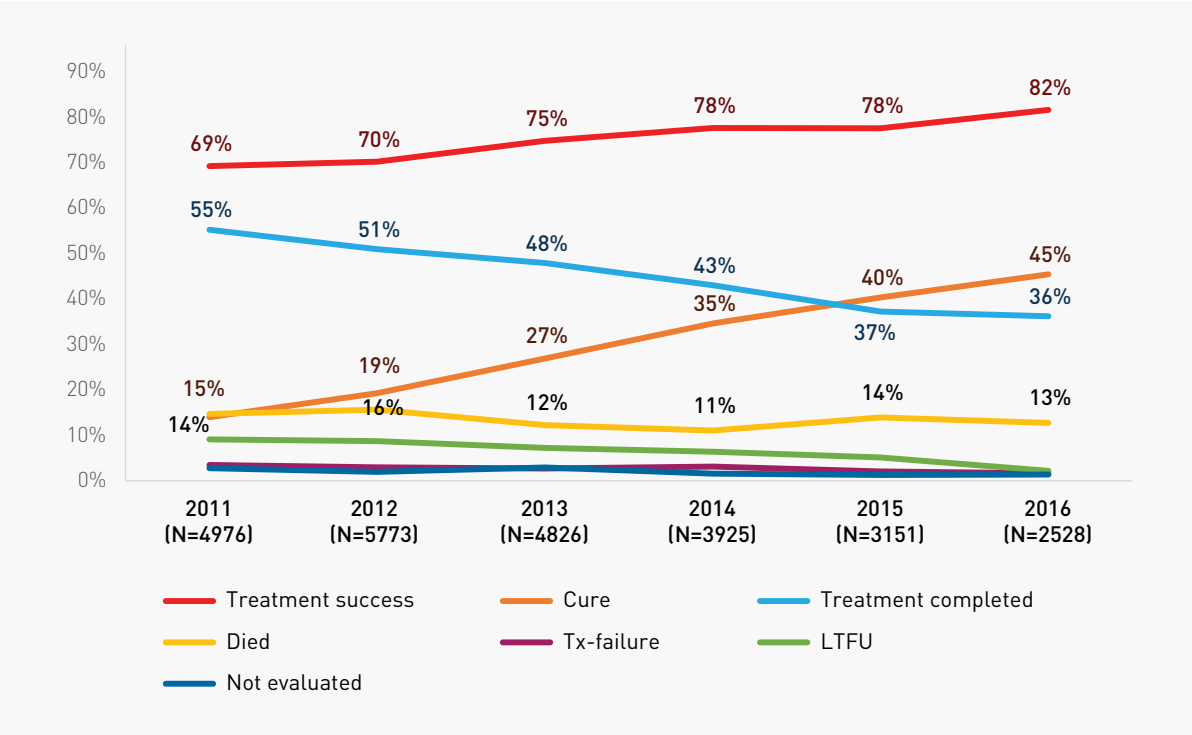


Figure 13, above shows trends in TB treatment outcomes reported between 2012 to 2017. Over the years, an increase in TB treatment success rate has been noted from 70% in 2012 to 83% in 2017. On another note the program has greatly improved in unfavourable treatment outcomes except for mortality which is still high (13% in 2012 and 11% in 2017) when compared to the less than 5% target. However, LTFU has greatly reduced from 10% in 2012 to 2% in 2017.Therefore, these highlights the improvements as well as the areas that need strengthening particularly TB mortality.

3.9 Treatment Outcomes for TB/HIV co-infected patients

Swaziland is one of the countries with a high TB/HIV coinfection at 69% by the end of 2017. The management of TB/HIV co-infected patients is critical in the treatment outcomes of TB patients since more than half of the patients are co infected.

Figure 14: treatment Outcomes for HIV+ TB patients cohort, 2011-2016



The figure above presents the treatment outcomes of co-infected patients reported between 2012-2017.The impact of TB/HIV integration has contributed to an improvement in treatment outcomes for TB/HIV co-infected patients. The TB treatment success increased from 69% in 2012 to 82% in 2016. The country is still experiencing the highest death rates among TB/HIV co-infected patients which stood at 13% which is three- folds higher than the less than 5% WHO target.

3.10 Burden of paediatric TB in the country

TB is a disease closely associated with the underprivileged and marginalized 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.

A majority of pediatric TB cases are due to a household exposure to an index case being within the household. However, in adequate peadiatrics diagnosis often results to poor detection which subsequently leads to increased morbidity and mortality amongst children.

Figure 15: Proportion of Paediatrics TB cases notified, 2011-2017

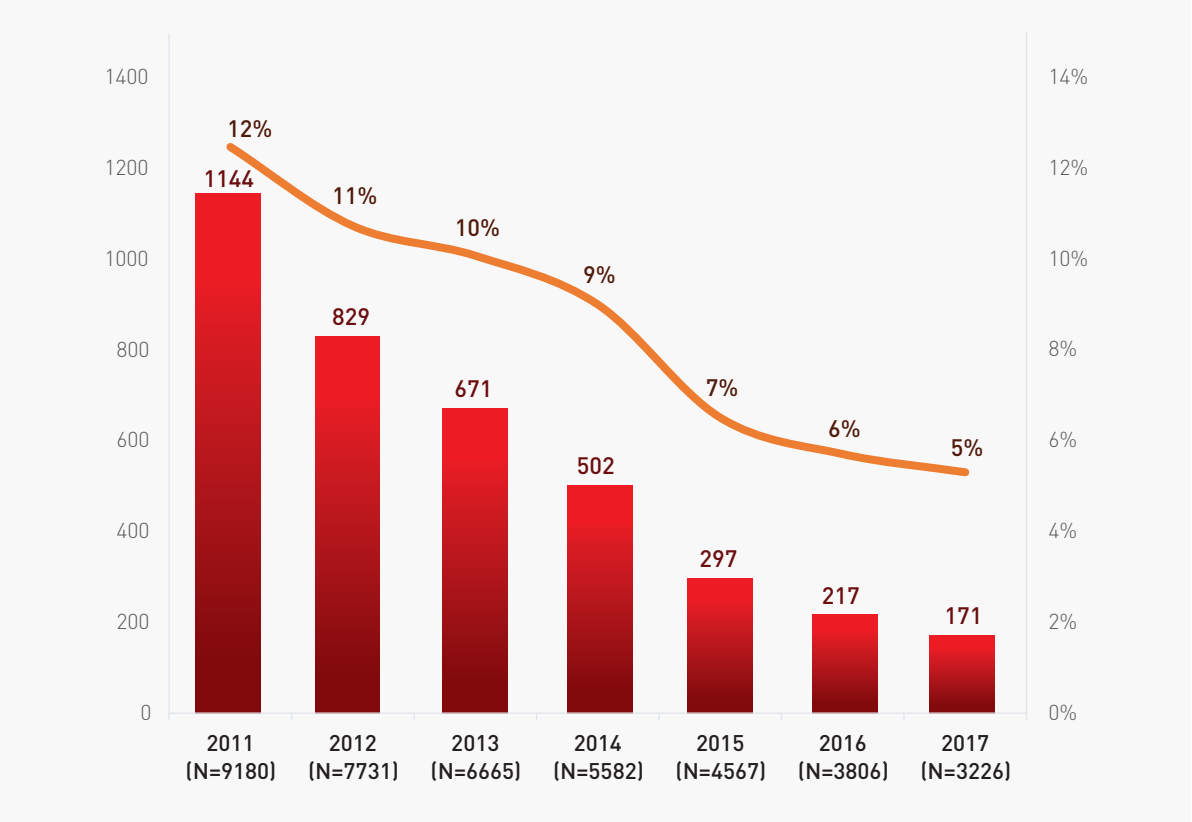
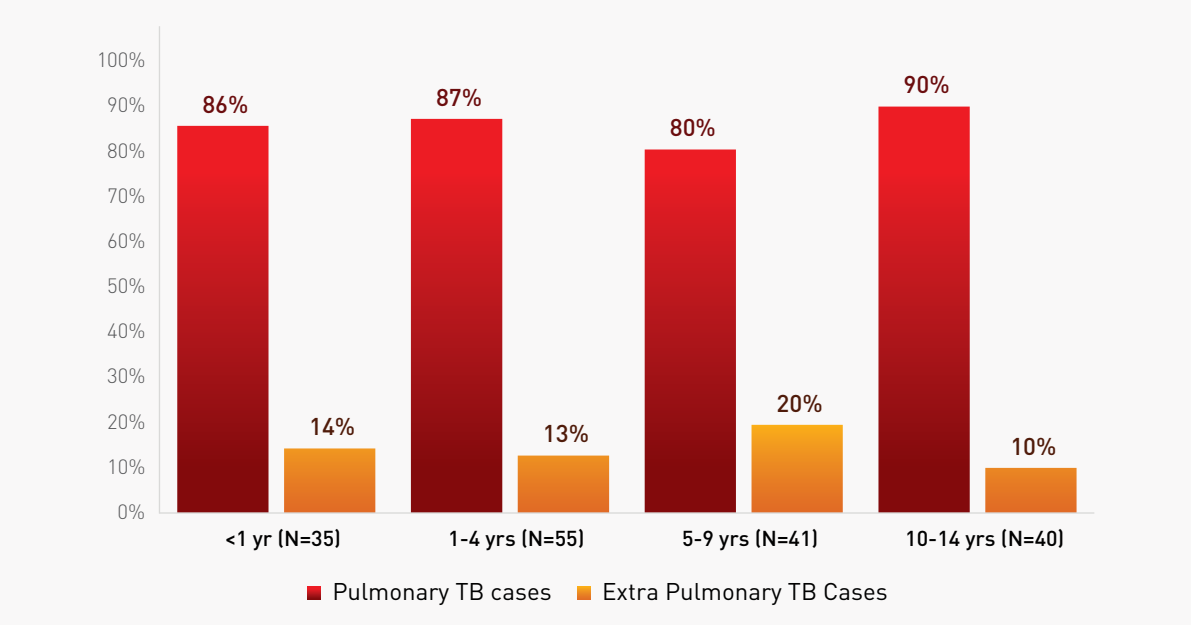


