Ministry of Health and Child Care

National Tuberculosis Program –Strategic Plan (2017-2020)

END TB ZIMBABWE

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ANNEXES

LIST OF ABBREVIATIONS AND ACRONYMS

ACSM	Advocacy, Communication and Social Mobilization
ADR	Adverse Drug Reaction
AIDS	Acquired Immuno-Deficiency Syndrome
ARI	Acute Respiratory Infection
ART	Anti-Retroviral Therapy
BCG	Bacille Calmette-Guérin (vaccine)
CPT	Co-trimoxazole Preventive Therapy
CTB	Challenge TB
CTBC	Community Based Tuberculosis Care
CSO	Civil Society Organisation
DAPP	Development AID from People to People
DHE	District Health Executive
DMO	District Medical Officer
DOTS	Directly Observed Treatment, Short course
DRS	Drug Resistance Survey
DR-TB	Drug Resistant Tuberculosis
DST	Drug Susceptibility Testing
DRS	Drug Resistance Survey
EDLIZ	Essential Drugs List of Zimbabwe
EHR	Electronic Health Record
EHT	Environmental Health Technician
EQA	External Quality Assurance of AFB microscopy
ePMS	electronic Patient Monitoring system
FACT	Family AIDS Community Trust
FHI360	Family Health International 360
GF	Global Fund Against AIDS, Tuberculosis and Malaria
GLC	Green light Committee
HIV	Human Immunodeficiency Virus
HRH	Human resource for Health
IPC	Infection Prevention and Control
IEC	Information Education and Communication
IPT	Isoniazid Preventive Therapy
HCW	Health Care Worker
LF-LAM	Lateral Flow Lipoarabinomannan Assay
eLMIS	electronic Logistic Management Information System
MCAZ	Medicines Control Authority of Zimbabwe
MDR	Multi- Drug Resistance
M&E	Monitoring and Evaluation
MICS	Multiple Indicator Cluster Survey

MGIT	Mycobacteria Growth Indicator Tube
MoHCC	Ministry of Health and Child Care
MTB	Mycobacteria Tuberculosis
NAC	National AIDS Council
NatPharm	National Pharmaceutical Company of Zimbabwe
ND&R	New Drugs and Regimens
NGO	Non-Governmental Organization
NHSSP	National Health Sector Strategic Plan
NSP	National Strategic Plan
NTBRL	National Tuberculosis Reference Laboratory
NTP	National Tuberculosis Control Program
PCC	Patient-centred care
PEDCO	Provincial Epidemiology Disease Control Officer
PHC	Primary Health Clinic
PHE	Provincial Health Executive
PLHIV	People Living with HIV
PMD	Provincial Medical Officer
PMDT	Programmatic Management of Drug Resistant TB
PPE	Personal Protective Equipment
PPM	Public Private Mix
PR	Principal Recipient
PSI	Population Services International
PTBC	Provincial TB and Leprosy Coordinator
RIF	Rifampicin
RR	Rifampicin Resistant
SOP	Standard Operating Procedure
SWOT	Strengths Weakness Opportunities Threats
The Union	International Union Against Tuberculosis and Lung Disease
TB	Tuberculosis
UNDP	United Nations Development Program
UNICEF	United Nations Children Fund
USAID	United States Agency for international Development
WHO	World Health Organization
X-DR	Extensive Drug Resistance
ZimASSET	Agenda for Sustainable Socio - Economic Transformation
ZIMPHIA	Zimbabwe Population Based HIV Impact Assessment

FOREWORD

Zimbabwe has developed a Tuberculosis National TB Strategic Plan (TB-NSP) (2017-2020) to address global developments in Tuberculosis (TB) care and control services. The strategy provides a framework of priorities to be addressed in the next four years taking into consideration the External Program Review recommendations, Green Light Committee (GLC) assessment recommendations and Epidemiological Analysis conducted in 2016.

The country notified 28,225 cases in 2015 (translating to TB treatment coverage of 72%). More efforts are needed to detect and diagnose the missing cases; especially those that do not attend the public health facilities and hard to reach high risk groups. In addition, there is provincial variation in TB notification, reflecting potential differentials in case finding efforts. There is need to for deliberate targeting of provinces low case notification to optimize treatment coverage. Significant gains have been made as reflected in past performance, yet the country still faces the increasing burden of Drug Resistant-TB (DR-TB) and the dual challenge of TB and HIV, with co-infection rate as high as 70% in 2015. Notably, the program has been able to enroll over 75% of these patients into ART program.

The country has benefited financially and technically from development and implementing partners. On behalf of the Ministry of Health and Child Care (MoHCC), I would like to sincerely express our gratitude and appeal for the continued support, and more partners to join us in this fight, towards our shared aspiration of 'Ending TB' in Zimbabwe, and most importantly, advancing the health of our citizenry.

It is my sincere hope that this Strategic plan will galvanize guide efforts in our national response.

Brigadier General (Dr) G. Gwinji
Permanent Secretary
Ministry of Health and Child Care

ACKNOWLEDGMENTS

The development of the TB-NSP (2017-2020), would have been an up-hill task had it not been for concerted efforts from various players under the coordination of the AIDS and TB Unit of the MoHCC. Equally it would have been very difficult for the MoHCC to pull this through without the financial and technical support from our development and implementing partners.

While it may not possible to individually recognize everyone who was involved in this undertaking; special acknowledgements go to the Provincial Health Executives (PHEs), City Health Authorities and District Health Executives (DHEs), who participated in the discussions on issues and priorities in this strategy. Also special thanks go to the service providers committed to ensure that TB, TB-HIV patients get the best of quality service delivery. Patients deserve special mention as the intended beneficiaries of this strategy. Last but not least is the core writing team that synthesized inputs from all stakeholders and refined the core plan under the facilitation and guidance of an external consultant. Special mention goes to the World Health Organisation (WHO) and the International Union against Tuberculosis and Lung Disease (The Union), for providing technical and financial support through Challenge TB (CTB).

Dr. Gibson Mhlanga
Principal Director Preventive Services
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EXECUTIVE SUMMARY

The need to develop a new TB-NSP 2017-2020 was to align with the new National Health Sector Strategic plan (NHSSP-2016-2020). Equally there are global developments in TB care and service delivery which have to be taken into consideration, such as, use of X-pert MTB/RIF as the initial test for presumptive cases of TB and the emphasis on patient centred care approaches that safeguard human rights and promote social protection to minimize catastrophic costs related to TB. Findings of the first ever TB prevalence survey, recommendations from the External TB Program review and Epidemiological analysis informed areas of priority focus for the next four years.

The process of developing this strategic plan was participatory, with involvement of key stakeholders through consultations, rapid assessments and key informant interviews. A comprehensive programmatic SWOT analysis clarified critical gaps that informed priority interventions. These include among others; promoting use of digital radiography for screening presumptive TB clients, use of more sensitive Xpert MTB/RIF as initial test for presumptive TB, a heightened focus on childhood TB, scaling up "One stop shop" integrated TB-HIV models of care and paying greater attention to key or at risk populations such as prisoners, miners, HCWs, diabetics, migrants and refugees. Introduction and phased scale up of new drugs and shorter regimens for DR-TB will be supported and efforts buttressed to monitor patients on treatment to timely address adverse effects from DR-TB medicines. Facility based on-site training and mentorship will be promoted as best practice to traditional hotel based training. Integrated electronic platforms for both patient care and recording and reporting will be prioritized over paper based platforms. Resource allocation will take into account provincial variations in disease burden and or differential performance.

The following are the program targets and key objectives;

Targets

i. Reach 80 % of all people with TB and place all of them on appropriate therapy first line, second line and preventive therapy by 2020

ii. By 2020, reach 75 % of the at risk groups underserved and at risk populations with access quality TB treatment and care

iii. Reach 90% treatment success for all people diagnosed with TB through affordable treatment services adherence to complete and correct treatment and social support by 2020.

Vision, Goals and Strategic Objectives

The vision of the National TB Program is to see a Zimbabwe "free of TB" with a goal of 80% reduction in TB incidence and mortality by 2025. The following are proposed strategic intervention areas over the life span of this strategy;

TB early case detection and treatment

Strategic Objective 1

To increase the treatment coverage of all forms of TB from 72% in 2015 to 85% (with contribution from childhood TB increasing from 7% to 12% and from non-NTP providers increasing from 13% to 20%) by 2020

Strategic objective 2

To increase treatment success rate for all forms of tuberculosis from 81% in 2014 to 90% by 2020

Drug resistant TB

Strategic Objective 3

To increase the number of DR-TB cases detected and enrolled on treatment annually from 468 (43%) in 2015 to 900 (80%) and treatment success rate from 59% (2013) to 85% by 2020.

TB-HIV Collaborative activities

Strategic Objective 4

To test all TB patients for HIV and initiate all co-infected on CPT and ART as well as intensify TB case finding among PLHIV.

Patient-centered approach to TB care

Sub-Objective 5

To strengthen provision of quality patient centered care, which respects patients' rights and eliminates catastrophic costs due to TB.

Sub-Objective 6

To strengthen health delivery and community systems for resilient and sustainable TB services by enhancing leadership; coordination; monitoring and evaluation capacity.

This strategy proposes a new organizational structure for the NTP in response to the demands of a global TB elimination agenda. Expectations as expressed by key Stakeholders as well as their proposed roles and responsibilities are outlined. The cost to implement this strategy is ***$USD 111,187,970.08***

CHAPTER 1: PROCESS OF DEVELOPING TB NATIONAL STRATEGIC PLAN

1.1 RATIONALE FOR A NEW STRATEGIC PLAN (2017-2020)

The changing global epidemiology and new developments in TB care and service delivery have necessitated crafting of a new TB NSP for 2017-2020. It has equally been imperative to align the new TB NSP with the National Health Sector Strategic Plan (NHSSP-2016-2020) recently unveiled. Furthermore, it has been important for the plan to dovetail with aspirations of the post 2015 Global Plan to end TB. This strategy will inform resource mobilisation efforts for ending TB, and provide a shared platform for engaging key stakeholders in this fight.

1.2 TB NSP DEVELOPMENT PROCESS

The strategic intent of the new TB NSP draws from key resource documents, namely; the recent External TB Program review (2016); the Zimbabwe National Population Based TB Prevalence Survey (2014); the Green Light Committee Monitoring report (2016); the new National Health Sector Strategy (2016-2020); an Epidemiological and Surveillance assessment for the NTP (2016); Global TB reports; the End TB strategy and Global Plan to end TB. The outline of this strategy is based on the "Toolkit to develop a NSP for TB prevention, care and control, World Health Organization (WHO-2015).

The principle in developing the strategy was promotion of participation and involvement of all key stakeholders so as to guarantee ownership. The process included an extensive desk review, a rapid assessment, consultative sessions and SWOT analysis with key stakeholders, with technical support from an external consultant and leadership from the MoHCC. During the assessment visits, interviews were held with key informants and service providers to gather and confirm on priority issues. Representatives in the process included Provincial and District Health Executives, service providers from health facilities, Funding and implementing partners, civil society organisations (CSOs) as well as other key stakeholders. Working teams were formed around key thematic areas of the End TB strategy. A draft NSP was presented to stakeholders for final review and endorsement. Inputs were then incorporated to produce a final document.

CHAPTER 2: BACKGROUND

2.1 COUNTRY PROFILE

2.1.1 Geography and Administration

The Republic of Zimbabwe is a landlocked Southern African country. It is bordered by Zambia to the North, Mozambique to the East, Botswana to the West and South Africa to the South. The country has a total surface area of 390,757 square kilometres.[1] The climate is tropical, although markedly moderated by altitude. It is generally characterised by two distinct dry and wet seasons. The rainy season stretches from November to March; however like in most countries in Southern African, Zimbabwe experienced an El-Nino induced drought during the 2015/16 rainy season. This resulted in a poor cropping season and adversely impacted on national food security. Administratively, the country is divided into eight predominantly rural provinces and two metropolitan provinces namely; Harare the capital city and Bulawayo, the second largest city, home to a combined 20% of the population. The eight rural provinces are demarcated into 65 districts.

2.1.2 Population demography

In 2016 population, the population was estimated to be 15,920,194 as projected from the last population census of 2012.[2] The Zimbabwean population is a relatively young one with more than 50% of the population below the age of 25 years. The majority, 67% reside in rural settlements and females constitute 52% of the population, with 35% of households headed by females. Zimbabwe's literacy rate is fairly high, at 84% (males 88% and females at 80%).[3]

2.1.3 Economic climate

The country has suffered from multiple economic and humanitarian crises for much of the last decade. This has resulted in constrained industrial performance, and increased unemployment. The pre-2009 economic crisis severely impacted upon social sector service provision. Economic recovery began with the conversion to a multicurrency system in 2009. Despite dollarization and other efforts to stabilize the economy, Zimbabwe's economy remains fragile, experiencing deflation since February 2014. This has resulted in retrenchments and a widening poverty gap. As a result of the economic crisis, 72.3% of the population is considered poor, with 22.5% considered to be living in extreme poverty. Poverty is higher in rural areas, 76% compared to 38.2% in urban households.[5]

[1] Zimbabwe National Health Sector Strategic Plan (2015-2020)
[2] External TB Program Review (2016)
[3] Zimbabwe Population Census, ZIMSTAT (2012)

Zimbabwe continues to be haunted by a crippling external debt overhang, compounded by the country's limited capacity to repay and service its obligations with international financial institutions. Currently, the country's debt stands at US$ 8.4 billion, with external debt accounting for 85%. During the past five years, the inflation rate in Zimbabwe has remained low, at 0.2% in 2014 and deflationary levels in 2015. This continues to undermine the attractiveness of the local investment climate.[4] Moreover, Government revenues remain insufficient to provide essential services.[5] The overall budget allocation to the public health sector has remained constrained over the years, at less than 10% of annual budget, against the agreed Abuja target of at least 15%.

The country is currently implementing an economic blue print, the Agenda for Sustainable Socio - Economic Transformation, 2013 -2018 (ZimASSET) to ameliorate the economic down turn.

2.2 HEALTH SECTOR CONTEXT

2.2.1 Health Policy Environment

Zimbabwe has finalized the new National Health Sector Strategic plan (2016-2020), wherein key national health policy issues are enunciated. The strategy reiterates government's commitment to health equity and quality. TB remains a highly prioritized disease in the NHSS 2016-2020. It has been included in the key result areas of communicable diseases alongside malaria and epidemic prone diseases[1]. The Constitution of Zimbabwe explicitly provides for the right to health care in Section 76, sub-section 1 to 2.[6]

2.2.2 Key health indicators

Life expectancy for Zimbabweans increased from 34 years in 2006 to 58.5 years in 2015 [1], while infant mortality rate improved from 64 per 1000 in 2012 to 55 in 2014 and maternal mortality from 1165 per 100 000 live births in 2005 to 614 in 2014.

[4] United Nations, Economic Commission for Africa, Zimbabwe Country Profile 2015
[5] Independent Evaluation of the 2012-2015 Zimbabwe United Nations Development assistance framework, 2014
[6] Zimbabwe's Constitution of 2013

Table 1 Population demographics as per 2012 census and Multiple Indicator Cluster Survey (MICS) reports

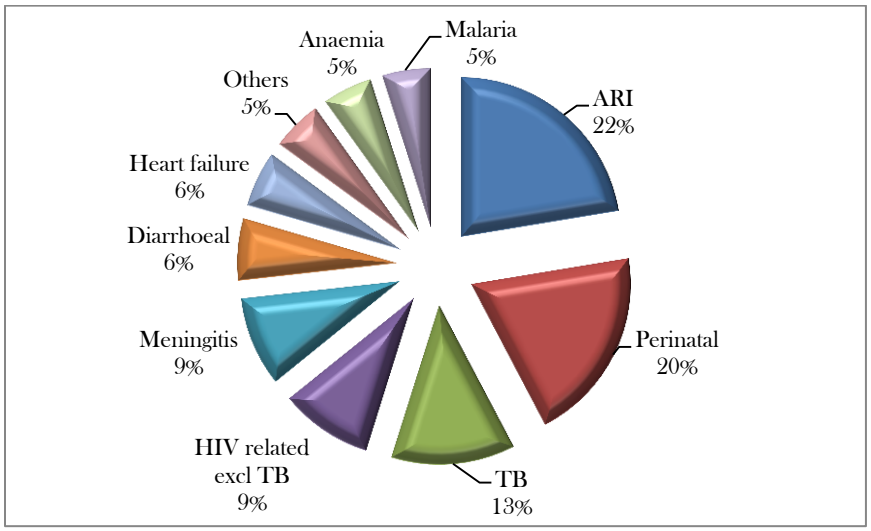
Indicator	2012 Census	Multiple Indicator Cluster survey 2014
Population under age 15 years (% of total)	41%	-
Life expectancy at birth (years)	58	-
Crude Birth Rate (births per 1 000)	32	-
Crude Death Rate per 1 000 population	10	-
Infant mortality rate, per 1 000 live births	64	55
Under -5 mortality rate, per 1 000 live births	84	75
Maternal Mortality Rate per100 000 live births	525	614
Total Fertility rate	3.8	4.3
Proportion of females	52%	52.5%
Proportion of people residing in rural areas	67%	69%
Literacy rate	96%	-

Source: Zimbabwe 2012 Population Census and MICS 2014 reports

2.2.3 Disease burden

Although significant progress has been made over the last few years in combating disease morbidity and mortality, the country still faces a double burden of communicable and non-communicable diseases. Non-communicable diseases are emerging as major cause of morbidity and mortality across the income divide.[1] The country also remains prone to epidemics of infectious diseases such as typhoid and cholera and continuously threatened by intermittent outbreaks of anthrax and rabies.[1] Deaths due to TB remain high, driven by high co-infection with HIV. The figure below shows the top 10 causes of death in 2014. Out of a total of 9084 deaths TB accounted for 13%.[1]

Figure 1: Top ten causes of death in Zimbabwe



Source: Data extracted from National Health Sector Strategic Plan (2017-2020).

2.2.4 Health care delivery system

The public health sector is divided into four functional levels, i.e. National, Provincial, District and Primary Health Centre level, each with specific functions but linked and dependent on each other. The national level drives policy development, resource mobilization and disbursement, while the provincial level provides technical and management oversight at sub-national level. The coordination of health services within the district level is the responsibility of the district health executive. The private sector compliments health service delivery as independent practitioners, private hospitals, including mine hospitals, large agro-estate health establishments, and industrial complex run health facilities.[7] Table 2 shows the number of health facilities by management authority.

[7] National TB Guidelines, 4th Edition 2010

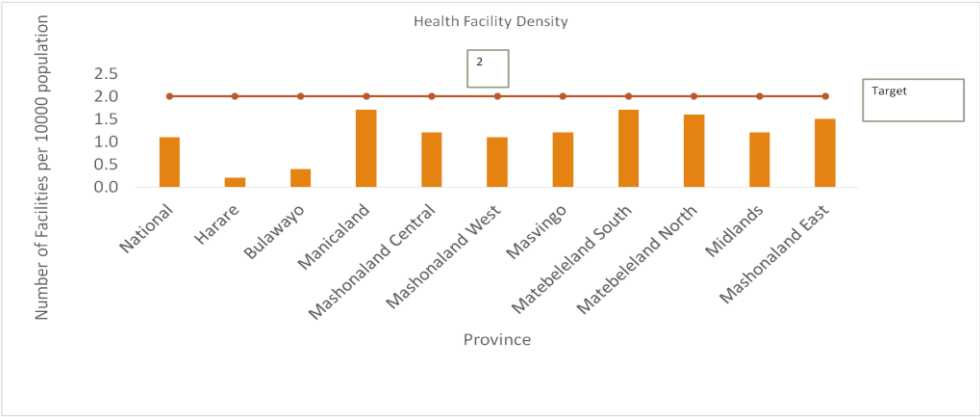
Table 2: Health facilities profile for Zimbabwe

Facility level/ Managing Authority	All facilities	Hospitals	Primary Health Facilities
Central Hospitals	6	6	-
Provincial hospitals	8	8	-
District Hospitals	44	44	-
Mission Hospitals	62	62	-
Rural Hospitals	62	62	-
Private Hospitals	32	32	-
Clinics	1122	-	1122
Polyclinics	15	-	15
Private clinics	69	-	69
Mission clinics	25	-	25
Council/Municipal Clinics	96	-	96
Rural Health Centre	307	-	307
Totals	**1 848**	**214**	**1634**

Source: National Health Strategy 2016-2020

There are provincial variations in the population coverage of health facilities. While the national target is 2 health facilities per 10 000 population, the actual national coverage is 1 health facility per 10 000 population. Only four provinces have more than 1 health facility per 10 000 population, though none has the ideal coverage of 2 health facilities per 10 000 population; see Figure 2 below.[1]

Figure 2: Coverage of health facilities per 10 000 population by province



Source: National Health Strategy 2016-2020

2.2.5 Human Resources for Health (HRH)

Zimbabwe has 30,697 health care workers in post out of an establishment of 37,602, translating to a vacancy rate of 18% based on the current staffing norms. This is a marked improvement

compared to 60% in 2009, when there were critical shortages due to human resource flight precipitated by an acute economic down turn. In response to the economic crisis, development partners have been supporting a retention scheme for health resources for health. However, critical human resource gaps persist for certain cadres such as laboratory scientists, physiotherapists, radiographers, pharmacists, medical doctors and specialists whose vacancy rates have remained above 20%.[2] In addition, the current staffing norms have lagged behind epidemiological changes in disease burden and population growth. Table 3 below shows vacancy rates for selected health care workers as at 30 November 2016.[2]

Table 3: Vacancy rates for selected HCWs as at November 2016

Cadre	Vacancy rate (%)	Cadre	Vacancy rate (%)
Laboratory scientists	44	Environmental health Officers	36
Physiotherapists	35	Environmental Health Technicians	54
Radiographers	36	Nurses	12
Pharmacists	41	Doctors (Overall)	27
Pharmacy technicians	11	Medical Specialists	63
X-ray Operators	62	District TB Coordinators	45
Nurse Tutor	41	Clinical Officers	63
Port Health Technicians	60		

Source: MOHCC Human Resources Department

CHAPTER 3: ORGANIZATION OF TB SERVICES

3.1 STRUCTURE AND ORGANISATION OF NATIONAL TB PROGRAM

3.1.1 Policy environment

The Government is committed to ending TB as a disease of public health importance. The policy to provide TB services for free reiterates this commitment, though the free services only include sputum laboratory investigations and anti-TB medicines. TB service delivery is decentralized to the most peripheral public health entity within the health delivery care strata. In 1994, the country adopted the Directly Observed Treatment Short Course Strategy (DOTS) and subsequently the Stop TB strategy in 2008.[8]

3.1.2 Program coordination and TB service delivery

3.1.2.1 Central level

The NTP at central level is housed within the Directorate of AIDS and TB within the MoHCC. The head of NTP reports to the Director of AIDS and TB unit, who in turn is accountable to the Principal Director, Preventive Services. The program operates at all levels of the 4 tier health delivery system through to primary and community level.[8]

3.1.2.2 Provincial level

Responsibilities include technical and management oversight of the sub-national level, including co-ordination, planning and overseeing implementation of national health policies under the leadership of a Provincial Medical Director (PMD) and Provincial Health Executive (PHE). At provincial level, the PMD, assisted by the Provincial Epidemiology and Disease Control Officer (PEDCO) is responsible for TB programme implementation The PEDCO works closely with a Provincial TB Co-ordinator (PTBC), accountable to a Provincial Maternal and Child Health/TB-HIV Medical Officer to ensure seamless co-ordination of TB activities throughout the province. In the case of urban municipalities, public health service delivery including TB control is under the jurisdiction of a Directorate of Health Services.[8]

3.1.2.3 District level

Responsibilities include technical and management support, supervision and co-ordination of implementation of health services within the district, including Primary Health Centres (PHC), under the leadership of a District Medical Officer (DMO) and the District Health Executive (DHE). The DMO has overall oversight for the organization and management of the TB program at district level, with the assistance of a District TB Co-ordinator.[8]

[8] National Strategic Plan for Tuberculosis control in Zimbabwe (2015-2017)

3.1.2.4 Hospital Level (Central, Provincial, District, Mission and Rural)

Hospitals manage complicated referrals of TB patients. In the event of newly diagnosed cases within the hospital setting, such are referred to respective districts or local authorities for notification and follow up care.[8]

3.1.2.5 Primary health care level

This is the most peripheral and first point of contact of health services with the community. The centre/clinic is manned by a nurse, supported by an Environmental Health Technician. The clinic initiates investigation of presumptive TB patients, initiating TB treatment and follow-up care, referring sputum negative presumptive TB clients to the next level. The clinic also maintains facility TB records and registers as well as supervising treatment supporters or community based health workers.[8]

3.1.2.6 TB laboratory network

The TB laboratory network comprises of two National Tuberculosis Reference Laboratories (NTBRL), one servicing the population in the south (Bulawayo TB Reference laboratory), and the second, servicing the northern population (National Microbiology Reference Laboratory in Harare). There are ten intermediate (provincial/city) laboratories and 220 peripheral level laboratories. All intermediate and peripheral laboratories perform sputum smear microscopy and refer re-treatment and failure cases for culture and drug susceptibility testing at the two reference laboratories. The two reference laboratories are equipped with both liquid and solid culture and line probe assay was introduced in 2013. The reference laboratories provide external quality assurance (EQA) to all laboratories in the network and are linked to a Supra-national reference laboratory in Denmark. The provincial level laboratories supervise and provide technical support to district level laboratories. There are more than 30 private laboratories that perform smear microscopy in the private sector.[8]

3.1.2.7 National Pharmaceutical Company of Zimbabwe (NatPharm)

NatPharm has the sole mandate for sourcing, storing and distributing TB medicines and commodities to all public health institutions while TB medicines are restricted in the private sector. The MoHCC regularly revises and publishes the Essential Drug List of Zimbabwe (EDLIZ), a guide for standard treatment practice and rational medicine use including TB medicines. The Medicines Control Authority of Zimbabwe (MCAZ) is responsible for quality assurance of all medicines.[8]

3.1.2.8 Community, Community Based Organizations, & Non-Governmental Organizations

These important stakeholders complement public health service delivery through community based interventions. These range from psycho-social support; DOT patient support; family and

community education; case-finding activities; nutritional support and community advocacy initiatives to harness political commitment to TB control.[8]

3.1.2.9 Private Practitioners and Institutions

Private medical care when available in most settings is at a fee, often through medical insurance. The private health sector supports the NTP mainly in the diagnosis of TB and referral to public health institution for follow up care. Some large corporations, mainly agro-based and the mining sector have company based health services including for TB, in line with national standards.[8]

3.2 PROGRAM FINANCING

3.2.1 Domestic Funding

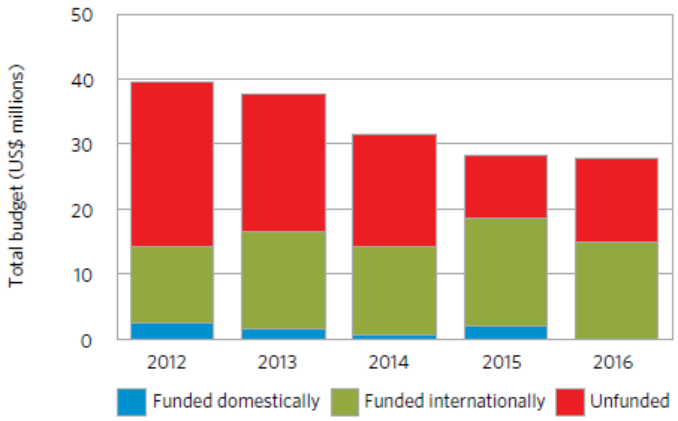
The government of Zimbabwe through the fiscus supports the basic infrastructure and necessary human resources for TB control. Furthermore, the National AIDS Trust Fund, raised through a 3% levy on taxable income supports the programme with resources for procurement of TB programme commodities.

3.2.2 External funding

Overall, the health sector is underfunded and largely dependent on external funding for service delivery, given that 80% of government expenditure on health goes to salaries.[1] The TB program has been supported by the Global Fund (GF), to the tune of USD$62.60 million for the period 2003-2013. In the new funding model (2015-2017), USD$38, 789,240 was allocated to TB with MoHCC as Principal Recipient (PR).[2] Implementation of the grant has been characterised by a low burn rate. Apart from GF funding, the TB programme has also been supported by USAID through TB CAP, TB CARE I and now Challenge TB funding mechanisms. The annual investment has been to the tune of USD$5 million.[2] It is estimated that 46% of funding needs for TB in 2016 was not met. (Figure 3)[9]

[9] Global TB Report (2016)

Figure 3 Funding landscape for TB in Zimbabwe (2012-2016)



Source: Global TB report 2016

CHAPTER 4: EPIDEMIOLOGY OF TUBERCULOSIS AND KEY DRIVERS

4.1 GLOBAL PERSPERCTIVE

The TB epidemic is larger than previously estimated. In 2015, there were an estimated 10.4 million incident TB cases worldwide, of which 5.9 million (56%) were among men, 3.5 million (34%) among women and 1.0 million (10%) among children. People living with HIV accounted for 1.2 million (11%) of all new TB cases.[9] Among estimated incident cases, only 6.1 million (59%) were notified and reported globally among whom 55% had a documented HIV test result. The proportion of HIV-positive TB patients on antiretroviral therapy (ART) was 78%. The global TB incidence continues to fall by 1.5% annually.[9] This needs to accelerate to a 4–5% annual decline by 2020 if the first milestone of the End TB Strategy is to be realized. There were an estimated 1.4 million TB deaths in 2015, and an additional 0.4 million deaths among people living with HIV. Although the number of TB deaths fell by 22% between 2000 and 2015, TB remained one of the top 10 causes of death worldwide in 2015. In the same year, there were an estimated 480 000 new cases of multidrug-resistant TB (MDR-TB) and an additional 100 000 people with rifampicin-resistant TB (RR-TB) who were eligible for MDR-TB treatment among whom only 125 000 (20%) were enrolled on treatment.[9] The latest treatment outcome data show a treatment success rate of 83% for TB (2014 cohort), 52% for MDRTB (2013 cohort) and 28% for extensively drug-resistant TB (XDR-TB; 2013 cohort).[9]

4.2 REGIONAL CONTEXT

Between 2009 and August 2016, an unprecedented number of national TB prevalence surveys were completed: 22 in total, of which 12 were in African countries. Among the top 30 high burden countries for TB, 17 are from the region, which has the highest burden of HIV associated TB. In addition, among the 14 countries high burdened for TB, TB-HIV and MDR-TB, 9 are from the region. Among the estimated global incident cases in 2015, 26% were from the African region. An estimated 11% of incident TB cases globally in 2015 were HIV positive[9]. The proportion was highest in the African region, and exceeded 50% in parts of southern Africa. Notably, 81% of notified TB patients from this region had a documented HIV test result and the proportion of known HIV-positive TB patients on ART was above 90% in, Kenya, Malawi, Mozambique, Namibia and Swaziland. Since 2010, the average rate of decline in TB mortality has been slowest in the African Region (2.2% per year)[9].

4.3 ZIMBABWEAN SITUATION

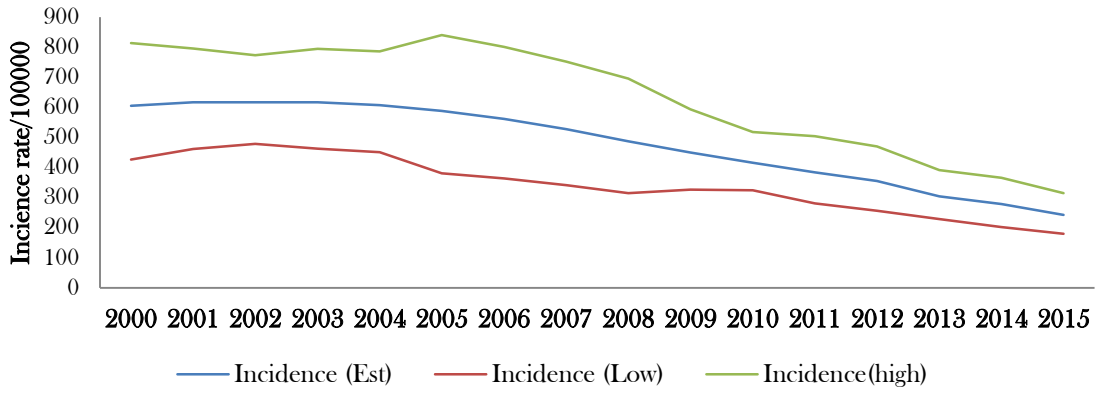
4.3.1 TB Prevalence

Like many other high TB burden Southern African countries, TB in Zimbabwe has been fuelled by a high HIV prevalence, estimated to be 14.6% among adults aged 15-64 years in 2015.[10] In 2014, Zimbabwe successfully conducted the first National TB Prevalence Survey. The results of the survey showed that the estimated TB prevalence for all forms of TB among all age groups in 2014 in Zimbabwe was 292 per 100,000 population compared to previous WHO estimates of 409 per 100,000 population, consistent with observed decline in TB notification trends.[11] Latest estimated treatment coverage has been reviewed upward to 72% in 2015.[9]

4.3.2 TB Incidence and mortality trends

Zimbabwe's estimated TB incidence for 2015 was 242 per 100,000 population. There has been a sustained reduction over the years from an estimate of 605 per 100,000 in 2000. (Figure 4)

Figure 4 Trends in TB incidence (2000-2015)

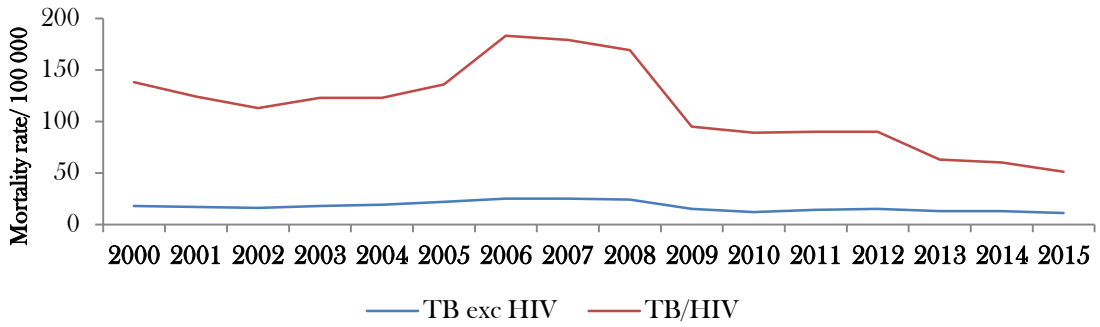


Source: WHO TB Global report 2016

Mortality due to TB alone has shown a slight decline from the 2000 rate of 18 per 100,000 population to 11 per 100,000 population in 2015. However, HIV associated TB mortality rates have significantly declined from a peak of 158 per 100,000 population in 2006 to 40 per 100,000 population.[9] This is largely a contribution of improved coverage of ART among co-infected patients from as low as 30% in 2010 to 72% in 2015.[9,12]

[10] Zimbabwe Population Based HIV Impact Assessment (ZIMPHIA) 2015-2016
[11] The Zimbabwe Population Based National TB Prevalence Survey (2014)
[12] Global TB Report (2010)

Figure 5: Trends in TB and TB-HIV mortality in Zimbabwe

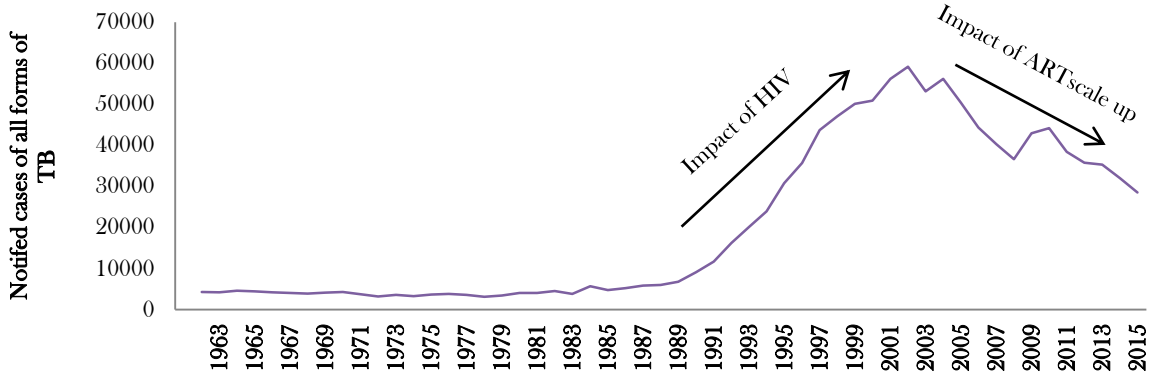


Source: WHO TB Global report 2016

4.3.3 Case notification trends

The 50 year time series show an initial stable TB case notification of 4000 cases per year (about 100 per 100,000 population), for more than two decades. In the early 90s however, there was a very steep surge, fuelled by the HIV epidemic (see figure). Subsequently, there has been a sustained decline in tandem with a progressive increase in the coverage of anti-retroviral treatment[13]. While the sustained increase in access to antiretroviral treatment among co-infected TB patients could partly account for this decline, limited case finding, especially among high risk populations may be a contributory constraint. Notably, children accounted for only 7% of notified TB cases in 2015 [9].

Figure 6: Case notification trends (all forms of TB) 1963-2015

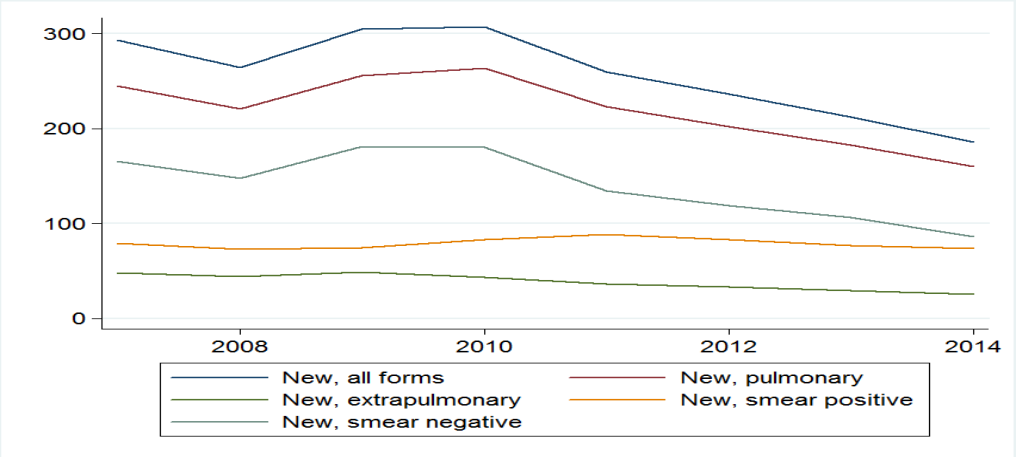


Source: NTP annual program report (2015)

The observed declining trend in TB notification since 2007 was among all new forms, except for new smear positive, which may reflect increased investment in diagnostic capacity over the years (Figure 7)[14].

[13] Epidemiological and impact assessment report, Zimbabwe 2013
[14] Epidemiological and impact assessment report, Zimbabwe (2016)

Figure 7: Trends in TB case notification among newly diagnosed by type in Zimbabwe (2007-2014)



Source: Epidemiological and impact assessment report, Zimbabwe (2016)

4.3.4 TB–HIV Co-infection

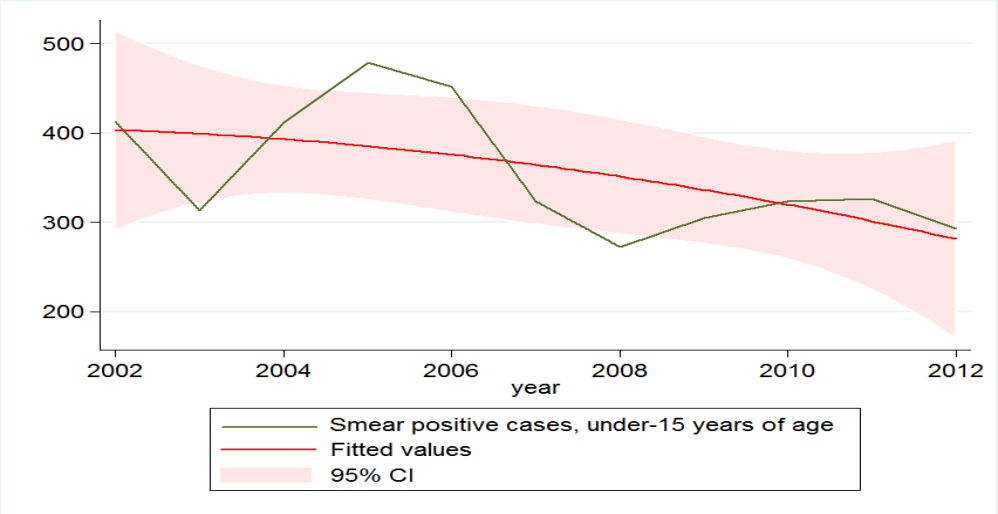
The TB epidemic has been largely driven by HIV, with more than two thirds of TB patients (72% in 2015) co-infected with HIV. Significant strides have been made in the front of TB-HIV collaborative efforts. Notably, HIV testing among TB patients continues to inch towards universal access, with 96% of TB patients reported to have a known HIV status, and 72% of co-infected patients on ART in 2015.[9]

4.3.5 Childhood TB

Globally, TB is among the top 10 causes of death among children; albeit childhood TB remains among the least prioritized in most national health programs.[15] TB in children is usually a result of direct contact with close infected family members. Contact screening is thus an important intervention for early case detection as well as prevention through provision of Isoniazid Preventive Therapy (IPT) among under 5s when active TB has been excluded. The contribution of Childhood TB to the national TB burden has remained subdued, at less than 10% annually. Case notification trends have continued a downward spiral in tandem with declining annual TB incidence, (Figure 8).

[15] Swaminathan S. et al; Clin Infect Dis 2010; 50 Suppl 3: S184–94.

Figure 8: Smear positive childhood TB cases notified (U15 year old) - 2002-2014



Source: Epideniological and impact assessment report, Zimbabwe (2016)

4.3.6 Drug resistant TB burden

The actual burden of DR-TB in Zimbabwe is unknown. A national Drug Resistance Survey (DRS) has recently been completed and will assist in the refining current WHO estimates based on a DRS done two decades ago. The country embraced Programmatic Management of Drug Resistant TB (PMDT) in 2010 that has seen a progressive improvement in the capacity to detect and treat DR-TB and decentralization of PMDT to district level with scale up of more rapid molecular Xpert MTB/Rif technology.

4.4 HIV SITUATION

4.4.1 HIV prevalence

According to the Zimbabwe Population-Based HIV Impact Assessment (ZIMPHIA) conducted from 2015 to 2016 the HIV prevalence in adults aged 15-64 years is 14.6%. There is regional variation across provinces with the highest prevalence in Matebeleland South 22.3% and the lowest in Manicaland 11.4%. Women are disproportionally affected by HIV with a prevalence of 16.7% among those aged 15-64 years compared to 12.4% among men. In pursuit of the 90-90-90 HIV targets, approximately 74.2% of people living with HIV (PLHIV) know their status and of these 86.8% are on anti-retroviral treatment (ART) with 86.5% are virally suppressed.[16]

[16] Zimbabwe Population-Based HIV Impact Assessment – Summary Sheet: Preliminary Findings December 2016

4.4.2 HIV incidence

The annual incidence of HIV among adults aged 15-64 years is estimated to be 0.45%, translating to approximately 32,000 annual incident cases. This is a marked reduction from the peak of 5.5% peak incidence of the early 90s and 2.63% in 2000. The declining annual HIV incidence is in tandem with the sustained decline in TB incidence over the past decade (Figure 6).

CHAPTER 5: PROGRAM PERFORMANCE AND GAP ANALYSIS

The current National TB Control Strategy (2015-2017) set out ambitious goals and targets for case finding and holding with proposed key strategic interventions in pursuit of these aspirations. The strategic objectives were;

- To increase case notification rate of all forms of tuberculosis from 269/100 000 (35,566 patients) in 2013 to 313/100 000 (43,231 patients) by 2017
- To increase treatment success rate for all forms of tuberculosis from 78% in 2012 to 87% by 2017
- To increase the number of DR-TB cases detected annually from 393 in 2013 to 1 600 by 2017
- To increase treatment success rate of Drug resistance TB from 59% in 2011 to 75% by 2017.

Below is a synopsis of the achievements to date and key challenges and program gaps during the lifespan of this strategy.

5.1 LABORATORY NETWORK AND DIAGNOSTICS

5.1.1 TB sputum microscopy

5.1.1.1 Key Achievements

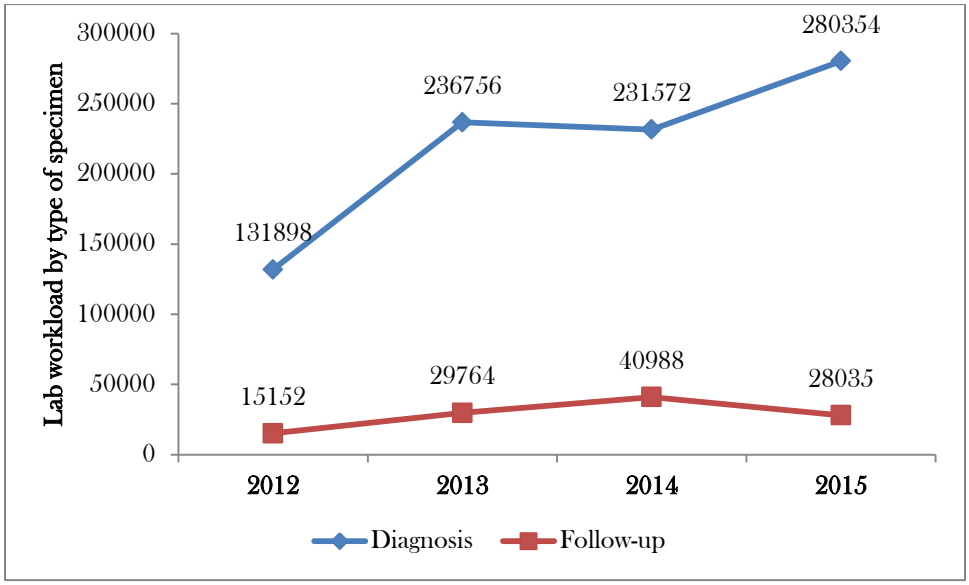
TB diagnosis continues to rely on sputum microscopy for the majority of diagnosed cases despite increased roll out of Xpert MTB/Rif technology. During the lifespan of the previous strategy, microscopy services have expanded from 220 sites at the end of 2015 to 233 by end of 2016, translating to a coverage of 1.7 sites per 100 000 population. Through partner support, 60 additional Microscopists were trained and by the end of 2016, a total of 192 Microscopists were in post, funded through Global Fund across the country. The positive returns on this investment has been a sustained increase in diagnostic sputa examined each year, with a total of 280 354 specimens examined in 2015 compared to 231 572 the previous year (Figure 9). Notably, this increase in diagnostic capacity has not translated to a corresponding increase in annual case notification, a possible indication of a true decline in TB incidence each year.

5.1.1.2 Key Gaps and Challenges

- The funding support for Microscopists across the country remains primarily donor dependent despite the recognized role they play to overall health systems strengthening, as they not only support TB diagnostics but also HIV and malaria. This status quo if left unchecked is unsustainable and is a threat to service delivery in the event of donor fatigue.
- In 2015 there was a noticeable 32% decline in follow up sputa examinations compared to the previous year (28 035 compared to 40 988). There is a need to investigate to what extent this is

as a consequence of lapses in patient care, particularly among infectious patients where follow-up sputa examination is a priority.

Figure 9: TB sputum microscopy smears examined under NTP from 2012-2015



Source: Data abstracted from NTP review report 2016

5.1.2 Specimen transportation (ST) system

5.1.2.1 Key Achievements

The country has continued to enjoy partner support for TB specimen referral from more peripheral primary care facilities to more centralized diagnostic centres. This support has varied from dedicated motorized riders, with clearly defined routes to optimize coverage, to commercial courier services for specimens requiring specialized processes at Reference laboratories. This partner support compliments existing arrangements run by Environmental Health Technicians (EHTs) who multi-task specimen transportation in between many other public health related errands.

5.1.1.1 Key Gaps and Challenges

- It has been noted that multiple specimen transportation systems exist that are not well coordinated, and disease specific, particularly when partner funded. The costly risk of duplicity remains real with potential wastage of resources. There are however on-going efforts to pilot a more integrated model as a blue print for future partner support.

5.1.3 National TB reference laboratories

5.1.3.1 Key Achievements

The country has two TB Reference Laboratories that perform TB culture on both solid (Lowenstein-Jensen) and liquid (BD-MGIT 960) media. In the last two years, there has been investment in the capacity for not only 1st line Drug susceptibility testing (DST) but also 2nd line DST. The National TB Reference Laboratory (in the Southern region) now performs rapid molecular Line Probe Assay (LPA) for 1st and 2nd line drugs. The workload for 2015 is summarized in Table 4.

Table 4: Laboratory workload at the two National Reference Laboratories (2015)

Laboratory test	National TB Reference Laboratory (NTRL)	National Microbiology Reference Laboratory (NMRL)
Culture	5 697	1 359
DST (1st & 2nd line)	980	114
Xpert MTB/Rif	1 939 (incl. DRS samples)	745

5.1.3.2 Key Gaps and Challenges

- Despite the NMRL having equipment and capacity to perform LPA, testing was last done in December 2015 due to lack of dedicated clean rooms. There is need to prioritize this gap in future support

5.1.4 Roll out of Xpert MTB/RIF technology

5.1.4.1 Key Achievements

In 2012, the NTP introduced Xpert MTB/RIF technology as a more sensitive rapid diagnostic tool for TB, including rifampicin resistant strains. By the end of 2016, a total of 121 GeneXpert machines had been deployed to all provincial, district and mission hospitals across the country, translating to a coverage 1 machine per 110 000 population. The coverage of the different TB diagnostic services is summarized in Table 6 below. Over 57,000 Xpert tests were performed successfully in 2015, with a positivity rate of 15.1% for MTB and 5.6% for Rifampicin resistance.

5.1.4.2 Key Gaps and Challenges

- Despite the expansion of Xpert MTB/Rif technology, utilisation remains sub-optimum. In 2015, annual utilization capacity was as low as 25% (Table 5). This has partly been a result of restricted use for particular risk groups and none uniform application of the national algorithm. Supply chain bottlenecks related Xpert MTB/Rif consumables and weak specimen transport system have also had their share of contribution to the low utilisation. The current algorithm

has since been revised to promote Xpert MTB/Rif use as initial diagnostic test for all presumptive TB cases.