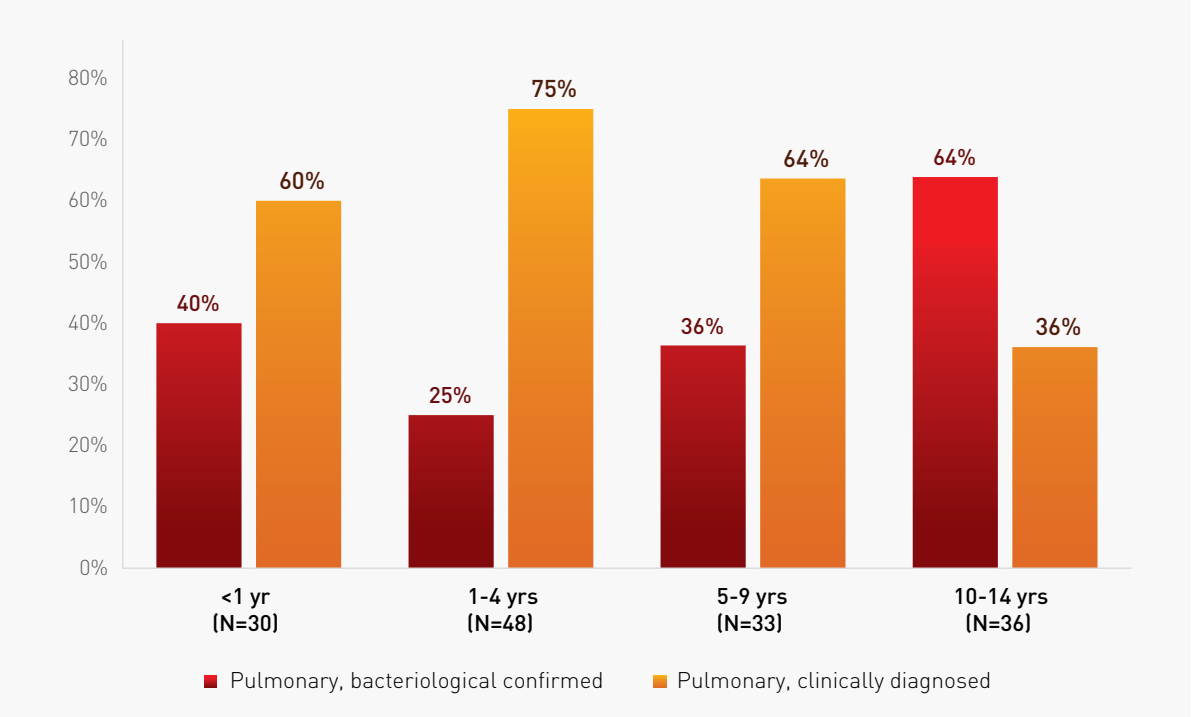
Figure 15 above shows the proportion of paediatric TB cases notified in health facilities between 2011-2017. Similar to the cases notified for all age groups, the number of Paediatrics cases notified shows a sharp declined between the periods. By the end of 2017, a total of 171 Paediatrics TB cases were enrolled on TB treatment, showing a 1% decline from cases reported in 2016. These is despite the strengthening of active case finding and contact investigation in communities. Therefore, there is a need to develop and implement strategies to improve diagnosis of TB in children particularly clinical diagnosis through the use of digital X-rays, and extending expertise for paediatrics sample collection.

Figure 16: Proportion of Paediatrics notified by Anatomical site of TB, 2017



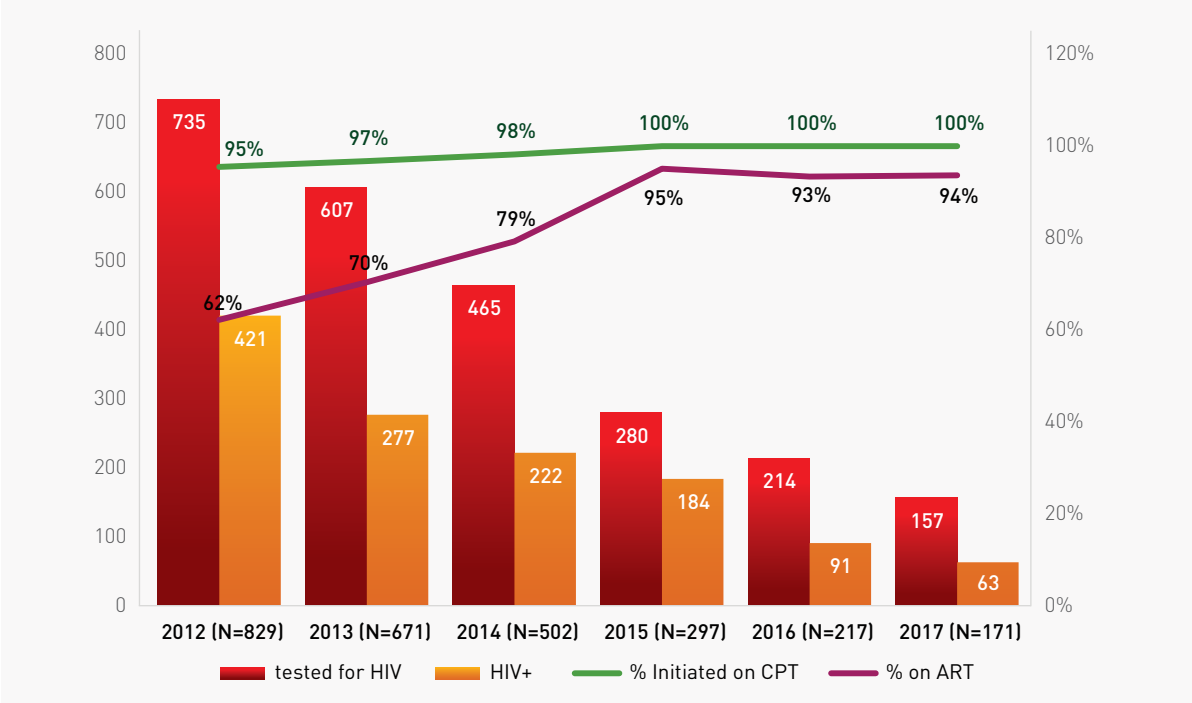
The graph above shows the number of paediatric TB cases enrolled by site of TB and age group. Likewise, in the adult TB cases, pulmonary TB seems to be more prevalent when compared to extra pulmonary TB and this seems to be the trend across all the paediatric age groups. This shows a high transmission of TB in households especially from adults with pulmonary TB

Figure 17: Proportion of Paediatric TB cases notified by case definition, 2017



The graph above shows bacteriological confirmation among paediatric pulmonary TB cases. In 2017, Out of the pulmonary paediatric TB cases notified 40% were bacteriologically confirmed. When comparing by age group, bacteriological confirmation seems to be higher in <1 year olds which is not expected as these age group may have difficulty in producing sputum.