Table 5: Capacity utilization of GeneXpert machines in 2015

Province	Q1	Q2	Q3	Q4	Average
Manicaland	26.3	21.9	30.8	26.4	26.4
Mashonaland East	22.9	19.7	27.5	24.6	23.7
Mashonaland Central	17.9	12.7	20.0	14.4	16.3
Mashonaland West	14.5	17.0	20.1	18.8	17.6
Midlands	31.6	25.2	33.7	29.0	29.9
Masvingo	17.8	27.8	21.2	14.7	20.4
Matebeleland South	15.1	19.7	20.3	8.2	15.8
Matebeleland North	31.4	29.5	11.4	27.7	25.0
Harare	36.5	37.0	36.4	35.2	36.3
Bulawayo	28.0	34.8	43.7	49.8	39.1
Chitungwiza	17.4	0.0	10.8	0.0	7.0
Total	**24.8**	**24.7**	**25.9**	**25.0**	**25.1**

Source: National TB Programme routine data (2016)

Table 6: Status of TB diagnostic services -December 2016

Indicator	Coverage
Smear Microscopy	
Number of laboratories	233
Number of labs/100000 population	1.7
Xpert MTB/Rif	
Number of laboratories	120
Number of labs/100000 population	0.9
Culture & DST	
Number of laboratories	2
Number of labs/5 million population	0.8
Line Probe Assay*	
Number of laboratories	2
Number of laboratories/ 5 million population	0.8

Source: National TB Programme routine data (2016)

5.1.5 External Quality assurance

5.1.5.1 Key Achievements

Both the NRLs are linked with a Supra-national reference laboratory, in Kampala, Uganda (for training, microscopy proficiency, a Supra-national reference laboratory (SRL), in Antwerp,

Belgium (for SRL proficiency testing for Liquid/Solid culture DST (1st and 2nd line) and the National Institute of Communicable Diseases, South Africa for Proficiency testing for TB Culture, speciation and DST. The performance of both laboratories is noted in Table 5 below:

Table 7: Performance of Reference laboratories on TB diagnostics proficiency testing

Year	Proficiency test	NTRL	NMRL
2014	1st line DST sensitivity & specificity	100% for Isoniazid & Rifampicin	Sensitivity of 79% for Isoniazid & 88% for Rifampicin "Not passed".
	2nd line DST sensitivity & specificity	100% for Kanamycin, Amikacin, Capreomycin, & Ofloxacin	
	Sputum microscopy panel	100% accuracy	100% accuracy
2015	Xpert MTB/Rif	100% accuracy	100% accuracy
	Sputum microscopy panel	100% accuracy	100% accuracy

As part of quality assurance each year, the NTP through the NRLs conducted quarterly on-site evaluation visits to provincial laboratories and conducted random blinded rechecking of a sample of smears (24 routine smears per laboratory visited). The provincial laboratories also conducted similar visits to district, mission and microscopy centres. In 2014, about 200 TB laboratories participated in the EQA program across the country. The performance over the quarters has been satisfactory above 85% which is the cut-off point. The NTP continued to undertake regular refresher trainings for microscopists to support quality improvements, through provincial and national EQA supervisors.

5.1.5.2 Key Gaps and Challenges

- The EQA programme for the DSM network was affected by non-disbursements of funds for EQA activities in the second quarter of 2015.

- Twenty six of the 200 laboratories in 2014 (13% of all labs that participated in the EQA) reported high false (positive or negative) error rates, in any one quarter of the year. The majority (73%) of the labs with high error rates were situated in the Masvingo and Manicaland provinces. The distribution of the laboratories with high false error rates was as follows: 12 in Masvingo, 7 in Manicaland, 2 in Mashonaland central, 1 in Mashonaland East, 1 in Mashonaland West, 1 in Matabeleland South and 2 in Midlands.

5.1.6 Chest Radiography

5.1.6.1 Key Achievements

In the current strategy, the NTP supported procurement of digital X-rays as a more sensitive screening tool for TB and to strengthen clinical diagnosis of TB. As at December 2016, 37 out of 79 hospitals had functional X-ray machines. An additional 20 machines were under procurement through Global Fund support.

5.1.6.2 Key Gaps and Challenges

- Servicing of medical equipment including X-rays remains erratic, adversely affected service delivery. There is need to secure service contracts to optimize service delivery.

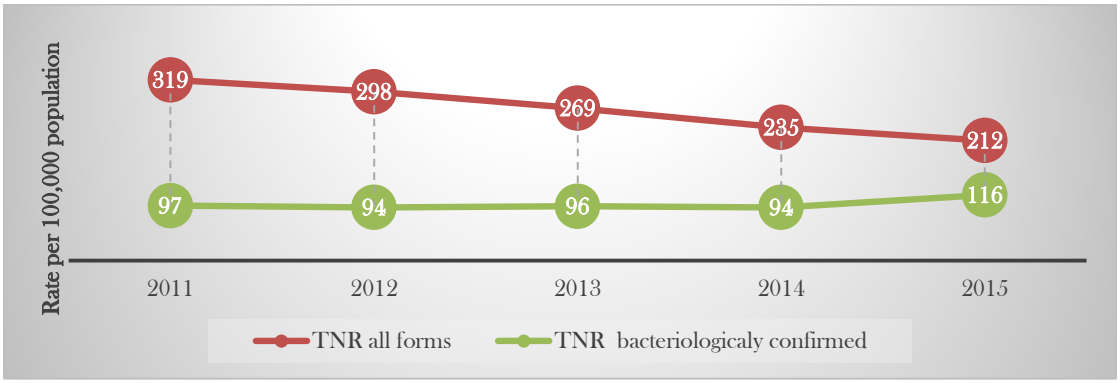
5.2 TB CASE FINDING AND NOTIFICATION

5.2.1 TB Case notification rate (all cases and bacteriologically confirmed)

5.2.1.1 Key Achievements

Between 2014 and 2015 case notifications decreased by 11.8% from 32, 016 to 28, 225 cases in 2015, translating to a case notification rate for all forms of 212/100 000 population (Figure 10). The decline is primarily related to a declining TB incidence among HIV infected individuals with roll out of ART. The current notifications however fall short of estimated incident cases with latest treatment coverage reported as 72% in 2015, following findings from the 2014 TB prevalence survey. [9]

Figure 10: Case notification rates from 2011 to 2015



Source: NTP Annual report 2015

Expansion of GeneXpert machines and microscopy service coverage may explain the observed increase in bacteriological confirmed cases in 2015 compared to 2014. Smear positive pulmonary

TB cases made up 43% of all new cases notified in 2015, compared to 40% in 2014. The contribution of possible under diagnosis of clinical cases however cannot be ruled out in explaining the observed decline in overall case notifications.

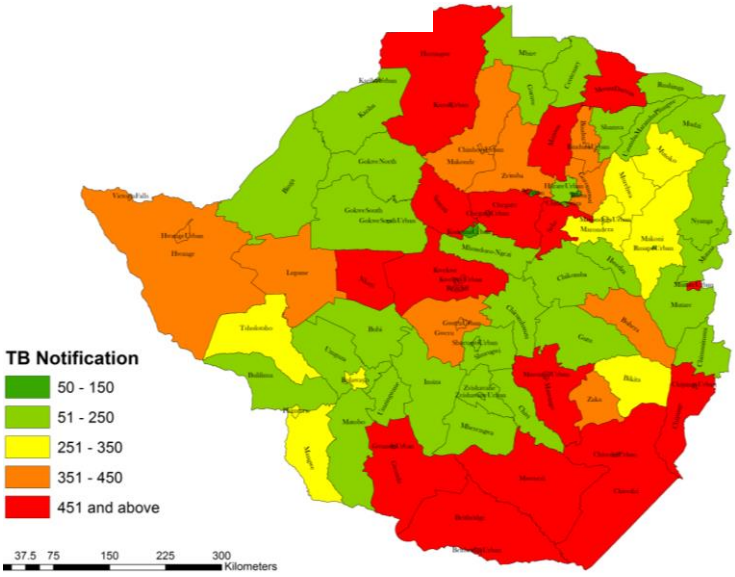
Recently the program has initiated innovative community active case finding approaches using trucks mounted with digital X-ray equipment, targeting hard to reach communities particularly in informal mining settlements. This intervention was initiated in the later part of 2016. In the first six priority districts in three provinces covered over a two month period, a total of 11,870 people were screened for TB, among whom 185 were diagnosed with TB, translating to 1,558 cases identified per 100 000 clients screened. Notably, 3 were diagnosed with drug resistant strains. This promising yield justifies the need to prioritize active case finding approaches among the hard to reach priority high risk groups. Furthermore, results of the first ever TB prevalence survey demonstrated the value of chest x ray screening as more sensitive in identification of TB compared to symptomatic screening. This has informed review of National TB treatment guidelines to promote use of Chest radiography as an important screening tool for presumptive TB clients.

Diabetes Mellitus (DM) has been noted as an important risk factor for TB. In 2016, Zimbabwe initiated a pilot on bi-directional screening for TB and Diabetes in 10 high volume primary care urban clinics. In the first six months of implementation, 10% (67/661) of TB patients screened for DM were diagnosed with DM, while 2% (3/154) of DM patients screened for TB were diagnosed with TB. A nested operations research during pilot implementation will inform a more detailed scale-up plan.

5.2.1.2 Key Gaps and Challenges

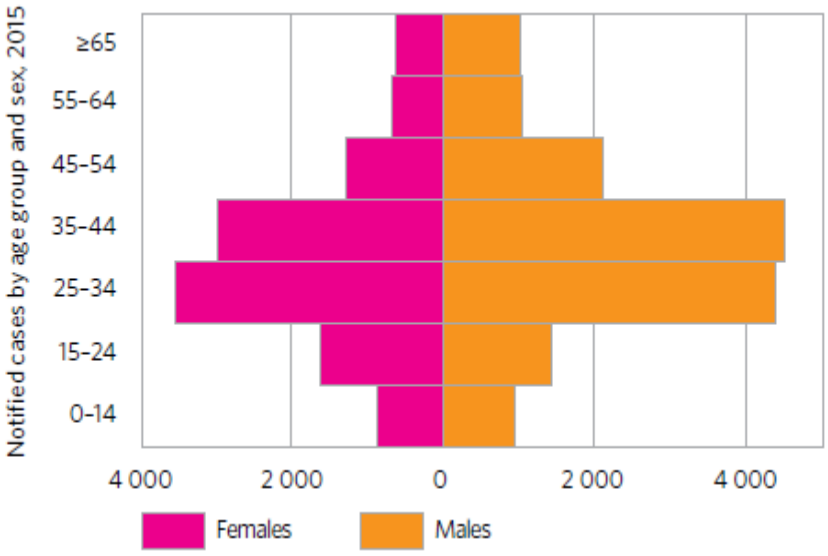
- There are marked variation in case notification rates by district, from as high as 511/ 100 000 in Seke district to as low as 51/ 100 000 in Rushinga and Binga districts. Districts with highest rates are disproportionately in the southern region (see Figure 11). There is need for more geo-targeting of case finding approaches, possibly prioritizing districts with relatively low TB notification and higher HIV prevalence.

Figure 11: TB case notification rates by district (2015)



- Men bear the brunt of TB disease burden, with greatest numbers notified among those aged 35-44, though men aged 25-34 are equally affected (Figure 12). Men are more vulnerable to TB than women in all age groups, except for adolescent girls and young women 15-24, who had more case notifications than men in 2015. This may be linked with disproportionate HIV burden among this age group as compared to their male counterparts. There is need to consider gender disparities in programming.

Figure 12: Notified TB Cases by Age Group and Sex in Zimbabwe, 2015



5.3 TREATMENT OUTCOME

5.3.1 Program Performance

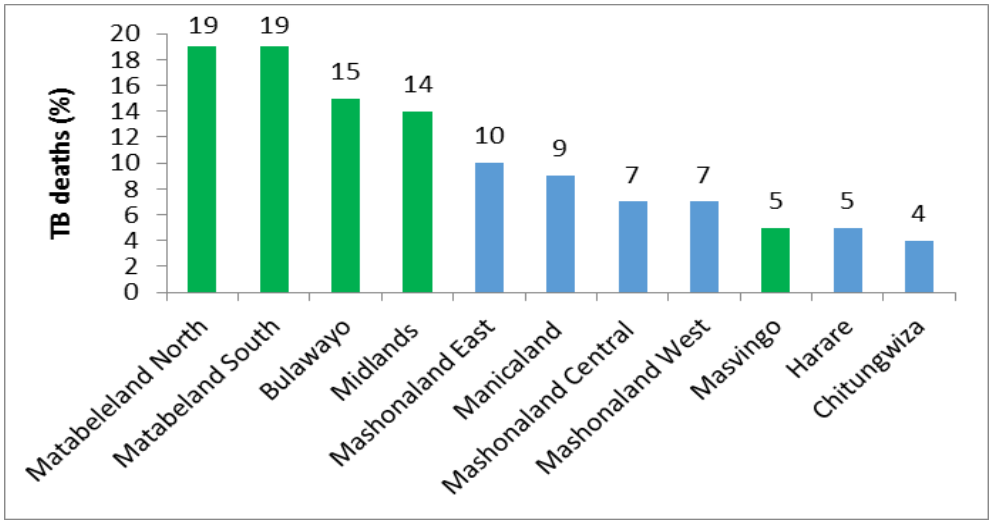
5.3.1.1 Key Achievements

There are updated treatment guidelines for standardized management of TB. These are aligned to current best practice and WHO recommendations. Each year there is a comprehensive annual training plan to up skill HCWs on changes in treatment approaches. Treatment outcomes have progressively improved over time, albeit plateauing to a treatment success rate among all forms of between 80-82% over the last 5 years.

5.3.1.2 Key Gaps and Challenges

- Despite the improvements in treatment outcomes over time, current achievements fall short of both national and global targets of 90% treatment success rate. There is still significant provincial variation in treatment outcomes, with the southern region bearing the brunt of adverse treatment outcomes (Figure 13).

Figure 13: Proportion of TB deaths by province (Southern region in green), 2014 cohort



5.4 CHILDHOOD TUBERCULOSIS

5.4.1 Program Performance

5.4.1.1 Key Achievements

Out of the 28, 225 TB cases notified in 2015, children accounted for 7%. BCG coverage by the age 12 months stands at 87%. Over the last 3 years, there has been an increased focus on childhood TB. A childhood TB focal point person has been assigned at central level responsible

for coordination of childhood TB activities. A "Desk guide for management of childhood TB", diagnostic algorithms and SOPs were recently developed, to standardize capacity development initiatives and patient care. Training of trainers on the guide has been conducted in selected provinces with implementation underway. Community health workers have also been engaged to strengthen contact tracing, early identification and referral of presumptive childhood TB cases using the community referral slips.

Zimbabwe recently switched to the new child friendly paediatric fixed-dose-combination formulations, RHZ 75/50/150 mg and RH 75/50 mg.

5.4.1.2 Key Gaps and Challenges

- Since 2007, the proportion of childhood TB cases has declined from 11%, plateauing at 8% since 2012. Overall the absolute number of childhood TB cases notified has declined in tandem with trends observed among adults.

- Prevention of TB among child contacts with IPT uses an adult formulation of isoniazid 100mg which continues to pose challenges in appropriate dosing for care givers and HCWs.

5.5 TB-HIV COLLABORATIVE ACTIVITIES

5.5.1 Program Performance

5.5.1.1 Key Achievements

Mechanisms for TB/HIV Collaboration

Over the past 3 years, the MOHCC has consolidated the need to strengthen TB HIV collaboration, given the HIV driven TB epidemic. Both the National TB and National AIDS programs are accountable to one Directorate and have both assigned a TB/HIV focal person at central level. At provincial level, a designate medical officer responsible for TB/HIV and maternal and child health has been appointed to coordinate a collaborative response at sub-national. Both programs continue to convene joint planning and review sessions as well as periodic TB/HIV partnership fora with partners, to minimize duplicity in program delivery. The response has continued to promote TB/HIV integrated "One Stop Shop" service delivery at facility level. Selected high volume primary care facilities have undergone site renovations to improve ventilation and patient flow to facilitate co-location of both TB and HIV services under one roof.

Reducing the burden of HIV among TB patients

The country has achieved impressive coverage of HIV testing among notified TB patients, 96% in 2015. Similarly provision of CPT among co-infected clients has consistently been above 90% for the past couple of years.

Reducing the burden of TB among HIV patients

The country has achieved high rates of screening for TB among HIV infected persons in care. Over 90% of HIV infected persons receiving care are routinely screened for TB using a symptom screening tool. Xpert MTB/Rif assay platforms are now widely available in every district and have in the past prioritized PLHIV as an important risk group. New national TB guidelines however advocate for use of Xpert as an initial test for any presumptive client.

The National AIDS program is currently rolling out IPT for PLHIV and as at December 2016, a total of 634 health facilities were implementing IPT. A total of 123,846 clients had been initiated on IPT by the end of Dec 2016 with 48,113 clients having completed their 6 month courses (Table 8).

Table 8: Progress in IPT implementation from selected sites (Jan – Dec 2016)

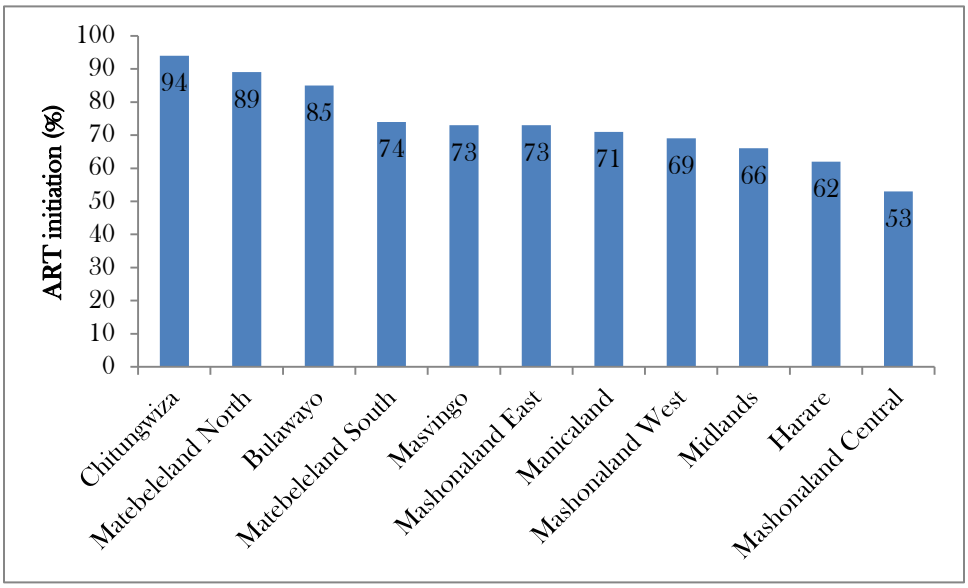
IPT in HIV/TB	Jan – Mar 2016 (142 sites)	Apr - Jun 2016 (354 sites)	Jul – Sep 2016 (521 sites)	Oct-Dec 2016 (634 sites)	Jan – Dec 2016 (634 sites)
Number of HIV positive patients in care started on Isoniazid Preventive Therapy	22,645	33,529	30,965	36,707	123,846
Number of PLHIV developing TB while on IPT	270	91	69	134	564
Number of HIV positive patients in care completing Isoniazid Preventive Therapy	4,712	8,635	15,364	19,174	48,113

Through partner support, the MoHCC has developed generic national Infection Control guidelines that cover most hospital acquired pathogens, including TB. A follow-on grant is supporting roll-out of these guidelines and institutionalization of periodic TB screening among health care workers, within a comprehensive work place wellness program.

5.5.1.2 Key Gaps and Challenges

- The co-infection rate remains regrettably high (70% in 2015).
- Episodes of TB disease while on IPT (0.5% in 2016) may reflect program lapses in effective screening to rule out TB before initiation of IPT, a potential gap that needs further exploration.
- ART coverage among co-infected clients lags behind and was 72% in 2015. In addition, there is significant variation across provinces, with Mashonaland Central reporting as low as 53% (Figure 14).

Figure 14: ART initiation by province among co-infected TB patients (2015)



5.6 PROGRAMMATIC MANAGEMENT OF DR-TB (PMDT)

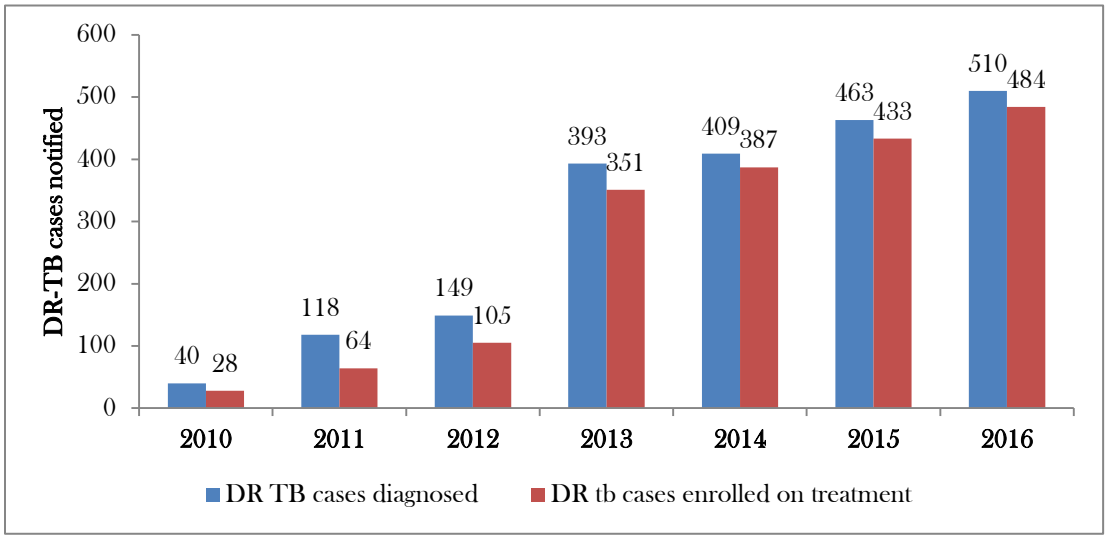
5.6.1 Program Performance

5.6.1.1 Key Achievements

The country just completed a TB Drug Resistance Survey (DRS), with data analysis currently underway. The findings will assist in re-calibrating WHO estimates for better informed target setting. Since 2010, the NTP has been implementing PMDT with a full -time PMDT focal point person now assigned at central level.

With roll out of Xpert MTB/Rif technology, since 2012 (currently 121 machines across all districts), case notification of Drug resistant TB (DR-TB) patients has continued to increase annually (Figure 15). Training of HCWs on both PMDT and clinical management of DR-TB has ensured better coordination and decentralization of treatment initiation to district level.

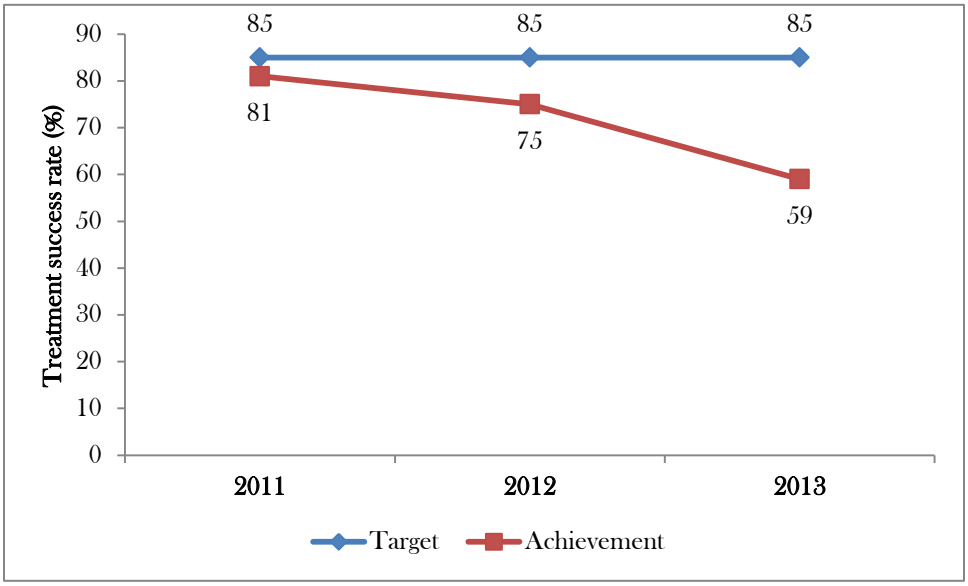
Figure 15: DR-TB cases notified and initiated on treatment in Zimbabwe (2010-2016)



5.6.1.2 Key Gaps and Challenges

- With decentralization of PMDT from the initial 2 centres in 2010 to district level has resulted in lapses in quality of care over time characterized by a sustained deterioration in treatment outcomes. Trends in treatment outcomes for patients initiated on treatment continue to boomerang away from set targets, from as high as 81% for the 2011 cohort to 59% for the 2013 cohort.

Figure 16: Trends in treatment success rate for drug resistant TB in Zimbabwe (2011-2013)



5.7 TB MEDICINES, COMMODITIES & SUPPLY CHAIN MANAGEMENT

5.7.1 Program Performance

5.7.1.1 Key Achievements

The Directorate of Pharmacy services coordinates procurement and supply chain for both 1st and 2nd TB medicines through the Global Drug Facility (GDF). This is based on annual quantification and biannual reviews done by the National Quantification Committee, based on the number of TB cases notified. The National Pharmaceutical Company (NatPharm) is responsible for storage and distribution of TB medicines through its six branches strategically located across the country (Harare, Masvingo, Bulawayo, Mutare, Gweru and Chinhoyi).

In a bid to improve and ensure continuous supply of quality medicines, the Zimbabwe Assisted Pull Systems (ZAPS) was piloted in Manicaland Province. It was reviewed and rolled out to the rest of the country from the beginning of 2016. Notably, the supply chain for both 1st and 2nd line anti-TB medicines has remained stable with negligible stock raptures over time.

5.7.1.2 Key Gaps and Challenges

- Reporting of adverse events induced by TB medicines to the Medicines Control Authority of Zimbabwe (MCAZ) remains weak. With the planned introduction of new and shorter regimens for DR-TB, there is need to strengthen pharmaco-vigilance for both 1st and 2nd line TB medicines.

5.8 COMMUNITY TB CARE, ADVOCACY COMMUNICATION & SOCIAL MOBILISATION (ACSM)

5.8.1 Program Performance

5.8.1.1 Key Achievements

Over the last two years, there have been efforts to engage parliamentarians to garner for political commitment for increased domestic funding for TB. These efforts have culminated in the signing up by over 130 parliamentarians to the Barcelona Declaration and constitution of a national TB Caucus in July 2016 as part of the country's commitment to the global declaration to end TB.

The country has developed national guidelines for ACSM that have provided the framework for engaging and training community health workers on community TB care. Targeted and simplified community IEC material (fliers, posters) have been developed each year, and translated into local languages for dissemination through various channels (health facilities, CSOs/ NGOs, VHWs and community leaders). A community level referral slip has since been introduced to track community referrals of presumptive TB clients.

Through partner support, the National TB Program has successfully engaged the media through advocacy sessions on strengthening appropriate and accurate media coverage on TB. A mentorship program for journalists with field visits has been supported for the past two years to strengthen correct and comprehensive reporting on TB. As a result in 2016, 70 TB news articles were successfully tracked in both print and broadcast media, demonstrating increased media coverage on TB.

5.8.1.2 Key Gaps and Challenges

- Despite efforts to engage parliamentarians over the past two years, increased domestic funding for TB is yet to be realized, largely due to the depressed economic environment and constrained fiscal space.