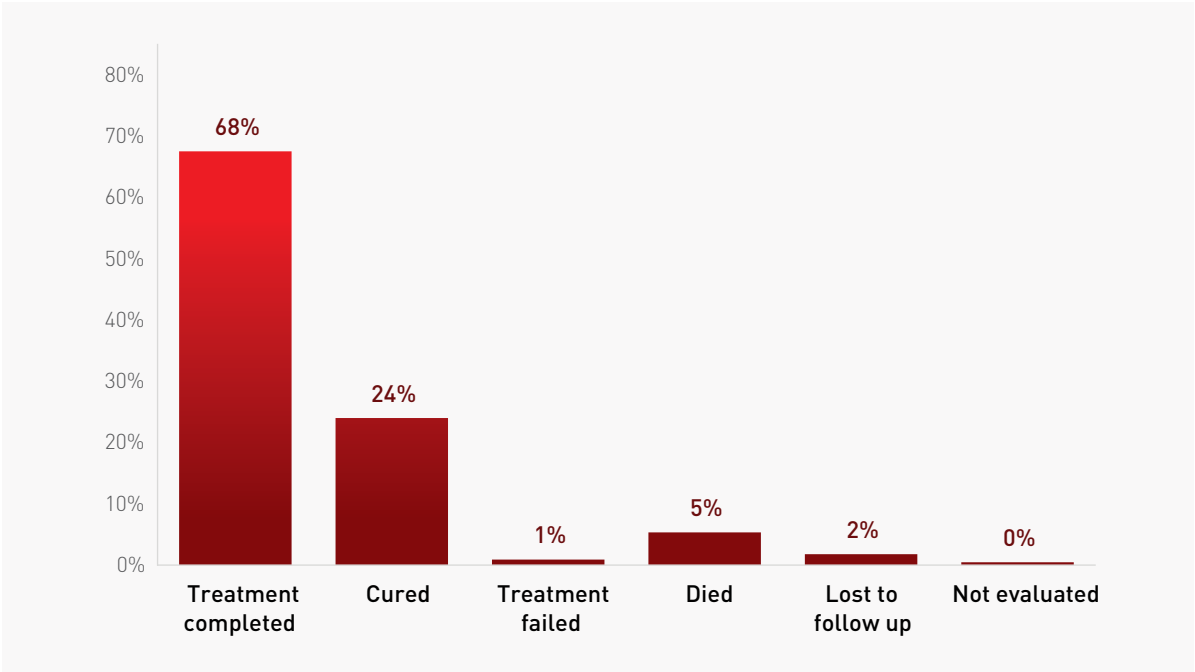
Figure 18: Childhood TB Collaborative Activities, 2017



The graph above shows the TB/HIV collaborative activities among Paediatrics over the years. Of note is the remarkable improvement in TB/HIV collaborative activities over the years. This shows that the country continues to strengthen the implementation of TB/HIV collaborative activities in order to mitigate the dual burden of TB and HIV infection. HTS uptake among paediatrics TB patients has increased from 85% in 2011 to 92% in 2017. Among HIV positive Paediatrics TB patients, CPT initiated has increased from 97% in 2011 to 100% in 2017, achieving the set target. ART uptake has surpassed the 90% set target, increased from 51% in 2011 to 94% in 2017.

The decrease in the number of paediatric TB cases has been coupled with the decrease in HIV positivity rate among pediatrics TB cases the highest positivity rate of 66% in 2015 and 40% 2017.

Figure 19: Treatment Outcomes among all Paediatric Tb cases notified, 2017



The graph above shows treatment outcomes for all paediatric TB cases notified in 2017. The program has done exceptional well in ensuring that all paediatric TB cases enrolled on treatment are cured and/or complete their course of treatment. A total of 225 cases were registered 207 (92%) cases were successful treated. Among unfavourable outcomes, the death rate was highest at 5%, LTFU at 2% and treatment failure was at 1%. This shows an improvement in the management of paediatric TB cases.

3.11. Drug Resistant TB

While there have been major achievements in TB control over the years, Swaziland is still among the 30 countries with highest TB/HIV co-infection globally (WHO TB global report, 2017). It also faces a considerable multi-drug resistant TB (MDR-TB) burden with 7.7% prevalence of MDR-TB among new cases and 33.9% among previously treated (DRS 2009-2010). The estimated MDR-TB incidence rate is at 49/100,000 population (WHO Global TB Report, 2017). The high burden of MDR-TB poses a major threat to national TB Control efforts.

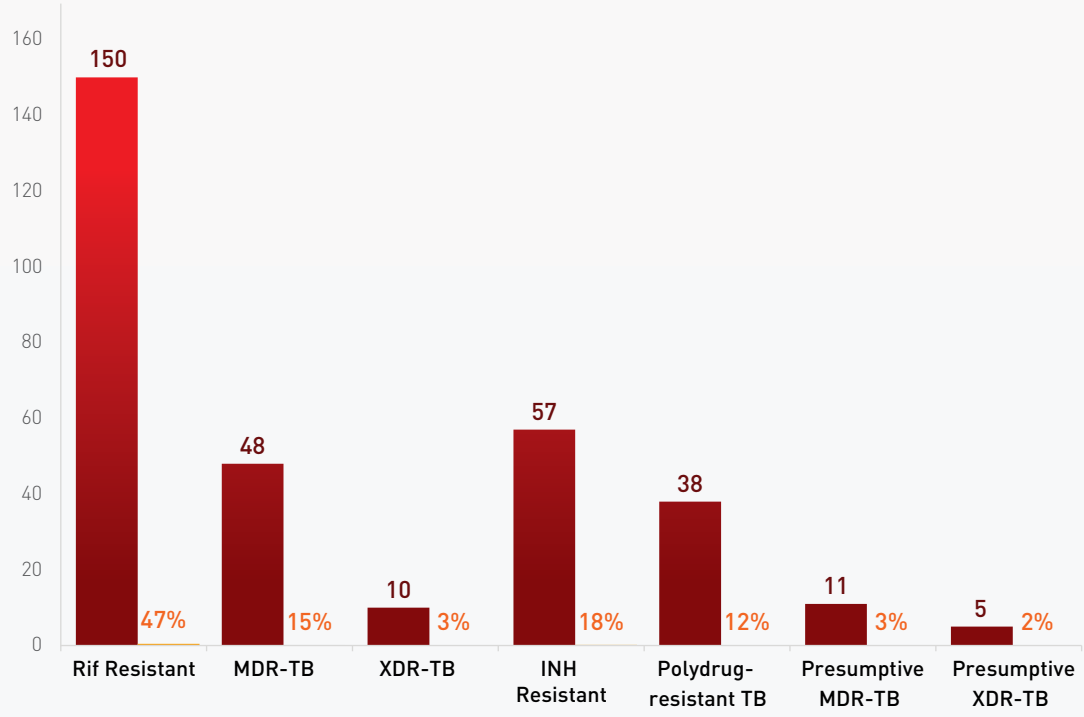
The government of Swaziland has implemented numerous interventions to prevent and control drug resistant tuberculosis. These includes but not limited to: roll out Xpert MTB/RIF to improve DR-TB case detection. The laboratory diagnostic tests were further strengthened by continued decentralization of Xpert MTB/RIF testing capacity, universal access of first-line and second-line Drug sensitivity testing (DST), introduction of first-line & second-line line probe assay (LPA). The program has further introduced new TB drugs and shorter MDR-TB regimen, trained health care workers on DR-TB management, conducted supportive supervision and mentoring, collaborative management of TB/HIV, patient support, etc.

These efforts have been accompanied by a decline of DR-TB cases from 577 in 2015 to 384 in 2016 (Swaziland TB report, 2016) and increase of DR-TB treatment success rate from 54% for 2010 cohort to 70% for 2013 cohort (TB report, 2016). In line with the End TB Strategy's first pillar to ensure the availability of appropriate treatment, the country has further decentralized DR-TB treatment services, a total of 13 sites are already enrolling clients onto life-saving treatment with plans to reach a total pool of 14 DR-TB sites by 2019. This will ensure improved access to DR-TB treatment in all the four regions as per the NSP strategic objectives. The table below further illustrates the facilities by region.

Table 3: Number of sites providing DR-TB services, 2017

Region	Facility Name
Manzini	Mankayane Government
	Matsapha Comprehensive Care
	National TB Hospital
Shiselweni	Hlathikhulu Hospital
	Nhlangano Health Centre
	Matsanjeni Health Centre
Hhohho	Emkhuzweni Health Centre
	Pigg's Peak Hospital
	Dvokolwako
	Baylor Clinic
Lubombo	Good Shepherd
	Sithobela Health Centre
	Siphofaneni clinic