- Through partner support, a Knowledge Attitude and Practices (KAP) survey was conducted in 2016 to assess the community's knowledge, attitudes and practices towards TB. The survey revealed gaps in comprehensive knowledge about TB, compounded by pockets of community level stigma associated with TB. Only 16% of the population surveyed had comprehensive knowledge about TB while 81% perceived they were not adequately informed about TB. In addition, 75% were not aware of Drug Resistant TB (DR-TB) and 51% would avoid people with TB.[17] These key findings informed the recent development of the national communication strategy for TB, yet to be resourced for implementation.

5.9 PUBLIC PRIVATE MIX (PPM)

5.9.1 Program Performance

5.9.1.1 Key Achievements

A PPM framework has been developed by the MoHCC to strengthen the collaboration between the private and public sectors in the national TB/HIV response. There is a focal person at central level assigned to coordinate PPM activities.

5.9.1.2 Key Gaps and Challenges

- Despite the existence of a clear blueprint on what needs to be done to strengthen private sector engagement in the response, there has been evident inertia partly due to lack of funding to advance the intentions of this important framework. Implementation of TB activities by the greater part of the private sector has been confined to case identification and referral of cases to the public sector.

[17] Knowledge, Attitudes and Practices of Communities in Zimbabwe towards Tuberculosis – Survey report (2016)

5.10 STRATEGIC INFORMATION, MONITORING AND EVALUATION

5.10.1 Program Performance

5.10.1.1 Key Achievements

The NTP through partner support rolled out a guide "National guide on TB data collection, analysis and use for health workers" developed through TB CARE I. This document provides step by step guidance to HCWs on collection, analysis and use of routine TB data at all levels of the health care system. A total of 61 (49 males, 12 females) district and provincial staff were trained. The following key positive outcomes have been noted: 1) Facilities now report TB data to the next level using a standardized form. This form has a qualitative section where HCWs report achievements and challenges after data analysis and action points with clear timeframes to address them. This has resulted in improved local data use for planning and decision making. 2) As part of the guide a comprehensive support and supervision checklist was developed mainly focusing on key results based on the data. There has been a shift in approach to support and supervision, where supervisors and local staff now jointly analyze and interpret TB data and agree on action points. National recording and reporting tools have been updated to align with WHO 2013 global indicators.

Through partner support, the MoHCC customized the District Health Information Software 2 (DHIS2), an electronic recording and reporting software to enable reporting of TB surveillance data in real time. A total of 185 HCWs (127 males; 58 females) were trained to use the software for data entry and analysis. Provincial and District TB coordinators were supplied with laptops to facilitate roll-out. TB data has since been entered and available online and in real time to provincial and national managers. The managers can now generate site specific data analysis reports, including comparisons over time, across facilities, districts and provinces. This has made it much easier to identify underperforming facilities and districts and to prioritize them for support.

5.10.1.2 Key Gaps and Challenges

- There has been significant Global Fund investment to develop an electronic Patient Management System (ePMS), primarily designed for PLHIV and in care. It has however not fully integrated the reporting requirements of TB, as an HIV positive status is the entry point to the system. It is prudent that future investments leverage on this investment to ensure TB surveillance requirements are taken into account, including inter-operability with DHIS-2.

CHAPTER SIX: SWOT ANALYSIS

A summary of programme gaps is detailed in the Strength, Weaknesses, Opportunities and Threats (SWOT) analysis tables below. This has been informed by the External TB program review, epidemiological analysis, the prevalence survey and consultative engagements with key stakeholders.

6.1 PROGRAM MANAGEMENT

Internal Appraisal	
Strengths	**Weaknesses**
Availability of health infrastructure and human resources for TB control at central and sub-national level Free TB services integrated in the primary health care delivery system.	Shortage of human resources at all levels due to freeze in recruitment Non- standardized incentive/enablers for community health workers across different programmes associated with high attrition Weak cross border initiatives for TB control Limited engagement of informal health providers (traditional and faith healers) in TB control
External Appraisal	
Opportunities	**Threats**
Limited scope of TB service provision by Private Practitioners and workplace TB related interventions Existence of a public private mix framework and vibrant network of organized private sector On-going initiatives for engagement of parliamentarians to increase domestic funding for TB Partner supported Human Resources Retention Scheme	Low absorptive capacity for partner funds supporting TB interventions High dependence on donor support for TB program delivery including partner funded key program staff

6.2 TB EARLY CASE DETECTION, TREATMENT AND PATIENT CARE

Internal Appraisal	
Strengths	Weaknesses
Availability of updated TB national guidelines, including childhood TB specific case management guidelines Expanded laboratory network (233 microscopy sites and 2 Reference laboratories) with Quality assured bacteriology, linkage with Supra-national Reference Laboratory. Availability of trained Microscopists, competent in TB diagnosis, HIV rapid testing & malaria diagnostics Expansion of more rapid molecular technology (Xpert MTB/RIF), 121 machines across all districts. Adequate local capacity to conduct quantification for medicines and laboratory commodities and existence of procurement supply chain for medicines and laboratory commodities. Availability of Medicines Control Authority of Zimbabwe for quality assurance of anti-TB medicines.	User fees for TB diagnostics including Chest X Ray presenting as a barrier to access Fragmented partner supported specimen transportation system. Limited capacity for diagnosis of childhood TB (annual trends in childhood TB detection, currently less than 10% of all annual notification). IPT for child contacts is inadequately implemented and childhood TB not well integrated into Maternal Neonatal and Child health activities. Limited coverage of X-ray machines with inadequate service plans and a significant proportion manned by unqualified personnel. Currently 37 out of 125 hospitals need new X-ray equipment. Weak implementation of contact investigation across all provinces Limited implementation of active case finding initiatives for hard to reach high risk groups. Wide provincial variation in case finding Inadequate stock management practices, storage conditions and post market surveillance at district and primary care level. There have been episodes of overstocking and expiries of paediatric TB medicines. Sub-optimum TB treatment coverage (72% in 2015) and treatment outcomes (81% treatment

	success in 2014)
External Appraisal	
Opportunities	Threats
Availability of Private Health Insurance.	Prolonged lead time for medicines procurement through Global Drug Facility Under reporting of TB care by the private sector

6.3 DRUG RESISTANT TB (DR-TB)

Internal Appraisal	
Strengths	Weaknesses
Decentralized PMDT with trained clinicians at sub-national level Closing enrolment gap between diagnosed DR-TB clients and those initiated on treatment Implementation of a Drug Resistance Survey to appraise burden of DR-TB and inform target setting	Inadequate training coverage among HCWs to manage DR-TB patients Inconsistent use and application of Xpert MTB/Rif algorithm resulting in underutilization Missed opportunities for screening of at risk groups for DR-TB (especially re-treatment cases) Long turn- around time for culture and DST results Inadequate infrastructure for appropriate admission and isolation of DR-TB patients Weak pharmaco-vigilance and treatment monitoring for DR-TB patients on treatment
External Appraisal	
Opportunities	Threats
Updated global recommendation for use of new drugs and shorter regimens for DR-TB Updated national guidelines for use of X-	High population mobility between neighbouring South Africa with high burden of DR-TB

pert as initial test for all presumptive TB cases	

6.4 TB-HIV COLLABORATIVE ACTIVITIES

Internal Appraisal	
Strengths	**Weaknesses**
Joint TB-HIV review and planning Updated clinical mentorship curriculum for TB HIV Integrated model of TB-HIV clinics High HIV testing for TB patients and co-trimoxazole uptake (more than 90% each year)	Weak implementation of TB Infection Prevention and Control measures Low uptake of IPT among PLHIV compounded by scepticism amongst some HCWs Sub-optimal ART uptake for co-infected patients (72% in 2015)
External Appraisal	
Opportunities	**Threats**
Existence of a National AIDS Trust Fund	High TB/HIV co-infection rate (70% in 2015)

6.5 PATIENT-CENTRED APPROACH TO TB CARE

Internal Appraisal	
Strengths	**Weaknesses**
Availability of new, more user friendly paediatric formulations Existence of a Patients Charter	Inadequate patient psychosocial and economic support for DR-TB clients Unavailability of standardised community tools to monitor patient rights
External Appraisal	
Opportunities	**Threats**
Availability of patient support networks within the community High population literacy Wide coverage of various communication media platforms (Print, Radio, Television,	Restricted budget support of CTBC and ACSM activities Low comprehensive knowledge about TB, associated with community stigma Drivers of patient costs for accessing TB care

Cell phone network penetration)	and treatment services not well known Worsening economic outlook exacerbating household poverty

6.6 STRATEGIC INFORMATION, MONITORING & EVALUATION

Internal Appraisal	
Strengths	**Weaknesses**
Availability of a comprehensive TB recording and reporting system incorporated into DHIS2 Availability of data use guide for TB analysis and use Periodic Programme Performance reviews and supportive supervision at all levels. Availability of community referral slips and M&E tools to account for contribution community health workers First ever national TB prevalence survey implemented in 2014 to appraise burden of disease	Inadequate follow-up of recommendations from supervisory visits TB M&E system predominantly paper based and prone to error. Limited capacity for program based operations research and lack of updated TB research agenda
External Appraisal	
Opportunities	**Threats**
Existence of an HIV electronic patient management system Designated Research Fellow or focal point within AIDS and TB unit	

CHAPTER SEVEN: STRATEGIC FRAMEWORK FOR TB CONTROL (2017-2020)

7.1 VISION, GOALS AND TARGETS

7.1.1 Vision

A Zimbabwe free of TB

7.1.2 Goals

- By 2025 to have reduced the incidence of all forms of TB by 80% from 242/100000 in 2015 to 48/100 000
- By 2025 to have reduced mortality of all forms of TB by 80% from 40/100000 in 2015 to 8/100 000.

Targets

- Reach 80 % of all people with TB and place all of them on appropriate therapy first line, second line and preventive therapy by 2020
- By 2020, reach 75 % of the at risk groups underserved and at risk populations with access quality TB treatment and care
- Reach 90% treatment success for all people diagnosed with TB through affordable treatment services adherence to complete and correct treatment and social support by 2020

7.2 STRATEGIC OBJECTIVES AND INTERVENTIONS

A. TB EARLY CASE DETECTION AND TREATMENT

Strategic Objective 1

To increase the treatment coverage of all forms of TB from 72% in 2015 to 90% (with contribution from childhood TB increasing from 7% to 12% and from non-NTP providers increasing from 13% to 20%) by 2020

1.1 Strategic intervention

Strengthen contact investigation for all bacteriologically confirmed pulmonary TB cases and all childhood TB cases

Narrative

There are several missed opportunities for TB diagnosis including contact investigation for index cases in the community and health facilities. There is a need to strengthen contact investigation activities through prioritization of index cases around which contact tracing will take place, provision of sufficient M&E tools, sustainable specimen transportation system and communication commodities, capacity building of HCWs and creating demand from the communities themselves.

Activities

1.1.1 Develop tools and guidelines to support Contact investigation
1.1.2 Conduct enhanced Contact investigation
1.1.3 Integrate community TB case finding with community index HIV testing initiatives

1.2 Strategic intervention
Expand the use of Xpert MTB/RIF as the first line test for diagnosis of TB and digital radiography as a screening tool for presumptive TB cases

Narrative

Despite wide expansion of molecular technology, there is gross under-utilization of Xpert MTB/Rif technology due to various reasons which include; test used only for selected high risk groups; problems with specimen transportation from the primary health facilities; occasional stock-outs of Xpert MTB/RIF cartridges; increased down time of the equipment due to breakdowns and power outages. Based on external program review recommendations; the country needs to adopt universal access to Xpert MTB/RIF as initial diagnostic test for TB and expand utilization of and access to digital radiography for screening TB among presumptive TB cases and contacts. This will be achieved through availing new algorithms, sensitization of district and provincial health executive teams on the new policy, conducting HCWs capacity building, strengthening of specimen transportation systems and addressing HR challenges for radiology services. Additional GXP instruments will be procured and installed together with the Xpert MTB/RIF cartridges. Optimum operating conditions for the technology will be ensured for through providing back solar power systems and installation of air conditioning units. To enable real time reporting and monitoring of utilisation of the instruments, GX Alert reporting software will be installed on all the machines.

Hospitals with antiquated X-ray machines will be equipped with new digital X-ray machines. Service plans for the new and existing machines will be secured. The digital X-rays will be networked through a Radiology Information System (RIS) and Picture Archiving and Communication System (PACS) then linked with consultation rooms and wards. Radiographers will be recruited to operate these machines. A proposal to waive fees for presumptive TB cases requiring Chest X-Ray will be pursued.

Activities

1.2.1 Develop a national TB laboratory operational plan
1.2.2 Develop, print, distribute and train HCWs on revised algorithms which include Xpert and CXR
1.2.3 Install and maintain GX Alert on 130 GX instruments machines
1.2.4 Support an Integrated Specimen Transportation (IST) system

1.3 Strategic intervention

Procurement of laboratory reagents and consumables including materials for diagnosis of childhood TB and development of an integrated eLMIS system to improve supply chain

Narrative

Laboratory reagents are required for the diagnosis of all forms of TB. It is difficult to induce sputum for TB diagnosis in children; materials to aid diagnosis of TB in children are therefore required. Simultaneous over stocks and stock outs have been observed within districts and provinces and there is no real time data for supply chain to be able to respond timeously to stock outs and expiries. The need to develop of an electronic logistics information system will assist in improving the supply chain of laboratory consumables.

Activities

1.3.1 Quantification, procurement, storage and distribution of laboratory reagents and consumables including materials for diagnosis of childhood TB

1.3.2 Contribute to development of an integrated electronic Laboratory Management Information System (eLMIS) system to improve supply chain efficiency.

1.4 Strategic Intervention

Scale up systematic screening for TB high risk groups and establish cross border collaborative activities for TB care and prevention

Narrative

TB case finding has been primarily passive. NTP introduced active case finding through systematic screening of high risk groups by community outreach teams, using mobile trucks equipped with digital X-ray equipment and have demonstrated substantial yield. There is need to establish capacity for province to replicate this model at their level. Additional trucks will be procured for each province. Mapping of TB hot spots at district level where the mobile teams will target will be conducted to optimize the yield. Key populations such as prisoners, migrants, refugees, HIV hot spots and miners will be prioritized. Currently there is a regional Global Fund grant implementing HIV related activities through static centers established at border posts, targeting migrant populations (Northstar Alliance initiative). There is need to leverage on this investment to integrate TB services in these centers, Within health facilities, systematic screening for TB will be prioritized for at risk groups such as HCWs, diabetics, children and PLHIV.

The SADC region has initiated dialogue aimed at harmonizing systems for referral across neighboring countries. Achieving this requires integration with HIV program and establishing inter-country Technical Working Groups to coordinate cross-border activities.

Activities

1.4.1 Conduct systematic screening for TB among high risk groups using mobile trucks equipped with digital Xray equipment and Xpert.
1.4.2 Strengthen TB control in congregate settings (prisons, refugees camps, juvenile correctional rehabilitation centres, police and army camps)
1.4.3 Conduct bidirectional screening for TB and DM at health facilities
1.4.4 Establish inter-country TWG for TB and HIV to coordinate cross border collaboration
1.4.5 Develop, print and distribute TB patients' tracking tools for cross-border migrants
1.4.6 Integrate TB services with existing HIV service centers at border posts (Northstar Alliance initiatives)
1.4.7 Conduct operations research to understand unique factors to TB among the migrant population
1.4.8 Finalize guidelines and training material for management of TB and occupational lung disease for miners and ex-miners
1.4.9 Support review of legislation and guidelines on dust control in the mining sector
1.4.10 Support survey to assess dust control in the mining sector

1.5 Strategic intervention

Strengthen capacity of Health Care Workers to provide comprehensive and quality TB prevention treatment and care

Narrative

Well trained HCWs are vital for the successful implementation of the TB program as frontline care providers. Knowledge gap still exists among HCWs on managing TB at various levels of care. New tools for screening and diagnosis of TB have been introduced in conformity with current evidence based practices (End TB Strategy). As a result, TB management guidelines have been revised to capture these developments, necessitating the need for retraining of HCWs. Pre-service training institutions, health executive teams as well as private sector will also be targeted for training using updated curricula and onsite clinical mentorship.

Activities

1.5.1 Revise and print TB, TB-HIV management guidelines and TB, TB-HIV training curricula to align with the new TB, TB-HIV management approaches
1.5.2 Review pre-service training curricula on TB, TB-HIV for all health professionals
1.5.3 Conduct in-service training for TB, TB-HIV for HCWs with emphasis on on-site mentorship
1.5.4 Development of other platforms for capacity development i.e. e-learning
1.5.5 Identify appropriate international courses and conferences for capacity development

1.6 Strategic Intervention

Strengthen meaningful community engagement to intensify interventions for TB case finding.

Narrative

Advocacy and communication approach is crucial for TB case finding. It also facilitates the process of combating stigma and discrimination through appropriate messaging and mobilizing political commitment and resources for TB. Advocacy meetings with community and political leaders are important to lobby for increase in domestic funding for TB. A KAP survey on TB in 2016 revealed knowledge gaps and prevalent stigma and discrimination towards people with TB and their families. These will be addressed through mass media campaigns and IEC materials developed in various formats and languages among other community interventions. A national TB conference and commemoration of the World TB Day will be held which will create platforms for advocacy, raising awareness on TB, community engagement and dissemination of knowledge and research.

There is limited coordination of civil society organizations (CSOs) involved in Community TB Care (CTBC). This results in potential duplication of efforts and inefficient delivery of community interventions for TB. A number of CSOs involved in the HIV program do not integrate TB related interventions despite the high TB-HIV co-infection. Engagement of CSOs involved in TB and HIV will be initiated through a mapping exercise to establish geographic areas of focus and intervention activities. A framework for coordination of CSO activities will be developed to standardize and harmonize their operations. Identified and prioritized CSOs will be capacitated to integrate CTBC into their work. Strengthening of CSOs' coordination will be conducted through establishment of a national Stop TB Partnership Forum.

Activities

1.6.1 Conduct demand generation and awareness raising through sensitization and advocacy dialogues with community leaders, parliamentarians, senior government officials, religious leaders, traditional and faith healers on TB, TB-HIV, stigma and discrimination
1.6.2 Conduct media engagement and mentorship on TB and TB-HIV.
1.6.3 Conduct mass media and community awareness campaigns
1.6.4 Train Community Health Workers on TB, TB-HIV, community infection control and interpersonal communication
1.6.5 Develop and distribute IEC materials in various formats and languages
1.6.6 Commemorate World TB Day at National and Provincial level
1.6.7 Mobilize former TB patients, celebrities and PLHIV as TB Champions
1.6.8 Conduct mapping and establish framework for coordination of CSOs involved in TB and HIV activities
1.6.9 Update CTBC guidelines including standardized M&E tools for CTBC

1.6.10 Strengthen CSOs on CTBC and community infection control

1.7 Strategic intervention
Strengthen engagement of all care providers - public private mix (PPM)

Narrative

Engagement of private players in the TB program is critical to complement the government efforts in TB case detection. A national PPM plan will be developed to guide the operation of both the public and private TB service providers. Memoranda of Understanding (MoU) will be developed to formalize engagement of the private players in the TB program and for effective coordination of their activities that are related to the TB program. The MoHCC through the NTP will coordinate activities and will offer enablers to facilitate implementation.

Activities

1.7.1 Conduct mapping of Private practitioners
1.7.2 Develop a national PPM operational plan
1.7.3 Develop MoUs with private sector
1.7.4 Support coordination of public and private players
1.7.5 Establish a mechanism of collaboration with business community to support the national TB, TB-HIV response

1.8 Strategic intervention
Increase childhood TB case detection and strengthen uptake of IPT in children under 5 year

Narrative

TB in children is underdiagnosed. This has been attributed to low knowledge and confidence in diagnosing TB in children among HCWs as well as the difficulties in specimen collection for TB diagnosis in children. There is need to increase childhood TB screening in health facilities/child clinics. Focused training in two pilot districts demonstrated a double increase in case notifications. The program therefore will build the capacity of HCWs. The program will therefore build on this experience to roll out the intervention package. Other interventions will include making use of specimen such as stool, increasing use of gastric washings and induced sputum for laboratory confirmation of TB. The NTP will strengthen the involvement of the community health care workers and volunteers and ensure that they are utilized better to identify and screen child contacts, and support their treatment. This will be done through Community Based Health Workers training and school health programs.

The External Program Review noted that the uptake of IPT was poor for both under-fives who are household contacts of TB patients and PLHIV. This is mainly because of missed opportunities

due to poor contact tracing and low demand from the affected communities. The NTP will strengthen the involvement of the community health care workers in support of contact investigation and facilitate linkages with health facilities to improve IPT uptake.

Activities

1.8.1 Strengthen mult-sectoral coordination and collaboration of Childhood TB at provincial and national level
1.8.2 Conduct training and mentorship in Childhood TB as part of IMNCI, ETAT, EPI & IYCF training packages.
1.8.3 Print and disseminate copies of the Childhood TB Desk Guides, Diagnostic Algorithms and SOPs and VHW Training Materials.
1.8.4 Train Community Based Health Workers on Childhood TB
1.8.5 Strengthen collaboration with the Ministry of Primary and Secondary Education and Ministry of Labor and Social Welfare on Childhood TB
1.8.6 Develop, print and distribute IPT IEC materials for community demand creation.

Strategic objective 2

To increase treatment success rate for all forms of tuberculosis from 81% in 2014 to 90% by 2020

2.1 Strategic intervention

Address districts with poor treatment outcomes i.e. high rates of deaths and lost to follow up and strengthen community health system to enhance case holding

Narrative

The treatment success rate for TB patients has slowed down and remains below the NTP targets. This is attributable to high death rates and loss to follow up, with substantial inter provincial /district variation. It is therefore prudent to analyze causes and when TB deaths or loss to follow-up occur at provincial, district or health facility level, in order to inform more targeted interventions. The poor treatment outcomes are also attributable to weak community health systems. There is therefore need to focus on strengthening Community TB Care (CTBC) through empowerment of community health workers, Health Centre Committees (HCC), school health coordinators and youth in tertiary institutions and other volunteers with information on TB to promote treatment adherence.

Activities

2.1.1 Develop provincial/district/facility specific plans to address high death and loss to follow up rates
2.1.2 Conduct quarterly mortality review meetings at provincial and district level

2.1.3 Conduct quarterly supportive supervisory visits and on site data verification at provincial, district and facility level

2.1.4 Train community health workers, school health coordinators and other volunteers on CTBC to enhance treatment adherence

2.1.5 Orient selected TB patients or ex-TB patients on treatment literacy to enhance psychosocial support for those on treatment

2.2 Strategic intervention

Procurement of 1st line and 2nd line TB medicines including ancillary medicines and strengthen pharmaco-vigilance at all levels

Narrative

First line TB medicines are required for the treatment of drug susceptible TB. In order to improve the quality of treatment and foster adherence to TB treatment, it is also important provide ancillary medicines for the management of adverse events induced by TB medicines.

Reporting of adverse events induced by TB medicines to the Medicines Control Authority of Zimbabwe (MCAZ) is weak. As such the country does not have locally generated data to conduct a risk benefit analysis of TB treatment. There is need to strengthen pharmaco-vigilance for both 1st and 2nd line TB medicines.

Activities

2.2.1 Quantify, procure, store and distribute 1st and 2nd line TB medicines including ancillary medicines

2.2.2 Conduct quality assurance testing on 1st and 2nd line TB medicines and ancillary medicines

2.2.3 Conduct PV for 1st and 2nd line anti TB medicines and ancillary medicines

B. DRUG RESISTANT TB (DR-TB)

Strategic Objective 3

To increase the number of DR-TB cases detected and enrolled on treatment annually from 468 (43%) in 2015 to 884 (80%) and treatment success rate from 59% (2013) to 85% by 2020.

3.1 Strategic intervention

Ensure quality assured universal access to TB drug resistance testing

Narrative

To enhance the laboratory support towards the goal of achieving quality assured universal access to Drug Susceptibility Testing (DST) to all the people, it is recommended laboratory efficiencies are enhanced. The existing two reference laboratories will be renovated to ensure a safe operating

environment. An additional Line Probe Assay (LPA) testing laboratory will be established in Manicaland to cater for part of the northern region. Service contracts for all the laboratory equipment will be provided for to ensure minimum down time. Reagents and all consumables for Culture, DST and LPA will be procured. The quality assurance guidelines for all the laboratory tests will be revised and Standard Operating Procedures (SOPs) developed, printed and distributed. Annual external quality assurance by a Supra-National Reference laboratory will be supported. The two reference laboratories will be enrolled into accreditation programs to improve quality of the results.

Activities

3.1.1 Assess and renovate the two Reference laboratories to improve biosafety.
3.1.2 Mobilize institutional support for the 3 LPA laboratories
3.1.3 Develop and maintain laboratory quality management systems
3.1.4 Install and implement LPA at Mutare Provincial Hospital.
3.1.5 Support international training and conferences for laboratory staff
3.1.6 Procure reagents and consumables for microscopy, Culture, DST and LPA.
3.1.7 Maintain equipment service, validation and calibration contracts.
3.1.8 Conduct annual assessment/inventory of laboratory equipment

3.2 Strategic intervention
Ensure access to quality treatment and care services for DR-TB patients

Narrative

There has been an increase in case detection of DR-TB patients since 2010, mainly due the increased access to Xpert MTB/RIF testing. The gap between diagnosis and treatment initiation has been closing over the years. Despite this, several challenges and constraints persist which include; inadequate screening of at risk groups for DR-TB attributed to inadequate knowledge of HCWs; high initial lost to follow-up or death before treatment initiation as documented by Charambira et al in 2014; inadequate admission facilities with decentralization of PMDT; monitoring of treatment has been sub-optimum including documentation of adverse drug events. A total of eight DR-TB admission facilities, one per province will be renovated and furnished. District hospitals will be assessed for infection control to inform needs for renovations. PMDT guidelines will be revised to include New Drugs and Regimens (ND&R). DR-TB medical officers will be recruited and retained at provincial level to oversee clinical management of DR-TB patients. HCWs will be trained on clinical and programmatic management of drug resistant TB followed by post-training mentorship. Ambulatory care will be promoted as a patient centred model of care for the majority of DR-TB patients.