Figure 19: DR-TB cases enrolled on DR-TB treatment by type of Resistance, 2017

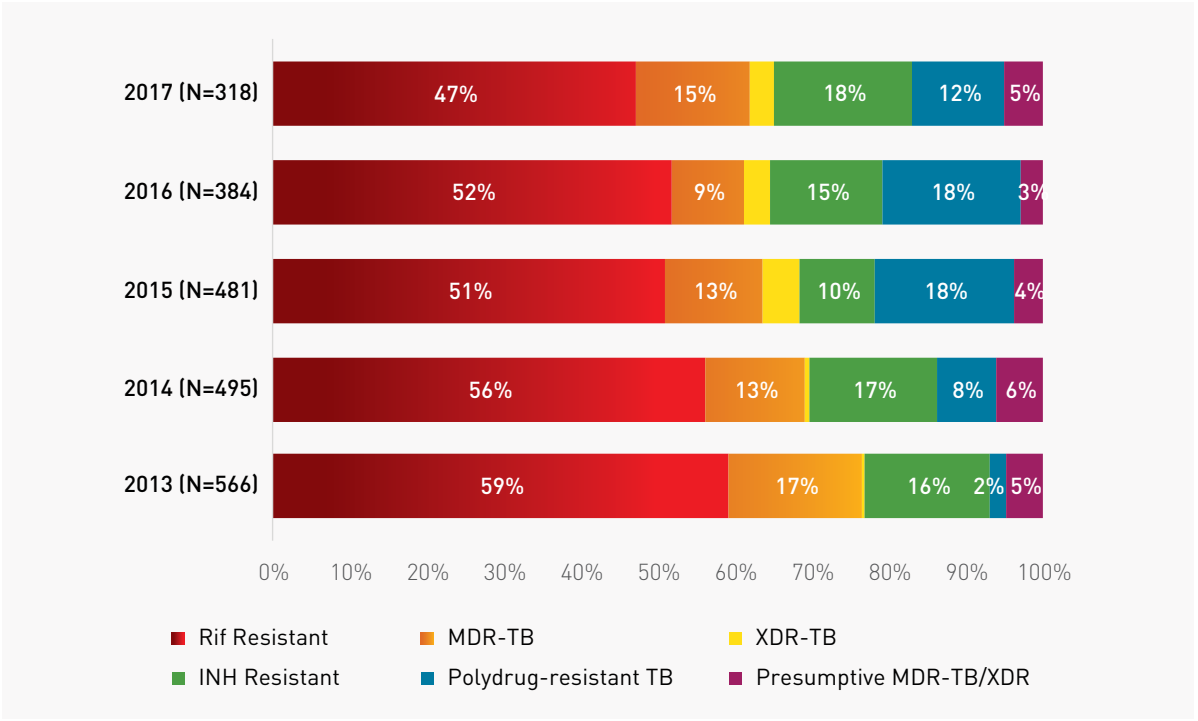


The figure above shows the number of DR TB cases enrolled on treatment in 2017 disaggregated by type of resistance. A total of 318 DR-TB cases were enrolled into treatment in 2017, this shows a 17% decline in the number of DR-TB cases notified in the country when compared to 384 cases reported in 2016. The most common type of resistance is Rifampicin Resistant TB with 150 cases (47%) and the least common is the presumptive TB with 5(2%) cases.

Noted was the wide difference between the Rifampicin Resistant TB and MDR –TB which might due to that the second sample was not sent for culture and DST or the result of the second sample was not updated in the registers.

Extensively drug resistant TB (XDR TB) was found to 3% which is way below the WHO estimate of around 10% which might also be due to underdiagnoses by either not sending second sample or follow up of SL-DST results for all our RR cases.

Figure 20: DR-TB cases enrolled on DR-TB treatment by type of Resistance, 2013-2017

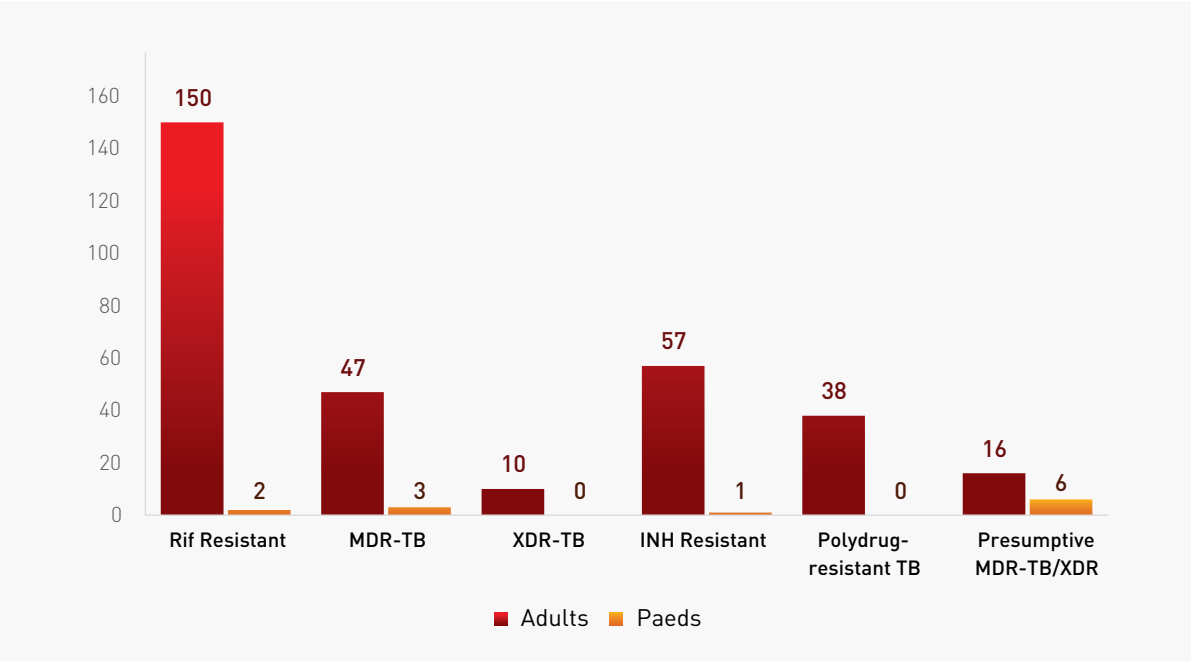


The graph above shows trends in DR-TB patient's enrolment by type of resistance between 2013 and 2017. There is progressive decline in the number of DR-TB cases notified over the years, 2013-2017. DR-TB cases have declined from 566 cases in 2013 to 318 in 2017. Rifampicin resistant cases declined from 59% in 2013 to 47% in 2018. The proportion of confirmed MDR-TB has remained low over the years with an average of 13%, yet the country has introduced universal culture and DST. INH mono resistant is generally becoming more common which calls for strengthening of both DS-TB and DR-TB management. This means review of DST results should be done before changing to continuation phase in case patient has unidentified INH resistant strain. Laboratory support is also needed to assist with returning the LPA results early.

3.12 Enrollment by Age Disaggregation

According to WHO standards and benchmark the proportion of childhood TB out of all TB cases should be approximately 10 % of the total TB cases notified. Paediatric TB cases are among high risk population and this is due to their under-developed immune systems as a result, the program highlighted the need to address and optimize TB diagnosis and management (the NSP 2015-2019).

Figure 21: DR-TB patients enrolled on DR-TB treatment by age-group, 2017



The graph above represents DR-TB enrollments by age disaggregation. In 2017 a total of 318 DR-TB cases were enrolled on treatment. Among these cases, 97% were adults and 3% were pediatrics. Most (55%) of the pediatric cases were enrolled on second line treatment empirically. This is because it is difficult to confirm DR-TB in pediatrics thus there is need for innovative ways to diagnose childhood TB. In an effort to address the challenge the program has procured equipment (nebulizers, etc) and conducted trainings for health care workers so as to enhance sputum production among presumptive pediatric TB cases.

Figure 22: Trends in DR-TB patients enrolled by History of TB, 2013, 2017

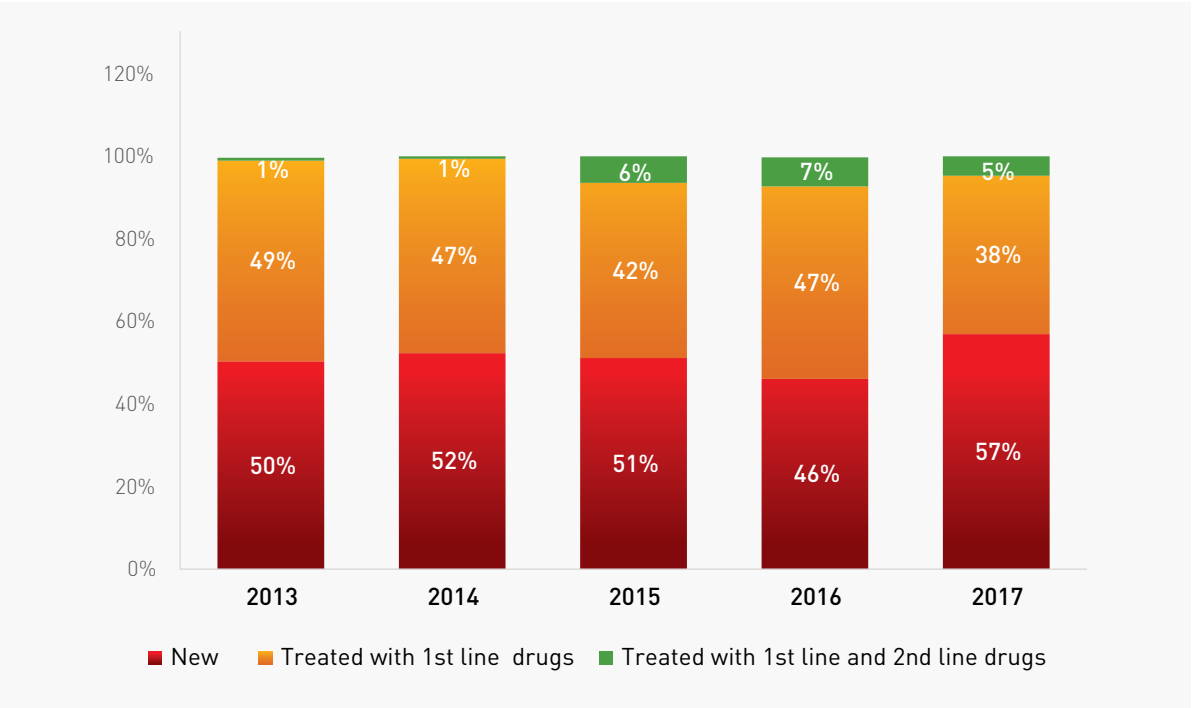
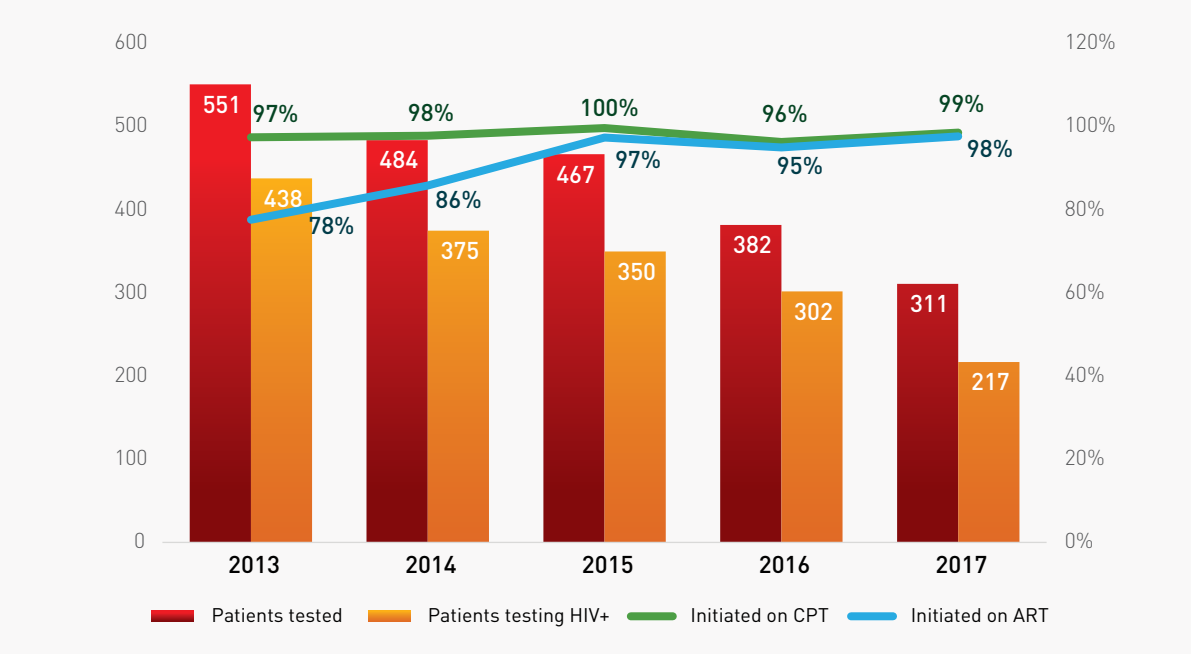


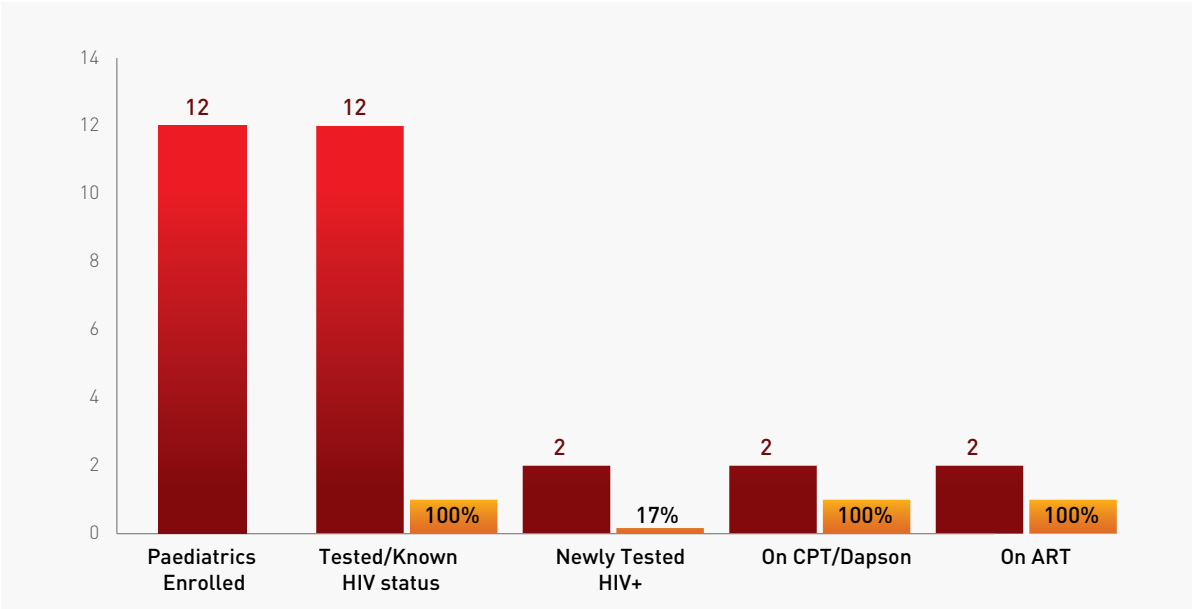
Figure 22, above shows a trend of DR-TB cases enrolled by treatment history from 2013 to 2017. It's worth noting that most of the DR-TB cases enrolled on treatment over the years are new cases. This is contrary to the findings of the DR-TB survey conducted in 2009- 2010, which showed that 7.7 % of new cases and 33.9% previously treated cases had MDR-TB. This data shows that both new and previously treated are equally at risk of DR-TB. The program has also noted that, and has now introduced universal access to culture and DST for patients regardless of treatment history which has resulted in increased detection of DR-TB strains in new cases.

Figure 23: TB/HIV Collaborative activities among DR-TB patients, 2013-2017



During the year 2017, 98% of DR-TB patients were tested for HIV, 68% TB/HIV co-infected ,99% and 98% were initiated on CPT and ART respectively. This illustrate significant improvements in the TB/HIV collaborative activities among DR-TB patients. Notably ART initiation for co-infected patients improved significantly since 2013 from 78% to 98% in 2017.

Figure 24: TB/HIV Collaborative activities among Paediatric DR-TB patients, 2017

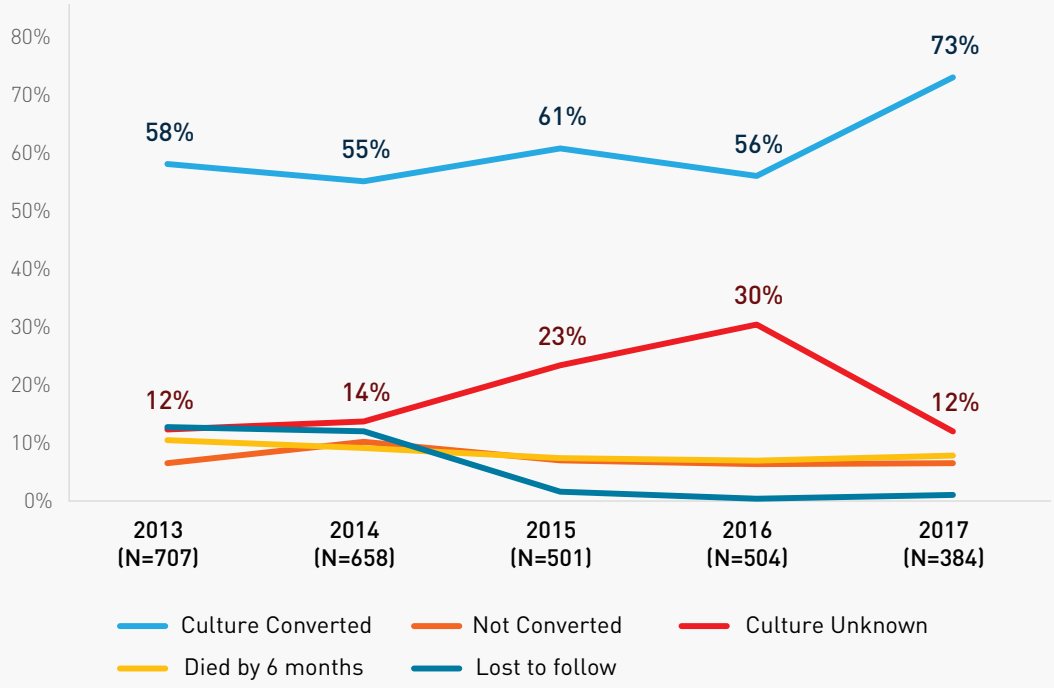


Among Paediatric DR-TB cases enrolled in 2017, 100% were tested for HIV and out those who tested HIV positive, 100% were initiated on CPT and ART. This shows an outstanding performance in terms of TB/HIV collaborative activities.