Audiometry machines will be procured and HCWs trained on how to operate them. Hearing aids will be provided for patients who develop hearing loss due to second-line drugs. Electrocardiogram

(ECG) machines will also be procured for each district for monitoring patients initiated on a Bedaquiline containing regimen. District laboratories will also be capacitated to provide biochemical monitoring of DR-TB patients on treatment.

Activities

3.2.1 Conduct district TB Infection Prevention and Control (IPC) assessments, renovate, equip provincial DR-TB admission facilities and procure PPE for HCWs
3.2.2 Revise and print PMDT guidelines and training material to include ND&R
3.2.3 Develop an implementation plan for ND&R
3.2.4 Conduct PMDT and advanced Clinical MDR-TB trainings and post-training mentorship
3.2.5 Conduct monthly provincial and quarterly national DR-TB committee meetings
3.2.6 Conduct quarterly DR-TB support visits from national to provinces, and provinces to districts (as part of integrated TB, TB-HIV, Childhood TB visits)
3.2.7 Evaluate utilization of portable Kudu Wave audiometry machines and procure hearing aids for patients with hearing loss
3.2.8 Procure ECG machines and hand-held blood analysers for biochemical monitoring and establish PPM for referral of select patients for hormonal assays
3.2.9 Provide monthly treatment enablers for psycho-social support for patients on treatment

C. TB-HIV COLLABORATIVE ACTIVITIES

Strategic Objective 4
To test all TB patients for HIV and initiate all co-infected on CPT and ART as well as intensify TB case finding among PLHIV.

4.1 Strategic intervention
Support mechanisms for integrated TB-HIV services at all levels

Narrative

The TB epidemic in Zimbabwe is largely driven by a high HIV prevalence. In 2015, 70% of all TB patients were co-infected. There is need to strengthen collaboration between the NTP and NAP including partners. The strategic intervention focuses on ensuring that both programs and partners collaborate. These platforms will be available at all levels from community and district where implementation of TB-HIV activities is done to the national level where policies and guidelines are formulated. TB-HIV technical working group (TWG) meetings will deliberate on TB-HIV integration issues. Partnership forum meetings will continue to bring together all the partners and stakeholders that support TB-HIV to discuss, plan and review issues.

Activities

4.1.1 Facilitate bi-annual national TB-HIV review and planning meetings
4.1.2 Facilitate national quarterly TB-HIV TWG meetings
4.1.3 Conduct bi-annual TB-HIV partnership forum meeting

4.2 Strategic intervention
Scale up quality integrated TB-HIV treatment and care to all health facilities

Narrative

Zimbabwe has been implementing a patient centered one-stop-shop integrated TB-HIV model of care in 45 health facilities since 2015. This model includes provision of HIV testing, Opportunistic Infections (OI) and antiretroviral therapy (ART) services for TB patients as well as TB diagnosis and treatment services for PLHIV under one roof. Where this model has not been implemented, patients are often referred between TB and HIV clinics. This results in unnecessary delays and loss of patients in the referral chain. The program intends to scale up this one-stop-shop model to all health facilities in Zimbabwe. To achieve this, training manuals will be reviewed and trainings conducted to build capacity at provincial and district level. HCWs will also be attached at centers of excellence so that they get hands on experience on this new approach. The country has adopted use of the LF-LAM for diagnosis of TB in severely ill PLHIV who cannot produce sputum for Xpert MTB/RIF. Implementation will be done in a phased approach starting with a pilot in two central hospitals.

Activities

4.2.1 Roll out one-stop-shop integrated TB-HIV care to all primary care facilities
4.2.2 Pilot and roll out use of LF-LAM for TB diagnosis among severely ill PLHIV at central hospitals

4.3 Strategic intervention
Promote TB IPC practices in TB-HIV care settings

Narrative

Strengthening TB IPC within health facilities is a critical step in reducing nosocomial TB transmission. This is particularly important for PLHIV who have a high risk of developing active TB. Implementation of managerial and environmental IPC measures should be prioritized over personal protective equipment (PPE). The majority of health facilities in Zimbabwe need upgrading since they were not structurally designed to cater for the high number of TB and HIV patients. Facilities targeted to implement the patient centered one-stop-shop integrated TB-HIV care model will be assessed for compliance with IPC standards. Based on these assessments,

appropriate structural renovations will be carried out to decongest patient waiting areas, improve ventilation and flow of patients. This will be complemented by training of HCWs on good IPC practices. Routine TB screening of HCWs as part of a comprehensive wellness program will also be implemented in all health facilities. TB diagnosis among HCWs will act as a proxy for the effectiveness of IPC measures in place at the respective health facilities. This is particularly important in this era of an increasing DR-TB burden.

Activities

4.3.1 Conduct site assessments for TB IPC and appropriate renovations of health facilities
4.3.2 Conduct training and on-site mentorship on TB IPC based on FAST approach
4.3.3 Conduct TB screening of HCWs as part of the comprehensive wellness program
4.3.4 Procure and distribute Personal Protective Equipment (PPE)

D. PATIENT-CENTRED APPROACH TO TB CARE

Sub-Objective *5*

To strengthen provision of quality patient centered care, which respects patients' rights and eliminates catastrophic costs due to TB.

5.1 Strategic intervention

Address determinants of catastrophic costs related to TB and address patients' rights and barriers to improve access to patient centred TB services

Narrative

Involvement of patients in planning for their treatment and care is central to achieving patient centered care (PCC). The patient's charter which articulates' the rights and responsibilities of patients and HCWs has been available for some time but is not widely accessible to patients as copies are in English. In addition, the way the patients' charter is enforced is not structured and there is no mechanism of tracking its implementation. The new constitution of 2013 recognizes the right to health regardless of gender, religion and race. This presents an opportunity to ensure that the rights of TB patients are safeguarded and all people have access to TB services that respect patients' rights. An assessment will be done to inform the development or adaptation of tools such as community scorecards to measure and monitor patients` rights violations and any TB related discrimination. Civil society and communities will be engaged as gatekeepers to monitor enforcement of the patients' charter. It is critical that the HCWs and Health Professions Councils are sensitized on the patients' charter to ensure provision of PCC.

TB treatment and care is free in Zimbabwe, however patients still have to pay for initial consultation and chest X-rays before a diagnosis is made. Patients also incur direct and indirect costs in accessing TB services such as transport costs and ancillary medicines to manage ADEs.

Patients particularly those on DR-TB treatment have to pay for biochemical tests to monitor their treatment. There is need to design and implement multi-pronged approaches to extend social protection for TB patients which aim to eliminate catastrophic costs due to TB.

Activities

5.1.1 Conduct an inventory on laws/policies and practices on PCC and develop tools to monitor incidents of patient rights violations as stated in the patients' charter
5.1.2 Sensitize and train communities, civil society, HCWs and Health Professional Councils on the patients' charter and how to monitor patients' right violations
5.1.3 Provide nutritional hampers, psychosocial and monetary living support to needy patients affected by TB.
5.1.4 Update current HCWs training materials to include patient rights and develop IEC materials with non-stigmatizing messages
5.1.5 Develop, print and distribute guidelines for social protection for TB and establish TWG to address and coordinate implementation of social protection and PCC interventions and programs to eliminate catastrophic costs
5.1.6 Conduct periodic patient cost surveys

Sub-Objective 6

To strengthen health delivery and community systems for resilient and sustainable TB services by enhancing leadership; coordination; monitoring and evaluation capacity.

6.1 Strategic intervention

Build competencies and skills of the National TB Program (NTP) staff and sub-national program managers on leadership, management, resource mobilization, partnerships and networking

Narrative

The current NTP structure was designed in line with the STOP TB strategy, and there is need to align it with the End TB strategy and the new National Health sector strategy (2016-2020). There is need to build staff competencies and skills in line with emerging demands of the End TB strategy. These include leadership, management, resource mobilization, partnerships and networking skills. Likewise, there is need to improve capacity for communication with key stakeholders to enhance collaboration and visibility of the program.

The TB program is perceived to be verticalized at implementation level and there is weak ownership by District Health Executives. There is a results based financing mechanism primarily targeting maternal and child health indicators. This presents an opportunity to leverage on this investment to include TB indicators to improve program performance. Integration of the TB program at the province and district level would go a long way to promote ownership and reduce

perceptions of verticalization. The NTP will strengthen the integration of provincial/district operational planning, implementation of programs, monitoring and evaluation.

The MoHCC still uses a staff establishment developed in 1984, despite changes in disease epidemiology with the advent of HIV and decentralization of TB services. There is an urgent need to conduct a comprehensive Staff Work Load Indicator Needs survey to inform revision of the current establishment.

Activities

6.1.1 Review current roles, responsibilities, key performance indicators and reporting to align with the new strategy
6.1.2 Support the Work Load Indicator of Staffing Needs survey
6.1.3 Conduct central and sub-national level management and leadership skills needs assessment and develop a capacity building strategy based on identified needs
6.1.4 Conduct quarterly district and provincial TB-HIV review and planning meetings
6.1.5 Hold national bi-annual review program and planning meetings
6.1.6 Print, and distribute the new NSP (2017-2020)
6.1.7 Integrate TB into results based financing
6.1.8 Strengthening Community systems and structures to enhance linkages and treatment success.

6.2 Strategic intervention

Generate quality data/information for decision making in planning, implementation, monitoring and evaluation at all levels by 2020.

Narrative

Monitoring, Evaluation and Research remains a critical component of the NTP. To ensure that quality data is generated and disseminated, MoHCC is migrating from using the paper-based system and is developing an Electronic Health Record (EHR) for all ministry departments which is patient centered. The NTP will develop and integrate a TB module into the EHR. Availability of M&E tools at health facility and community level has been a challenge. A tool to quantify and track stock status at all levels will be develop and incorporated into the DHIS2. There is continued need to support On-Site Data Verification (OSDV) to strengthen data quality at all levels. Upgrading skills and addressing knowledge gaps among M&E personnel at all levels in line with regional and international standards will be prioritized. After the successful completion of the TB prevalence survey in 2014/2015, operational research will be critical in addressing emerging issues from the findings and recommendations.

Activities

6.2.1 Integration of TB modules in the Ministry of Health and Child Care electronic health record system
6.2.2 Capacity building of health care workers at site level
6.2.3 Performance reviews and data quality assurance.
6.2.4 Human resource development for M&E
6.2.5 Develop operations research agenda
6.2.6 Implement priority operations research

7.3 TECHNICAL ASSISTANCE PLAN

The NTP recognizes inherent limitations that may need technical assistance throughout the lifespan of this strategy. Technical assistance will be sought to compliment local human resource capacity for program delivery. In order to achieve certain specific objectives, technical assistance needs for the NTP will include the following;

Strategic Objective 1

To increase the treatment coverage of all forms of TB from 72% in 2015 to 90% (with contribution from childhood TB increasing from 7% to 12% and from non-NTP providers increasing from 13% to 20%) by 2020

1.2 Strategic intervention

Expand the use of Xpert MTB/RIF as the first line test for diagnosis of TB and digital radiography as a screening tool for presumptive TB cases

1.2.1 Development of a national TB laboratory operational plan
1.2.2 Installation and maintenance of GX Alert to facilitate remote monitoring of GeneXpert instruments

1.3 Strategic intervention

Procurement of laboratory reagents and consumables including materials for diagnosis of childhood TB and development of an integrated eLMIS system to improve supply chain

1.3.1 Development of an integrated electronic Laboratory Management Information System (eLMIS) system to improve supply chain efficiency

1.5 Strategic intervention

Strengthen capacity of Health Care Workers to provide comprehensive and quality TB prevention treatment and care

1.5.1 Update TB, TB-HIV management guidelines and training curricula to align with new management approaches

1.5.2 Updating blended e-learning platforms for capacity development to include TB

1.7 Strategic intervention
Strengthen engagement of all care providers - public private mix (PPM)

1.7.1 Development of a national PPM operational plan to operationalize the PPM framework for TB-HIV service delivery

Strategic Objective 3
To increase the number of DR-TB cases detected and enrolled on treatment annually from 468 (43%) in 2015 to 884 (80%) and treatment success rate from 59% (2013) to 85% by 2020.

3.3 Strategic intervention
Ensure quality assured universal access to TB drug resistance testing

3.3.1 Development of an updated laboratory quality management system

3.4 Strategic intervention
Ensure access to quality treatment and care services for DR-TB patients

3.4.1 Updating PMDT guidelines and training material to include New Drugs and Regimens
3.4.2 Facilitating advanced Clinical MDR-TB trainings to include New Drugs and Regimens

Sub-Objective 5
To strengthen provision of quality patient centered care, which respects patients' rights and eliminates catastrophic costs due to TB.

5.1.1 Conduct an inventory on laws/policies and practices on PCC and develop tools to monitor incidents of patient rights violations
5.1.2 Implementing a patient cost survey

Sub-Objective 6
To strengthen health delivery and community systems for resilient and sustainable TB services by enhancing leadership; coordination; monitoring and evaluation capacity.

6.3 Strategic intervention
Build competencies and skills of the National TB Program (NTP) staff and sub-national program managers on leadership, management, resource mobilization, partnerships and networking

6.3.1 Leadership skills needs assessment and development of a capacity building strategy based on identified needs

6.4 Strategic intervention

Generate quality data/information for decision making in planning, implementation, monitoring and evaluation at all levels by 2020.

6.4.1 Integration of TB modules in the Ministry of Health and Child Care electronic health record system

6.4.2 Development of a TB research agenda

6.4.3 Support External TB Program review

7.4 STAKEHOLDERS EXPECTATIONS

Below is the stakeholders' analysis of their expectations to ensure smooth coordination and accountability of service delivery.

Table 9: Stakeholder analysis

Stake holders	Expectations from stake holders/partners	NTP expectations
	Program management and coordination	
Communities The Union WHO OPHID CHAI RAPT ZNNP+ FACT BRTI Local Authorities CDC USAID RTI NAC Universities and Colleges KNCV APHL DAPP UNICEF Save the Children SafAIDS MSF Fraternity Plan International FHI 360 SOLIDAMED Mine Sector Uniformed Forces UNDP	○ Wide dissemination of policy documents and programme reports and costed work plans ○ Timely actioning of recommendations from quarterly review meetings ○ Policy framework protecting health care workers from infectious diseases, including TB within a wellness program with compensation for work related exposure ○ Equity in capacity building and technical support based on need ○ Efficient use of available resources (address low burn rate of partner funds) ○ Increased domestic funding for TB ○ Partner mapping of who does what and where	○ Partners to ensure NTP is engaged on any proposed interventions to minimize duplication and ensure alignment with NSP and policy guidelines ○ Partners to participate in planning, review meetings and development of policy documents ○ Partner transparency on available resources ○ NTP involvement in all partner led studies ○ Partners authorization for publication of any health data
	Case finding and diagnostics	
	○ Ensure reliable sample transportation system	
	TB treatment and prevention	
	○ Meaningful and timely psycho-socioeconomic support for MDR patients	
	Patient centred care and community engagement	
	○ Support for community based workers through; • Provision for efficient co-ordination • Clear guidelines for effective	

Medical Aid Societies PSI	engagement ○ Strengthen involvement of partners in planning, development of policies and implementation ○ Scrapping of users fees for TB investigations	
	Monitoring and Evaluation and Strategic information	
	○ Provide adequate supply of adequate M&E tools and registers, with adequate training on use	○ Partners collecting program data to ensure reporting through MoHCC reporting framework ○
	TB commodities and supply chain	
	○ Provide constant supply of TB medicines including ancillary medicines to deal with ADRs and effects of TB disease	

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ANNEXES

Annex 1: Contributors to the development of the TB National Strategic Plan

Name	Position	Institution
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Masimba Dube	TB Medicines Focal person	NTP-MOHCC
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Ngoni Chihombori	Laboratory Systems Analyst	CHAI

Annex 2: Detailed Operational Plan

Objective: To increase the case detection rate from 72% in 2015 to 90% (with proportion of childhood TB increasing from 7% to 12% and contribution from non-NTP providers increasing from 13% to 20%) by 2020											
Activity Description	**Assumptions**	**Unit cost**	**Quantity 2017**	**Cost 2017**	**Quantity 2018**	**Cost 2018**	**Quantity 2019**	**Cost 2019**	**Quantity 2020**	**Cost 2020**	**Grand Totals**
Intervention: Strengthen contact investigation for all bacteriologically confirmed pulmonary TB cases and all childhood TB cases											
Activity: Develop tools and guidelines to support Contact investigation											
Review and print TB module for CHW to include contact investigation	2,000 copies printed per year	$10.00	2000	$20,000.00	2000	$20,000.00	2000	$20,000.00	2000	$20,000.00	$80,000.00
Re-orient community health workers on TB including contact investigation	150 people per district for 65 districts	$2.00	9750	$19,500.00	0	$0.00	9750	$19,500.00	0	$0.00	$39,000.00
Conduct awareness meetings on TB including contact investigation for community members and leaders	100 participants per district 65 districts, 2 times per year	$2.00	13000	$26,000.00	13000	$26,000.00	13000	$26,000.00	13000	$26,000.00	$104,000.00
Engage Directorate Environmental Health on integration of contact investigation with EHT related activities	Once per quarter x 3 quarters Y1 x 25 people	$500.00	75	$37,500.00	0	$0.00	0	$0.00	0	$0.00	$37,500.00
Intervention: Expand the use of Xpert MTB/rif as the first line test for diagnosis of TB and digital radiography as a screening tool for presumptive TB cases											
Activity: Develop a national TB laboratory operational plan											
Engage external TA for development of the TB laboratory costed operational plan	14 days for International TA	$12,900.00	1	$12,900.00	0	$0.00	0	$0.00	0	$0.00	$12,900.00
Conduct a situation analysis	5 days by team of 5 people	$75.00	25	$1,875.00	0	$0.00	0	$0.00	0	$0.00	$1,875.00
Convene a writing workshop.	20 people x 5 days	$125.00	100	$12,500.00	0	$0.00	0	$0.00	0	$0.00	$12,500.00
Print and distribute TB Laboratory operational plan	500 copies	$10.00	500	$5,000.00	0	$0.00	0	$0.00	0	$0.00	$5,000.00
Stakeholders meeting to launch the laboratory operational plan	Conference for 60 people + accommodation for 20 x 1 night	$3,200.00	1	$3,200.00	0	$0.00	0	$0.00	0	$0.00	$3,200.00
Activity: Develop, print, distribute and train HCWs on revised algorithms which include Xpert and CXR											
Conduct workshop to develop algorithms which include use of X-pert as initial test and CXR as screening tool	30 people x 5 days	$125.00	150	$18,750.00	0	$0.00	0	$0.00	0	$0.00	$18,750.00
Print and distribute algorithms for health facilities	10,000 copies per year in 2017	$1.00	10000	$10,000.00	0	$0.00	0	$0.00	0	$0.00	$10,000.00
Train HCWs on the revised algorithm	30 HCWs per district for 1 day x 65 districts	$75.00	1950	$146,250.00	0	$0.00	0	$0.00	0	$0.00	$146,250.00

Conduct orientation meetings with provincial and district health executive teams on the new TB management guidelines and algorithms	50 people x 2 days x 10 provinces	$110.00	1000	$110,000.00	0	$0.00	0	$0.00	0	$0.00	$110,000.00
Activity: Install and maintain GX Alert on 130 GX instruments											
Engage external TA from Global Connectivity (GC)	External TA for 7 days, DSA and airfare	$12,476.00	1	$12,476.00	0	$0.00	0	$0.00	0	$0.00	$12,476.00
Provide for Project management fees for GC consultancy	For 10 days	$480.00	10	$4,800.00	0	$0.00	0	$0.00	0	$0.00	$4,800.00
Procure routers and SIM cards	130 routers and 260 SIM cards	$65,260.00	1	$65,260.00	0	$0.00	0	$0.00	0	$0.00	$65,260.00
Procure 500MG data plans for sites	130 sites x $20 per month	$20.00	1560	$31,200.00	1560	$31,200.00	1560	$31,200.00	1560	$31,200.00	$124,800.00
Procure high gain antennas for sites	HGA @$160 x10 sites	$160.00	10	$1,600.00	0	$0.00	0	$0.00	0	$0.00	$1,600.00
Procure Wi-Fi dongles & CD/DVDs for 130 sites	130 dongles and 130 CD/DVDs in Y1 and Y2	$25.00	130	$3,250.00	0	$0.00	0	$0.00	0	$0.00	$3,250.00
In-country training of local team by GC on GxAlert implementation	10 people for 2 days at national level	$125.00	20	$2,500.00	0	$0.00	0	$0.00	0	$0.00	$2,500.00
On-site installation of the GxAlert system in all sites by 3 MOH persons.	5 provinces in Y1 and 5 provinces in Y2 x 15 days per province	$130.00	135	$17,550.00	0	$0.00	0	$0.00	0	$0.00	$17,550.00
Server and software maintenance [Anti-Virus - Team Viewer Premium (software), Twillio SMS Messaging, JIRA Help Desk & Confluence Knowledge Base Software, Send Grip email messaging app, Tableau Desktop Professional (software), Tableau Training, Hosting (primary in-country), Hosting (backup, private cloud)]	46 sites in Y1 and 130 sites from Y2	$195.00	46	$8,970.00	130	$25,350.00	130	$25,350.00	130	$25,350.00	$85,020.00
Development of draft DUA, Development of Responsive Licensing Module for Connectivity Software, Abbreviated legal review of DUA	One time cost of US$ 9000	$9,000.00	1	$9,000.00	0	$0.00	0	$0.00	0	$0.00	$9,000.00
Activity: Support an Integrated Specimen Transportation (IST) system											
Conduct inventory of motorcycles and untrained riders in all provinces.	3 people per team x 2 teams for 5 days	$75.00	30	$2,250.00	30	$2,250.00	30	$2,250.00	30	$2,250.00	$9,000.00
Procure motor cycles for Specimen transportation	400 motor cycles. 150 in Y2, 150 in Y3 and 100 in Y4	$3,000.00	400	$1,200,000.00	0	$0.00	0	$0.00	0	$0.00	$1,200,000.00
Train motorcycle riders on IST	1 day training (150 in Y2, 150 in Y3 and 100 in Y4)	$75.00	0	$0.00	150	$11,250.00	150	$11,250.00	150	$11,250.00	$33,750.00

Maintenance of motor cycles.	305 motor cycles in Y1, 455 in Y2, 605 in Y3 and 705 in Y4	$150.00	305	$45,750.00	400	$60,000.00	400	$60,000.00	400	$60,000.00	$225,750.00
Annual Insurance support	305 motor cycles in Y1, 455 in Y2, 605 in Y3 and 705 in Y4	$75.00	305	$22,875.00	400	$30,000.00	400	$30,000.00	400	$30,000.00	$112,875.00
Procure protective gear sets (helmet, kidney belt, jacket, trousers, boots, gloves, specimen courier back pack, and specimen courier box).	Y1 - 150, Y2- 150 and Y3 - 100	$100.00	150	$15,000.00	150	$15,000.00	100	$10,000.00	0	$0.00	$40,000.00
Provide allowances for riders	15 days per month Y1 - 305 riders, Y2 - 455 riders, Y3 - 605 riders and Y4 - 705 riders.	$10.00	4575	$45,750.00	6000	$60,000.00	6000	$60,000.00	6000	$60,000.00	$225,750.00
Intervention: Procurement of laboratory reagents and consumables including materials for diagnosis of childhood TB and development of an integrated eLMIS system to improve supply chain											
Activity: Quantification, procurement, storage and distribution of laboratory reagents and consumables including materials for diagnosis of childhood TB											
Procure laboratory reagents and consumables (microscopy, Xpert MTB/Rif, LPA, Culture & DST)		$1,789,841.07	1	$1,789,841.07	1	$1,789,841.07	1	$1,789,841.07	1	$1,789,841.07	$7,159,364.28
Procure laboratory equipment (Xpert MTB/Rif, LPA, Culture & DST)		$109,225.00	1	$109,225.00	0	$0.00	0	$0.00	0	$0.00	$109,225.00
Procure 60 GeneXpert replacement modules annually		$900.00	60	$54,000.00	60	$54,000.00	60	$54,000.00	60	$54,000.00	$216,000.00
PSM costs on consumables and reagents	7% of the total cost of Consumables and reagents	$1.00	1	$136,714.62	1	$136,714.62	1	$129,068.87	1	$129,068.87	$531,567.00
Activity: Develop and implement an integrated eLMIS system to improve supply chain efficiency											
Customization of LMIS system to link with DHIS2		$46,846.00	1	$46,846.00	0	$0.00	0	$0.00	0	$0.00	$46,846.00
Intervention: Scale up systematic screening for TB high risk groups and establish cross border collaborative activities for TB care and prevention											
Activity: Conduct systematic screening for TB among high risk groups using mobile trucks equipped with digital X-rays equipment and Xpert											
Procure additional mobile trucks equipped with digital Xray equipment and Xpert for each province	4 trucks in Y2 and 4 trucks in Y3	$298,000.00	0	$0.00	4	$1,192,000.00	4	$1,192,000.00	0	$0.00	$2,384,000.00
Train provincial teams for targeted screening for TB	30 people per province x 8 provinces x 3 days	$110.00	360	$39,600.00	360	$39,600.00	0	$0.00	0	$0.00	$79,200.00
Conduct district surveys to map TB hot spots and high risk groups	5 people x 5 days x 65 districts	$56.00	1625	$91,000.00	0	$0.00	0	$0.00	0	$0.00	$91,000.00
Mobilize communities for targeted TB screening campaigns	By team of 5 people x 5 days/campaign x 8 campaigns per quarter	$75.00	800	$60,000.00	0	$0.00	800	$60,000.00	0	$0.00	$120,000.00
Develop and print IEC materials for community mobilization	1,000 copies per campaign x 8 campaigns per quarter x 4 years.	$1.00	32000	$32,000.00	0	$0.00	0	$0.00	0	$0.00	$32,000.00
Procure tablets for electronic data entry during campaigns	10 tablets per team x 8 teams.	$350.00	80	$28,000.00	0	$0.00	0	$0.00	0	$0.00	$28,000.00