3.13 Multi-Drug Resistant TB Interim Outcomes

The country has adopted the ambulatory model of care where all patients with Multi-drug resistant TB are managed as outpatients and only those who are critically ill or have other social problems are admitted. Patients with MDR-TB receive 8 months daily injection in the intensive phase from the nearest clinic followed by 12-16 months of oral medication at home. They are reviewed monthly at the DR-TB initiating sites. In 2016 WHO recommended shorter MDR-TB regimen for all eligible patients with MDR-TB for 9-12 months and those not eligible will be initiated on conventional/longer regimen for 20-24 Months. The intensive phase for shorter regimen is 4-7 months according Swaziland guidelines and continuation phase of 5 months. The shorter MDR-TB regimen includes seven drugs namely:Kanamyci/Amikacin,High dose Moxifloxacin,Clofazimine,Prothionamide,High dose Isoniazid,Ethambutol and pyrazinamide. The conventional regimen includes five drugs namely: Kanamycin/Amikacin, Levofloxacin, Prothionamide, Terizodone/Cycloserine, Pyrazinamide and PAS. Baseline investigations are done for all patients and culture examinations and sputum smear microscopy are performed every month to monitor the patient's bacteriological response to treatment. Interim outcomes are assessed at 6 months to monitor the conversion status before patients are changed to continuation phase.

Figure 25: DR-TB Interim Outcomes, 2013-2017



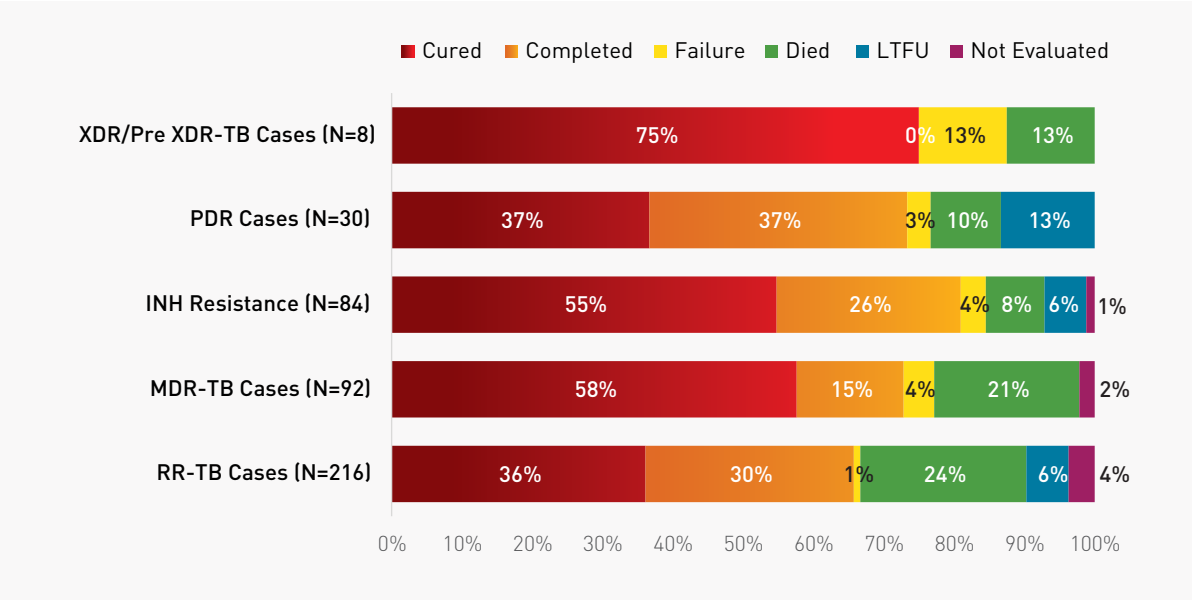
The figure above presents the 6 months interim outcomes. A total of 384 of bacteriologically confirmed DR-TB patients were enrolled from April 2016 to march 2017. Seventy-three percent (73%) of these patients were culture negative at 6 months. This shows that there was a significant increase in the conversion rate. It has increased from 58% in 2013 to 73 % in 2017. The program has also been able to reduce the culture unknown from 30% in 2016 to 12% in 2017, yet still above 5% target. This was accomplished by the implementation of the collaborative quality improvement project and the program will continue with this project until the target is achieved.

There has been quite a significant improvement of lost to follow up during the intensive phase. This could be attributed to the efforts made by the program to ensure adherence to treatment through engaging treatment supporters, intensive adherence counselling sessions, provision of psychosocial support to patients during the course of treatment.

3.14 Drug Resistant TB Final Treatment Outcomes

DR-TB treatment outcomes in Swaziland are defined according to WHO recommendations. Final treatment outcomes are assigned upon completion of the recommended 36 months' duration of treatment or following premature termination of treatment due to death, treatment failure or LFTU.

Figure 26: DR-TB Outcomes by type of Resistance, 2017



This figure above shows the treatment outcomes for patients who were initiated on treatment in 2014 and completed treatment in 2017. Of note, the XDR-TB had the highest cure rates of 75%, this is surprising because the XDR-TB is the most complicated type of drug resistant TB. This might be attributed to the introduction of new drugs (bedaquiline and delamanid) or that the program is directing most of its resources to the management of XDR-TB. MDR-TB cases had a cure rate of 55%, and rifampicin resistant TB had a cure rate of 36% yet they are managed by the same treatment. This may be due to that most the rifampicin resistant TB cases are diagnosed by gene Xpert which has a capacity of diagnosing rifampicin resistance only and there is a chance of missing the other types of resistance. To address this the program, need to strengthen the sending of second sample to NTRL for culture and DST and communication of results back to facilities to ensure appropriate management of patients. In general, the treatment success rate for rifampicin resistant(RR-TB) is very low (66%) as compared to other resistant types,73% MDR-TB,81% INH mono,74% PDR-TB and 75% XDR-TB.

Another challenge facing the program are the high mortality rates. Rifampicin resistant TB cases had the highest mortality rates of 24%, followed by MDR-TB cases at 21%, XDR-TB at 13%, PDR-TB at 10% and INH resistant TB at 8%. The program is currently preparing to conduct death audits to ascertain the causes of death.

Figure 27: DR-TB Final Outcomes for all DR-TB patients, 2009-2014 cohort

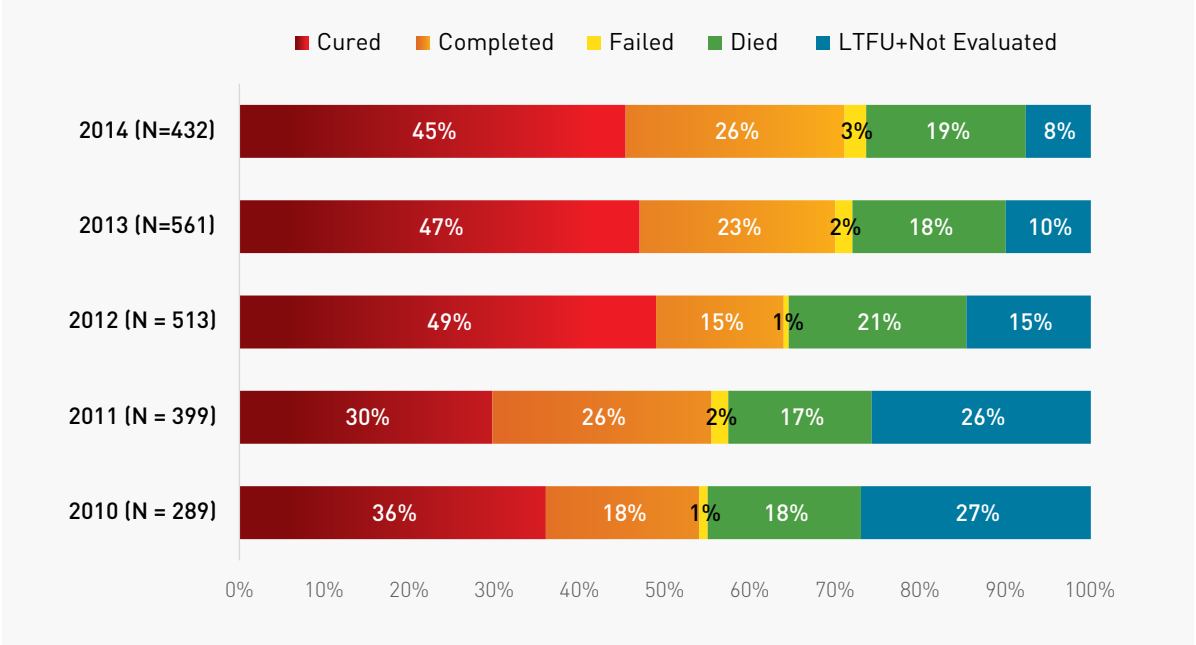
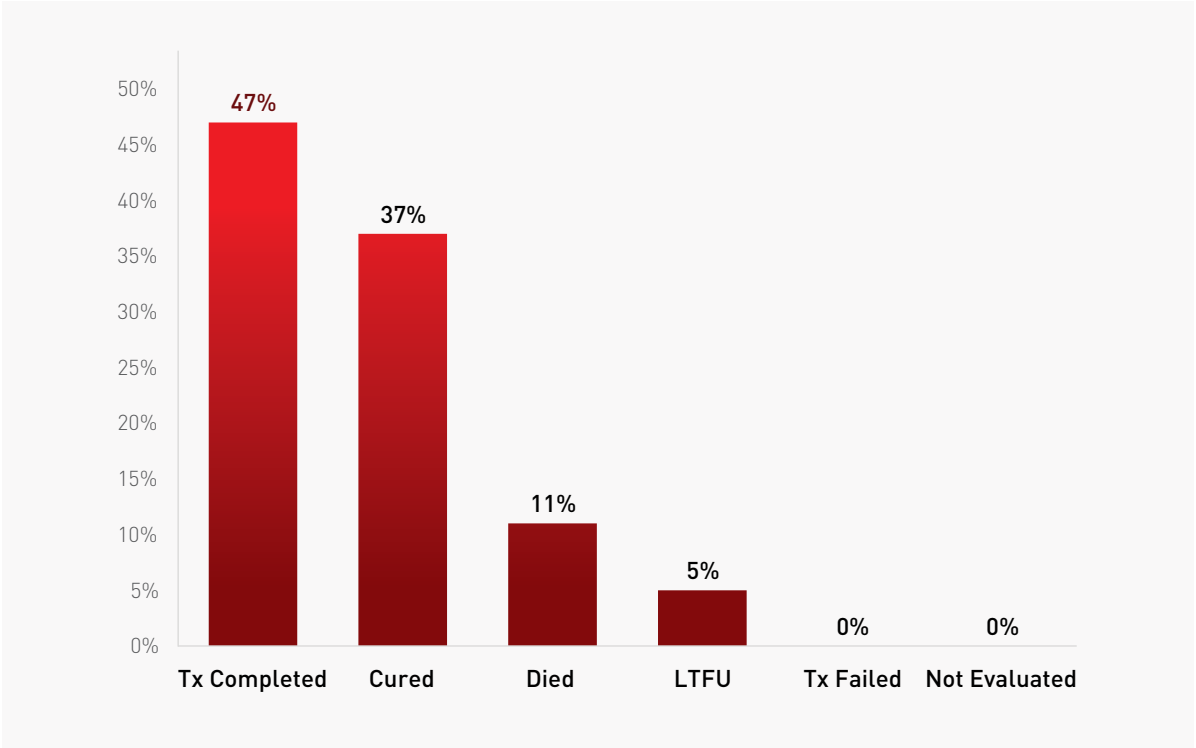


Figure above, shows final outcomes for all DR-TB patients who initiated treatment between 2010- 2014 and completed treatment in 2013-2017 respectively. Treatment success rates for patients initiated on DR-TB treatment has significantly improved over the years. It has improved from 54% in 2010 to 71% in 2017. This great improvement can be credited to the decentralization of DR-TB services, introduction of DR-TB teams, introduction of rapid diagnostic test which allowed prompt diagnoses and initiation on treatment, and introduction of adherence officers. The program has also introduced new drugs, shorter MDR-TB regimen and also optimized the existing tools to improve the management and treatment outcomes of patients with drug resistance TB.

Figure 28: Final Outcomes for Paediatric DR-TB patients, 2014 cohort



The graph above shows treatment outcomes for all paediatric DR-TB cases enrolled in 2017. A total of 24 pedriatic TB cases were enrolled in 2017, 20 (84%) cases were successful treated. This a 6% shortfall from the 90% set target. Among unfavorable outcomes, the death rate was highest at 11%, LTFU at 5% and no cases were LTFU and failed treatment. To address the high mortality rate, the program has embarked on mortality reviews to accurate determine the actual causes of death among TB patients.

CHAPTER 4

Program Achievements And Challenges

The overall aim of the NTCP is to reduce TB mortality and morbidity, cut transmission and infection especially in high risk groups until TB ceases to be a major public health problem in Swaziland. In 2017, the program realized improvements in the key indicators that are routinely monitored. The program managed to achieve its set goals and also implemented the planned activities for 2017. Of course, it would not be a worthwhile journey without challenges along this road.

4.1 ADVOCACY, COMMUNICATION AND SOCIAL MOBILIZATION (ACSM)

Achievements:

- Community TB screening and Education in Shiselweni region which included 3 TB day build up, screening of factory workers, screening men during Men's Health, screening of children at ELMA project and information dissemination during cross boarder Malaria/TB/HIV campaign.
- 161 people were screened (65 factory workers,36 men,60 children).
- World TB day 2017 was commemorated in the Manzini region at Lobamba Lomudzala Inkhundla. Hundreds of people attended the event which was led by the Minister of Health, Members of Parliament, The clinical directorate, The US Embassy, WHO country Representatives and Country directors from the implementing partners.
- The National TB Control Programme annually takes part in the exhibition of the Swaziland International Trade Fair (SITF). In 2017, information on TB, TB/HIV including MDR-TB was disseminated. TB screening services were also provided throughout the duration of the SITF.

Challenges:

- Limited funding to implement most of the ACSM activities.

4.2. DOTS

Achievements

- Trained Health care workers on importance of Treatment supporters and adherence to all patients (DR and DS TB)
- Recruited adherence officers for both DS TB and DR TB.
- Provided of nutritional supplements and transport allowance to the patients
- Capacitation of patient support officers in health facilities on adherence
- Replaced resigned TB screening officers
- Trained nurses on TB screening
- Provided Supportive supervisions to DR-TB facilities

Challenges:

- No funding to support activities under DOTs
- Inability to replace TB screening officers
- Insufficient personnel interms of treatment supports and adherence officers

- Absence of psychosocial support for TB patients.
- No maintenance plan for motorbikes used for tracing defaulters

Action Points

- Develop a maintenance plan for motorbikes used for tracing defaulters
- Recruit personnel (TB screening Officer, Treatment supporters)
- Train of health care workers on psychosocial support for TB patients.

4.3. PEDIATRICS

Achievement

- piloting of tools for maternal and child screening of TB coupled with strategies to prevent mother-to-child transmission of TB.
- Successful transition into new drug formulations for correct dosing of anti-TB drugs as an essential prerequisite for complete cure
- Incorporated pediatric HIV into paediatric TB training curriculum

Challenges:

- Difficult in collecting adequate sample for microbiological diagnosis among paediatric patients
- Very low index of suspicion on clinical diagnosing of children in TB
- Not all facilities do TB diagnosis among paediatrics.
- Poor Psycho-social support for caregivers providing treatment support to their children on TB treatment
- No nutritional support specifically for children suffering from TB.
- Un availability of formulations for drug resistant TB in children

Action Points

- Support presumptive children to access further diagnostic tests at health centers and hospitals.
- Procure more equipment to assist in the diagnosis of TB in children such as digital X-rays.
- Integrate childhood TB screening as a routine care in all points of care.
- Continued advocacy for child friendly formulations for the treatment of drug resistant TB

4.4. ACTIVE CASE FINDING (ACF)

In 2016 TB program introduced ACF to bring TB services at the doorstep of the community. A total of 369 (1 per chiefdom) active case finders were recruited to conduct screening, sputum collection and receipt of results to the patients in the community.

Achievements:

- ACFs found to reach a wider population than other community cadres hence the recommendation to train them other diseases; MTR finding
- Trained on non – communicable diseases, chronic lung conditions, HIV and also refreshed on TB issues.
- ACFs bringing TB services which include (education, screening and sputum collection) at door step in the communities reducing the out of pocket costs for TB patients in accessing those services
- Improved ACF M&E systems through supportive supervisions and refresher training which had resulted to improvement in documentation
  - Development of community data base with support from KNCV

- Provision of Health education to communities is a leverage for community empowerment
- Intensified mentoring and supportive supervision which has improved patient care and support

Challenges:

- Delayed report submission to regional and national offices which affects timely data analysis
- Presumptive cases not recorded in presumptive registers without a sputum sample

- Clinically diagnosed ACF identified cases are not captured in the ACF data which result to data discrepancies
- Cold chain system remains a challenge
- High ACF attrition rate

Action points:

- Regional coordinators to routinely collect reports from the facilities and also explore digital data reporting system.
- ACFs need to record all presumptive cases on the presumptive registers so to follow up on all their TB presumptive cases.
- There is need to adopt innovations that pervade the cold chain.
- Continuous recruitment of ACFs

4.5. TB/HIV integration

Achievements:

- All 4 quarterly National TB/HIV coordination committee(NCC) meetings were conducted.
- Sensitization for Regional TB/HIV coordination committee meetings have been done in all regions and only 3 out 4 regions have set up and conducted meetings.
- TB/HIV services has also been decentralized to 125 in 2017 from 111 health facilities in 2016.
- All 4 planned regional TB/HIV trainings were conducted and about 120 health care workers were trained.
- Well integrated TB/HIV services in all BMU sites including Tb screening, diagnoses and management of TB/HIV co-infected patients.
- Improvement in TB/HIV cascade
  - HIV testing trend (2012-2017) in TB clinics remains high 98%-99%
  - CPT uptake 98%-100% (2012-2017)
  - Great improve in ART uptake 65%-94% (2012-2017).