Procure and install central servers to support electronic data entry during campaigns.	8 servers at provinces and 1 server at national	$1,000.00	1	$1,000.00	0	$0.00	0	$0.00	0	$0.00	$1,000.00
Provide per diem for field teams for quarterly TB screening campaigns.	15 people per team x 8 teams x 5 days/campaign x 4 campaigns/ year	$75.00	2400	$180,000.00	0	$0.00	2400	$180,000.00	2400	$180,000.00	$540,000.00
Provide fuel for quarterly TB screening campaigns.	8 campaigns per quarter @ 1000 liters per campaign	$1.50	8000	$12,000.00		$0.00	8000	$12,000.00	8000	$8,000.00	$32,000.00
Activity: Strengthen TB control in congregate settings											
Procure additional GX machines to support periodic screening of TB among inmates and other congregate settings.	5 GX machines	$20,000.00	5	$100,000.00	0	$0.00	0	$0.00	0	$0.00	$100,000.00
Activity: Conduct bidirectional screening for TB and DM at health facilities											
Develop and print algorithms for bidirectional screening of TB and Diabetes.	5,000 copies per year	$0.50	5000	$2,500.00	5000	$2,500.00	5000	$2,500.00	5000	$2,500.00	$10,000.00
Procure glucometers for screening TB patients for Diabetes	2,000 numbers at zero cost (comes with boxes of strips)	$0.00	2000	$0.00	0	$0.00	0	$0.00	0	$0.00	$0.00
Procure glucose strips for screening TB patients for Diabetes	200 strips per glucometer-per box of 25 strips	$18.00	16000	$288,000.00	40000	$720,000.00	40000	$720,000.00	40000	$720,000.00	$2,448,000.00
Activity: Establish inter-country TWG for TB and HIV to coordinate cross border collaboration											
Conduct in-country meeting to formulate ToRs of TWG for cross border collaboration	20 people x 1 day	$25.00	20	$500.00	0	$0.00	0	$0.00	0	$0.00	$500.00
Conduct TWG meeting bi-annually on cross border collaboration	10 people x 1 day	$25.00	20	$500.00	20	$500.00	20	$500.00	20	$500.00	$2,000.00
Support regional inter-country TWG formulation	4 people for 5 days @ $ 200 DSA/ person plus total air fire for 4 people of $2,800.00	$6,000.00	0	$0.00	1	$6,000.00	0	$0.00	1	$6,000.00	$12,000.00
Activity: Develop, print and distribute TB patients' tracking tools for cross-border migrant											
Develop TB/HIV patients' tracking tool for cross border migrants	20 people x 1 day @ $25 per person	$25.00	20	$500.00	0	$0.00	0	$0.00	0	$0.00	$500.00
Print and distribute TB/HIV patients' tracking tools every 2 years	1,000 copies per year	$1.00	1000	$1,000.00	1000	$1,000.00	1000	$1,000.00	1000	$1,000.00	$4,000.00
Activity: Integrate TB services with existing HIV service centers at border posts (Northstar Alliance initiatives)											
Train HCWs manning static HIV service centers at border posts, immigration officers, port health officers (Northern and Southern region) on TB/HIV integration;	25 people by 5 facilitators per region x 3 days	$110.00	180	$19,800.00	0	$0.00	0	$0.00	0	$0.00	$19,800.00
Activity: Conduct operations research to understand unique factors to TB among the migrant population											

Conduct operations research to understand unique factors to TB within the migrant population	3 days consultative workshop with 20 participants, operational research activities, dissemination workshop.	$150,000.00	1	$150,000.00	0	$0.00	0	$0.00	0	$0.00	$150,000.00
Intervention: Strengthen capacity of Health Care Workers to provide comprehensive and quality TB prevention treatment and care											
Activity: Revise and print TB management guidelines and TB training curricula to align with new TB management approaches											
Print and distribute the 2016 edition of TB management guidelines	5,000 copies	$10.00	5000	$50,000.00	0	$0.00	0	$0.00	0	$0.00	$50,000.00
Revise TB training curricula (to include job aides/flow charts, programmatic guide for managers) to align with the new TB management	25 people x 5 days @ $25 per person per day	$25.00	125	$3,125.00	0	$0.00	0	$0.00	0	$0.00	$3,125.00
Print copies of revised TB training modules.	5,000 copies	$5.00	5000	$25,000.00	0	$0.00	0	$0.00	0	$0.00	$25,000.00
Print copies of job aides.	5,000 copies	$5.00	5000	$25,000.00	0	$0.00	0	$0.00	0	$0.00	$25,000.00
Print copies of TB flow charts	10,000 copies per copy @ $1 each	$1.00	10000	$10,000.00	0	$0.00	0	$0.00	0	$0.00	$10,000.00
Print copies of programmatic guides for managers	500 copies @ $5 per copy	$5.00	500	$2,500.00	0	$0.00	0	$0.00	0	$0.00	$2,500.00
Provide TA for revision of 2016 edition of TB management guidelines in 2019	External TA x 21 days	$18,950.00	0	$0.00	0	$0.00	1	$18,950.00	0	$0.00	$18,950.00
Situational analysis for revision of TB guidelines.	10 people x 5 days	$85.00	0	$0.00	0	$0.00	50	$4,250.00	0	$0.00	$4,250.00
Procure fuel for situational analysis	140 litres per vehicle x 3 vehicle @ $ 1.4/vehicle	$1.50	0	$0.00	0	$0.00	420	$630.00	0	$0.00	$630.00
Conduct consultative stakeholders' workshop for the revision of TB guidelines.	60 people x 3 days @ 125 $-/person/day x 2 workshops	$125.00	0	$0.00	0	$0.00	360	$45,000.00	0	$0.00	$45,000.00
Writing workshop to revise guidelines by team	30 people for 10 days	$110.00	0	$0.00	0	$0.00	300	$33,000.00	0	$0.00	$33,000.00
Print copies of revised TB management guidelines.	3000 copies	$10.00	0	$0.00	0	$0.00	3000	$30,000.00	0	$0.00	$30,000.00
Activity: Review pre-service training curricula on TB, TB-HIV for all health professionals											
Conduct workshop with pre-service training representatives to integrate the new developments in TB management into the existing curriculum	30 people x 5 days	$110.00	0	$0.00	0	$0.00	150	$16,500.00	0	$0.00	$16,500.00
Procure fuel for workshop to integrate the new developments in TB management into the existing curriculum	140 liters/ vehicle x 1 vehicle per province x 10 provinces	$1.50	0	$0.00	0	$0.00	1400	$2,100.00	0	$0.00	$2,100.00
Activity: Conduct in-service training for TB for HCWs with emphasis on on-site mentorship											

Conduct regional (Northern and Southern) TOTs on TB case management using revised training curriculum	25 participants + 5 facilitators x 5 days x 2 regions	$110.00	0	$0.00	0	$0.00	300	$33,000.00	0	$0.00	$33,000.00
Conduct cascade trainings to district level on TB case management using revised training curriculum	25 participants + 5 facilitators x 4 days @ $ 75/- per person/day x 65 districts	$75.00	0	$0.00	0	$0.00	7800	$585,000.00	0	$0.00	$585,000.00
Conduct quarterly mentorship visits to facilities	3 people/team x 4 visits per year by 65 districts	$15.00	0	$0.00	0	$0.00	7800	$117,000.00	7800	$117,000.00	$234,000.00
Procure fuel for conducting clinical mentorship visits quarterly	100 liters/district x 1 visit/quarter x 65 districts	$1.50	0	$0.00	0	$0.00	6500	$9,750.00	6500	$9,750.00	$19,500.00
Purchase tablets for blended learning.	10 tablets per district x 65 districts	$350.00	0	$0.00	650	$227,500.00	0	$0.00	0	$0.00	$227,500.00
Develop electronic TB module for blended learning	25 pple x 2 days	$125.00		$0.00	50	$6,250.00	0	$0.00	0	$0.00	$6,250.00
Conduct annual national level support and supervision visits (as part of national M&E)	5 pple from national level x 5 days/visit x 1 visit /year	$75.00	0	$0.00	25	$1,875.00	25	$1,875.00	25	$1,875.00	$5,625.00
Conduct quarterly provincial to district level support and supervision visits by provincial officers.	3 officers x 5 days x 10 provinces x 4 visits/year	$56.00	0	$0.00	600	$33,600.00	600	$33,600.00	600	$33,600.00	$100,800.00
Conduct provincial biannual review and planning meetings by clinical mentors.	35 pple x 3 days x 10 provinces x 2 meetings per year	$110.00	0	$0.00	2100	$231,000.00	2100	$231,000.00	2100	$231,000.00	$693,000.00
Conduct annual training for new mentor on clinical mentoring skills	30 pple x 5 days	$125.00	0	$0.00	150	$18,750.00	150	$18,750.00	150	$18,750.00	$56,250.00
Print training manuals for clinical mentorship and TB case management	700 copies each year (200 clinical mentorship manuals plus 500 TB case management manuals).	$5.00	0	$0.00	700	$3,500.00	700	$3,500.00	700	$3,500.00	$10,500.00
Procure fuel for clinical mentorship support and supervision visits.	3,000 liters per year (covering support and supervision visits, review and planning meetings and trainings excluding mentorship visits)	$1.50	0	$0.00	3000	$4,500.00	3000	$4,500.00	3000	$4,500.00	$13,500.00
Intervention: Stregthen meaningful community engagement to intensify interventions for TB case finding											
Activity: Conduct demand generation and awareness raising through sensitization and advocacy dialogues with community leaders, parliamentarians, senior government officials, religious leaders, traditional and faith healers on TB, TB-HIV, stigma and discrimination											
Hold regional meetings with national representatives of traditional and faith healers to sensitize them on TB	25 pple x 2 regions x 2 days x 2 meetings per year	$110.00	0	$0.00	0	$0.00	200	$22,000.00	200	$22,000.00	$44,000.00
Hold one day district sensitization meeting with traditional and faith healers on TB and TB-HIV x 65	30 pple x 1 day x 65 districts 1 meeting per district per year	$75.00	0	$0.00	0	$0.00	1950	$146,250.00	1950	$146,250.00	$292,500.00

districts											
Hold radio talk shows with traditional and faith healers on TB and TB-HIV	13 x 15 minutes per program	$1,000.00	0	$0.00	0	$0.00	13	$13,000.00	13	$13,000.00	$26,000.00
Conduct two day bi-annual engagement with the parliamentary portfolio committee on health on TB-HIV	25 pple x 2 days per meeting x 2 meetings per year	$110.00	0	$0.00	0	$0.00	100	$11,000.00	100	$11,000.00	$22,000.00
Engage NAC board to ring fence domestic funding for TB through NATF	20 pple 1 day (conference package, fuel, incidentals)	$110.00	0	$0.00	20	$2,200.00	20	$2,200.00	20	$2,200.00	$6,600.00
Hold an annual breakfast engagement with Presidium on TB and TB-HIV	25 pple x 1 day	$110.00	0	$0.00	0	$0.00	25	$2,750.00	25	$2,750.00	$5,500.00
Activity: Conduct media engagement and mentorship on TB and TB-HIV											
Conduct media tour with health journalists	10 Journalists and 4 officials for 5 days	$125.00	0	$0.00	0	$0.00	1	$125.00	1	$125.00	$250.00
Conduct annual media orientation meeting with health journalists on TB and TB-HIV to improve reporting	30 pple x 2 days	$125.00	0	$0.00	0	$0.00	1	$125.00	1	$125.00	$250.00
Support 8 journalists and 8 mentors on a media mentorship program for six months	16 pple x 6 field mentorship visits per year x 5 days per visit	$75.00	0	$0.00	0	$0.00	1920	$144,000.00	1920	$144,000.00	$288,000.00
Activity: Conduct mass media and community awareness campaigns											
Placing of TB-HIV advertisements on TV and Radio	30 TV advert slots per year and 30 radio advert per quarter	$1,000.00	0	$0.00	0	$0.00	240	$240,000.00	240	$240,000.00	$480,000.00
Bulk SMSs on TB monthly	US$ @ 1200 per month	$1,200.00	0	$0.00	12	$14,400.00	12	$14,400.00	12	$14,400.00	$43,200.00
Conduct 65 district awareness campaigns bi-annually	100 pple per campaign x 1 day/campaign by team of 5 for 65 districts ($2/person for refreshments plus $10 per person for facilitators (20 litres fuel per team/ campaign)	$7.00	0	$0.00	6500	$45,500.00	6500	$45,500.00	6500	$45,500.00	$136,500.00
Activity: Train Community Health Care Workers on TB, TB-HIV, community infection control and interpersonal communication											
Hold 1 day interpersonal communication orientation meeting for Provincial and District managers at national level	40 pple x 2 days	$125.00	0	$0.00	0	$0.00	0	$0.00	80	$10,000.00	$10,000.00
Conduct regional trainings for health promotion officers on TB and TB-HIV communication	50 pple x 3 days x 2 regions	$110.00	0	$0.00	0	$0.00	300	$33,000.00	300	$33,000.00	$66,000.00
Activity: Develop and distribute IEC materials in various formats and languages											
Conduct a meeting on development of IEC materials.	30 people x 6 days	$110.00	0	$0.00	0	$0.00	180	$19,800.00	0	$0.00	$19,800.00
Conduct field pre-testing of IEC	10 people 4 days	$75.00	0	$0.00	0	$0.00	40	$3,000.00	0	$0.00	$3,000.00

materials											
Translation of IEC materials in local languages	$200 per language x 5 languages	$200.00	0	$0.00	0	$0.00	0	$0.00	5	$1,000.00	$1,000.00
Print and distribute IEC materials	Posters x 150,000	$0.20	0	$0.00	0	$0.00	0	$0.00	150000	$30,000.00	$30,000.00
Procure promotional materials	Shirts-200 shirts per year, hats 5,000 per year T-shirts 5,000 per year	$43,000.00	0	$0.00	0	$0.00	1	$43,000.00	1	$43,000.00	$86,000.00
Print and distribute newsletter bi-annually	5000 copies x 2	$5.00	0	$0.00	0	$0.00	10000	$50,000.00	10000	$50,000.00	$100,000.00
Activity: Commemorate World TB Day at National and Provincial level											
Supportive visits by national team to hosting province for preparatory meetings for WTBD	5 pple x 2days x 3 visits (Accommodation, per diem and fuel)	$75.00	30	$2,250.00	30	$2,250.00	30	$2,250.00	30	$2,250.00	$9,000.00
Procure fuel for National WTB Day commemorations	1500 liters	$1.50	1500	$2,250.00	1500	$2,250.00	1500	$2,250.00	1500	$2,250.00	$9,000.00
Procure fuel for Provincial WTB Day commemorations	250 liters x 9 provinces	$1.50	2250	$3,375.00	2250	$3,375.00	2250	$3,375.00	2250	$3,375.00	$13,500.00
Procure lunches for participants at national level x 2500 people	2500 pple x $5 per person	$3.00	2500	$7,500.00	2500	$7,500.00	2500	$7,500.00	2500	$7,500.00	$30,000.00
Procure lunches for participants at provincial level x 2000 people	2000 pple x $5 per person	$3.00	200	$600.00	200	$600.00	200	$600.00	2000	$6,000.00	$7,800.00
Venue hire for World TB day commemorations	For 1 day	$5,000.00	1	$5,000.00	1	$5,000.00	1	$5,000.00	1	$5,000.00	$20,000.00
Entertainment (Hire a musician, police brass band)	National level-$5000	$5,000.00	1	$5,000.00	1	$5,000.00	1	$5,000.00	1	$5,000.00	$20,000.00
Entertainment band at provincial level	9 bands @ US$ 1000 per band	$1,000.00	9	$9,000.00	9	$9,000.00	9	$9,000.00	9	$9,000.00	$36,000.00
Pre-commemoration activities-Media tour for 10 journalists.	14 pple x 3 days (accommodation, per diem, fuel, + including 1 travel day.	$75.00	56	$4,200.00	56	$4,200.00	56	$4,200.00	56	$4,200.00	$16,800.00
Conduct press conference for journalists	50 pple x 1 day x conference package	$25.00	50	$1,250.00	50	$1,250.00	50	$1,250.00	50	$1,250.00	$5,000.00
Conduct pre-commemoration conference.	100 pple x 2 days	$110.00	200	$22,000.00	200	$22,000.00	200	$22,000.00	200	$22,000.00	$88,000.00
Conduct one day national stakeholders meeting.	100 people x1 day (fuel for 9 provinces and per diem)	$125.00	100	$12,500.00	100	$12,500.00	100	$12,500.00	100	$12,500.00	$50,000.00
Conduct 5 planning meetings with a steering committee	20 people x 1 day meeting x 5 meetings	$25.00	100	$2,500.00	100	$2,500.00	100	$2,500.00	100	$2,500.00	$10,000.00
Procure (exhibition booths, venue, PA system, fuel, IEC materials, promotional materials, advertising space, lunches for participants, accommodation for participants from out of Harare)		$20,525.00	1	$20,525.00	1	$20,525.00	1	$20,525.00		$0.00	$61,575.00

Activity: Mobilize former TB patients, celebrities and PLHIV as TB Champions											
Conduct a half day stakeholders meeting for 30 people to identify 10 TB champions	30 pple 1 day (conference package)	$25.00	0	$0.00	0	$0.00	30	$750.00	0	$0.00	$750.00
Conduct a two day sensitization and development of a plan of action with the TB Champions	20 pple x 2days x (accommodation, fuel, conference package, per diems)	$110.00	0	$0.00	0	$0.00	40	$4,400.00	0	$0.00	$4,400.00
Engagement fees for the champions	$1000 x 10 champions	$1,000.00	0	$0.00	0	$0.00	10000	$10,000,000.00	0	$0.00	$10,000,000.00
Appearance fees	$500 x 10pp x 4 (10 champions quarterly)	$500.00	0	$0.00	0	$0.00	40	$20,000.00	40	$20,000.00	$40,000.00
Produce a documentary with TB Champions	$10000x 1 documentary	$10,000.00	0	$0.00	0	$0.00	1	$10,000.00		$0.00	$10,000.00
Launch the TB champions campaign	80 ppx1 day (conference package, bus fares for 30 pple, per diems) - refer assumptions sheet	$10,750.00	0	$0.00	0	$0.00		$0.00	0	$0.00	$0.00
Intervention: Strengthen engagement of all care providers - Promote Public Private Mix (PPM)											
Activity: Conduct mapping of private practitioners											
Develop terms of reference and engage external TA for 14 days for the mapping	Engage TA for 14 days. Please refer assumptions sheet.	$12,900.00	0	$0.00	1	$12,900.00	0	$0.00	0	$0.00	$12,900.00
Stakeholders' meeting	I meeting for 45 pple x 1 day (Accommodation, per diem and fuel)	$125.00	0	$0.00	45	$5,625.00	0	$0.00	0	$0.00	$5,625.00
Conduct field visits	5 pple x 2 teams x 7 days (Accommodation, per diem and fuel)	$75.00	0	$0.00	60	$4,500.00	0	$0.00	0	$0.00	$4,500.00
Conduct Feedback meeting	50 people x 1 day (Accommodation, Per diems, conference package)	$125.00	0	$0.00	50	$6,250.00	0	$0.00	0	$0.00	$6,250.00
Activity: Develop a national PPM operational plan											
Engage an external TA to develop a National PPM Operational plan	Engage TA for 14 days. Please refer assumptions sheet.	$12,900.00	0	$0.00	1	$12,900.00	0	$0.00	0	$0.00	$12,900.00
Conduct a stakeholders' consultative and consensus building workshop	50 people x 2 day (Accommodation, Per diems, conference package)	$125.00	0	$0.00	100	$12,500.00	0	$0.00	0	$0.00	$12,500.00
Conduct a writing workshop	25 people x 5 day (Accommodation, Per diems, conference package)	$110.00	0	$0.00	125	$13,750.00	0	$0.00	0	$0.00	$13,750.00
Conduct dissemination meeting for the guidelines and tools	50 people x 2 day (Accommodation, Per diems, conference	$125.00	0	$0.00	100	$12,500.00	0	$0.00	0	$0.00	$12,500.00

	package)										
Print and distribute the guidelines and tools	1000 copies of guidelines	$5.00	0	$0.00	1000	$5,000.00		$0.00	0	$0.00	$5,000.00
Activity: Support coordination of public and private players											
Conduct quarterly review meetings with CSOs and NGOs on CTBC and TB-HIV at provincial level.	30pple x 4 meetings per province per year	$110.00		$0.00		$0.00	1200	$132,000.00	1200	$132,000.00	$264,000.00
Conduct biannual review meetings CSOs and NGOs on CTBC and TB-HIV at national level.	40pple x 2 meetings per year	$125.00		$0.00		$0.00	80	$10,000.00	80	$10,000.00	$20,000.00
Conduct national biannual coordination meetings for CSOs and NGOs (60 people)	60pple x 2 meetings per year	$125.00		$0.00		$0.00	120	$15,000.00	120	$15,000.00	$30,000.00
Conduct trainings for CSOs and NGOs on TB and TB-HIV	40 pple x 3 days per training (Accommodation, per diem, conference package)	$125.00		$0.00		$0.00	120	$15,000.00	120	$15,000.00	$30,000.00
Conduct supportive and mentorship visits to implementing CSOS (biannually)	5 people 5 days x 2 visits per year	$75.00		$0.00		$0.00	50	$3,750.00	50	$3,750.00	$7,500.00
Conduct quarterly Stop TB Partnership forums with CSOs and NGOs on CTBC and TB-HIV at national level (30 people)	30 pple x 4 meetings (accommodation, fuel, per diem, conference package)	$125.00		$0.00		$0.00	120	$15,000.00	120	$15,000.00	$30,000.00
Intervention: Increase childhood TB case detection and strengthen uptake of IPT in children under 5 yrs											
Activity: Strengthen multi-sectorial coordination and collaboration of childhood TB at provincial and national level											
Develop TOR of a childhood TB TWG within the existing Child Survival Partnership Forum by a team	15 participants x 1/2 day meeting	$25.00		$0.00		$0.00	0	$0.00	0	$0.00	$0.00
Conduct childhood TB TWG quarterly meetings-15 participants, half day meetings.	15 participants x 1/2 day meeting	$25.00		$0.00		$0.00	60	$1,500.00	60	$1,500.00	$3,000.00
Activity: Conduct training and mentorship in Childhood TB as part of IMNCI, ETAT, EPI & IYCF training packages.											
Conduct annual provincial Childhood TB trainings integrated with IMNCI trainings	40 participants with 5 facilitators x 3 days x 10 provinces	$110.00	0	$0.00	0	$0.00	1350	$148,500.00	1350	$148,500.00	$297,000.00
Conduct Annual provincial childhood integrated with IYCF Trainings	40 participants and 5 facilitators x 3 days x 10 provinces.	$110.00	0	$0.00	0	$0.00	1350	$148,500.00	1350	$148,500.00	$297,000.00
Conduct annual provincial childhood integrated with EPI Trainings	for 40 participants and 5 facilitators x 3days x 10 provinces	$110.00	0	$0.00	0	$0.00	1350	$148,500.00	1350	$148,500.00	$297,000.00
Conduct a training in districts	with 4 facilitators and 40 participants per district annually x 3 days x 65 districts	$75.00	0	$0.00	0	$0.00	8775	$658,125.00	8775	$658,125.00	$1,316,250.00
Training of nurse educators on the	2 regional trainings, 40	$110.00	0	$0.00	0	$0.00	450	$49,500.00	0	$0.00	$49,500.00

new TB curriculum.	participants, 5 facilitators x 5 days										
Conduct Biannual National to Provincial Childhood TB Mentorship Visits	5 people x 5 days	$75.00	0	$0.00	0	$0.00	50	$3,750.00	50	$3,750.00	$7,500.00
Conduct Quarterly Provincial to District Childhood TB Mentorship Visits	5 people x 5 days	$56.00	0	$0.00	0	$0.00	100	$5,600.00	100	$5,600.00	$11,200.00
Conduct Monthly District to Facility Childhood TB Mentorship Visits by DNO	3 people x 5 days	$15.00	0	$0.00	0	$0.00	180	$2,700.00	180	$2,700.00	$5,400.00
Activity: Print and disseminate copies of the Childhood TB Desk Guides, Diagnostic Algorithms and SOPs and VHW Training Materials.											
Print and distribute SOPs for processing stool specimens for childhood TB diagnosis	Assumed 2500 SOPs.	$5.00	2500	$12,500.00	0	$0.00	0	$0.00	0	$0.00	$12,500.00
Print & distribute the revised Childhood TB diagnosis algorithm to include stool specimen.	5000 copies in Y1	$1.00	5000	$5,000.00	0	$0.00	0	$0.00	0	$0.00	$5,000.00
Print Childhood TB Desk Guides	2000 copies in Y1	$5.00	2000	$10,000.00	0	$0.00	0	$0.00	0	$0.00	$10,000.00
Print VHWs Training Materials	2000 copies in Y1	$5.00	2000	$10,000.00	0	$0.00	0	$0.00	0	$0.00	$10,000.00
Train 300 CBHW per district	One day training (transport & food)	$15.00	0	$0.00	0	$0.00	19500	$292,500.00	19500	$292,500.00	$585,000.00
Activity: Strengthen collaboration with the Ministry of Primary and Secondary Education on Childhood TB											
Develop relevant training materials for children in schools on TB transmission and prevention	25 people x 2 days	$125.00	0	$0.00	50	$6,250.00	0	$0.00	0	$0.00	$6,250.00
Train school health masters on childhood TB	65 districts covering in 4 years. Assuming per district 40 participants for 1 day training + 3 facilitators	$75.00	0	$0.00	0	$0.00	1075	$80,625.00	860	$64,500.00	$145,125.00
Activity: Develop, print and distribute IPT IEC materials for community demand creation.											
Procure air time vouchers to sustain current cell phone contact tracing supported activities.	US$ 5 per month 800 facilities in high burden priority districts	$5.00	0	$0.00	0	$0.00	9600	$48,000.00	9600	$48,000.00	$96,000.00
Develop IPT IEC materials for community demand creation	25 people x 5 days	$125.00	0	$0.00	0	$0.00	125	$15,625.00	0	$0.00	$15,625.00
Print & disseminate IPT IEC material for community demand creation	150,000 copies	$0.20	0	$0.00	0	$0.00	150000	$30,000.00	150000	$30,000.00	$60,000.00
Procure nutritional hampers for childhood TB cases.	6000 hampers	$0.50	0	$0.00	0	$0.00	2808	$1,404.00	2736	$1,368.00	$2,772.00
Objective 2: To increase treatment success rate for all forms of tuberculosis from 81% in 2014 to 90% by 2020											
Intervention: Address districts with poor treatment outcomes i.e. high rates of deaths and lost to follow up and strengthen community health system to enhance case holding											
Activity: Develop provincial/ district /facility specific plans to address high death and loss to follow up rates											
Conduct annual provincial performance review and planning meetings	35 participants x 3 days once every year	$110.00	0	$0.00	0	$0.00	1050	$115,500.00	1050	$115,500.00	$231,000.00