- TB/HIV co-infection rate has reduced from 80% in 2012 to 69% in 2017.
- Treatment success rate for TB/HIV co-infected patients remains comparable with all forms of TB; 82% versus 83%.
- Roll out of contact tracing register in all health facilities and TB module has been developed and in cooperated into CMIS.

Challenges

- No regular meetings for regional TB/HIV coordination committees and one region has not conducted any meeting.
- IPT uptake still remains low.
- Frequent stock out of INH.
- Health care worker screening not done routinely.
- TB treatment is not available at some ART sites (188 ART /125 TB).
- Most facilities lack IPC plan, focal person and committees.

Action Points

- Continue supporting regional coordination committees especially one region which has not started.
- Strengthen supply chain management for INH.
- Provide supportive supervision and mentorship to health care workers on IPT.
- Encourage semi-annual health worker TB screening.
- Continue to decentralize TB services to catch up with ART sites from 125-150 in 2018.
- Invest in improving infrastructure for infection control and administrative control measures.

4.6. INFECTION AND PREVENTION CONTROL

Achievements:

- National Correctional TB-IPC Coordinating Committee was established and annual TB-IPC Workplan was developed.
- 35 TBIPC focal persons were capacitated on TBIPC activities from Healthcare facilities in the Manzini region.
- Onsite trainings conducted in 20 sites with functional IPC Committees.
- Risk assessments conducted in 19 site (13 sites in Manzini and 6 in other Regions)
- Reviewed IPC plans in 8 sites.
- TB Surveillance program was established.
- 20 Wellness clinic focal persons were trained on TB Surveillance program.

Challenges:

- No IEC Materials on TBIPC
- Poor Environmental controls in facilities due to the infrastructure
- Lack of Fit test in facilities; still awaiting support from implementing partners.

Action Points:

- Strengthen Environmental controls: Providing an alternative to Natural ventilation (UVGI and whirly birds).
- Enhance the procurement of Fit test kit to strengthen Respiratory controls
- Ensure that TBIPC IEC material is printed during the World TB day commemoration promotional activities.

4.7. MINERS AND EX-MINERS

Achievements

Challenges:

- GeneXpert machines from Laboratories and Occupational Health Centres are not functioning to full capacity thus limiting the number of samples that could be tested each day.
- Presumptive cases are not evaluated OHC medical officers are on leave hence creating large backlog of presumptive to be tested.

4.8. PMDT ACHIEVEMENTS

Achievements:

- National scale up of shorter regimen from pilot to routine practice with dissemination of guidelines.
- 11 ECGs were procured and decentralized to all DR-TB sites for monitoring patients on shorter regimen and new drugs.
- 11 onsite ECG trainings were done and about 80 health care workers were trained and one advanced ECG training for doctor was done and 30 doctors were trained.
- 30 health workers (nurses and doctors) were trained on ototoxicity screening in 2017.
- Increased ototoxicity screening by health care workers in DR-TB sites.
- 8 Kuduwaves were distributed to facilities and are being used in 8 DR-TB sites.
- 4 non-behavioural audiometry equipment were procured and distributed to 4 sites in 2017 (to assist children)-Baylor,Piggs Peak,NTBH and Hlatikhulu.
- 2 audio booths have been installed in 2 DR-TB sites (Baylor and Hlathikulu).
- 4 DR-TB expert clinical meetings were conducted in 2017.
- Clinical access program (CAP) committee continues to support clinicians with management of difficult cases who are eligible for new drugs.
- Approximately 280 patients were enrolled on new drugs by 2017.

- Advocacy for comprehensive patient support package for DR-TB patients in all 4 regions.
- Existence of community outreach teams in most facilities to provide services to patients in the comfort of their homes.
- Developed DRTB/HIV IEC materials.

Challenges:

- Limited uptake of shorter MDR-TB regimen
- TAT for LPA is longer and sometimes not done.
- High incidence of ototoxicity both baseline and during treatment.
- Inadequate TB drug safety monitoring and management(aDSM) for scale up of new drugs and shorter regimen to more sites.
- No focal person for pharmacovigilance to support aDSM
- Sustainability of DR TB care in partner supported sites
- DR TB mortality rate remains high, range from 16-21%.
- Transport challenges to support outreach activities.
- Ototoxicity screening not done regularly in 3 sites that do not have kuduwaves (Mbabane, Dvokolwako and Sipofaneni).
- No funding for continued procurement of disposable ear-tips, calibration and maintenance of audio equipment.

Action points

- To work closely with NTRL and Lab focal person to ensure FL and SLLPA is done regularly.
- To advocate for opportunities of new drugs substitution in shorter regimen during guideline review.
- To advocate for a focal person to support pharmacovigilance in all DR-TB sites.
- Strengthen aDSM through regular supportive supervision in all DR-TB sites and scale up sites from 4-8 in 2018.
- Have at least 2 supportive supervision visits per site in 2018.
- Support MSF supported sites during transition in 2018 to ensure uninterrupted services.
- Mortality audits and research to determine causes of mortality and inform targeted interventions in 2018 onwards.
- Continue to advocate for transport to support outreach services and ensure community DR-TB management is sustained for continuum of care.
- Solicits funds for continued procurement of disposable ear-tips, calibration and maintenance of audio equipment.
- Have a backup audio equipment for trainings and for facilities which have sent for repair.
- Finalise, print and distribute DR-TB/HIV IEC to all BMU and Non BMU sites.

4.9. LABORATORY

Achievements:

- Successfully engaged in a country to country exchange of gene xpert cartridges with Uganda.
- The TB lab network (NTRL and peripheral sites) was able to carry out the DRS study successfully.
- Panel Testing for microscopy was revived.
- Was able to conduct an assessment on the utilization and optimization of gene xpert instruments through the support of Global Fund

Challenges:

- Frequent modular breakdowns, most facilities do not have functional air conditioners which is contributing to the frequent breakdowns.
- High turnaround time for culture results.
- Stock Rupture was experienced in the NTRL towards the last quarter.

Action points.

- Strengthening of the TB laboratory network.
- Capacity building of TB Lab staff on stock management.

4.10. RESEARCH

Achievements:

- Conducted Drug resistance survey
- Preparatory phase for Prevalence survey
- 3 Oral and 2 poster presentations by TB program officers at World TB conference

Challenges

- High staff turn-over
- Insufficient funding
- Inflexible budget which does cater key activities discovered during field implementation

Action points

- Sourcing funds from other partners

4.11. MONITORING & EVALUATION (M & E)

Achievements:

- Conducted trainings to HCWs on TB data recording and reporting at regional and national level to improve data quality.
- Strengthened the Monitoring, Evaluation and Information Systems
  - TB module incorporated to CMIS, both DS and DR-TB modules
  - Developed and reviewed Recording and Reporting tools (Electronic System) in alignment with latest WHO recommendations.
  - Developed DHIS2 for capturing aggregate quarterly reports.

- Produced information products
  - 2016 TB annual report
  - WHO Global TB Report- Swaziland component
  - Progress Updates/Disbursement Reports (PU/DR)
  - Quarterly Service Coverage Report (QSCR)
  - Ad-hoc Information Requests

- Developed all strategic information documents required for the Global Fund grant application
  - Developed M&E Plan (HIV&TB) as part of the grant application document requirements
  - Developed targets for TB indicators
  - Developed Performance framework (Grant application/ making process)

- Mid-term Review of Strategic Plan
- Epidemiological Review as a component of the Midterm review

Challenges:

- Vital registration system not reviewed hence still having challenges to report actual TB deaths
- Inadequate use of IPT data collection tools hence IPT targets not met
- LIS and HMIS not integrated which lead to limited data sharing

CHAPTER 5

Conclusions and Action Points

5.1. Conclusions

The National TB control Programme continued to implement and coordinate TB prevention and control activities in all the 4 region of the Country. The NTCP takes the End TB Strategy as its foundation and provides the country with a path towards achieving the Strategy's milestones. The NTCP presents a means for how the country can break out of the current trend of slow decline and "bend the curves" of incidence and mortality towards ending TB. It provides a set of people-centered targets that the country uses for planning and implementation of TB services.

5.2. Action Points

- Finalization of tools to collect key populations data
- Develop sustainability framework for continuum of care in partner supported areas
- Standardize patient support across all regions to enable roll out of Short Term Treatment and New Drugs
- Community TB stigmatization needs to be strengthened.
- Strengthening of staffing transport and psychosocial programme.
- Advocate for labour and protection for MDRTB clients for losing their jobs.
- Consistent supply of fuel for the National transport system.
- Replacement plan needs to be in place for the NSTS vehicles.
- Need to develop a robust data base for TB data at regional and national level.
- Comprehensive patient support for all patients.
- All DRTB patients to have a community and a family treatment supporter.
- Need of an aggressive sensitization strategies to improve early treatment and seeking behavior to decrease death rate due to late presentations.
- Maintenance of motorbikes and bicycles for tracing lost to follow ups at community level.
- Capacitation of health care workers on TB issues to reduce stigma and reluctance.
- Advocate for laws that protect TB patients to improve outcomes.