Conduct annual district performance review and planning meetings	35 participants x 3 days once every year	$75.00	0	$0.00	0	$0.00	6825	$511,875.00	6825	$511,875.00	$1,023,750.00
Activity: Orient selected TB patients or ex-TB patients on treatment literacy as TB Champions to enhance psychosocial support for those on treatment											
Conduct a national orientation meeting for selected TB patients or ex-TB patients on treatment literacy as TB Champions to enhance psychosocial support for those on treatment	25 people x 2days (2 days x 20 participants + 5 facilitators)	$125.00	0	$0.00	0	$0.00	50	$6,250.00	50	$6,250.00	$12,500.00
Produce 5 video clips for TB Champions for use in promoting demand creation and adherence to treatment once every year	Production of 5 video clips at $1000.00	$1,000.00	0	$0.00	0	$0.00	5	$5,000.00	0	$0.00	$5,000.00
Produce 5 audio clips for TB Champions for use in promoting demand creation and adherence to treatment once every year	Production of 5 audio clips at $1000.00	$1,000.00	0	$0.00	0	$0.00	5	$5,000.00	0	$0.00	$5,000.00
Procure 10 second slots for broadcasting of video clips on national television (3 times a day for 120 days over 6 months) every year January to June	360 slots x $300 per slot	$300.00	0	$0.00	0	$0.00	360	$108,000.00	360	$108,000.00	$216,000.00
Procure 10second slots for broadcasting of video clips on national television (3 times a day for 120 days over 6 months) every year January to June	360 slots x $300 per slot	$300.00	0	$0.00	0	$0.00	360	$108,000.00	360	$108,000.00	$216,000.00
Intervention: Procurement of 1st line TB medicines including ancillary medicines and strengthen pharmaco-vigilance at all levels											
Activity: Quantify, procure, store and distribute 1st and 2nd line TB medicines including ancillary medicines											
Conduct national biannual stakeholder quantification meetings for 1st and 2nd line anti-TB Medicines including ancillary medicines	50 participants for 6 days (assuming 20 local participants and 30 from outside) - 20x 25 + 30 x 125	$4,250.00	0	$0.00	0	$0.00	2	$8,500.00	2	$8,500.00	$17,000.00
Procure 1st line adult anti-TB medicines	2017 - 28,367 patients 2018 - 27,858 patients; 2019 - 28,558 patients; 2020 - 29,242 patients	$31.31	28367	$888,170.77	27858	$872,233.98	28558	$894,150.98	29242	$915,567.02	$3,570,122.75
Procure 1st line pediatric anti-TB medicines	2017 - 2,553 patients, 2018 - 3,095 patients, 2019 - 3,173 patients and 2020 - 3,249 patients	$23.52	2553	$60,046.56	3095	$72,794.40	3173	$74,628.96	3249	$76,416.48	$283,886.40
Procure 2nd line anti-TB medicines for Short term treatment regimen.	2017 - 65 patients, 2018 - 490 patients, 2019 - 560 patients and 2020 - 630	$800.00	65	$52,000.00	417	$333,600.00	518	$414,400.00	619	$495,200.00	$1,295,200.00
Procure 2nd line anti-TB medicines for long term treatment regimen:	2017 - 585 patients, 2018 - 210 patients, 2019 - 240 patients and 2020 - 270	$1,300.00	585	$760,500.00	179	$232,700.00	282	$366,600.00	265	$344,500.00	$1,704,300.00

	patients										
Procure ancillary medicines for TB patients for management of adverse events:	2017 - 665 patients, 2018 - 357 patients, 2019 - 282 patients and 2020 - 191 patients	$100.00	665	$66,500.00	357	$35,700.00	282	$28,200.00	191	$19,100.00	$149,500.00
Store and distribute 1st and 2nd line anti TB medicines and ancillary medicines	10% of total drug costs.	$1.00	1	$182,721.73	1	$154,702.84	1	$177,797.99	1	$185,078.35	$700,300.92
Conduct post market surveillance for 1st and 2nd line anti TB medicines and ancillary medicines	Assumed 5% of the total drug costs	$1.00	1	$91,360.87	1	$77,351.42	1	$88,899.00	1	$92,539.18	$350,150.46
Activity: Conduct quality assurance testing on 1st and 2nd line TB medicines and ancillary medicines											
Conduct quality assurance testing on TB medicines	Assumed 3% of the drug cost	$1.00	1	$52,821.52	1	$45,339.85	1	$52,493.40	1	$54,950.51	$205,605.27
Objective 3: To increase the number of DR-TB cases detected and enrolled on treatment annually from 468 (43%) in 2015 to 884 (80%) and treatment success rate from 59% (2013) to 85% by 2020											
Intervention: Ensure quality assured universal access to TB drug resistance testing											
Activity: Assess and renovate the ventilation systems for the two Reference laboratories to improve biosafety											
Engage contractor for renovations (labor costs per lab)	2 sites	$200,000.00	1	$200,000.00	0	$0.00	0	$0.00	0	$0.00	$200,000.00
Activity: Mobilize institutional support for the 3 LPA laboratories											
Institutional support for 3 reference laboratories		$24,500.00	1	$24,500.00	1	$24,500.00	1	$24,500.00	1	$24,500.00	$98,000.00
Activity: Develop and maintain laboratory quality management systems											
Revise and manage national Quality Assurance guidelines including safety	Accommodation and conferencing for 30 people x 5 days	$125.00	150	$18,750.00	0	$0.00	150	$18,750.00	0	$0.00	$37,500.00
Print and distribute Quality Assurance guidelines (Microscopy, Xpert MTB/Rif, LPA, Culture & DST)	Print and distribute 500 copies	$5.00	500	$2,500.00	0	$0.00	500	$2,500.00	0	$0.00	$5,000.00
Revise TB Microscopy & Xpert MTB/Rif SOPs	Accommodation and conferencing for 30 people x 3 days	$125.00	90	$11,250.00	0	$0.00	90	$11,250.00	0	$0.00	$22,500.00
Print and distribute revised TB Microscopy & Xpert MTB/Rif SOPs	1000 copies.	$3.00	1000	$3,000.00	0	$0.00	1000	$3,000.00	0	$0.00	$6,000.00
Revise culture and DST including LPA SOPs.	Accommodation and conferencing for 20 people x 5 days	$125.00	100	$12,500.00	0	$0.00	100	$12,500.00	0	$0.00	$25,000.00
Print and distribute revised culture and DST including LPA SOPs	100 copies	$15.00	100	$1,500.00	0	$0.00	100	$1,500.00	0	$0.00	$3,000.00
Conduct refresher training on EQA for supervisors	Accommodation and conferencing for 30 people x 5 days	$125.00	150	$18,750.00	0	$0.00	150	$18,750.00	0	$0.00	$37,500.00
Engage external TA for 14 days to develop training programme for Laboratory Quality Management	TA consultancy fees for 14 days, Air tickets - refer assumptions sheet	$12,900.00	0	$0.00	1	$12,900.00	0	$0.00	0	$0.00	$12,900.00
Develop and implement standard	3 days meeting for 10	$125.00	0	$0.00	30	$3,750.00	30	$3,750.00	30	$3,750.00	$11,250.00

training programme for Laboratory Quality Management	people conferencing and accommodation										
Develop LQMS training modules	6 days meeting for 30 people conferencing and accommodation	$125.00	0	$0.00	180	$22,500.00	0	$0.00	0	$0.00	$22,500.00
Print training LQMS modules	300 copies	$5.00	0	$0.00	300	$1,500.00	0	$0.00	0	$0.00	$1,500.00
Conduct TOT to sustain the QMS programme in the TB lab network	TOT training 25 people x 6 days	$125.00	0	$0.00	150	$18,750.00	0	$0.00	150	$18,750.00	$37,500.00
Train 30 NTBRL staff on ISO15189 annually (conducted locally but not on-site for 3 days)	Conferencing for 30 people x 3 days	$25.00	0	$0.00	90	$2,250.00	90	$2,250.00	90	$2,250.00	$6,750.00
Engage a TA to train NTBRL and NMRL staff on ISO15189 annually	TA consultancy fees for 7 days, Air tickets	$6,950.00	0	$0.00	1	$6,950.00	0	$0.00	1	$6,950.00	$13,900.00
Train NMRL staff on ISO15189 annually (conducted locally but not on-site for 3 days)	Conferencing for 30 people x 3days	$25.00	0	$0.00	90	$2,250.00	90	$2,250.00	90	$2,250.00	$6,750.00
Train NTBRL staff on bio-safety annually (conducted locally but not on-site for 2 days)	Conferencing for 30 people x 2days	$25.00	0	$0.00	0	$0.00	60	$1,500.00	60	$1,500.00	$3,000.00
Train NMRL staff on bio-safety annually (conducted locally but not on-site for 2 days)	Conferencing for 30 people x 3days	$25.00	0	$0.00	0	$0.00	90	$2,250.00	90	$2,250.00	$4,500.00
Enroll NTBRL and NMRL in certification or accreditation programs (payment of enrollment fees)	Enrolment fees x 2 reference laboratory	$8,000.00	0	$0.00	2	$16,000.00	2	$16,000.00	2	$16,000.00	$48,000.00
Employ and retain 2 laboratory QA managers for the NTRLs (salary support)	Salary support for 2 Lab QA managers x 12 months	$2,224.00	0	$0.00	24	$53,376.00	24	$53,376.00	24	$53,376.00	$160,128.00
Train laboratory QA managers for the NTRLs (QMS) at SRL-Uganda.	DSA for 2 people x 7 days plus air tickets	$5,800.00	2	$11,600.00	0	$0.00	0	$0.00	2	$11,600.00	$23,200.00
Develop a national road-map for accreditation and budgeted for fund mobilization and support	5 day meeting for 30 people accommodation and conferencing	$125.00	0	$0.00	150	$18,750.00	0	$0.00	0	$0.00	$18,750.00
Monitor and evaluate the TB laboratory QA service at national level	3 day meeting for 30 people accommodation and conferencing	$125.00	90	$11,250.00	90	$11,250.00	90	$11,250.00	90	$11,250.00	$45,000.00
Conduct quarterly microscopy EQA visits from national to provincial levels	DSA for 6 people x 12 days (per quarter)	$75.00	288	$21,600.00	288	$21,600.00	288	$21,600.00	288	$21,600.00	$86,400.00
Conduct quarterly microscopy EQA visits provincial to district levels	DSA for 24 people x 12 days per quarter	$56.00	1152	$64,512.00	1152	$64,512.00	1152	$64,512.00	1152	$64,512.00	$258,048.00
Procure air conditioning units	For 62 sites (unit cost includes all costs including transportation and installation)	$2,500.00	62	$155,000.00	0	$0.00	0	$0.00	0	$0.00	$155,000.00

Procure 12 solar power units for GeneXpert sites	For 12 sites (unit costs includes all costs including transportation and installation)	$9,000.00	12	$108,000.00	0	$0.00	0	$0.00	0	$0.00	$108,000.00
Procurement Lab equipment	Procure outstanding equipment for the 2 Culture labs to enhance uninterrupted services	$100,000.00	1	$100,000.00	0	$0.00	0	$0.00	0	$0.00	$100,000.00
Activity: Install and implement LPA at Mutare provincial hospital											
Procure Hain Genotype (Line Probe Assay) Equipment set.	LPA equipment	$66,000.00	1	$66,000.00	0	$0.00	0	$0.00	0	$0.00	$66,000.00
Installation and training costs for Local Service Provider	Estimated unit cost.	$1,000.00	1	$1,000.00	0	$0.00	0	$0.00	0	$0.00	$1,000.00
Airfares for Hain SA staff (return ticket for 2 people)	airfares for 2 people	$750.00	2	$1,500.00	0	$0.00	0	$0.00	0	$0.00	$1,500.00
Accommodation for Hain SA staff.	Accommodation for 2 people x 4 nights	$125.00	8	$1,000.00	0	$0.00	0	$0.00	0	$0.00	$1,000.00
Costs of travel to Mutare (600km) for MOH	Fuel 60liters x 1 vehicle (cost of fuel at 10km/Litre)	$1.50	60	$90.00	0	$0.00	0	$0.00	0	$0.00	$90.00
DSA for MOH including DSA (5 people x 4 nights)	DSA for 5 people x 4 nights	$75.00	20	$1,500.00	0	$0.00	0	$0.00	0	$0.00	$1,500.00
Activity: Support international trainings and conferences for laboratory staff											
International trainings on advanced trainings on molecular diagnosis of TB	2 people per year x 9 days (including travel)	$9,800.00	2	$19,600.00	2	$19,600.00	2	$19,600.00	2	$19,600.00	$78,400.00
International conferences for laboratory staff e.g ASLM	3 people per year	$5,000.00	3	$15,000.00	3	$15,000.00	3	$15,000.00	3	$15,000.00	$60,000.00
Activity: Maintain equipment service, validation and calibration contracts											
Provide for annual service and maintenance contracts for 240 microscopes	service and maintenance contracts for 240 Microscopes	$200.00	240	$48,000.00	240	$48,000.00	240	$48,000.00	240	$48,000.00	$192,000.00
Provide for annual service and maintenance contracts 130 GXP instruments	Annual service maintenance for 130 GXP machines annually	$1,000.00	120	$120,000.00	130	$130,000.00	130	$130,000.00	130	$130,000.00	$510,000.00
Provide for a call-service contract for 130 GXP instruments with Cepheid local agents	Call-service contract with Cepheid local agents (for 20%)	$400.00	30	$12,000.00	30	$12,000.00	30	$12,000.00	30	$12,000.00	$48,000.00
Provide for annual service and maintenance contracts for 120 Level I bio-safety cabinets in all districts	120 Level 1 Bio-saety Cabinets serviced annually	$1,000.00	120	$120,000.00	120	$120,000.00	120	$120,000.00	120	$120,000.00	$480,000.00
Provide for bi-annual service and maintenance contracts for 8 Level III Bio-safety cabinets at NTRLs	8 Bio safety cabinets serviced Biannually	$2,000.00	16	$32,000.00	16	$32,000.00	16	$32,000.00	16	$32,000.00	$128,000.00

Provide for bi-annual service and maintenance contracts for 3 Hain Equipment	Service contracts for 3 machines in 2017 and 5 machines from 2018-2020	$10,000.00	4	$40,000.00	6	$60,000.00	6	$60,000.00	6	$60,000.00	$220,000.00
Provide for bi-annual service and maintenance contracts for MGIT machines	Service contracts 4 MGIT machines Bi-annually	$10,000.00	8	$80,000.00	8	$80,000.00	8	$80,000.00	8	$80,000.00	$320,000.00
Provide for bi-annual service and maintenance contracts for 2 negative air pressure systems	Service contract for 2 negative air pressure systems	$1,500.00	4	$6,000.00	4	$6,000.00	4	$6,000.00	4	$6,000.00	$24,000.00
Provide for annual service and maintenance contracts for air-conditioning systems	Service and maintenance contract for Air conditioning systems. Y1-50, Y2- 60, Y3- 120 and Y4- 130	$225.00	50	$11,250.00	60	$13,500.00	120	$27,000.00	130	$29,250.00	$81,000.00
Provide for annual service and maintenance contracts for 130 solar power equipment	Annual service maintenance contracts for 130 solar power equipment	$1,000.00	30	$30,000.00	40	$40,000.00	120	$120,000.00	130	$130,000.00	$320,000.00
Provide for bi-annual service and maintenance contracts for 2 generators at NTRLs	Bi-annual service maintenance contracts for 2 generators	$950.00	4	$3,800.00	4	$3,800.00	4	$3,800.00	4	$3,800.00	$15,200.00
Provide for bi-annual service, calibration and maintenance contracts for all equipment at NTRLs (see list)	Service contracts for equipment at NTRLs	$17,500.00	2	$35,000.00	2	$35,000.00	2	$35,000.00	2	$35,000.00	$140,000.00
Intervention: Ensure access to quality treatment and care services for DR-TB patients											
Activity: Conduct district TB Infection Prevention and Control (IPC) assessments and renovate provincial DR-TB admission facilities and procure PPE for HCW											
Renovate and equip 8 provincial DR-TB admission facilities	Assumed US$ 50000 per province	$50,000.00	8	$400,000.00	0	$0.00	0	$0.00	0	$0.00	$400,000.00
Inspection and certification	5 people x 2 days x 8 sites	$75.00	80	$6,000.00	0	$0.00	0	$0.00	0	$0.00	$6,000.00
Conduct TB IC assessments by a team of 5 members from province to each district	DSA for 5 people x 2 days x 65 districts	$56.00	200	$11,200.00	450	$25,200.00	0	$0.00	0	$0.00	$36,400.00
Activity: Revise and print PMDT guidelines and training material to include ND&R											
Engage external technical assistance for 21 days for revising the PMDT guidelines to include New Drugs & Regimens (ND&R)	Engaging external consultant for 21 days	$18,850.00	1	$18,850.00	0	$0.00	0	$0.00	0	$0.00	$18,850.00
Conduct a situational analysis on the PMDT guidelines to include New Drugs & Regimens (ND&R).	DSA for 5 people x 5 days	$75.00	25	$1,875.00	0	$0.00	0	$0.00	0	$0.00	$1,875.00
Conduct a writing workshop	Meeting for 25 people x 5 days conferencing and accommodation	$125.00	125	$15,625.00	0	$0.00	0	$0.00	0	$0.00	$15,625.00
Print and distribute the revised guidelines	2500 copies	$10.00	2500	$25,000.00	0	$0.00	0	$0.00	0	$0.00	$25,000.00
Engage external technical	External consultant for 21	$18,850.00	1	$18,850.00	0	$0.00	0	$0.00	0	$0.00	$18,850.00

assistance to revise PMDT training material to include new drugs & regimens	days										
Conduct a situational analysis	5 people from National level x 5 days	$75.00	25	$1,875.00	0	$0.00	0	$0.00	0	$0.00	$1,875.00
Conduct a writing workshop	for 25 people x 5 days	$110.00	125	$13,750.00	0	$0.00	0	$0.00	0	$0.00	$13,750.00
Print and distribute the revised training materials	1500 sets	$5.00	1500	$7,500.00	0	$0.00	0	$0.00	0	$0.00	$7,500.00
Activity: Develop an implementation plan for New drugs & regimens											
Engage external technical assistance to develop implementation plan for New Drugs & regimen	21 days- please refer assumptions sheet	$18,850.00	1	$18,850.00	0	$0.00	0	$0.00	0	$0.00	$18,850.00
Conduct a situational analysis	DSA for 5 people x 5 days	$75.00	25	$1,875.00	0	$0.00	0	$0.00	0	$0.00	$1,875.00
Conduct a writing workshop.	Meeting for 30 people x 5 days conferencing and accommodation	$125.00	150	$18,750.00	0	$0.00	0	$0.00	0	$0.00	$18,750.00
Print and distribute the implementation plan for ND&R	1500 copies	$5.00	1500	$7,500.00	0	$0.00	0	$0.00	0	$0.00	$7,500.00
Activity: Conduct PMDT and advanced Clinical MDR-TB trainings and post-training mentorship											
Conduct regional PMDT TOTs for the Northern and southern regions	for 30 participants per training x 5 days x 2 regional trainings	$110.00	300	$33,000.00	0	$0.00	300	$33,000.00	0	$0.00	$66,000.00
Conduct provincial PMDT trainings	for 25 people x 5 days x 10 provinces	$110.00	1250	$137,500.00	1250	$137,500.00	1250	$137,500.00	1250	$137,500.00	$550,000.00
Conduct post-training quarterly mentorship visits by provinces to districts	5 people x 5 days x 10 provinces	$75.00	250	$18,750.00	250	$18,750.00	250	$18,750.00	250	$18,750.00	$75,000.00
Engage external TA for developing training material and facilitating the training.	hiring external TA for 14 days consultancy fee, DSA and airfare	$12,900.00	0	$0.00	0	$0.00	1	$12,900.00	1	$12,900.00	$25,800.00
Conduct an annual Advanced Clinical MDR-TB training.	Meeting for 30 people x 5 days conferencing and accommodation	$110.00	0	$0.00	0	$0.00	150	$16,500.00	150	$16,500.00	$33,000.00
Conduct quarterly national DR-TB coordination meetings.	Meeting for 30 people x 1 day conferencing/ quarterly (15 from outside participants and 15 from local) - 15x$125 + 15 x $40	$2,475.00	0	$0.00	0	$0.00	4	$9,900.00	4	$9,900.00	$19,800.00
Conduct monthly provincial DR-TB coordination meetings.	Meeting for 30 people x 1 day conferencing/ quarterly x 10 provinces (15 from outside participants and 15 from local) - 15 x 110 + 15 x 35	$2,175.00	0	$0.00	0	$0.00	40	$87,000.00	40	$87,000.00	$174,000.00
Activity: Conduct quarterly DR-TB support visits from national to provinces, and provinces to districts											

Conduct DR-TB support supervision visits by 5 National officers to Provinces	DSA for 5 people x 5 days x 10 provinces/ quarterly	$75.00	0	$0.00	0	$0.00	1000	$75,000.00	1000	$75,000.00	$150,000.00
Conduct DR-TB support supervision visits by 5 Provincial officers to districts	DSA for 5 people x 5 days x 10 provinces x 65 districts/ quarterly	$56.00	0	$0.00	0	$0.00	6500	$364,000.00	6500	$364,000.00	$728,000.00
Activity: Evaluate utilization of portable Kudu Wave audiometry machines and procure hearing aids for patients with hearing loss											
Evaluation of utilization of audiometry machines by team of 5 National officers	DSA for 5 people x 2 day x 8 provinces	$110.00	0	$0.00	80	$8,800.00	0	$0.00	0	$0.00	$8,800.00
Procure and distribute 20 ECG machines for each province	10 nos	$2,000.00	20	$40,000.00	0	$0.00	0	$0.00	0	$0.00	$40,000.00
Procure and distribute hearing aids	20 per year	$1,000.00	20	$20,000.00	0	$20.00	0	$20.00	0	$20.00	$20,060.00
Procure 65 TSH immuno-analyzers including cartridges	2 per each province plus 15000 cartridges	$5,000.00	20	$100,000.00	20	$100,000.00	20	$100,000.00	20	$100,000.00	$400,000.00
Procure TSH cartridges	At $7 per cartridge	$7.00	15000	$105,000.00	20000	$140,000.00	20000	$140,000.00	20000	$140,000.00	$525,000.00
Training of users (lab staff)	Training of 25 for 2 days	$125.00	40	$5,000.00	40	$5,000.00	40	$5,000.00	40	$5,000.00	$20,000.00
Provide monthly treatment enablers for DR-TB patients	At $25 per patient per month	$25.00	8400	$210,000.00	8400	$210,000.00	8400	$210,000.00	8400	$210,000.00	$840,000.00
Objective 4: To test all TB patients for HIV and initiate all the co-infected on CPT and ART as well as intensify TB case finding among PLHIV.											
Intervention: Support mechanisms for integrated TB-HIV services at all levels											
Activity: Facilitate TB-HIV review and planning meetings											
Conduct annual national TB-HIV review and planning meetings	60 participants per meeting x 3 days x 4 years	$125.00	180	$22,500.00	180	$22,500.00	180	$22,500.00	180	$22,500.00	$90,000.00
Conduct biannual provincial TB-HIV review and planning meetings	40 participants per meeting x 3 days x 10 provinces x 2 meetings per year	$110.00	1200	$132,000.00	1200	$132,000.00	2400	$264,000.00	2400	$264,000.00	$792,000.00
Conduct quarterly district TB-HIV review and planning meetings	25 people per meeting x 3 days x 65 districts x 4 meetings per year	$75.00	19500	$1,462,500.00	19500	$1,462,500.00	19500	$1,462,500.00	19500	$1,462,500.00	$5,850,000.00
Activity: Facilitate TB-HIV coordination meetings											
Conduct biannual national TB-HIV technical working group meetings	20 participants per meeting x 1 day. 10 from outside and 10 from local. Please refer assumptions sheet	$1,500.00	0	$0.00	2	$3,000.00	2	$3,000.00	2	$3,000.00	$9,000.00
Conduct annual TB-HIV partnership forum meeting	30 participants per meeting x 2 days	$110.00	0	$0.00	60	$6,600.00	60	$6,600.00	60	$6,600.00	$19,800.00
Intervention: Scale up quality integrated TB-HIV treatment and care (ITHC) model to all health facilities											
Activity: Roll out one-stop-shop integrated TB-HIV care											
Printing of training materials on HIV Integrated training (HIT) with emphasis of one stop shop model (participants manual and trainer's manuals)	200 copies of participants manual plus 50 trainer's manual per year x 3 years	$5.00	0	$0.00	0	$0.00	250	$1,250.00	250	$1,250.00	$2,500.00

Conduct HIV Integrated training (HIT) with emphasis of one stop shop model for HCWs in TB settings to strengthen CPT and ART initiation for TB-HIV co-infected patients	Training of 20 participants plus 5 facilitators plus 5 patient trainers x 10 days x 1 training per province per year x 10 provinces x 3 years	$110.00	0	$0.00	0	$0.00	3000	$330,000.00	3000	$330,000.00	$660,000.00
Conduct support and supervisory visits for Integrated TB HIV Care sites by national team	5 people per team x 3 teams x 5 nights x 2 visits per year for 20 ITHC sites	$110.00	0	$0.00	0	$0.00	3000	$330,000.00	3000	$330,000.00	$660,000.00
Conduct data review meetings for ITHC sites	40 people for 1 days x 1 meeting	$110.00	0	$0.00	0	$0.00	40	$4,400.00	40	$4,400.00	$8,800.00
Provide airtime and data bundles for ITHC sites	Monthly airtime and data bundles for 45 existing facilities	$10.00	45	$450.00	45	$450.00	45	$450.00	45	$450.00	$1,800.00
Procure cell phones for additional ITHC sites	10 cellphones of the additional ITHC sites	$300.00	0	$0.00	10	$3,000.00	0	$0.00	0	$0.00	$3,000.00
Conduct two (northern and southern region) Provincial TOT on one-stop-shop integrated TB-HIV care	2 meetings, 30 participants plus 5 facilitators per training for 5 days 2 trainings	$110.00	0	$0.00	350	$38,500.00	350	$38,500.00	350	$38,500.00	$115,500.00
Conduct district training on one-stop-shop integrated TB-HIV care	30 participants 5 facilitators per training 5 days 65 districts 3 years	$75.00	0	$0.00	11375	$853,125.00	11375	$853,125.00	11375	$853,125.00	$2,559,375.00
Conduct clinical attachments for mentorship on HCWs at ITHC centers of excellence	30 attaches' per attachments for 6 days for 65 districts	$75.00	0	$0.00	0	$0.00	11700	$877,500.00	11700	$877,500.00	$1,755,000.00
Activity: Pilot and roll out use of LF-LAM for TB diagnosis among severely ill PLHIV at central hospitals											
Conduct workshop to develop training material on use of LF-LAM	30 participants 3 days, 20 from outside - please refer assumptions sheet	$125.00	0	$0.00	90	$11,250.00	0	$0.00	0	$0.00	$11,250.00
Printing of training material (trainer's manual + participants' manual)	1200 participants manual plus 250 trainers manual	$10.00	0	$0.00	1200	$12,000.00	0	$0.00	0	$0.00	$12,000.00
Training of HCWs from the two central hospital	1 training per hospital, training of 30 participants per hospital x 2 hospitals x 1 day	$40.00	0	$0.00	60	$2,400.00	0	$0.00	0	$0.00	$2,400.00
Support and mentorship visits to two central hospitals	4 visits per hospital per year. 5 people x 3 days per visit x 4 visits per year	$75.00	0	$0.00	60	$4,500.00	120	$60.00	120	$60.00	$4,620.00
Provincial TOT on use of LF-LAM	30 participants x 10 provinces x 3 days training	$110.00	0	$0.00	114300	$12,573,000.00	0	$0.00	0	$0.00	$12,573,000.00
Quarterly Onsite training on LF-LAM during quarterly EQA support visits.	visit by team of 3 x 1 team per province x 10 provinces x 5 days	$110.00	0	$0.00	0	$0.00	600	$66,000.00	600	$66,000.00	$132,000.00

Print guidelines and SOPs on use of LF-LAM	1000 copies (5 copies per entry point)	$5.00	0	$0.00	1000	$5,000.00	0	$0.00	0	$0.00	$5,000.00
Intervention: Promote TB infection prevention and control practices in TB-HIV care settings											
Activity: Conduct site assessments for Infection Prevention Control (IPC) and appropriate renovations of health facilities prioritized to implement one stop shop ITHC											
Conduct site assessments for IPC by provinces	5 people per team x 10 days per visit per province x 10 provinces	$75.00	0	$0.00	500	$37,500.00	0	$0.00	0	$0.00	$37,500.00
Provide fuel for site assessment visits	Fuel for 1 vehicle per province x 500 liters per visit x 10 provincial visits	$1.50	0	$0.00	5000	$7,500.00	0	$0.00	0	$0.00	$7,500.00
Renovate health facilities prioritized to implement one-stop-shop integrated TB-HIV care sites	20 facilities renovated per province per year x 10 provinces x 3 years.	$4,000.00	0	$0.00	200	$800,000.00	200	$800,000.00	200	$800,000.00	$2,400,000.00
Activity: Conduct trainings on IPC and on-site mentorship as part of workplace wellness											
Printing of training materials on IPC	250 copies of participants manual plus 50 trainer's manual per year x 3 years	$5.00	0	$0.00	0	$0.00	300	$1,500.00	300	$1,500.00	$3,000.00
Trainings of Provincial Workplace Wellness Teams on workplace wellness and IPC	Train 25 participants + 5 facilitators x 5 days x 10 provincial trainings	$110.00	0	$0.00	1500	$165,000.00	0	$0.00	0	$0.00	$165,000.00
On-site cascade trainings and mentorship visits by Provincial TOTs to Provincial and District Hospitals (10 hospitals per province) x 10 provinces	Visit by team of 5 people for 6 days per visit x 1 visit per quarter x 10 provincial teams	$110.00	0	$0.00	0	$0.00	1200	$132,000.00	1200	$132,000.00	$264,000.00
Objective 5: To strengthen provision of quality patient centered care, which respects patients' rights and eliminates catastrophic costs due to TB.											
Intervention: Address determinants of catastrophic costs related to TB and address patients' rights and barriers to improve access to patient centered TB services											
Activity: Conduct an inventory on laws/policies and practices on PCC and develop tools to monitor incidents of patient rights violations as stated in the patients' charter											
Engage external TA to conduct situational assessment, develop report 14 days TA	TA consultancy fees for 14 days, Air tickets and local DSA for 10 days. Please refer assumptions sheet	$12,100.00	0	$0.00	0	$0.00	1	$12,100.00	0	$0.00	$12,100.00
Conduct consensus building stakeholders meeting.	1 day meeting for 50 people conferencing and accommodation for 20 people. Please refer assumptions sheet	$3,250.00	0	$0.00	0	$0.00	1	$3,250.00	0	$0.00	$3,250.00
Conduct a situational analysis by a team of 6 people	Field visits for situational analysis by 6 people x 6 days	$75.00	0	$0.00	0	$0.00	36	$2,700.00	0	$0.00	$2,700.00
Dissemination workshop for situational analysis for 50 people	One day meeting 50 people conferencing and accommodation for 20 people. Please refer assumptions sheet.	$3,250.00	0	$0.00	0	$0.00	1	$3,250.00	0	$0.00	$3,250.00

Workshop to develop tools to monitor incidents of patient rights violations as stated in the patients' charter	Workshop for 5 days 30 people and accommodation for 20 people. Please refer assumptions sheet	$13,750.00	0	$0.00	0	$0.00	1	$13,750.00	0	$0.00	$13,750.00
Print tools	1500 copies per annum	$1.00	0	$0.00	0	$0.00	1500	$1,500.00	1500	$1,500.00	$3,000.00
Activity: Sensitize and train communities, civil society, HCWs and Health Professional Councils on the patients' charter and how to monitor patients' right violations											
Conduct Regional TOTs for community/CSO on tools to monitor incidents of patient rights violations as stated in the patients' charter for Northern and Southern regions	Workshop for 5 days 30 participants per region by 5 facilitators per training	$110.00	0	$0.00	0	$0.00	175	$19,250.00	0	$0.00	$19,250.00
Conduct provincial cascade trainings for community/CSOs on tools for monitoring incidents of patient rights violations as stated in the patients' charter	2 day Trainings for 40 people x 2 sessions per province x 10 provinces	$110.00		$0.00		$0.00	1600	$176,000.00	1600	$176,000.00	$352,000.00
Conduct biannual regional coordination and review meetings with CSOs on community TB/HIV care and patient rights	1 day stakeholders meeting for 50 people conferencing and accommodation for 30 people x 2 meetings per year per region x 2 regions. Please refer assumptions	$4,250.00		$0.00		$0.00	4	$17,000.00	4	$17,000.00	$34,000.00
Conduct Sensitization meetings with Health Professional Councils and Health Workers on the patients' charter and how to monitor patients' right violations	One day provincial meetings for 30 people per province x 10 provinces	$110.00		$0.00		$0.00	300	$33,000.00	300	$33,000.00	$66,000.00
Print and distribute patients' charter	Print patient charter x 5000 per year	$0.50		$0.00		$0.00	5000	$2,500.00	5000	$2,500.00	$5,000.00
Activity: Update current HCWs training materials to include patient rights and develop IEC materials with non-stigmatizing messages											
Workshop to update HCW training material to integrate patient rights	Workshop for 30 people for 5 days, accommodation for 20 people. Please refer assumptions sheet.	$13,750.00	0	$0.00	0	$0.00	150	$2,062,500.00	0	$0.00	$2,062,500.00
Develop non-stigmatizing IEC material on patients' rights	Conduct a 5 day workshop with CSOs for 25 people	$110.00		$0.00		$0.00	125	$13,750.00	0	$0.00	$13,750.00
Print of IEC material	Print 10 000 copies	$1.00		$0.00		$0.00	10000	$10,000.00	0	$0.00	$10,000.00
Activity: Develop, print and distribute guidelines for social protection for TB and establish TWG to address and coordinate implementation of social protection and PCC interventions and programs to eliminate catastrophic costs											

Establish TWG to integrate and coordinate social protection programming for TB	TWG meeting for 20 people conferencing for 1 day x 2 meetings per year x 3 years (accommodation for 10 people). Please refer assumptions sheet	$1,500.00		$0.00		$0.00	2	$3,000.00	2	$3,000.00	$6,000.00
Develop guidelines to safeguard social protection for TB patients (Through TA engaged for inventory on laws/policies and practices on PCC).	Workshop for 30 people for 5 days, conferencing (accommodation, 20 people). Please refer assumptions.	$110.00		$0.00		$0.00	150	$16,500.00	0	$0.00	$16,500.00
Facilitate advocacy dialogues by Civil society with TB service providers/policy makers on user fees for TB diagnosis, treatment care and support services	Advocacy dialogue sessions x 4 sessions per year by 30 participants	$110.00		$0.00		$0.00	120	$13,200.00	120	$13,200.00	$26,400.00
Activity: Conduct periodic patient cost surveys											
Conduct patient cost survey to determine direct and indirect costs related to TB diagnosis and treatment	Salary for survey coordinator x 8 months. Level of Effort for 1 Data analyst, 1 Epidemiologist, 1 Social scientist and 1 Health economist x 6 months. Salary support for 40 research assistants x 6 months. Please refer assumptions sheet	$454,000.00	0	$0.00	0	$0.00	1	$454,000.00	0	$0.00	$454,000.00
Procure data capturing equipment	3 laptops, tablets 45, Airtime /data bundles for 40 interviewers and survey coordinators @$50 per person per month x 41 people X 6 months. Please refer assumptions sheet	$35,650.00	0	$0.00	0	$0.00	1	$35,650.00	0	$0.00	$35,650.00
Support to create survey database	Contract services for creating data base x 10 consultancy days (local TA) DSA and consultancy fee @ 350+200 per day	$5,500.00	0	$0.00	0	$0.00	1	$5,500.00	0	$0.00	$5,500.00
Training of survey teams	Train 40 people for 5 days conferencing and accommodation	$125.00	0	$0.00	0	$0.00	200	$25,000.00	0	$0.00	$25,000.00

Conduct pre-survey visit to each site and facility sensitization meetings for 10 people at each sampled facility	Site visit by 5 people x 2 days per site x 40 sites (DSA). Meetings lunches for 10 people x 40 facilities @ 10 per person. Please refer assumptions sheet	$75.00	0	$0.00	0	$0.00	400	$30,000.00	0	$0.00	$30,000.00
Monitoring survey visits	joint visit by team of 5 people per team x 4 teams (national/ provincial/ district) x 4 survey visits x 6 days per visits	$75.00	0	$0.00	0	$0.00	480	$36,000.00	0	$0.00	$36,000.00
Data analysis and survey report writing	Workshop for 40 people x 5 days, local 15 people and 25 outside people. - 15 x US$ 40 x 5 + 25 x US$ 125 x 5 days	$125.00	0	$0.00	0	$0.00	200	$25,000.00	0	$0.00	$25,000.00
Survey report official launch and dissemination by the Minister of Health	Print survey report x 2000 copies. Official launch & dissemination of survey report meeting to x 1 day x 60 people conferencing (accommodation for 40 people) . Please refer assumptions sheet	$9,500.00	0	$0.00	0	$0.00	0	$0.00	1	$9,500.00	$9,500.00
Objective 6: To strengthen health delivery and community systems for resilient and sustainable TB services by enhancing leadership; coordination; monitoring and evaluation capacity.											
Intervention: Build competencies and skills of the National TB Program (NTP) staff at all levels in leadership, management, resource mobilization, partnerships and networking											
Activity: Review current roles, responsibilities, key performance indicators and reporting to align with the new strategy											
Recruit and retain staff in line with revised NTP structure	NTP Manager-1, DOTS/Training officer, 1 Data Manager, 2 Programme Assistants, 1 M&E Officer, 1 M&E Assistant, 2 Data Analysts, 1 Logistician, 1 Public Private Mix Officer, 1 TB/HIV Focal person, ACSM officer, 1 National Lab Coordinator, 2 Chief Lab scientists, 6 Lab scientists, 210 Microscopists. Administrative: 1 Finance & Admin Officer, 2 Finance Assistants, 1 Admin Assistant, 1 Driver, 1 Secretary.	$426,637.25	4	$1,706,549.00	4	$1,706,549.00	4	$1,706,549.00	4	$1,706,549.00	$6,826,196.00

Recruit additional key programme staff within National TB Programme	1 PMDT programme officer, 1 Data Analyst, 1 M&E assistant, ACSM officer assistant	$25,086.00	0	$0.00	4	$100,344.00	4	$100,344.00	4	$100,344.00	$301,032.00
Conduct annual NTP staff audits for all the provinces	3 people x 10 days x 10 provincial teams	$110.00	0	$0.00	0	$0.00	300	$33,000.00	300	$33,000.00	$66,000.00
Activity: Conduct central and sub-national level management and leadership skills needs assessment and develop a capacity building strategy based on identified needs											
Conduct central and sub-national level management, and leadership skills needs assessment (to include development of an implementation plan for strengthening management and leadership skills).	Engage external consultant x 21 Consultancy days (air fare, visa fees). Team of three people accompanying consultant during assessment for 10 days. Please refer assumptions sheet	$16,650.00	0	$0.00	1	$16,650.00	0	$0.00	0	$0.00	$16,650.00
Conduct team building retreats for NTP staff and partners	One week workshop for 60 people for 5 days	$110.00	0	$0.00	0	$0.00	300	$33,000.00	300	$33,000.00	$66,000.00
Conduct bi- annual regional meetings with training schools for HCWs	2 regional training workshops x 40 people x 4 days (conferencing and accommodation)	$110.00	0	$0.00	0	$0.00	320	$35,200.00	320	$35,200.00	$70,400.00
Conduct 2 trainings for DMO on TB program management	2 regional trainings for 40 people x 4 days	$110.00	0	$0.00	0	$0.00	320	$35,200.00	320	$35,200.00	$70,400.00
Activity: Print, and distribute the new NSP (2017-2020) and procure vehicles and office equipment											
Procure office equipment (desks, chairs, laptops, printers, photocopiers, scanners, file cabinets) for staff	Desks-20, chairs 20, laptops 20, printers 20, photocopier 15, scanners 15, file cabinets 20	$7,500.00	0	$0.00	20	$150,000.00	0	$0.00	0	$0.00	$150,000.00
Procure vehicles to replace aging fleet	8 land cruisers for provinces for active case finding, 10 for central, 2 for lab, 32 for districts, 8 for provinces, 10 for main cities, 10 for town councils, 4 for uninformed forces	$35,000.00	0	$0.00	86	$3,010,000.00	0	$0.00	0	$0.00	$3,010,000.00
Print, communicate and disseminate NSP (2017-2020) to all provinces	2000 copies	$10.00	2000	$20,000.00	0	$0.00	0	$0.00	0	$0.00	$20,000.00
Conduct 2 day NSP dissemination workshop for 100 people	100 people x 2 days at provinces	$110.00	200	$22,000.00	0	$0.00	0	$0.00	0	$0.00	$22,000.00
Activity: Integrate TB into results based financing											
Workshop to integrate key TB indicators to the results based financing implementation framework	For 40 people x one day	$125.00	0	$0.00	40	$5,000.00	0	$0.00	0	$0.00	$5,000.00
Intervention: Generate quality data/ information for decision making in planning, implementation, monitoring and evaluation at all levels by 2020											
Activity: Integration of TB modules in the Ministry of Health and Child Care Electronic Health Record (EHR) system.											

Engage external TA x 21 days	External consultant for 21 days. Please refer assumptions sheet	$18,850.00		$0.00		$0.00	1	$18,850.00	0	$0.00	$18,850.00
Conduct situational analysis	5 people for 5 days	$75.00		$0.00		$0.00	25	$1,875.00	0	$0.00	$1,875.00
Conduct a stakeholders meeting to develop user requirement document	30 people x 2 days	$125.00		$0.00		$0.00	60	$7,500.00	0	$0.00	$7,500.00
Procurement of Tablets - portable	for 1390 facilities, 1 tablet per facility	$350.00		$0.00		$0.00	1390	$486,500.00	0	$0.00	$486,500.00
Conduct workshop to design and code the TB module system	15 people x 14 days	$125.00		$0.00		$0.00	210	$26,250.00	0	$0.00	$26,250.00
Conduct stakeholders meeting to integrate TB module into the existing EHR system	15 people x 2 days	$125.00		$0.00		$0.00	30	$3,750.00	0	$0.00	$3,750.00
Conduct 5 training workshops at provinces for users	35 people x 5 days x 5 provinces	$110.00		$0.00		$0.00	875	$96,250.00	0	$0.00	$96,250.00
Provide technical support to the pilot sites	4 people x30 days	$75.00		$0.00		$0.00	120	$9,000.00	0	$0.00	$9,000.00
Conduct a workshop to evaluate the pilot	70people (2 people per facility x 30 facilities + 10 national level) x 2 days	$110.00		$0.00		$0.00	140	$15,400.00	0	$0.00	$15,400.00
Conduct workshops to roll out the system to the districts	64 districts x 50 people per district x 5 days per training	$75.00		$0.00		$0.00	8000	$600,000.00	0	$0.00	$600,000.00
Provide technical support to the rolling out sites	2 people per district x 30 days x 64	$75.00		$0.00		$0.00	1920	$144,000.00		$0.00	$144,000.00
Activity: Capacity building of health care workers at sites											
Conduct National to Provincial support and supervision by 4 national level officers per team	4 people x 5 teams x 5 days per quarter per year	$75.00	0	$0.00	0	$0.00	400	$30,000.00	400	$30,000.00	$60,000.00
Conduct Provincial to district support and supervision by 5 people per province	5 people x 5 days every 2 months x 10 provinces	$56.00	0	$0.00	0	$0.00	1500	$84,000.00	1500	$84,000.00	$168,000.00
Conduct District to facility support and supervision by 4 people per district x 5 days every month	4 people 5 days within district	$15.00	0	$0.00	0	$0.00	15600	$234,000.00	15600	$234,000.00	$468,000.00
Conduct bi-annual meetings on best practice sharing experiences among districts and Health facilities.	one workshop of 25 people per province for 3 days	$110.00	0	$0.00	0	$0.00	1500	$165,000.00	1500	$165,000.00	$330,000.00
Activity: Performance reviews and data quality assurance											
Conduct data quality Audit (DQA) every two years by national team	10 people for 12 days	$75.00	0	$0.00	0	$0.00	0	$0.00	120	$9,000.00	$9,000.00
Conduct onsite data verification bi-annually by National team	5 teams of 5 pple for 4 days	$75.00	0	$0.00	0	$0.00	200	$15,000.00	200	$15,000.00	$30,000.00
Conduct quarterly onsite data verification by provincial team	10 teams of 5 people for 4 days	$56.00	0	$0.00	0	$0.00	800	$44,800.00	800	$44,800.00	$89,600.00
Conduct quarterly data analysis and performance review meetings	20 people for 3 days	$125.00	0	$0.00	0	$0.00	240	$30,000.00	240	$30,000.00	$60,000.00

by National team											
Conduct quarterly data analysis and performance review meetings by provincial team	20 people for 4 days	$110.00	0	$0.00	0	$0.00	3200	$352,000.00	3200	$352,000.00	$704,000.00
Conduct workshop to revise M&E tools	30 people for 10 days	$125.00	0	$0.00	0	$0.00	0	$0.00	300	$37,500.00	$37,500.00
Train vital registration personnel on TB deaths coding, recording and reporting	2 regional trainings of 30 people each for 5 days	$110.00	0	$0.00	0	$0.00	300	$33,000.00	0	$0.00	$33,000.00
Conduct Bi-annual National TB Planning & review Meetings	80 people 5 days	$125.00	0	$0.00		$0.00	800	$100,000.00	800	$100,000.00	$200,000.00
Conduct quarterly provincial TB review meetings	40 people 3 days	$110.00	0	$0.00		$0.00	4800	$528,000.00	4800	$528,000.00	$1,056,000.00
Conduct quarterly district TB review meetings	35 people 3 days	$75.00	0	$0.00		$0.00	27300	$2,047,500.00	27300	$2,047,500.00	$4,095,000.00
Printing of M&E Tools	please refer assumptions sheet	$250,000.00	1	$250,000.00		$0.00	1	$250,000.00	1	$250,000.00	$750,000.00
Activity: Human resource development for M&E											
Conduct annual national M&E courses	35 people including facilitators for 5 days	$125.00	0	$0.00		$0.00	175	$21,875.00	175	$21,875.00	$43,750.00
Conduct provincial training on data collection, analysis and utilization using the guide	10 trainings per annum for 35 people for 5 days	$110.00	0	$0.00		$0.00	1750	$192,500.00	1750	$192,500.00	$385,000.00
Conduct blended learning for M&E	65 trainings x 30 people x 10 days	$27.00	0	$0.00		$0.00	19500	$526,500.00	19500	$526,500.00	$1,053,000.00
Send M&E officers at National and Provincial level for regional and international courses	5 people 14 days. Please refer assumptions sheet	$17,750.00	0	$0.00		$0.00	1	$17,750.00	1	$17,750.00	$35,500.00
Activity: Develop Operations Research agenda											
Formulate a National TB Research Agenda	Engage local consultant for 21 days. Please refer assumptions sheet.	$12,600.00	0	$0.00	1	$12,600.00	0	$0.00	0	$0.00	$12,600.00
Conduct stakeholders meetings to develop the Operation Research agenda	50 people x 1 day x 2 meetings	$125.00	0	$0.00	100	$12,500.00	0	$0.00	0	$0.00	$12,500.00
Conduct operations research training.	30 key program staff at all levels x 5 days annually	$125.00	0	$0.00	150	$18,750.00	150	$18,750.00	150	$18,750.00	$56,250.00
Conduct National 1 day research open day	60 people x 1 day	$125.00	0	$0.00	60	$7,500.00	60	$7,500.00	60	$7,500.00	$22,500.00
Activity: Conduct a study to determine factors contributing to a decline in TB case notifications											
Engage a local TA to conduct study to determine factors contributing to a decline in TB case notifications.	Hiring local consultant for 21 days. Please refer assumptions sheet.	$12,300.00	0	$0.00	1	$12,300.00		$0.00	0	$0.00	$12,300.00
Ethical approval fees (National research council)	1% of the total cost of research + US$ 1000 per ethical approval fees	$1,350.00	0	$0.00	1	$1,350.00		$0.00	0	$0.00	$1,350.00
Data collection.	8 people x 20 days	$110.00	0	$0.00	160	$17,600.00		$0.00	0	$0.00	$17,600.00
Data entry, analysis and report	4 people x 10 days	$125.00	0	$0.00	40	$5,000.00		$0.00	0	$0.00	$5,000.00

writing days.											
Activity: Determine HIV related causes of high mortality among TB Patients on treatment in the Southern part of the country (Midlands, Matabeleland South, Matabeleland North, Masvingo and Bulawayo)											
Engage a local TA to determine HIV related causes of high mortality among TB	Hiring local consultant for 21 days. Please refer assumptions sheet.	$12,300.00	0	$0.00	0	$0.00	1	$12,300.00	0	$0.00	$12,300.00
Ethical approval fees (National research council)	1% of the total cost of research + US$ 1000 per ethical approval fees	$1,350.00	0	$0.00	0	$0.00	1	$1,350.00	0	$0.00	$1,350.00
Data collection	8 people x 20 days	$75.00	0	$0.00	0	$0.00	160	$12,000.00	0	$0.00	$12,000.00
Data entry, analysis and report writing days.	4 people x 10 days	$125.00		$0.00	0	$0.00	40	$5,000.00	0	$0.00	$5,000.00
To conduct national TB Prevalence survey in 2020	See attachment	$4,150,000.00	0	$0.00	0	$0.00	0	$0.00	1	$4,150,000.00	$4,150,000.00
Activity: Conduct 10 District Operations Research studies per year informed by TB research agenda											
Call for Proposal Advertisement	Advertisement costs	$700.00	0	$0.00	0	$0.00	1	$700.00	1	$700.00	$1,400.00
Ethical approval fees	1% of the total cost of research + US$ 1000 per ethical approval fees	$2,860.00	0	$0.00	0	$0.00	1	$2,860.00	1	$2,860.00	$5,720.00
Data collection at district level	10 people x 10 days x 10 studies	$75.00	0	$0.00	0	$0.00	1000	$75,000.00	1000	$75,000.00	$150,000.00
Conduct analysis and report writing	10 people x 10 days x 10 studies	$110.00	0	$0.00	0	$0.00	1000	$110,000.00	1000	$110,000.00	$220,000.00
Activity: Conduct a study to determine factors contributing to the low utilization of GeneXpert											
Engage a local TA	Consultancy fees x 21 days @ $350 per day	$7,350.00	0	$0.00	0	$0.00	1	$7,350.00		$0.00	$7,350.00
Ethical approval fees	1% of the total cost of research + US$ 1000 per ethical clearance	$1,350.00	0	$0.00	0	$0.00	1	$1,350.00	0	$0.00	$1,350.00
Data collection.	By team of 8 people x 10 days	$110.00	0	$0.00	0	$0.00	80	$8,800.00	0	$0.00	$8,800.00
Data entry, analysis and report writing	4 people x 10 days	$125.00	0	$0.00	0	$0.00	40	$5,000.00	0	$0.00	$5,000.00
Total				**$13,721,130.14**		**$29,583,804.18**		**$40,028,785.27**		**$27,854,250.47**	**$111,187,970.08**